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LOWERING THE MARGINAL CORPORATE TAX RATE: WHY THE DEBATE?

"Lowering the Marginal Corporate Tax Rate: Why The Debate?"

Running Head: The Negative Impact of Interstate Tax Competition

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Abstract:

In an effort to attract new investors and retain existing producers, governments use corporate tax rates as a policy tool for industrial recruitment, resulting in interstate tax competition. FDI and GDP growth are the two policy outcomes gauged in interstate tax competition. The assumption is that lower corporate taxes lead to increase in FDI, which results in capital formation that creates GDP growth. This 60-nation panel study tests that assumption through examining economic indicators continent on taxation, such as FDI and MNC mergers and acquisitions between 1999 and 2009. The results suggest that reduced corporate tax rates can increase FDI but decrease annual GDP growth. The main policy implication is that tax competition may attract investment, but may not promote overall economic growth, offering support for value-extraction theories.

Key Words: Corporate Tax, FDI, GDP, MNC

Introduction:

Much has been written on the impact of corporate taxes on economic development and on the general trend of lowering corporate tax rates to attract investors (Clausing, 2007; Devereaux, Lockwood and Redoano, 2008; Slemrod, 2004a,b). Recently, the long and on-going debate on corporate tax rates was awakened in the media when Japanese prime minister Shinzo Abe announced that Japan is set to reduce its marginal corporate tax rate in order to attract investment and stimulate its economy – a policy change much discussed and previously resisted in the decades-long Japanese economic slump.[i] The policy change was supported by empirical estimations from the International Monetary Fund (IMF) with expected benefits of 0.4 % increase in investment for each point of tax rate decrease (De Mooij and Saito, 2014). CEOs of American corporations, long vying for a decrease in the American corporate tax rate, responded to the news with a renewed call for reciprocal action.[ii] However, a year later CNN reported that since the conservative Abe stimulus plan, the Japanese economy keeps on contracting.[iii] Two years later the expected recovery has still not materialized, according to Bloomberg Financial[iv], ushering a new set of stimulus policies, which USA Today calls unprecedented.[v] This research offers an explanation as to why that may be not only in the case of Japan, but for other developed nations evaluating national economic stimuli options based on increasing their attractiveness for foreign capital via lowering corporate taxes.

This study offers an empirical examination of the effect of marginal corporate tax rates (MCTRs) on the two economic outcomes most often discussed as direct results of their value – foreign direct investment (FDI) inflows and GDP annual growth. The

results suggest that lower corporate taxes are not the essential factor that stimulates economic growth. The academic literature on the subject concludes that policies of tax harmonization under increasing trade liberalization lead to a gradual decrease in MCTR to an optimal level of around 30% (Auerbach, Hines and Slemrod, 2007). Both the United States and Japan have MCTRs higher than the proposed optimal level, as do most other industrialized nations. This study examines policy realities that create a general resistance to lower the MCTR. For that reason, the debate on using MCTR as a competitive tool in industrial recruitment (Bartelsman and Beetsma, 2003; Kudrle and Eden, 2003) is connected to its use for stimulating domestic research and development (R&D) intensive economic activity, as examined by Bloom, Griffith, and Van Reenen (2002). The link is that economic growth is dependent on attracting foreign capital as well as retaining and stimulating domestic capital formation. The data offered here examines a panel of 60 nations in a longitudinal analysis from 1999 to 2009. The results suggest that a general lowering of MCTR does increase FDI, however GDP annual growth is stimulated by a relatively higher MCTR.

Premise:

The literature on corporate taxation is one of the most voluminous and diverse. Within it, several sub fields have developed focused on federal tax policy as a competitive tool. Policy prescriptions are made that caution against relatively high corporate tax rates because they can lead to loss of national competitiveness in industrial recruitment and retention. However, all of the literature examined for this study bases such conclusions on old, in terms of time frame, data. Recently, much has been said

about the rapidly changing economic reality of the global market with respect to shifting power balances, changing leading national players, and the new drivers of global growth (AUTHOR, 2014a,b; Kaplan, 2010; Zakaria, 2011). This fact raises questions about the applicability of policy prescriptions based on old datasets in the current turbulent economic climate. In new realities, old policy prescriptions may not work, as the case of Japan suggests. This paper contributes to the overall literature on taxation of multinational corporations by incorporating metrics that are most current and reflective of changing international trade dynamics. Examined are the theoretical and policy conclusions of three specific fields in interstate tax competition research. They are:

1) the economic and international political economy (IPE) literature on tax inversion that focuses on MNCs' use of merger and acquisitions (MandAs) in search of tax havens (Bucovetsky and Haufler, 2008; Cloyd, Mills and Weaver, 2003; Desai and Dharmapala, 2009; Eden and Kudrle, 2005; Kudrle and Eden, 2003; Seida and Wempe, 2004)

2) the international economics, taxation, and finance literatures on tax credits for deductions on foreign corporate income (Auerbach, Hines and Slemrod; 2007; Bloom, Griffith and Van Reenen, 2002; Desai, Foley and Hines, 2006; Desai and Hines, 2004; Hines, 2008; Slemrod, 2004a)

3) the economic geography literature on agglomeration economies and policy diffusion in regional industrial clusters with respect to tax harmonization, *i.e*. the trend to employ similar MCTRs in nations that trade extensively with each other (Fuest and Huber, 2004; Klassen, Lang and Wolfson, 1993; Markusen, 1996; Peri, 2002; Slemrod, 2004b)

Within the economic geography literature, Baldwin and Krugman (2004) posit that agglomeration reverses standard theoretical propositions in international tax competition. Agglomeration, in this context, refers to degree of inter-country economic integration. Their model shows that greater economic integration may lead to a "race to the top", rather than a race to the bottom, as a result of inter-country competition through tax harmonization because agglomeration forces create rents that can be taxed without loss of assets through dislocation. The reason is that when "trade is sufficiently free" (Baldwin and Krugman, 2004: 19), industry will locate in a specific geographic region because of region-specific spillover benefits (Markusen, 1996; Peri, 2002). These benefits far outweigh the direct costs of higher taxation; therefore, the local government can tax at a higher rate without loss of capital formation. In that way, public revenue is increased and higher level of public good provision is possible. This provision increases incentives for further industrial location to the region and improves the possibility for higher incidence of local entrepreneurial activity. The key to this possible positive outcome lies in two components that vary significantly from country to country. They are: 1) particular industrial make up of the local economy in relation to location-specific agglomeration features[vi] and 2), as Baldwin and Krugman (2004: 19) put it, "sufficiently free" trade. But what is "sufficiently" free trade? In the recent past's legacy of increasing global trade liberalization, at what point do nations reach this critical mass reality of industrialization and freedom in trade? This research addresses both these questions, at least in part as they are complicated and multi-layered, by examining the economic performance of a varied sample of nations in terms of level of development, geographic location and openness to trade. As a proxy for increasing openness to trade,

employed is a uniquely developed scale of market integration. The scale measures the level of free trade through trade bloc membership. The rank is ordinal, where higher rank indicates higher trade freedom as well as stronger political integration. Through employing the scale the theoretical premise of Baldwin and Krugman (2004) is tested empirically to examine the validity of their implication that nations can benefit from keeping relatively higher corporate tax rates if they increase their degree of free trade.

