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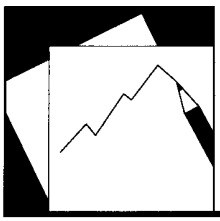

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Territorial vs. Worldwide Corporate Taxation: Implications for Developing Countries

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Territorial vs. Worldwide Corporate Taxation: Implications for Developing Countries

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Abstract

Global investment patterns mean that effective taxation of foreign investors is of increasing importance to the economies of lower income countries. It is thus of considerable concern that the historical framework for cross-border income tax arrangements is not always well suited to allow low-income countries (LICs) effectively to generate tax revenues from profits on foreign direct investment (FDI). Several aspects of this framework contribute to the problem. This paper discusses, in particular, the likely effect of a shift by major economies from the system of worldwide corporate taxation toward a territorial system on the volume, distribution, and financing of FDI, focusing on LICs. It then empirically analyzes bilateral outbound FDI data for the UK for 2002–10 to determine whether the move to territoriality made corporations more sensitive to host-country statutory tax rates. Supporting evidence for this hypothesis is found for FDI financed from *new equity*.

JEL Classification Numbers: H25

Keywords: international corporate income tax, international taxation, worldwide taxation, territorial taxation, foreign direct investment in developing countries

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I. INTRODUCTION

Global investment and cross-border enterprise in low-income countries (LICs) mean that effective taxation of foreign investors is of increasing importance to their economies. This is particularly true in light of the fact that corporate income tax from all sources constitutes on average a more significant part of domestic revenue in low-income countries than in advanced economies—even after the widespread introduction of the VAT across most low-income countries.[1] It is thus of considerable concern that the historical framework for cross-border income tax arrangements, which began to evolve in the early twentieth century to handle income flows between advanced economies, appears increasingly poorly suited to allow low-income countries effectively to generate tax revenues from profits on foreign direct investment. Several factors contribute to this: *(*1) bilateral double taxation treaties can be used to strip taxable income from source (host) countries and move it to low tax jurisdictions; (2) the existing transfer pricing methodology is difficult for low-capacity countries to implement effectively—leading to calls by some academics and CSOs for the abandonment of the "arm's length" method of splitting profits in favor of "formulary apportionment" (or "unitary taxation"); (3) taxation of indirect gains related to assets located in a source country are typically not captured domestically, when the direct transfer occurs elsewhere; and (4)—the subject of this paper, with less clear implications for low-income source countries—the trend to shift from "worldwide" taxation to "territorial" taxation—the latter being a framework in which only the source country has jurisdiction to tax profits deemed to arise there.[2]

Attention has recently focused in industrialized countries, and much ink has been spilled, on the implications of worldwide versus territorial income taxation as the framework for international corporate taxation. All G-7 countries other than the United States have now adopted territorial taxation (or a partial version thereof) for active business income. A pure version of territorial taxation imposes tax on active business income earned by corporations outside their countries of residence only in the source ("host") country, incurring neither contemporaneous tax liability in the home country, nor taxation on dividend repatriation from foreign subsidiaries. Worldwide taxation is a system under which corporations deemed "resident" in a country are taxable by that country on their income from all over the world, normally with offset either by deduction or credit for taxes paid to source countries on the same income, and sometimes, as in the U.S. case, with deferral of tax until repatriation of the

[1] The corporate income tax raises an average of about 17 percent of total tax revenue in low and lower-middle income countries, compared to an average of 10 percent (pre-crisis) in OECD countries (Keen, Perry, and Toro, 2011).

[2] There are of course still other aspects of the international corporate tax system that also give rise to spillovers for LICs, most notably tax rates and bases—the latter including the use of tax incentives and expenditures—and the treatment of passive income either earned abroad by resident taxpayers, or earned domestically by foreign investors. All of these potential spillovers, like the territorial versus worldwide question, have been little formally studied and need further research. The present paper attempts only to begin with one of the fundamental issues.

income in the form of dividends from foreign subsidiaries to the home country resident parent. Both the United Kingdom and Japan have moved to territorial systems, with modifications, within the past few years. Several recent proposals for US corporate tax reform propose or consider this option as well—the Simpson-Bowles Commission recommended it; the Volker Report (by the President's Economic Recovery Advisory Board) considered it favorably; House Ways and Means Committee Chairman Camp's proposed legislation would adopt a territorial system together with a minimum tax on foreign earnings. It is argued, as it was in the cases of the UK and Japan, that the US system of worldwide taxation with foreign tax credit and deferral is unduly complex and burdensome, deters repatriation of income, and encourages foreign incorporation. Note, however, that the US is not alone in taxing worldwide income (Table 1).

Table 1. Distribution of OECD Taxation Systems

Taxation System	Countries
Territorial (26)	Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom
Worldwide (8)	Chile, Greece, Ireland, Israel, Korea, Mexico, Poland, United States

Source: Business Roundtable (April 2011).

Discussions of the potential effects of worldwide versus territorial taxation generally focus on the impact, first, on government revenue in the home country, and, second, on "competitiveness" of the home country in the globalized market—though the latter may have quite different meanings to different people.[3] Discussions of competitiveness to some extent reflect "spillovers"—the impact of one country's policies or policy changes on other countries—as, presumably, if one believes in "increased competitiveness" (i.e., a winner) there is also by definition a loser. But even there, the implications of such spillovers are largely considered among countries that might be viewed as real competitors for markets, for jobs, for shares of world GDP. Little, if anything, has been said about the potential impact on LICs of changes in the framework for global taxation adopted by major industrial countries—notably, upon the flows of foreign direct investment (FDI) to those countries.

[3] See, for example, American Tax Policy Institute (2011).

