Are We Racing to the Bottom?
Evidence on the Dynamics of International Tax Competition

by

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Abstract

This paper examines the pervasive claim that mobile corporations increasingly bear no burden of taxation in globalized capital markets shifting the burden to immobile factors. This popular claim is contrasted with the alternative theoretical prediction that capital taxation can persist in global markets through the device of foreign tax credits and the presence of large capital exporters. Evidence is provided in support of the alternative claim whereby race to the bottom incentives are attenuated and capital exporters, not capital importers, dictate the dynamics of international tax competition. By exploiting data on U.S. multinational activities and the composition of tax revenues around the world, this paper demonstrates that race to the bottom incentives appear to be attenuated relative to the popular claim.

I thank Rosanne Altshuler, Harry Grubert, Jack Mintz, and Bill Randolph for helpful comments on an early draft and the Division of Research of Harvard Business School for funding.

I. Introduction

The investment and financing decisions of firms take place in an increasingly globalized context. While this increased globalization can lead to important welfare benefits by providing diversification benefits to investors, this globalization can also potentially make corporations more difficult to monitor and tax and may, as a result, shift the burden of taxation to more immobile factors. Indeed, these heightened levels of globalization and the scope of international capital flows have led to calls for greater harmonization and integration of tax policy around the world in order to maintain tax revenue from corporations. Aside from the important equity implications of decreased corporate tax revenue, the ability to tax corporations can be an important component of a country's ability to tax capital income overall, to capture rents, and to backstop personal income taxes.

This paper examines the claim that mobile corporations increasingly bear no burden of taxation in globalized capital markets shifting the burden to immobile factors. This popular claim is contrasted with the alternative theoretical prediction that capital taxation can persist in global markets through the device of foreign tax credits and the presence of large capital exporters. This alternative prediction rests on the assumption that large capital exporters set world capital tax rates that are not undercut due to the prevalence of foreign tax credits. This potential mechanism that allows capital tax rates to survive in open economies is outlined in Gordon (1992).

Evidence is provided in support of the alternative claim whereby race to the bottom incentives are attenuated and capital exporters, not capital importers, dictate the dynamics of international tax competition. By exploiting data on U.S. multinational activities and the changing composition of tax revenues around the world, this paper demonstrates that the foreign tax credit mechanism appears to alter the incentives of international tax competition. First, evidence that U.S. multinationals increased outbound investment and exhibited greater sensitivity to local taxes in response to the Tax Reform Act of 1986 (TRA) suggests that changes in the tax rates of large capital exporters can trigger a transitional period of tax competition in a manner consistent with the alternative theory. Second, decomposition of the gross product of U.S. multinationals suggests that the burden of income taxation on U.S. firms declined notably over the last sixteen years but the underlying pattern suggests a dynamic driven by the actions of large capital exporters. Moreover, the behavior of indirect business taxes paid by U.S. multinationals also suggests that the foreign tax credit mechanism alters the relative desirability of creditable and noncreditable taxes in a manner consistent with the alternative theory. Third, examining the composition of tax revenues for OECD and developing countries suggests that corporate taxes are not declining in any significant way as economic integration advances further refuting the claim that international tax competition will inevitably drive capital taxes to zero.

This paper is organized as follows. Section II outlines the alternative theoretical arguments regarding the viability of capital taxation in open economies. Section III examines the reaction of U.S. multinationals to TRA in order to assess the importance of foreign tax credits in controlling the dynamics of international tax competition. Section IV examines the burden of taxation borne by U.S. multinationals by employing gross product data that tracks income taxes and indirect business taxes of U.S. multinationals. Section V examines the composition of tax revenues in OECD and developing countries in order to better assess the pressure on corporate taxes as a source of revenue. Section VI concludes.