Previous Research:

When examining corporate tax rates, several components of the overall tax structure are studied. Chief is the difference between the official corporate tax rate, or statutory tax rate, and the effective rate. The effective rate is what corporations pay after deductions, tax credits, write offs, and foreign income allocations. The effective rate depends on how corporations view and report their tax liabilities. Tax liabilities are tax expenses as amounts of net corporate income. They include federal, foreign, and state and local income taxes.[vii] On July 1st, 2013 U.S. Government Accountability Office (GAO) released an audit report of American corporations tax returns and concluded that for tax year 2010, profitable U.S. corporations paid an average effective federal rate of 13 % of worldwide income, and 17 % when state and local income taxes are included. Furthermore, the report stresses that these rates are much lower for corporations that do not show a net profit. A shocking conclusion is that as much as 50% of American firms pay no federal effective tax.[viii]

When itemizing deductions, U.S based multinationals are allowed full deductibility of domestic expenses while allocating those expenses against foreign

income for the purpose of calculating foreign tax credits (Hines, 2008; Slemrod, 2004a). Foreign tax credits are much studied with respect to FDI asset management and global portfolio management (Bartelsman and Beetsma, 2003; Bloom, Griffith and Van Reenen, 2002; Herrmann and Lipsey, 2003; Klassen, Lang and Wolfson, 1993; Marceau, Mongrain and Wilson, 2010). The interest stems from the fact that foreign tax credits provide incentives for capital outflows and may discourage repatriation of overseas profits into the home economy.

The structure of foreign tax credits differs across countries in terms of specific expenses associated with international operations. Desai, Foley and Hines (2006) explain that there is no reliable measure of the difference. In general, governments in economic federations struggle with the diversity of tax policies of member states. It depends on the importance each government places on technology transmission and generation through R&D intensive FDI. The notion is that R&D activities undertaken within its respective national boundaries will create important positive spillover effects, also referred to as positive externalities and agglomeration economies, for local scientific and technological development.

This expectation has resulted in a strong competition among countries to attract R&D-intensive FDI (Acemoglu, Aghion and Zilibotti, 2006; Athukorala and Kohpaiboon, 2010; Herrmann and Lipsey, 2003). In particular Bloom, Griffith, and Van Reenen (2002) find that in OECD nations between 1979 and 1997 tax incentives increase R&D intensity. Devereux, Lockwood, and Redoano (2008) find evidence that between 1982 and 1999 OECD governments did compete with each other through two main tax incentive policies – lowering the marginal tax rate and lowering the statutory rate for

profits. That competition contributed to a general gradual decrease of overall corporate tax rates. The question is of estimating an optimal level for such tax incentive policies so that they will not lead to destructive tax competition. Destructive competition can occur when nations face incentives to compete for mobile capital by reducing their tax rates to a level that can result in inadequate public goods provision (Marceau, Mongrain and Wilson, 2010). This is a fair theoretical warning, but its applicability is nebulous since corporate taxes account for a fairly small percent of public revenue sources (Ulbrich, 2011). For example, The Tax Policy Center reports that in the United States in 2010 only 9% of federal tax revenue came from corporate taxes. Figure 1 below illustrates the revenue source break down and Figure 2 shows how they have changed historically.[1]

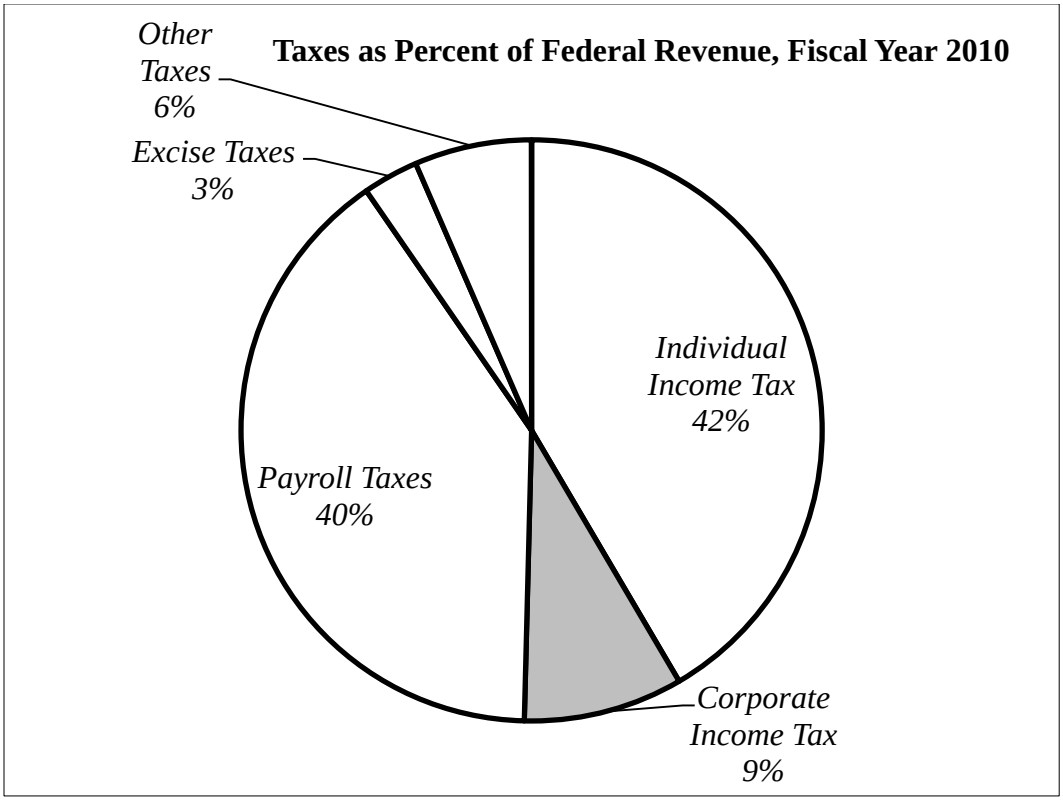

***Figure 1*: U.S. Federal Revenue Tax Sources, Fiscal Year 2010**

[1] Figures adopted from: The Tax Policy Center Briefing Book, original source The U.S. Office of Management and Budgets, Budget of the United States Government, Fiscal Year 2012, Historical Tables: Table 2.1; http://www.whitehoU.S.e.gov/omb/budget/Historicals