Increasing FDI is a major goal of economic management for most LICs, with obvious benefits including the creation of more and better employment, inflows of foreign exchange, exposure to knowledge and technology that would otherwise be unavailable to the host economy, and, of course, increased tax revenues. This paper begins an analysis of this issue.

Section II presents a qualitative theoretical consideration of the impact of a change from a worldwide system to a territorial system on the volume, distribution and financing of outbound foreign direct investment (FDI). How do the various features of an international tax system, including cross-crediting, profit-shifting and deferral, influence cross-border investment patterns? What specific adaptations were made by the UK and Japan in their 2009 adoption of territoriality? Section III discusses possible impacts on LIC host countries in particular. Section IV presents a preliminary empirical analysis of the impact of territoriality on FDI flows from the UK using bilateral panel data. Section V concludes and proposes further channels for research, including the need for analysis using firm-level data.

II. The Impact of Shifting from Worldwide to Territorial Taxation on Outbound FDI

In 2009, two of the three remaining G-7 countries that levied a repatriation tax on corporate foreign dividends, Japan and the UK, switched to a policy of dividend exemption (territoriality). The remaining G-7 country with a worldwide system, the United States, has given consideration to "going territorial" during the last two administrations,[4] and enacted a repatriation tax holiday in 2005. The motivations for moving from a worldwide system with deferral and foreign tax credits to territoriality were similar in both the UK and Japan: simplification and encouraging repatriation of large pools of earnings retained offshore. In the UK, conformity with EU laws and corporate tax norms and concern about corporate inversions were also significant considerations. An ancillary concern was the competitiveness of national corporations in bidding for foreign assets against companies headquartered in territorial countries, who faced only host-country level taxation.[5]

A switch from worldwide to territorial taxation could potentially affect the volume of FDI, its allocation across countries, the composition of its financing, and the distribution of tax revenues. The impact of such a switch depends on the level of home country corporate taxes relative to those in host countries as well as opportunities for deferral, cross-crediting and profit-shifting under both the worldwide and subsequent territorial regimes. If the average

[4] See, for example, Report of the President's Advisory Panel on Federal Tax Reform (2005), and Presidential Economic Recovery Advisory Board (2010).

[5] See Desai and Hines (2003).

statutory[6] host country CIT rate, weighted by FDI stock per country, is below that of the home country, a shift to territoriality should reduce the overall tax burden on corporate investment, and both the income and substitution effects of this shift would tend to increase overall FDI outflows. If the weighted average statutory host country rate is above the home country rate, however, a move to territoriality may induce little or no aggregate change in FDI, though it will likely alter its distribution among host countries.

Under their worldwide regimes, both the UK and Japan had relatively high combined (central plus subnational) CIT rates of 30 percent and roughly 40 percent, respectively. This compares with a 2008 unweighted OECD CIT average of about 26 percent,[7] so their shift to territoriality could thus be expected to increase their outbound FDI.[8] However, in part to mitigate the increased incentive for outbound (as opposed to domestic) investment arising from the move to territoriality, both countries also cut their CIT rates: The UK reduced its CIT rate stepwise from 30 percent in 2007 to 24 percent in 2012, while Japan reduced its CIT rate to 38 percent in 2012 and plans a cut to 35.6 percent by 2015.[9] In 2010, the unweighted average CIT rate of UK FDI recipients was 26.2 percent for OECD countries and 23.7 percent for non-OECD countries, so the UK CIT rate fell from above-average to about average relative to its host countries. The income effect of the CIT reduction at these rates would stimulate aggregate corporate investment both at home and abroad, while the substitution effect of the shift would tend to increase domestic versus foreign investment, offsetting at least in part the effect of moving to territoriality. The Japanese tax cut, on the other hand, is slight enough that it's domestic CIT rate remains well above its 2010 host country average of 29.6 percent for OECD countries and 25.5 percent for non-OECD countries. Both the CIT rate cut and the move to territoriality should therefore provide a net stimulus to Japanese outbound FDI.

Worldwide tax systems—particularly those with more liberal cross-crediting regimes—suppress effective tax rate differentials among home and host countries. Under a hypothetical worldwide tax regime with no deferral or cross-crediting, the final tax rate on corporate investment will equal the home country rate as long as the host country tax rate, including the dividend withholding tax, is less than or equal to the home country rate; only if the host country rate exceeds the home country rate can the final rate differ. With cross-crediting, however, even this latter differential will diminish, since cross-crediting allows any excess credits from high-tax countries to be applied to earnings from low-tax countries. And as long as the weighted average tax rate on FDI does not exceed the home country rate, the

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[6] As a proxy for average effective tax rates (AETRs). The latter would be the preferred measure, but is not generally available.

[7] See www.oecd.org. Non-OECD CIT rates vary widely, although on average they tend to be lower.

[8] In 2010, the UK and Japan each accounted for more than 6 percent of world outbound FDI flows and for more than 4 percent of FDI to the non-OECD.

[9] The UK rate was reduced to 28 percent in 2008 and 26 percent in 2011.

final rate on total foreign earnings will equal the home country rate.[10] Allowing corporations to carry forward (or back) any excess credits to the next tax year, as many countries do, further homogenizes the final tax rate. Conversely, restrictions on cross-crediting, such as limiting it to particular types of income or income from a particular country or set of entities, can permit final tax rates to diverge depending upon the host country.