II. Capital Taxation in Open Economies

In small open economies where capital is perfectly mobile, the net of tax return on domestic investment is fixed by the world market. Any effort to lower that return through source based taxation would lead capital to other countries where they could earn the prevailing rate of return. With global product markets, the burden of taxation must fall on immobile factors suggesting that any optimal tax system would tax those factors directly rather than indirectly in order to reduce possible distortions (Diamond and Mirrlees (1971)). At the same time, efforts to tax capital income through residence based systems will find it difficult to monitor and enforce such taxes given the difficulty in compelling reporting from foreign financial intermediaries. Accordingly, sustaining capital taxation in small open economies would seem neither possible nor desirable.[1]

Accordingly, as the frictions that prevent mobile capital from avoiding taxes decrease, one would expect that the ability of states to rely on capital taxes would diminish as well. The globalization of firm investment and financing decisions over the last twenty years has led numerous commentators to suggest that corporations will no longer serve as an important part of the tax base unless alternative, cooperative regimes of taxing international income are implemented.[2] The proposed multilateral efforts that could stem these so-called race to the bottom dynamics include an extension of the formula apportionment scheme that currently allocates corporate tax revenue among U.S. states.[3] The most recent multilateral efforts include the Ruding Committee from the European Commission which stresses harmonization of rates and standardization of tax bases and the OECD report titled "Harmful Tax Competition: An Emerging Global Issue." The recent OECD report emphasizes restrictions on the actions of tax havens in promoting "unhealthy" tax competition. Unsurprisingly, Switzerland and Luxembourg did not endorse this recent set of guidelines.

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[1] For large, open economies, the ability to alter their terms of trade can lead countries to use taxes and subsidies on capital optimally as originally analyzed by Hamada (1966). More generally, imperfect competition or goods markets can give rise to an alternative logic for maintaining capital taxes.

[2] See, for example, King (1997), McLure (1997), and Tanzi (1995). King (1997), for example, envisions either some form of apportionment or the creation of a "lead tax authority." For an alternative view that stresses the value in race to the bottom dynamics as it forces states to accommodate capital, see Becker (1998).

Despite the intuitive appeal of predictions on declining capital income taxes as economic integration advances, the empirical evidence on the prevalence of race to the bottom dynamics has been limited. Mendoza, Razin and Tesar (1994) examine capital income and corporate income tax rates from 1965 to 1988 in Germany, Italy, France, Japan, the U.K. and the U.S. and do not find evidence of decreased rates over the period.[4] In contrast, Rodrik (1997) has put forth the most forceful case for the link between increased globalization and decreased tax rates on capital. In a panel of eighteen OECD countries from 1965 to 1991, Rodrik finds that annual reductions in capital income tax rates and increases in labor tax rates are explained in part by a lagged measures of openness, defined as the share of gross domestic product devoted to trade. Rodrik interprets this "as strong evidence that as economic integration advances the tax burden … is shifted from capital to labor." (p. 63)

The theoretical predictions regarding the inability to tax capital income in open economies consider purely source-based systems or residence-based systems. However, the hybrid form commonly found in today's open economies involve source-based taxes with an overlay of a residence-based system where home countries tax worldwide income and allow credits for taxes paid to source countries.[5] In this context of foreign tax credits, Gordon (1992) demonstrates that there exist equilibria where capital taxation can persist in open economies. While no Nash equilibria exist that can support capital taxation, a Stackelberg equilibrium exists that supports capital taxation where a large capital exporter acts as a Stackelberg leader and sets world capital tax rates.