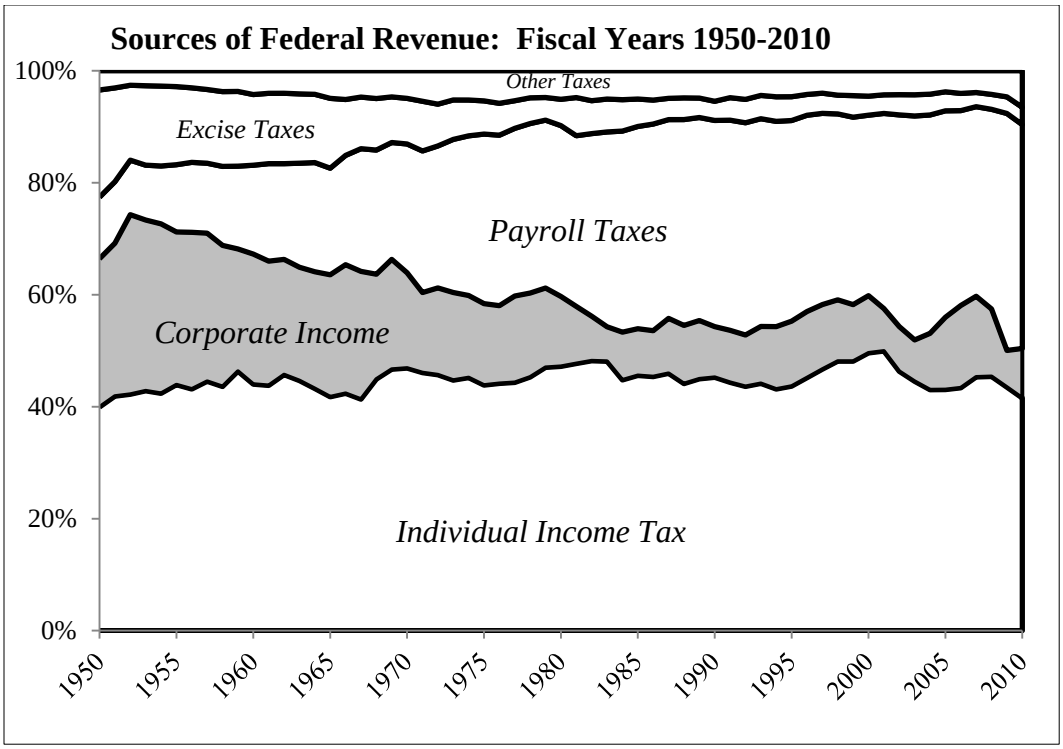

***Figure 2*: U.S. Federal Revenue Tax Sources, 1950-2010**

The figures indicate how the importance of corporate taxes has diminished through the years in terms of general federal sources of income. Few would make an argument that this decline has hurt the U.S. government's ability to provide adequate public goods. However, it is unclear if in other nations, particularly those less developed and diversified than America, destructive tax competition can indeed have significant impacts. Recently, the Panama Papers scandal has given impetus to previous warnings from the illicit financial flows scholars that developing nations are much more dependent on corporate taxes and their erosion hinders development and perpetuates poverty (Baker, 2005; Reuter, 2012). The literature as a whole has not addressed that question in depth. The extant research uses data mainly from developed countries. For example, Morceau, Mongrain and Wilson (2010) explain that in Europe as economic union policies increased, some smaller nations, such as Ireland, engaged in tax competition. However,

the majority of other E.U. nations did not join in this competition but chose to develop their immobile capital base (a term used in this case to describe assets intangible to tax competition), in order to attract and retain capital. Desai, Foley and Hines (2006) find that despite the incentives to compete over tax rates, the tax burden on corporate income in OECD countries has not decreased. Slemrod (2004) finds that international competitive pressures have impacted corporate taxation overall, however larger and more trade-intensive countries do collect more corporate tax. Clausing (2007) examines corporate tax revenues in OECD countries from 1979 to 2002 and finds that more important factors than the statutory tax rate, such as tax base breadth, corporate profitability, and share of the corporate sector in relation to GDP, define the amount and efficiency of corporate tax collection.

Revenues also depend on the prevalence of loopholes and special arrangements, the opportunities for tax avoidance, the aggressiveness of corporate tax planners, the enforcement efforts exerted by government tax authorities, and the economic conditions that determine the profitability of firms. That interplay is explained by Auerbach, Hines, and Slemrod (2007) in terms of tax elasticity. The reasoning is that the larger the elasticity of options to adjust tax behavior, the larger the efficiency cost per dollar of marginal increases, therefore, the lower the optimal tax rate. The authors show how employing the concept of tax elasticity has led to estimating a hypothetical optimal statutory tax rate of around 30%. However, such things as marginal increases are not applicable in the real world. In recent history no country with a fairly open trade agenda has actually increased marginal statutory corporate taxes.[ix] If anything, the exact opposite has occurred, as the data analysis of this study demonstrates. Among the main

reasons for this lowering trend are the growth of international economic interconnectedness and regionalization. For example, Desai and Hines (2004) show how U.S. exports and imports have grown in magnitude and importance to the U.S. economy, while foreign-owned firms generate rising portions of internal American business activity. As a result, technologies developed in the United States are exploited abroad to increasing degrees, with new tax implications, blurring the lines of foreign and domestic classifications and therefore, tax credit appropriations. Desai and Hines (2004) offer such an example with the European Union's successful challenge of U.S. export subsidies embedded in the U.S. corporate income tax, leading the World Trade Organization (WTO) to authorize tariffs on American exports to the E.U. This particular development is of importance because it points to the effect of regionalization with respect to trade liberalization. As Baldwin and Krugman (2004) argue, the degree of trade liberalization can define taxation policies in terms of efficiency. The more integrated a country's economy with its trading partners, the more efficiently it can tax enterprises in terms of amounts and rates. Kind et al. (2005) echo the same argument after analyzing factors prompting governments to choose between Formula Accounting (FA) and Separate Accounting (SA) – the two main principles of corporate taxation. Under FA all MNC profits are combined under a single measure of taxable income, while under SA the value of MNC affiliate transactions[x] is estimated separately. Kind et al. (2005) conclude that the choice of tax principle depends on the degree of economic integration. Most OECD countries, including the E.U., employ SA, while the U.S. and Canada use FA (Nielsen, Raimondos-Møller and Schjelderup, 2010). Interestingly, those are the most integrated global economies, so the conclusion of Kind et al. (2005) that the choice between world

wide and territorial taxation depends on level of integration into the global market is confusing. It is also misleading because although the U.S. uses formulary apportionment at the state level, *i.e.*, within its borders for corporations that operate in multiple American states and in Canada (therefore, Canada also employs the reciprocal principle), for most American MNCs that operate across countries, federal income tax burden is apportioned through separate accounting. It is this feature that makes the American tax system different from most other developed nations (Fleming, Peroni, and Shay, 2008; McDaniel, 2007).