Repeal of the repatriation tax and elimination of foreign tax credits on exempt foreign income would thus cause the final tax rate on foreign dividends to diverge. Territoriality is therefore likely to render corporations more sensitive to host country taxes and to divert investment from high-tax to low-tax jurisdictions. As a consequence, host countries are likely to feel increased pressure to lower their CIT and withholding tax rates in order to attract foreign capital. Worldwide regimes effectively enable host countries to set higher CIT rates than territorial regimes: not only can they set their rates as high as the home country rate without raising the investor's final tax rate (ignoring the effects of deferral), but they can even set their rates higher than the home country rate to the extent that the higher foreign tax credits that those rates generate can be used to lower taxes on other foreign income.[11] Without this shelter provided by a worldwide system with fungible foreign tax credits, high-tax countries risk losing foreign investment if they do not cut their rates when major investor countries go territorial. This factor may add to the already notable degree of tax competition among developing countries, particularly regionally. Among jurisdictions that changed CIT rates between 2008 and 2010, more did cut than increase their rates—in line with a continuing world trend. However, countries that received at least 10 percent of their total inbound FDI in 2008 from the UK (Netherlands, Spain, and US) or Japan (Netherlands and US) ―all developed countries―did not lower their CIT rates during this period.

The impact of this change is in any event likely to be less dramatic in practice than in theory due to the widespread use of deferral under worldwide systems. Like the current US system, the worldwide systems implemented in the UK and Japan did not tax foreign dividends until they were repatriated—i.e., returned to the parent corporation for domestic investment or distribution. This allowed corporations to defer home country taxation indefinitely by keeping earnings "offshore" and reinvesting them either directly in active projects or passively in securities.[12] Passive investments could even be made in domestic securities held at home country banks, and although corporate parents could not use these funds directly, they could borrow against them or even, in some countries such as the UK, borrow them back from their foreign subsidiaries. In this sense, many observers have noted that home country economies were not in general deprived of the use of offshore earnings.[13] Additionally, corporate accounting standards allow non-recognition of the deferred

[10] Using excess foreign tax credits to offset tax on domestic income is usually prohibited.

[11] Kleinbard (2011) notes the incentive that worldwide systems create for investment in high-tax countries.

[12] Senate Committee on Special Investigations (2011).

[13] Dharmapala, Foley, and Forbes (2011).

repatriation tax liability for earnings which the corporate parent has elected to retain offshore indefinitely. This election boosts financial statement earnings, adding a financial incentive to the fiscal incentive for deferral.[14]

So long as earnings are not technically repatriated, they face only host country taxation, so a worldwide system with deferral can fairly mimic a territorial regime. Taking advantage of this feature, corporations from all three countries have retained large pools of earnings offshore: For example, US corporate offshore profits exceeded $1.2 trillion in 2012.[15] The widespread exploitation of deferral under worldwide tax regimes would mute the income and distributional effects of a shift to territoriality.

The wider differentials among domestic and foreign tax rates that accompany a move to territoriality increase the incentives for cross-border profit shifting via methods like transfer pricing (TP) and thin capitalization (TC).[16] Certainly, corporations have an incentive to use these techniques under worldwide systems with deferral as well, but this incentive is augmented under territoriality. Markle (2010) finds evidence that corporations subject to territorial tax systems shift more income than those subject to worldwide systems, but that the difference disappears when deferral is introduced. A particular area of concern, especially where the home country has an above-average tax rate, is domestic deduction of expenses (such as interest) incurred to finance foreign operations. Many territorial countries, such as Germany, offset this by levying a small residual tax on dividend repatriations of about 5 percent. An alternative method would be to require allocation of domestic expenses between domestic and foreign investment, as has been proposed in the US,[17] although this greatly increases complexity. Notably, the UK accompanied its move to territoriality by enacting a "worldwide debt cap" in 2009 that limits domestic interest deductions to the corporate group's worldwide net borrowing from third parties.

While cross-crediting, profit-shifting and deferral soften the bite of worldwide taxation, controlled foreign corporation (CFC) rules give it more teeth.[18] Most countries allow deferral only for "active" foreign earnings, while "passive" earnings (for example, from securities investment by non-financial corporations) are subject to current taxation. The distinction between active and passive earnings can be set more or less generously to limit the benefits

[14] Graham, Hanlon, and Shevlin (2010).

[15] Bloomberg (2012).

[16] Transfer pricing is the overpricing of intra-corporation purchases, including service fees, by affiliates in high-tax countries. Thin capitalization is the financing of operations in high-tax countries with excessive intra-corporate debt. Both practices shift profits from high-tax to low-tax jurisdictions, lowering the overall tax burden. Like cross-crediting, TP and TC narrow effective tax rate differentials across jurisdictions; however, while most countries prohibit the use of foreign tax credits to offset domestic income, TP and TC can transfer profits between home and host countries as well.

[17] Office of Management and Budget (2009).

[18] In the US, these are referred to as "Subpart F" rules.

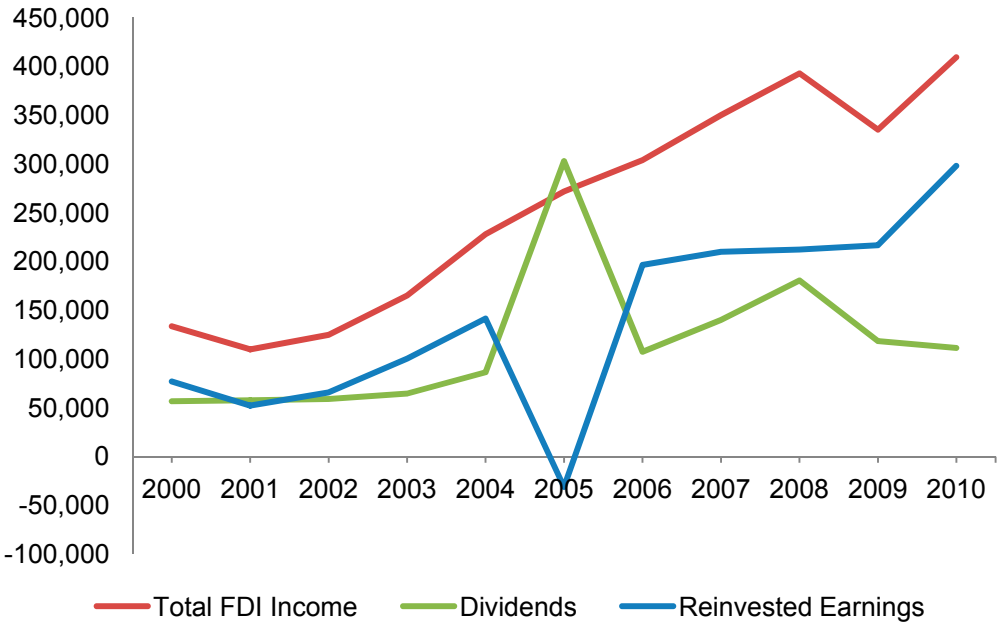
of deferral; for example, a parent must usually have a minimum ownership share in a foreign subsidiary—often 10 percent—in order for its dividend income to qualify as active. Pooling of foreign tax credits is usually also restricted at least between active and passive income pools. Further, foreign tax creditability is usually different for the two pools: For active income, credit is usually given for both the CIT and any withholding tax, whereas for passive income credit is often given only for withholding taxes.