The intuition behind this result is fairly straightforward. The adoption of the foreign tax credit by the capital exporting country allows capital importing countries to impose and to collect

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[3] See Munnell (1992) for an application of the unitary and formula apportionment schemes familiar in the U.S. to the international sphere and Mintz (1998).
[4] Tax rates are constructed from tax revenue data and national income measures.
[5] See Giovannini and Hines (1990) for a description of various systems currently in place in the OECD.

taxes in equilibrium, at the capital tax rate imposed by the large capital exporter, as multinational firms receive credits for all those taxes paid to foreign governments. Accordingly, multinational firms are not discouraged from investing abroad and capital importers can earn tax revenue. The large capital exporter, in turn, is allowed to set capital tax rates around the world. Moreover, as the capital importing countries have the same tax rate as the large capital exporter, there is no incentive for capital from the capital exporter to evade the taxation of capital at home. In this manner, capital taxes are sustained despite the perfect mobility of capital. Notably, the crucial assumptions behind this result are the presence of a large capital exporter and the adoption of the foreign tax credit regime.[6] While Gordon (1992) does not fully consider the implications of deferral, it is clear that the ability of multinationals to defer home country taxation until repatriation reduces the value of the foreign tax credit and may serve to restore some of the difficulties in sustaining capital taxation under a source-based system.[7]

This emphasis on the role of foreign tax credits and large capital exporters holds distinct implications for the dynamics of international tax competition. Rather than predicting a secular decline in capital taxes as economic integration increases, this alternative theory suggests that capital taxation can be sustained in equilibrium and that the actions of large capital exporters will govern the dynamics of international tax competition rather than the actions of capital importers. Moreover, the foreign tax credit mechanism will serve as a "floor" on the pressure on corporate taxes and will alter the relative desirability of employing creditable and noncreditable taxes. The following section considers the Tax Reform Act of 1986 (TRA) and the response of U.S. multinationals in order to assess whether a dynamic governed by large capital exporters is

[6] Gordon (1992) notes that a large capital importer cannot act as a Stackelberg leader in sustaining capital taxes and concludes that current capital taxes cannot be explained within this framework as the U.S. turned into a net capital importer by the early 1980s. Nonetheless, it is true that the three largest capital exporters, particularly of foreign direct investment, the U.S., U.K. and Japan, all tax worldwide income and employ foreign tax credits suggesting that the muted incentives to undercut capital taxes he highlights are still quite relevant.

[7] In contrast, Subpart F rules, which closely circumscribe the use of deferral, reinforce the foreign tax credit's role in mitigating international tax competition.

plausible. The response of U.S. multinationals to TRA is also illuminating because the U.K. and Japan implemented similar tax reforms in the 1980s and also operate worldwide systems with foreign tax credits.

III. TRA and the Reaction of U.S. Multinationals

From the perspective of U.S. multinationals, TRA had a number of distinctive features. TRA reduced the corporate statutory rate and broadened the corporate tax base resulting in an increase in the effective tax rate on domestic investment. At the same time, the reduction in the statutory corporate tax rate forced a majority of U.S firms to "transit" from a deficit credit (when average foreign tax rates are below the domestic statutory rate) to excess credit position (when average foreign tax rates exceed the domestic statutory rate).

Theoretically, these changes should combine to have three distinct effects. First, these new excess credit firms should be much more sensitive to local tax conditions as a result of their excess credit status as credits for foreign taxes paid are partial. Second, the reduction in the domestic corporate statutory rate should reduce the incentive of U.S. firms to locate profits abroad artificially for tax reasons. Third, and most importantly, these transiting firms have an additional incentive to globalize their operations toward low-tax countries as the relative price of foreign capital has been reduced for these firms.[8]

Desai (1998) provides evidence that a surge in outbound foreign direct investment from the U.S. in the late 1980s was driven by these incentives and that U.S. multinationals substantively restructured their international operations as a result of heightened sensitivity to host tax rates. Desai considers aggregate time series data that demonstrates this trend in increased FDI after TRA, aggregate country data that evidences greater sensitivity by firms to local tax

[8] Some of these potentially changed incentives are also outlined in Slemrod (1995).

rates,[9] and micro data that establishes that transiting firms globalized their operations aggressively in the aftermath of TRA in response to the reduced relative price of foreign capital. Descriptive statistics from Desai (1998) are summarize in Figures 1A and 1B.