When it comes to MNCs global profits, the American government taxes them while most other governments exempt such dividends, as they are already taxed by the local governments in each country of operation (Altshuler, Shay, and Toder, 2015). Or are they? According to the works on illicit financial flows, loopholes, exemptions, transfer pricing, tax credits and other forms of tax elasticity often lead to suboptimal taxation of international dividends, particularly in very under developed nations. Other research on factors that prompt nations to choose between worldwide or territorial taxation actually shows that the difference between the two systems is not that great, precisely because of tax elasticity and the willingness of local governments to negotiate taxes with MNCs and the ability of those MNCs to shift income among subsidiaries to maximize tax avoidance incentives (Markle, 2016). Fleming, Peroni and Shay (2008) explain that in reality no country taxes its MNCs either through purely worldwide apportionment or via separate accounting. Furthermore, a report released by the IMF indicates that when shifting from one system to the other, as was the case with Japan and the United Kingdom in 2007 moving from worldwide to territorial taxation, the end result

was insignificant (Thornton, Perry, and Veung, 2013). The question raised in these works is what level of economic integration affects the choice of system, but no clear measure of economic integration is offered. This study offers such a measure through examining the impact of trade bloc membership.

Petersheim (2010) analyzes the existing bodies of trade bloc literature and argues that not many studies focus on trade blocs and their effects on FDI or trade. Those that do, examine political impacts rather than the economic benefits of belonging to a trade bloc. Quantifying economic benefits is challenging and imperfect but worth exploring particularly in cases such as regional integration (the term most often used to describe the creation and integration of trade blocs) because it is such an important component that shapes global trade patterns. One of the reasons it is so important is regional clustering and the policies governments employ to encourage clusters. As the literature on economic geography shows, particular geographic clusters of nations define global economic activity (Athukorala and Kohpaiboon, 2010; Markusen, 1996; Porter, 1988, 2000). Among the main points the literature on industrial clustering makes is that national and local governments have a decisive role in building and supporting clusters through their policies of attractiveness aimed at both international FDI and capital. Chief among those policies is corporate taxation (Bucovetsky and Haufler, 2008).

Trade blocs vary in levels of economic and political integration. The United Nations Statistics Division National Accounts Database[xi] offers information on the creation, integration, and market power of trade blocs. It ranks them on three levels of market and political integration. They are: 1) degree of internal market liberalization comprised of 6 measures, 2) degree of internal political cooperation comprised of 2

measures, and 3) number of preferential trade agreements with other trade blocs. The 6 measures of market liberalization are: (1) a free trade area, (2) a customs union, (3) a single market, (4) a currency union, (5) visa-free travel, and (6) absence of physical borders. The degree of internal political cooperation is a weighed based on: (1) the existence and strength of a political union and (2) the existence and strength of a defense pact.

I use these categories to create an ordinal scale of integration. It is built by combining the scores of "degree of internal market liberalization" and the score of "degree of political integration" with the number of external preferential trade agreements. The UN also ranks the trade blocs based on market power measure. It offers their aggregate GDP and their total population. These metrics are also included in the scale aiming to offer a proxy of both market integration and market power.

There is a legal aspect to trade blocs and that is the official formation of the pact by member states leading to some form of a political union. What differentiates a trade bloc from a free trade zone is the common political component where member states create a political venue of power sharing. A further distinction used by the UN is simply the formal legal notice of formation by a trade bloc's member states.

Data and Methods:

Based on the methodology employed in AUTHOR (2014a,b) this study examines a stratified sample of 60 nations. In those works the sample was developed to investigate the impact of MNCs on national economies. The main query was to see if there is a difference between the economic growth rates of nations that are corporate homes to the

world's largest MNCs. The question aimed to inform on the debate of whether the nationality of MNCs mattered. The sample size of 60 nations is based on the quest to have reliable comparative sub groups: one that is comprised of corporate head-quarter nations and one that is not. Since, on average, about 30 nations house the world's top MNCs, another 30 that do not were randomly selected.

The sample is applicable for this study because it is MNCs that react to tax policy changes. Here, as well as in (AUTHOR a, b) the MNCs are ranked based on a transnationality index (TNI) approximating global market share and power by the United Nations Conference on Trade and Development (UNCTAD), which is calculated as a ratio of foreign assets to total assets, foreign sales to total sales, and foreign employment to total employment, as well as total asset capitalization. The data set breaks the MNCs down into three categories - Top 100 ranked non-financial MNCs from the whole world, Top 100 ranked non-financial MNCs from the developing world only, and top 50 ranked financial MNCs from the whole world. There are 34 countries that among them are corporate homes of the world's top-ranked non-financial and financial MNCs. Out of them 30 are chosen randomly without replacement. Also 30 countries without a top ranked MNC incorporated within their borders are chosen randomly without replacement. The countries are further stratified by developed and developing. Five strata emerge:

1) developing countries without top-ranked MNCs

2) developing countries with top-ranked MNCs

3) developed countries without top-ranked MNCs

4) developed countries with top-ranked MNCs

5) any country that is a corporate home to one of the top 50 financial MNCs, however in this sample and time period, only developed nations housed top financial MNCs

Out of the 60 nations, 33 belong to a trade bloc that meets the criteria of integration defined by the UN. The nations are grouped in 9 distinct blocs. They are the North American Free Trade Agreement (NAFTA) coded as 9, the European Union (E.U.), coded as 8, Mercado Comun del Sur (MERCOSUR) coded as 7, European Free Trade Association (EFTA) coded as 6, Association of Southeast Asian Nations (ASEAN) coded as 5, Common Market for Eastern and Southern Africa (COMESA) coded as 4, Southern African Development Community (SADC) coded as 3, East African Community (EAC) coded as 2 and the Organization of Eastern Caribbean States (OECS) coded as 1. Countries in the sample that do not belong to the trade blocs receive a code of 0. The scale is descending for the purposes of ease when conducting quantitative tests such as regression analysis to accommodate the specific requirements of statistical software packages.