Countries with a territorial regime for foreign dividends paid out of active earnings usually still maintain a worldwide regime for other forms of income. Moving from worldwide to territorial taxation thus does not eliminate the need for CFC and other anti-abuse rules—on the contrary, it increases their importance, since the tax gap between active and passive foreign income widens. For example, Maffini (2012) finds evidence that corporations with affiliates in low-tax host countries have lower tax burdens if headquartered in a territorial country than those headquartered in worldwide countries. Japan accompanied its move to territoriality with a tightening of its cross-border minimum tax, which subjects earnings from countries with low effective corporate tax rates to the CFC regime. In the US, the Ryan proposal for moving to a territorial system also includes a minimum tax on cross-border earnings. A foreign tax credit system for non-exempt foreign income must also be maintained under a territorial system, limiting the benefits of simplification. Generally speaking, the tighter a high-tax country's CFC rules—that is, the narrower the scope of earnings exemption under a territorial regime—the less sensitive its investment will be to host country tax rates.

Moving from a worldwide to a territorial system can alter not only the volume of FDI and its allocation among host countries, but the composition of its financing and the level of earnings distributions as well. While some evidence suggests that repatriation taxes do not have a major impact on the corporate tax burden due to corporations' extensive use of deferral and cross-crediting, views have changed in recent years. On the one hand, effective repatriation tax rates are usually observed to be quite low—US Government Accountability Office (2008) reports that in 2004 the average effective tax rate on US repatriated dividends was only 4 percent—suggesting that they are not highly distortive. Maffini (2012) finds that, while multinational corporations headquartered in worldwide countries have higher effective tax rates than those in territorial jurisdictions, this is entirely due to higher home country tax rates and not to repatriation taxes on foreign earnings. Altshuler and Grubert (2001), examining the difference between corporations in excess credit and those in excess limit positions, find little evidence that a switch from a worldwide to a territorial tax system would alter corporate investment patterns.

However, corporations' dramatic response to the 2005 US repatriation tax holiday, which resulted in a roughly $300 billion increase in repatriated earnings (Figure 1), surprised many observers and called attention to the distortions inherent in the deferred offshore earnings that have arisen over the past decade as the wedge between the US and foreign CIT rates has

Figure 1. US FDI Income 2000-10
(in USD millions)



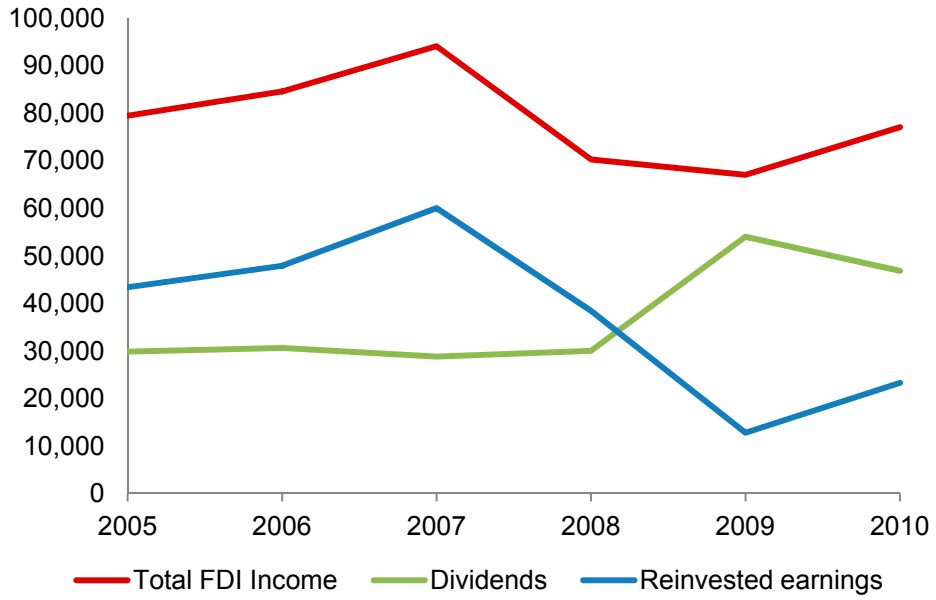
Source: US Bureau of Economic Analysis.

widened.[19] Kleinbard (2011) points out that, while the effective tax rate on actual repatriations may be small due to expert corporate manipulation of FTCs, the implicit repatriation tax rate on the bulk of offshore retained earnings may be much higher. An earlier paper by Desai, Foley, and Hines (2001) finds that repatriation taxes discourage dividend distributions. And Dharmapala, Foley, and Forbes (2011) discover that the bulk of the earnings repatriated in the 2005 holiday, despite legal restrictions designating them for investment and new hiring, were effectively paid out as dividends, indicating that repatriation taxes can clearly distort corporate financing.