Figure 1A, in combination with the regression evidence provided in Desai (1998), suggests that transiting firms responded aggressively to the changed relative prices of domestic and foreign capital from 1987 to 1990. In fact, controlling for two-digit SIC industry effects and domestic growth, transiting firms grew nearly 20% more quickly abroad than non-transiting firms from 1987 to 1990. Figure 1B further suggests that those outbound flows are highly sensitive to local tax rates. Across a variety of measures of financial and investment activity, U.S. multinationals grew much more quickly in low-tax countries than high-tax countries suggesting increased responsiveness to local tax rates.

In combination, these two results suggest that the alternative dynamic of international tax competition, where reductions in the statutory corporate tax rates of large capital exporters create highly tax-sensitive outbound flows, is highly relevant. This evidence suggests that competition for capital flows will be triggered by the actions of capital exporters and may not necessarily continue indefinately. Multinationals from the large capital exporter will reconfigure themselves until they are no longer in excess credit position, the relative prices of foreign and domestic capital are stabilized, and their sensitivity to local tax conditions are muted once again. Rather than continuous pressure on the corporate tax base, this evidence suggests that statutory tax reductions in large capital exporting countries will trigger transitional periods of tax competition among capital importers.

IV. The Tax Burden Facing U.S. Multinationals

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[9] Altshuler, Grubert and Newlon (1997) provide similar evidence on the increased sensitivity of U.S. multinationals using aggregate tax return data.

The Bureau of Economic Analysis releases gross product data for U.S. multinationals that measures value added and circumvents some of the difficulties of double-counting implicit in other measures of multinational activity.[10] This section employs this data to measure if the tax burden facing U.S. multinationals, through income taxes and indirect business taxes, has shifted perceptibly over the period from 1982 to 1995. The measures of gross product are broken down into profit-type return, net interest paid, employee compensation, indirect business taxes, and a capital consumption allowance.

Figure 2 plots the median and weighted ratio of foreign income taxes to the profit-type return from 1982 to 1995 for all countries and for the OECD subset. This figure demonstrates a significant period of adjustment from 1986 to 1990 that is congruent with the story of rapid adjustment in response to TRA. Interestingly, by 1990, that adjustment appears largely complete and there is limited evidence of any further pressure on foreign income taxes. This evidence is congruent with a transitional period of adjustment by multinationals and countries in the wake of TRA as predicted by the alternative theory. Instead of a secular decline in foreign income taxes paid, the home rate of the U.S. may serve as a floor on downward pressure on corporate taxes paid by U.S. multinationals abroad.[11]

Figure 3 plots the median and weighted ratio of indirect business taxes to gross product from 1982 to 1995 for all countries and for the OECD subset. In the surveys distributed by the BEA, these other taxes are defined as sales, value added, consumption, excise, property, import and export duties, license fees, fines and all taxes other than income and payroll taxes. As noted in Slemrod (1995), the *relative* incentive to employ noncreditable taxes on U.S. multinationals would increase in the wake of TRA as firms are largely in excess credit position after TRA. In

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[10] See Mataloni (1997) for a discussion of this data.

[11] In a similar vein, Grubert, Randolph and Rousslang (1996) provide evidence that TRA triggered a period of increased competition through reduced corporate tax rates. While Desai (1998) stresses firm responses

fact, from 1986 to 1990, the trend does exhibit an upward bounce. After 1990, however, indirect business taxes have sharply fallen. This downward trend in indirect business taxes in combination with the leveling of foreign income taxes after 1990 may be interpreted as suggesting that the foreign tax credit mechanism is providing a floor on creditable taxes and does not prevent downward pressure on noncreditable taxes such as those included in indirect business taxes.