UNCTAD also offers an aggregate number of merger and acquisitions at the country level in the form of MNC sales and purchases. On a yearly bases the total number of foreign firms the MNCs of a nation purchase is given. A reciprocal measure is also offered for MNC sales. It shows the total number of domestic MNCs that were acquired by foreign entities in a nation. These two measures are used here as proxies for ease of tax inversion. They are imperfect proxies because an inversion can occurs when an MNC purchases a foreign entity if it makes that entity its corporate parent. However, there are many complicated factors behind such a choice. They are beyond the scope of

this study and for now, this variable will be discussed as an indicator of attractiveness for foreign investors. Tax inversion benefits could be among the attractiveness policies but it would be over-reaching to hypothesize it would be the decisive factor.

In addition to the number of deals, the aggregate dollar amounts of FDI inflows and outflows are included. Cross-border MandAs are typically considered to be a subset of FDI. However, the UNCTAD's World Investment Report series emphasize that there are differences between cross-border MandAs and FDI. Traditionally, FDI activity has been explained by the "tariff-jumping" argument, positing that exporting and investing abroad are alternative modes for entering foreign markets, when direct exporting and trading costs increase. In that context, FDI refers to transactions between parent and affiliate companies. Cross-border MandAs, however, also include investments that are financed via both domestic and international capital markets. It is not always possible to trace the country from which these funds originate. Moreover, FDI refers to net investments whereas MandAs refer to gross transactions in the form of acquisitions and divestments (Hijzen, Gorg and Manchin, 2008). Head and Reis (2008) note that from 1987 to 2001 about two-thirds of foreign direct investment was MandAs rather than new plants. Therefore, both are included in the model and a multicollinearity test is preformed. The Variance Inflation Factor (VIF) scores for all three regressions performed were well below the critical value of 10. Based on this information, the following variables are used:

(1) $\mathrm{MNCs_{NF}}$ – Number of top 200 ranked non-financial MNCs

(2) $\mathrm{MNCs_{F}}$ – Number of top 50 ranked financial MNCs. They are defined as number of corporations based in a home economy that control and manage commercial ventures and operations outside their countries of origin

(3) $\mathrm{FDI}_{\mathrm{INFLOWS}}$ – FDI inflows measure how much foreign capital a nation receives in a calendar year

(4) $\mathrm{FDI}_{\mathrm{OUTFLOWS}}$ – FDI outflows measure how much a nation invests outside its borders in a calendar year[xii]

(5) EXPORTS – based on the assumption that export growth defines economic growth through trade

(6) IMPORTS – as a longitudinal metric of trade openness

(7) GNI – GNI per capita is an indicator of the average earning power of the population and therefore its purchasing power[xiii]

(8) DC – Development Code is coded dichotomously with the value of 1 given to developed nations and 0 to developing nations

(9) $\mathrm{P}_{\mathrm{MNC}}$ – MNC Purchases indicates the number of foreign MNCs a nation acquires in a year

(10) $\mathrm{S}_{\mathrm{MNC}}$ – MNC Sales indicates the number of domestic firms that were acquired by foreign investors in a year

(11) $\mathrm{GDP}_{\mathrm{PPP}}$ – Gross Domestic Product at Purchasing Power Parity as a general measure of national economic growth

(12) $\mathrm{T}_{\mathrm{BLOC}}$ – Trade bloc

(13) MCTR – Marginal Corporate Tax Rate is the highest rate shown on the schedule of tax rates applied to the taxable income of corporations

The main equation is:

$$\begin{aligned}\mathbf{GDP}_{\mathbf{ppp}_{\mathbf{it-1}}} = {} & \boldsymbol{\beta}_1\mathbf{MNCs}_{\mathbf{NF}} + \boldsymbol{\beta}_1\mathbf{MNCs}_{\mathbf{F}} + \boldsymbol{\beta}_3\mathbf{FDI}_{\mathbf{INFLOWS}} + \boldsymbol{\beta}_4\mathbf{FDI}_{\mathbf{OUTFLOWS}} \\ & + \boldsymbol{\beta}_5\mathbf{EXPORTS} + \boldsymbol{\beta}_6\mathbf{IMPORTS} + \boldsymbol{\beta}_7\mathbf{GNI} + \boldsymbol{\beta}_8\mathbf{DC} + \boldsymbol{\beta}_9\mathbf{P}_{\mathbf{MNC}} \\ & + \boldsymbol{\beta}_{10}\mathbf{S}_{\mathbf{MNC}} + \boldsymbol{\beta}_{11}\mathbf{T}_{\mathbf{BLOC}} + \boldsymbol{\beta}_{12}\mathbf{MCTR} + \mathbf{e}_{\mathbf{it}}\end{aligned}$$

Where subscript "**it**" stands for individual observation at one time period.

The main question is how does the change in MCTR impact national economic growth and therefore, in its general form the equation uses GDP as the dependent variable. However, in addition to this regression, two other regression outcomes are

offered where the dependent variables are a) FDI – to see if indeed lower MCTRs attract foreign investors and b) MCTR itself – to see if any of those factors, as proxies for trade dependence, lead to pressures for nations to engage in tax competition. The regressions follow the logic of the policy, which is that to stimulate GDP growth, first a country has to lower its MCTR in order to attract FDI. Then overtime, that FDI is supposed to cause the desired GDP growth.

Several sources are used to compile the data. Statistics on MNCs and their affiliates come from the United Nations Conference on Trade and Development (UNCTAD) database "Largest Transnational Corporations".[xiv] Data on GNI per capita and MCTR come from the World Bank database World Development Indicators (WDI).[xv] The data for GDP, imports and exports come from the CIA database "Country Statistics" in its publication "The World Fact Book".[xvi] The data on FDI inflows and outflows come from the UNCTAD data set "Country Fact Sheets".[xvii]

Findings and Analysis:

Each diagnostic was tested for time effect issues as per Greene (2008) and a time effect was not detected.[xviii] Theoretically, panels such as the ones here could be prone to endogeneity problems when the causal direction is unclear because of the circularity of economic development interdependence when it comes to capital flows. Put simply, it may be unclear if low corporate tax rates cause FDI inflows to increase from year to year or if when FDI increases overtime, local governments can decide to increase their corporate tax rates in order to raise tax revenue on the new foreign investments if other factors, such as strategic market benefits or presence of unique natural endowments

attract foreign investors regardless of local tax rates. However, since there is no evidence of countries increasing their corporate tax rates in response to becoming more attractive to FDI, such logic would be questionable. Still, bearing the possibility of circularity in mind, each panel's explanatory variables were lagged by one year in post estimation tests. The results were similar and therefore the non-lagged output is presented here. The reason is the logic of the policy rhetoric, which is that lowering the MCTR is supposed to attract FDI and that increase in FDI[xix] is supposed to cause annual GDP growth. The direction of the relationships is defined by the assumptions that to stimulate the economy, a nation can lower its MCTR as the first step. Therefore, in temporal precedence terms, the first step toward achieving economic growth via a policy change would be to lower the MCTR (cause, *i.e.* the policy change) and the then that change would attract FDI (the effect). The longitudinal nature of the 11 year time series here allows us to see what happens over time when this policy is followed.