By eliminating the disincentive for dividend repatriation under a worldwide regime with deferral, territoriality will likely cause a shift from financing foreign investment out of retained earnings towards use of new equity or debt. The drop in retained earnings is clearly visible not only during the US repatriation tax holiday of 2005 but following the UK and Japan's adoption of exemption in 2009 as well (Figures 2–3). Of course, the initial surge of dividend repatriations, which cleared the backlog of earnings retained offshore under deferral, was likely to be greater than the new steady-state repatriation rate; nonetheless, the

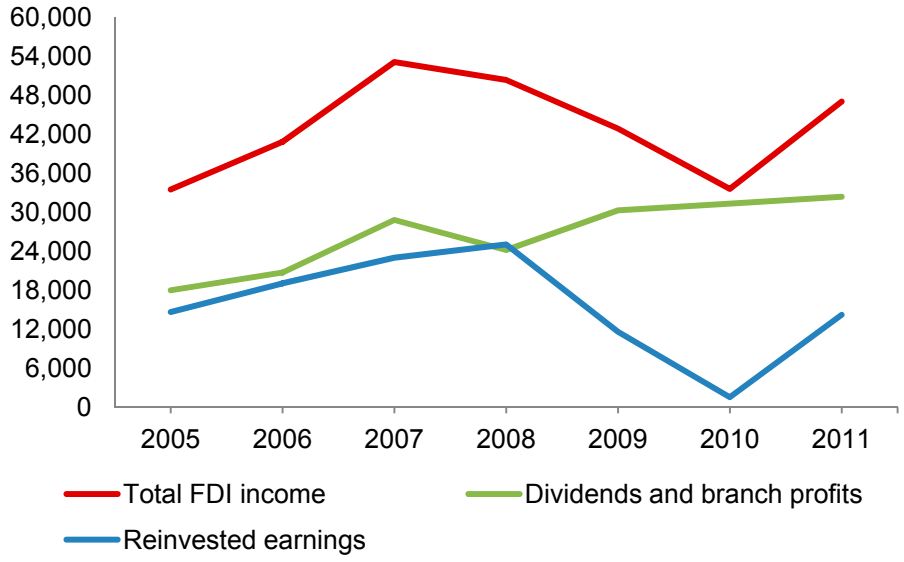
[19] In addition to a general downward trend in CIT rates among both OECD and developing countries since the late 1980s, the widening differential between US and offshore earnings has been fuelled by refined earnings stripping techniques, facilitated by the "check-the-box" regime introduced in 1997.

Figure 2. UK FDI Income 2005-10
(in GBP millions)



Source: UK National Statistics Office.

Figure 3. Japan FDI Income 2005-11
(in JPY 100 millions)



Source: Bank of Japan.

shift to territoriality should increase the equilibrium rate of earnings repatriation. Given the divergence in foreign tax rates, new equity investment is more likely to flow to host countries with low tax rates, while high-tax host countries are more likely to attract investment financed out of debt.

III. IMPACT OF A SHIFT TO A TERRITORIAL SYSTEM ON THE ECONOMIES OF LICS

Increasing FDI is a major goal of economic management for most LICs. Obvious benefits include the creation—or hope of creation—of more and better employment, inflows of foreign exchange, exposure to knowledge and technology that would otherwise be unavailable to the host economy, and increased tax revenues. A primary question is thus the potential impact on FDI flows caused by a shift from a worldwide tax regime to a territorial system on the part of a potential investing country. Unlike the case of more economically equal partner countries, there is generally little significant *outbound* FDI from LICs; thus, the issue for LIC spillovers can as a first approximation be analyzed in one direction.

As discussed above, the impact on FDI into host LIC countries should depend upon the differential in effective tax rates among the home and host countries with respect to earnings in the host (source) country. Where the host country has a low(er) average effective tax rate than the investing country—either because of a low statutory rate, or because of extensive tax exemptions and incentives that apply to the relevant income, as is frequently a factor in such cases—a shift to territorial taxation on the part of the investing country should stimulate FDI to the low-tax host. Where the host country has a higher effective tax rate, the elimination of foreign tax credits with regard to the income earned from the FDI would tend to have the opposite impact: some of that investment could shift to lower-tax jurisdictions to the extent that it remains offshore.

Loss of retained earnings: Repeal of home country tax on dividends raises the concern whether developing countries in particular will lose capital from reinvested offshore earnings. More research is needed on how "offshore" retained earnings are deployed before that question can be satisfactorily answered; however it seems unlikely that developing countries will lose significant capital simply as a result of repatriation tax repeal. After making the direct investments that are profitable on a risk-adjusted basis, corporations are likely to retain offshore cash in safe-yielding securities denominated in currencies that match their overall liquidity needs—rather than in the country where they were generated. For example, the Senate Committee on Investigations (2011) reported that US MNEs invest almost half of their "offshore" retained earnings in US dollar securities with domestic banks. It thus seems unlikely that corporations retain offshore earnings in LICs under a worldwide system except to finance direct investments. LICs therefore may have little to lose from the general drop in offshore retained earnings due to dividend exemption; the more serious consequence of that policy trend is the redistribution of FDI from high-tax to low-tax host countries.

As has been amply documented,[20] the location of taxable profits need not mirror the location of actual economic activity. A shift to territoriality and the accompanying increase in rate differentials would increase the incentive to shift taxable income to lower-tax jurisdictions—

[20] See, for example, Grubert (2012) and Kleinbard (2011).

thus, presumably, increasing their tax bases and their revenues as long as their rates exceeded zero. This effect could be limited by expense allocation rules and/or tighter thin capitalization rules, but the tendency would be for earnings stripping practices already well-known in highly profitable industry sectors to expand down the profitability scale. Though this tax base effect would not be limited to LICs, it would likely benefit lower-tax LIC host countries while eroding the tax base in high-tax LICs.