V. Tax Revenue Composition Around the World

This section examines the most direct evidence that can illuminate the dynamics of international tax competition. Rather than focus on tax rates or tax shares of GDP as other studies have,[12] I develop a measure of the share of tax revenue coming from different sources. Such a measure allows one to focus on the share of a given revenue base that originates in corporate taxes as this is the most direct claim originating from race to the bottom logic. The International Monetary Fund collects detailed compositional data on tax revenue and publishes it in their Government Finance Statistics Yearbook. Using a time series from 1972 to 1994, I construct a measure of the share of adjusted tax revenue that is made of income taxes, taxes on domestic consumption, property taxes, and international taxes. Finally, within income taxes, I break out the share of all adjusted tax revenue that is made up of corporate income taxes. Adjusted tax revenue is defined as annual tax revenue less social security contributions. Consideration of other revenue sources, including social security contributions, does not alter the results that follow.

Figures 4A and 4B provide the median and average shares of adjusted tax revenue for 22 OECD countries. The most clearly discernible trend in this data is the diminishing importance of taxes on international transactions. The average international transaction tax share for the OECD

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through increased outward investment and increased sensitivity, Grubert, Randolph and Rousslang (1996) point to increased efforts by host governments to attract foreign investment through reduced tax rates.

[12] See Mintz (1998) and Mendoza, Razin and Tesar (1994) for such efforts.

fell from almost 8% to 2% between 1972 and 1994. Property taxes have remained a small but stable component of tax revenues. There does appear to be some evidence that income taxes have declined and taxes on domestic consumption have increased during the 1990s as a revenue source for governments. This shift away from income and to consumption as a tax base does fit within the theory that income, which is more mobile and less observable, will give way to consumption as a tax base source. Notably, corporate tax revenue shares do not demonstrate any appreciable downward trend other than an expected cyclicality. As such, this absence of any clear downward pressure on corporate taxes as a revenue source implies that claims suggesting a secular decline in the ability to tax corporations are inflated. Figure 5 provides this same evidence with all values normalized to 1972 values.

Unfortunately, similar tax revenue shares for developing countries are more difficult to obtain. Figure 6 provides the corporate tax revenue share for the eight developing countries where a significant history exists for this data. While this sample is sharply limited, it does contain a number of countries that have succeeded in attracting sizable foreign direct investment flows. Again, no appreciable downward trend is apparent and some countries appear to be increasing their reliance on corporate tax revenues.

The relative stability of corporate tax shares and the sharply reduced burden of income taxes for U.S. multinationals from 1986 to 1990 are difficult to reconcile. One apparent explanation is that countries may have succeeded in discriminating between countries and between domestic and foreign investors in their tax policy. While such discrimination is difficult to enforce, it is optimal when faced with investors from countries with and without foreign tax credits and domestic investors.

VI. Conclusion

This paper has contrasted the pervasive claim that taxation on mobile corporations will diminish in importance as economies become more and more integrated with the claim that capital taxation can persist in an open economy. From a theoretical perspective, this paper investigates if the persistence of capital taxation as a meaningful source of revenue in an integrated world depends on the existence of large capital exporters and the prevalence of foreign tax credit schemes. The paper provides evidence that actions of large capital exporters do indeed influence the dynamics of international tax competition and that the foreign tax credit mechanism does seem to attenuate race to the bottom incentives.

This evidence comes from three sources. First, the reaction of U.S. multinationals to the TRA illuminates this contrast in that U.S. multinationals appear to have responded quickly to the changed relative price of foreign capital and to have become much more sensitive to local tax rates in the wake of TRA. This evidence suggests that home country tax changes of capital exporters and the foreign tax credit status of exporting firms can have important implications for the dynamic of international taxation as they create highly tax sensitive outbound flows from large capital exporters. These flows, in turn, can trigger a transitional period of tax competition among capital importers. Second, the gross product evidence on the sharply reduced burden of income taxes on U.S. multinationals from 1986 to 1990, the subsequent stability of income taxes after 1990, and the behavior of indirect business taxes throughout this period suggests that foreign tax credits may serve as a floor on the competitive pressure to reduce income taxes on corporations and that countries respond to the altered relative desirability of creditable and noncreditable taxes introduced by a tax change in a large capital exporter. Finally, examination of the tax revenue data of OECD and developing countries further suggests that there are mitigating factors that reduce the downward pressure on corporate taxes as a revenue source. In sum, the paper offers evidence that race to the bottom dynamics are attenuated relative to the pervasive claim and that foreign tax credits and the presence of large capital exporters may explain why race to the bottom dynamics are not as prevalent as expected.