Table 1 illustrates the results of regressing the model against FDI inflows.

Table 1: Cross Sectional Time Series Regression Analysis, 1999 – 2009, FDI Inflows

Variable	**Coefficient**	**Standard Error**
$FDI_{OUTFLOWS}$ – FDI Outflows	0.19	(0.07)**
MCTR – Marginal Corporate Tax Rate	-230.51	(53.78)***
P_{MNC} – MNC Purchases	138.90	(19.32)***
EXPORTS	0.03	(0.01)**
DC – Development Code	-2231.27	(2703.47)*
GNI – GNI Per Capita	-0.15	(0.08)^
T_{BLOC} – Trade Bloc	274.66	(214.57)
Constant	9349.43	(1690.61)**
Probability > F	<.0000	
Observations	660	
R Square	0.70	

Dependent Variable: FDI Inflows – "net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor

as the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital".[xx]
Level of significance denoted by the following symbols: ^p<0.10, *p<0.05, **p<0.01, ***p<0.001.

The results suggest that MCTR strongly impacts FDI inflows. The relationship is negative, meaning that, indeed as proponents of lowering the MCTR argue, its decrease results in an increase of FDI. Trade bloc membership does not seem to matter and neither does development code. The interpretation is that FDI inflows were not significantly different between developed and developing nations, nor are they among nations that belong to trade blocs. Factors that contribute to an increase in FDI inflows are reciprocal investments overseas and growth in exports. The fact that both MNC purchases, *i.e.* the number of foreign acquisitions a nation makes, and FDI outflows increase the amount of foreign investment a nation gets can be interpreted as a supporting evidence of the benefits of trade growth. All three variables embody outward national trade. The conclusion is nations that invest and export heavily are attractive destinations for FDI. Table 2 shows the cumulative effect of such trade interplay on overall national economic growth by using GDP as the dependent variable.

Table 2: Cross Sectional Time Series Regression Analysis, 1999 – 2009, GDP PPP

Variable	**Coefficient**	**Standard Error**
$FDI_{INFLOWS}$ – FDI Inflows	5.25	(3.61)
$FDI_{OUTFLOWS}$ – FDI Outflows	0.41	(4.39)
MCTR – Marginal Corporate Tax Rate	17344.74	(2184.55)***
P_{MNC} – MNC Purchases	-2890.13	(1404.27)*
S_{MNC} – MNC Sales	0.03	(0.01)***
EXPORTS	-2.22	(.986)*
DC – Development Code	-2231.27	(2703.47)
GNI – GNI Per Capita	-0.15	(0.09)^
T_{BLOC} – Trade Bloc	274.66	(214.67)
Constant	9349.43	(1690.61)***
Probability > F	<.0000	
Observations	660	

R Square	0.70

Dependent Variable: GDP PPP - estimates the market value of all final goods and services produced within a nation in a given year, whether they are traded internationally or not. GDP PPP is not tied to a nation's currency value and is especially U.S.eful in cases of nations that do not allow their currency to float. Level of significance denoted by the following symbols: ^p<0.10, *p<0.05, **p<0.01, ***p<0.001.

Contrary to proponents of lowering the MCTR, the results indicate that relatively high taxes contribute to GDP annual growth. At the same time, aggregate FDI inflows and outflows are not significant contributors to GDP change. However, merger and acquisitions are. The results here suggest that increasing the number of foreign MNC acquisitions leads to a decline in GDP while increasing sales of domestic firms to foreign owners increased GDP. This distinction has several implications. One is the difference between FDI in kind and in type. As Head and Reis (2008) note, 2/3 of FDI is in the forms of MandAs, which means that 1/3 is in non-firm specific assets.[xxi] Those assets can be financial instruments, land, or debt. Bryant-Kutcher, Eiler and Guenther (2008) argue that MNCs use permanently reinvested earnings (PREs) in financial rather than operations assets to defer debt. The reason is, as Egger, Eggert and Winner (2010) explain, in most countries foreign debt is tax deductible. Therefore, choice of location is contingent on financial instrument investment options a country offers. The data results here suggest how important such financial FDI maneuvering can be in relation to operational FDI. The distinction is important because it suggests that policies of ease in acquiring MNC ownership can lead to overall beneficial economic outcomes over time.

Another implication of the finding that MNC sales increase GDP while purchases decrease it lies in the distinction of national economies and degree of economic integration. As the results show, developing nations and nations that were relatively less integrated in a free trade bloc had stronger GDP annual growth between 1999 and 2009. The combined interpretation of these two facts is that certain developing nations that are

less free-trade exposed may overextend their liabilities past a certain social optimum with increasing the acquisitions of foreign MNCs. Developing nations foreign acquisitions are much discussed in the literature on knowledge sourcing (Campos and Kinoshita, 2002; Cortright, 2001; Hijzen, Gorg and Manchin, 2008; Lensink and Morrissey, 2006). The results here caution against possible over extension. The reasons could be many, including insufficient institutional structures to deal with increasing foreign debt, which is often associated with increasing foreign operational FDI.

The fact that the trade bloc scale is statistically significant but negative as a predictor of GDP suggests that during the examined period member nations of lower ranked trade blocs and those not belonging to a trade block had relatively higher annual GDP growth rates. This fact is consistent with the argument that the strongest rates of recent economic growth are observed in the developing world, particularly in such nations as China, Russia, Brazil, India, and South Africa (BRICS), which are in the sample and are not part of any particular trade bloc (Zakaria, 2011).[xxii] However, their sheer size in terms of market power acts as an agglomeration component. Among the main reasons for nations to create trade blocs is the establishment of large unified markets. This phenomenon is already present in large rapidly developing nations. These nations also have relatively lower corporate tax rates. Figure 3 below shows how MCTR has changed between 1999 and 2009 in each of the nations in the panel.