The introduction of true territorial taxation would reduce the "leveling" effect created by worldwide taxation with foreign tax credits—the pure form of which would result in the taxation of all earnings at the home country rate. The level of the host country effective tax rate would theoretically therefore become more important in determining the location of foreign investment. This effect could lead to even greater tax competition among LICs to attract FDI from territorial regime countries. Such tax competition can already be quite harmful to the cause of mobilizing domestic revenue for development in LICs, which as noted tend to be far more dependent upon the corporate income tax as a source of tax revenue than their industrial country counterparts.

IV. ANALYSIS OF THE UK SHIFT TO TERRITORIALITY

This section analyzes bilateral data on UK outbound FDI for the years 2002-2010 to determine the impact of the UK's 2009 move to territoriality on the distribution of FDI across host countries.[21] It tests the hypothesis that foreign dividend exemption makes FDI more sensitive to host country taxation. To test this hypothesis, we regress bilateral country-year net FDI flows, broken down by type of finance (new equity and retained earnings), on host country statutory tax rates[22] and their interaction with a dummy variable that takes on the value of 1 for years after 2008. Increased sensitivity to host country tax rates would be indicated by a negative coefficient on the interactive term, as parents reduce investment in high-tax countries and increase it in low tax countries in response to dividend exemption and the loss of foreign tax credits.

The analysis also considers the effect of the relevant withholding taxes; all models consider separately the effect of the CIT rate.[23] In the new equity regressions, the dividend

[21] The FDI data are published by the UK National Statistics Office: www.ons.gov.uk/ons/rel/fdi/foreign-direct-investment.

[22] See footnote 5; while average effective tax rates would be preferred, the statutory rate is used as a proxy as sufficient information is unavailable. Future work would benefit from use of AETRs.

[23] Ideally, withholding taxes for dividends, interest and royalty payments would be controlled for in all regressions, since corporations make choices on how to finance FDI and repatriate earnings based on the full set of relevant tax prices (Grubert, 1998). However, the aggregate level of the data, small number of observations

(continued…)

withholding tax (DWT) is compounded with the CIT rate to calculate the total tax on repatriated earnings: CIT + (1- CIT)*DWT. For the retained earnings model, the dividend withholding tax was included separately from the CIT, since it may have an opposite effect on reinvestment. As for new equity, higher CIT rates are likely to discourage retention of earnings in the host country. However, higher DWT rates may encourage earnings retention in lieu of repatriation, so this coefficient is likely to have the opposite sign from the CIT.

A random effects model is used, since a Breusch-Pagan test indicates that country-level intercepts differ significantly and a Hausman test does not reject the hypothesis that the country-level random effects are uncorrelated with the residual error terms. A fixed effects model is also run (Appendix Tables 2–3) to test the robustness of the results as the data being used strongly makes the case for country fixed effects. As in previous studies of the effect of host country taxes on bilateral FDI flows,[24] a vector of other controls including GDP, GDP per capita, an index of public institutional quality,[25] a tax haven dummy,[26] and regional and year dummies are also included. Inflation and average GDP growth were initially controlled for, but dropped as they were consistently insignificant. Descriptive statistics of the regression variables are shown in Table 2.

In the new equity regressions (Table 3), the coefficient on the interaction between the corporate tax rate and the territoriality dummy is, as predicted, negative. The CIT rate has an insignificant effect on new equity investment whether the interacted term is included or not (columns 1–4); however, from 2009 on, the host country CIT rate has a negative effect on equity-financed FDI, indicating that corporate parents are indeed more sensitive to host country tax rates under dividend exemption than under worldwide taxation. This result is robust to the inclusion of year dummies (column 4), indicating that it is not driven by changes in the investment environment due to the financial crisis; in fact, when year dummies are included the coefficient on the interacted term becomes more negative. In the full model with year dummies, a one percentage point increase in the host country CIT rate under territoriality results in a $206 million decrease in UK FDI. The results are also robust to the compounding of the tax term with dividend withholding tax (DWT) rates (columns 5–8). These results are highly similar to the CIT-only results in the first four columns, which is unsurprising given the high correlation between CIT and DWTs. In the full model including year dummies (column 8), a one point increase in the compound tax rate results in a US$ 168 million decrease in FDI, a 28 percent decrease relative to the mean FDI value of US$ 591

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and the high correlation among country-level withholding tax rates dictated parsimony, so only the most relevant withholding tax to the finance method in question was included.

[24] For a summary and meta-analysis of this literature, see de Mooij and Ederveen (2008).

[25] This is the sum of the World Bank Rule of Law and Political Stability indices.

[26] The list of tax havens was taken from Dharmapala and Hines (2009), but Ireland was reclassified as a non-tax haven. Tax havens included in the dataset are Cypress, Hong Kong, Luxembourg, Malta, Panama, Singapore, and Switzerland.

Table 2. Regression Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Equity	245	592	4,106	-23,295	34,203
Retained earnings	405	1,097	2,878	-16,281	24,575
Debt	351	-124	4,358	-22,434	34,203
CIT	464	26.64	8.38	0.00	42.00
CITDWT	468	34.80	9.95	0.00	56.00
DWT	450	11.93	6.23	0.00	34.00
IWT	454	7.67	11.92	0.00	34.00
GDP	468	819	1,951	4	14,527
GDPPC	468	23,712	21,743	356	118,908
PUBINST	468	1.23	1.72	-3.28	3.61
HAVEN	468	0.14	0.34	0.00	1.00

Equity: UK outbound FDI financed by new equity (USD mns.), 2002–10

Retained earnings: UK outbound FDI financed by retained earnings (USD mns.), 2002–10

Debt: UK outbound FDI financed by debt (USD mns.), 2002–10.

CIT: host country CIT rate (percent)

DWT: Dividend withholding tax (percent)

CITDWT: CIT rate + DWT rate*(1-CIT) (percent)

IWT: Interest withholding tax (percent)

GDP: GDP (US$ billions)

GDPPC: GDP per capita (US$)

PUBINST: Sum of World Bank political stability and rule of law indices

HAVEN: Tax haven dummy (Dharmapala and Hines, 2009, less Ireland)

TER: Territorial dummy = 1 for years after 2008

Table 3. FDI Financed with New Equity

Variable	1	2	3	4	5	6	7	8
CIT	-1.50	-11.24	2.31	17.14				
	-0.07	*-0.55*	*0.10*	*0.79*				
CIT*TER			**-82.45**	**-206.54**				
			-2.55	*-2.31*				
CITDWT					1.98	-0.40	7.24	20.11
					0.11	*-0.02*	*0.37*	*1.01*
CITDWT*TER						-	**-59.74**	**-167.88**
						-	*-2.47*	*-2.02*
GDP	**0.71**	**0.72**	**0.74**	**0.75**	**0.70**	**0.71**	**0.72**	**0.72**
	4.17	*4.50*	*4.57*	*4.56*	*4.13*	*4.31*	*4.42*	*4.34*
GDPPC	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.02
	0.51	*0.69*	*0.55*	*0.95*	*0.51*	*0.67*	*0.52*	*0.90*
PUBINST	-70	-132	-92	-209	-65	-114	-78	-187
	-0.32	*-0.54*	-0.38	*-0.83*	*-0.3*	*-0.47*	*-0.32*	*-0.75*
HAVEN	**1,330**	1,210	**1,350**	**1,448**	**1,349**	1,240	**1,320**	**1,344**
	2.14	*1.82*	*2.06*	*2.19*	*2.09*	*1.83*	*1.99*	*2.05*
Constant	-283	574	15	-192	-393	269	-159	-371
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	No	Yes	No	Yes
Adj. r-squared	0.16	0.20	0.20	0.22	0.16	0.19	0.20	0.21
Number of obs.	244	244	244	244	245	245	245	245

Bold coefficients significant at 5% level
T-statistics in italics

million. These results are also robust when a fixed effects model is used: the coefficients of the interacted terms between CIT and territoriality dummy and between compounding of CIT with DWT and territoriality dummy have the same signs but slightly larger magnitudes than in the random effects model.

The tax haven variable is significantly positive in all models except for those in columns 2 and 6, which include year dummies and no interacted tax term.[27]

Results for FDI financed out of retained earnings are mixed (Table 4). The coefficient on the CIT rate is perversely sometimes positive, although this result is not robust to inclusion of year dummies. The coefficient on its interaction with the territoriality dummy is significantly negative in only one regression model (column 3), and is also not robust to the inclusion of year dummies. The coefficient on the dividend withholding tax is significantly positive, as

[27] Tax havens—as defined above--draw an average of US$1.3-1.4 billion in UK FDI, controlling for the other regression factors including their corporate tax rate. This indicates that tax havens as defined by Dharmapala and Hines (2009) attract FDI by other means than their CIT rates, such as well developed financial service sectors. Indeed, the average CIT rate for tax havens, which ranges between 9 percent for Switzerland to 35 percent for Malta, is 22.7 percent, not far below the average rate for non-havens of 26.6 percent.

Table 4. FDI Financed with Retained Earnings

Variable	1	2	3	4	5	6	7	8
CIT	**59.07**	44.73	**52.32**	42.33	**56.11**	41.77	44.98	38.45
	2.23	*1.61*	*1.99*	*1.26*	*2.21*	*1.56*	*1.85*	*1.16*
CIT*TER			**-37.30**	12.29			-12.41	20.53
			-3.12	*0.19*			*-0.49*	*0.29*
DWT					33.87	35.56	**56.50**	**48.75**
					1.51	*1.58*	*2.39*	*2.05*
DWT*TER							-59.42	-43.89
							-0.92	*-0.94*
GDP	**0.39**	**0.44**	**0.45**	**0.44**	**0.39**	**0.45**	**0.44**	**0.44**
	2.05	*2.44*	*2.48*	*2.33*	*2.11*	*2.49*	*2.42*	*2.32*
GDPPC	0.05	0.06	0.05	0.06	0.05	0.06	0.05	0.06
	1.67	*1.84*	*1.81*	*1.84*	*1.70*	*1.90*	*1.84*	*1.89*
HAVEN	**1,738**	**1,703**	**1,735**	**1,684**	**1,998**	**1,989**	**2,044**	**1,982**
	2.65	*2.69*	*2.76*	*2.63*	*3.21*	*3.38*	*3.43*	*3.25*
PUBINST	-81.8	-148.4	-136.1	-147.2	-66.7	-144.7	-133.4	-147.4
	-0.33	*-0.57*	*-0.54*	*-0.57*	*-0.27*	*-0.54*	*-0.51*	*-0.55*
Constant	-2168.61	-1543.12	-1874.31	-1479.44	-2542.92	-1879.90	-2351.61	-1922.04
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	No	Yes	No	Yes
Adj. r-squared	0.26	0.30	0.29	0.30	0.27	0.31	0.30	0.31
Number of obs.	401	401	401	401	392	392	392	392

Bold coefficients significant at 5% level

T-statistics in italics

hypothesized, only in the models that include its interaction with the territoriality dummy (columns 7 and 8), and the interacted term is not significant. As in the case of FDI financed by new equity, tax havens receive a much higher level of reinvested earnings than other countries: an average of about US$ 1.7 billion per year. Presumably these results reflect the extensive use of tax planning techniques, and are indicative of the difficulty in following investment and repatriation flows in practice. When a fixed effects model is used, the coefficients have the same signs as in the random effects model, except in the last regression (column 8), where the sign of the interaction between DWT and territoriality dummy is flipped. These coefficients are much larger in magnitude in the fixed effects than in the random effects model.