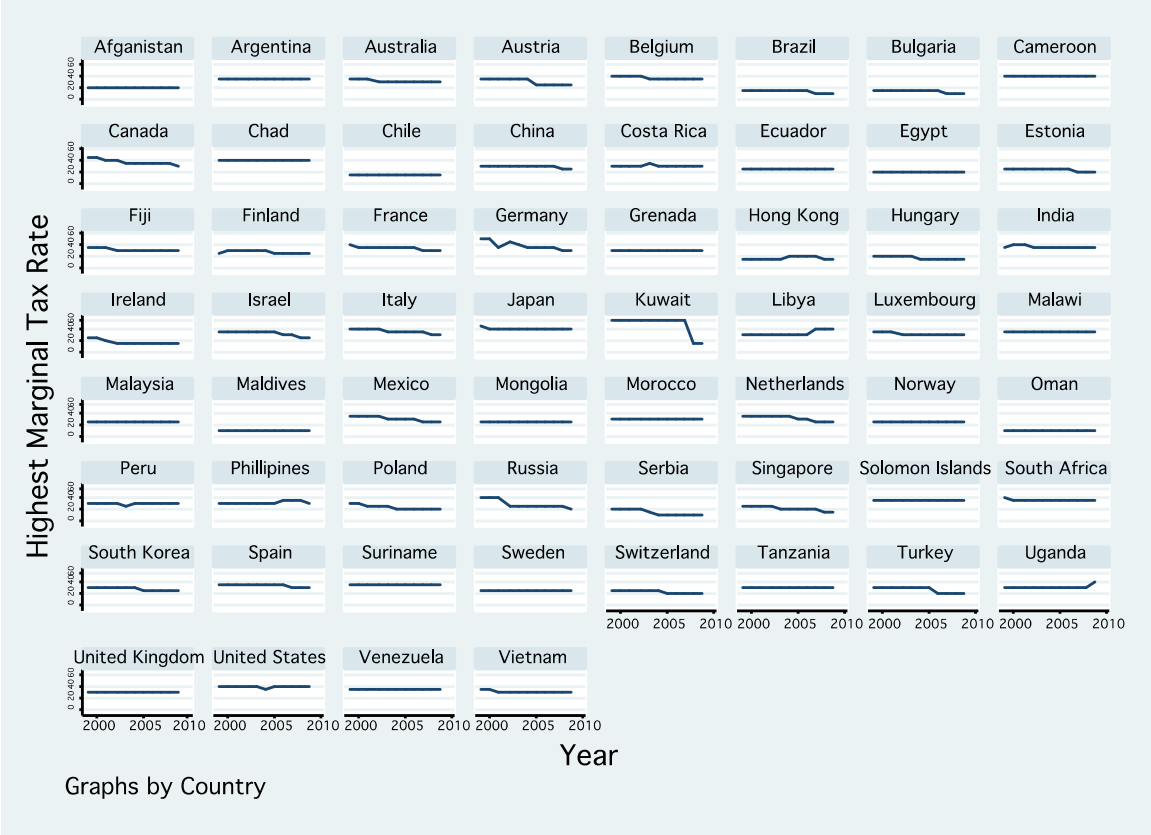

Figure 3: **Panel Data Line Plot, MCTR By Country and Year**

A general trend in lowering the MCTR is evident, particularly in the BRICS, E.U. member states and Southeast Asian nations. In Europe in particular the strongest decreases seem to coincide with E.U. enlargement rounds post 2005. This fact challenges the argument by Baldwin and Krugman (2004) that increasing levels of free trade can enable countries to tax at higher rates. Their data supports the conclusion because that indeed was the case in previous time periods. It was a time when increasing number of free trade agreements, mostly among developed nations that also had relatively higher corporate tax rates, were the metric that defined degrees of free trade. But the recent past's regionalization developments have changed that platform and it seems that indeed tax competition is evident in the general overall lowering of MCTRs in most nations. Figure 4 below illustrates the overall average decrease for the panel of nations.

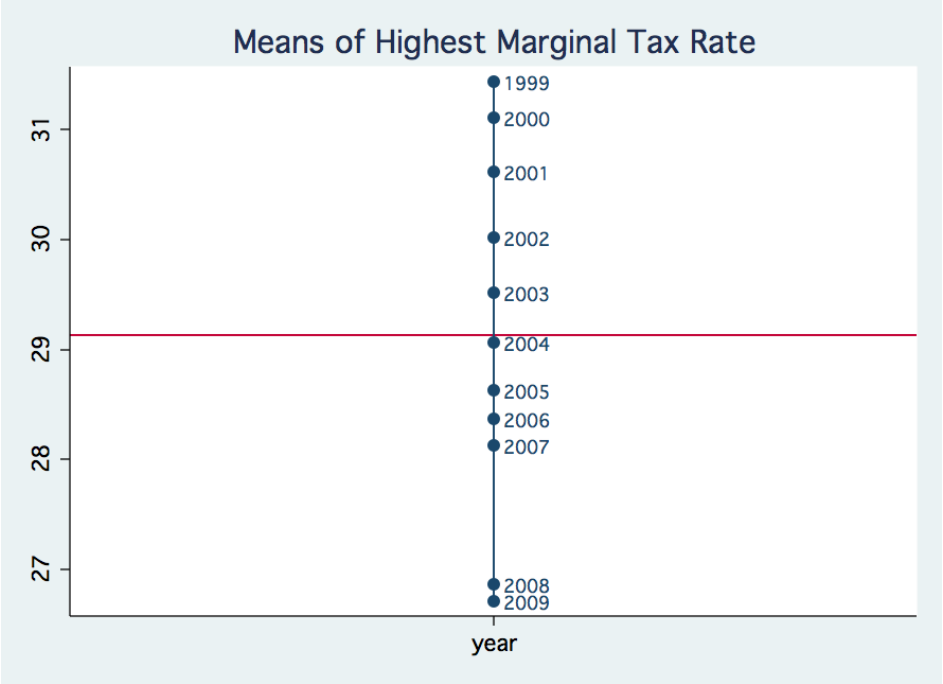

Figure 4: **Means of MCTR for All Panel Nations, 1999-2009**

The data show that by 2009 the mean had fallen to below 27% from an average of close to 32% in 1999. Table 3 below indicates what factors contributed to this change in MCTR.

Table 3: Cross Sectional Time Series Regression Analysis, 1999 – 2009, MCTR

Variable	Coefficient	Standard Error
$FDI_{INFLOWS}$ – FDI Inflows	-0.00	(0.00)*[xxiii]
$FDI_{OUTFLOWS}$ – FDI Outflows	0.00	(0.00)
$MNCs_{NF}$ – Number of 200 top-ranked non-financial MNCs	-0.36	(0.07)***
F_{MNCs} –Number of 50 Top-ranked Financial MNCs	1.86	(0.16)***
P_{MNC} – MNC Purchases	0.01	(0.00)*
S_{MNC} – MNC Sales	-0.01	(0.01)
EXPORTS	9.12e-6	(4.95e-6)^
IMPORTS	-0.00	(4.73e-6)*
DC – Development Code	2.19	(0.73)**
T_{BLOC} – Trade Bloc	-0.17	(0.08)*
Constant	28.11	(0.33)***
Probability > F	<.0000	
Observations	660	

R Square	0.14

Dependent Variable: MCTR - Marginal Corporate Tax Rate is the highest rate shown on the schedule of tax rates applied to the taxable income of corporations. Level of significance denoted by the following symbols: ^p<0.10, *p<0.05, **p<0.01, ***p<0.001.