V. Conclusions and Areas for Future Research

This paper posits that if a relatively high-CIT rate, capital exporting, country shifts from a worldwide to a territorial tax system, its corporations will become more sensitive to host country tax rates, reducing their investment in high-tax countries in favor of lower-tax countries. We make an initial attempt here to test this hypothesis by examining bilateral outbound FDI flows from the UK for 2002–10. We find some evidence to support the hypothesis: in random effects regressions of equity-financed FDI, the coefficient on the interaction of the host country tax rate with a dummy variable that takes on the value of one for years following the switch to territoriality is significant, both for the CIT rate and for the composite of the CIT and dividend withholding tax rates. In regressions of FDI financed out of retained earnings, however, the coefficient on the interacted CIT rate is significantly negative in only one model and not robust to the inclusion of year effects. These regressions also show some support for the hypothesis that, controlling separately for the CIT rate, the dividend withholding tax rate has a positive effect on retained earnings; however, this effect is not always significant and is not increased with the shift to territoriality.

The analysis presented in this draft is preliminary and could be refined in several ways, including: (1) construction of a formal model of corporate FDI to generate more precise testable hypotheses; (2) extension of the empirical analysis to include the effects of territoriality adoption on the volume and financial composition of FDI; (3) investigation of the effects of territoriality adoption under a formulary apportionment system such as that proposed in the EU;[28] and (4) analysis of Japanese as well as UK data. Another very important avenue for further exploration is analysis of corporate-level rather than aggregate bilateral FDI data, which would permit, for example, controlling for the initial tax status of the corporation. Presumably, corporations that begin in excess credit status under the worldwide system would be less affected by the shift to territoriality than those beginning in excess limit, a consideration which may obscure the results from the aggregate-level data.

It is clear that LICs should keep a close eye on international tax changes proposed and adopted by the largest economies—both those imposed by formal law, and through "guideline" approaches taken in international fora.

[28] See Devereux and Loretz (2011).

Appendix Table 1. List of Host Economies by Development Level

Developing and Emerging Market	Bermuda, Brazil, Bulgaria, Chile, China, Colombia, Cyprus, Czech Republic, Estonia, Hong Kong, Hungary, India, Indonesia, Kenya, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Nigeria, Panama, Poland, Romania, Russian Federation, Singapore, Slovakia, Slovenia, South Africa, South Korea, Thailand, Zimbabwe
Advanced	Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United States

Note: The economies are classified according to the WEO Statistical Appendix (October 2012), excluding Bermuda.

Appendix Table 2. FDI Financed with New Equity (Fixed Effect)

Variable	1	2	3	4	5	6	7	8
CIT	136.85	68.82	61.78	74.30				
	1.27	0.65	0.63	0.72				
CIT*TER			**-78.38**	**-208.31**				
			-2.76	-2.50				
CITDWT					62.42	37.74	37.74	49.08
					0.98	0.60	0.73	0.80
CITDWT*TER							**-58.45**	**-175.16**
							-2.76	-2.21
GDP	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00
	-1.11	-0.30	0.09	0.91	-1.36	-0.21	0.00	0.67
GDPPC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-0.13	-0.03	0.04	0.12	-0.31	-0.02	-0.05	0.03
PUBINST	4.07	3.95	1.76	3.61	2.91	3.75	1.40	3.11
	0.90	0.95	0.36	0.85	0.81	0.93	0.33	0.77
HAVEN								
Constant	-2772.75	-1514.13	-981.68	-2114.17	-897.88	-928.30	-454.15	-1526.79
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	No	Yes	No	Yes
Adj. r-squared	0.06	0.01	0.07	0.14	0.12	0.01	0.05	0.13
Number of obs	244	244	244	244	245	245	245	245

Appendix Table 3. FDI Financed with Retained Earnings (Fixed Effect)

Variable	1	2	3	4	5	6	7	8
CIT	153.82	83.33	**121.56**	81.92	**150.83**	69.85	**112.06**	69.47
	2.59	1.91	2.55	1.63	2.52	1.50	2.30	1.32
CIT*TER			**-43.47**	10.05		**-204.00**	-16.07	17.56
			-2.73	0.15		-2.07	-0.58	0.24
CITDWT					-114.80		-164.54	**-196.34**
					-0.91		-1.54	-2.18
CITDWT*TER							-67.99	-43.65
							-0.98	-0.89
GDP	0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01
	0.55	1.79	1.11	1.61	0.51	1.85	0.97	1.61
GDPPC	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**	0.00	**0.00**
	1.65	2.23	1.88	2.23	1.64	2.31	1.88	2.30
PUBINST								
HAVEN	3.34	5.46	3.21	5.59	3.06	4.50	2.40	4.61
	1.43	1.55	1.43	1.44	1.18	1.25	0.98	1.13
Constant	-6021.57	-5423.49	-5562.53	-5385.82	-4624.86	-2735.96	-3322.04	-2784.31
Region dummies	Yes	Yes	Yes	Yes	yes	Yes	Yes	Yes
Year dummies	No	Yes	No	Yes	no	yes	no	yes
Adj. r-squared	0.19	0.22	0.23	0.22	0.17	0.19	0.19	0.19
Number of obs.	401	401	401	401	392	392	392	392

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