The findings offer further evidence of tax competition. In the sample MCTRs decreased in developing nations that: 1) received relatively more FDI; 2) had fewer or no top-ranked non-financial MNCs; 3) increased their imports more than their exports; 4) and either did not belong to a trade bloc or belonged to a trade bloc from the relatively poor developing world. The combined interpretation is that between 1999 and 2009 mostly developing nations lower their MCTR in order to increase their competitive edge in attractiveness of foreign assets. Consequently, developed nations did not engage in tax competition through lowering MCTR, particularly those that were corporate homes to one of the world's largest financial MNCs and had relatively strong GDP annual growth rates.

Higher MCTR are also caused by an increase of foreign acquisitions, as illustrated by the number of MNC purchases. The literal slope interpretation is that a marginal increase in acquisitions causes a marginal increase in MCTR, since the data reveal that except for Uganda, Libya and for brief periods The Philippines and Hong Kong, no nation actually increased its overall MCTR between 1999 and 2009. Therefore, the interpretation here is that in developed nations, including those in the most integrated and powerful trade blocs that engage in relatively more foreign acquisitions of operational FDI, and experienced export growth MCTR remained relatively high. Put this way, this interpretation is consistent with Baldwin and Krugman (2004) that increasing the degrees of free trade can allow nations to maintain higher corporate tax rates. Their conclusion is based on evidence of tax competition among European countries divided into "rich" northern and "poorer" southern nations between 1950 and 1990. In light of this fact, the

results presented here offer a contributive thought in the debate on the merits vs. dangers of tax competition. It seems that it may be a necessary step in the overall developmental ladder. However, once at the top, *i.e.*, when a nation has reached relatively high levels of economic development and global market integration, tax competition becomes less important in terms of policy. Tax harmonization remains important in trade blocs, but is sustained at rates that are relatively high.

Conclusions and Policy Implications:

In light of the politically charged debate in America on the unethical and unpatriotic behavior of MNCs that engage in tax inversion, this study concludes that relatively high corporate taxes are not the culprit. In fact, they contribute to GDP growth. They do not lead to more foreign acquisitions, which is a tool for tax inversion. Rather, the detriment lies in a system of stimulating economic activity through providing incentives to write off firm debt. In the United States this policy direction of ever-increasing measures to deduct taxes from operational expenses has created a reality in which most firms pay no taxes at all, so that the federal government only collects 9% of its total tax revenue from corporate taxes. This fact renders the debate moot. Reversing such a legacy would be impossible because a whole industry has developed around it of lawyers, accountants, finance managers, and organized groups that represent their interests.[xxiv]

The data of this study suggests that in most nations policies of lowering corporate taxes can lead to increasing FDI inflows. However, that influx does not lead to the expected economic growth. The results of this study show that the opposite outcome

occurs – nations that lowered their MCTRs most, significantly decreased their economic growth rates. This outcome could be due to the fact that today a portion of that FDI may be in financial instruments for debt-reducing, tax-deductible write offs, as opposed to operational FDI that generates economic activity. The results of this study stress the need for understanding the financial maneuvering of MNCs in managing their debt burden for maximum tax benefits. MNCs face two incentives in debt management – one is to show high levels of debt when writing off taxes, the other is to show profitability to their shareholders, *i.e.* – low debt. The winning balance varies based on MNC, nation of incorporation, and how value is presented to shareholders.

The analysis here shows that as trade integration and ease of foreign merger and acquisitions increase, the general trend in harmonizing tax rates is one of decrease. Relatively poorer nations more aggressively have decreased MCTRs in the recent past. While those policies have resulted in growth of FDI, it is nations that do not engage in this type of tax competition that enjoyed stronger overall economic growth. The implications are two-fold. One is for the nature and fluidity of FDI. Most of it today is not in operational assets, but financial instruments, including debt, so increasing aggregate FDI can actually lead to a loss of tax revenue, if debt and operational assets are treated as tax deductible liabilities. The other implication is in making a clear distinction in policy prescriptions for developed and developing nations. The results here suggest that while climbing the industrial ladder, lowering the MCTR could be an advisable policy. But once at the top, it is unclear that a lower MCTR can stimulate the economy.

Future research should focus on the impact of operational and debt deductions of MNC assets, rather than the MCTR rate. It is clear that it does not matter what the rate is,

if it can be written off. Maybe for that reason Western, including the U.S., governments remain resistant to lowering MCTRs in the face of politically charged criticisms.

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[vi] Agglomeration features define region-specific spillover capabilities

[vii] Definitions are explained by the U.S. Government Accountability Office (GAO) at: http://gao.gov/products/GAO-13-520

[viii] Report available at: http://gao.gov/assets/660/654957.pdf

[ix] This statement refers to democratic or fairly democratic nations that engage in fairly free trade. The dataset of this study shows that rogue nations such as Uganda and Libya have made increases.

[x] MNC affiliates are foreign branches of MNCs

[xi] Classifications available at: http://unstats.un.org/unsd/snaama/selbasicFast.asp

[xii] FDI inflows and outflows are measured in billions of current U.S. dollars, *i.e.* not adjusted for inflation

[xiii] Measured in thousand of current U.S. dollars

[xiv] http://www.unctad.org/Templates/Page.asp?intItemID=2443andlang=1

[xv] http://data.worldbank.org/data-catalog/world-development-indicators

[xvi] https://www.cia.gov/library/publications/the-world-factbook/geos/af.html

[xvii] http://www.unctad.org/Templates/Page.asp?intItemID=2441andlang=1

[xviii] For discussion on time effect issues with panel data see Greene (2008), Chapters8 and 9. Employing STATA 11, the tests were performed by first running a fixed effect model for each panel and then employing the ***testparm i.year*** command, where the data are specified as time series of cross sections with the unit of analysis being an individual country in a given year. The time effect diagnostics failed to reject the null hypothesis that coefficients of all years are jointly equal to zero, indicating a low probability for the presence of a time effect. Yet, in post estimation tests, fixed effects regressions were run and the results were consistent, even with the expected more conservative estimates.

[xix] The assumption also includes domestic capital, not only foreign direct investment, the reasoning being that there is interplay between foreign firms and domestic firms that augment in-country productivity and therefore, local capital formation.

[xx] Defined by the World Bank at: http://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD

[xxi] Also referred to as operational assets

[xxii] Additionally, see AUTHOR (2014b), Chapters 3-5.

[xxiii] Because MCTR is recorded as a percent while FDI inflows and outflows are recorded in thousands of dollars, the coefficients and standard error rounded down to the second decimal place (for the sake of brevity and style) do not show the gradation of difference. The actual coefficient value is -0.00027 and the standard error is 0.000012.

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