The evidence provided in this paper is not a recipe for complacency in monitoring potentially harmful tax avoidance activities. Indeed, while this paper emphasizes how the foreign tax credit mechanism places a floor on tax competition, the myriad information-sharing agreements and bilateral treaties already in place are also important mechanisms in deterring illegal avoidance activities. Instead, the evidence in this paper suggests that the creation of new multilateral institutions or procedures should proceed with caution until the dynamics of international tax competition are more fully understood.

Figure 1A
U.S. Multinational Investment Growth, 1987-1990, by Firm's 1987 Foreign Tax Status

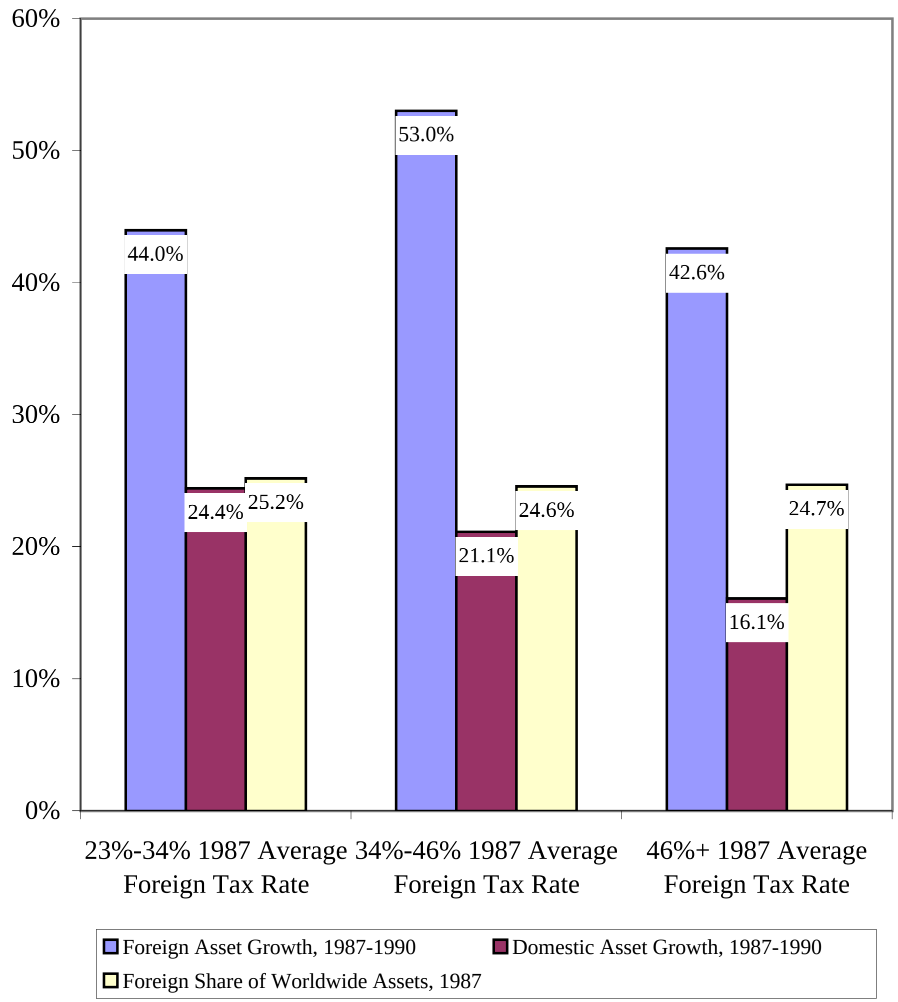
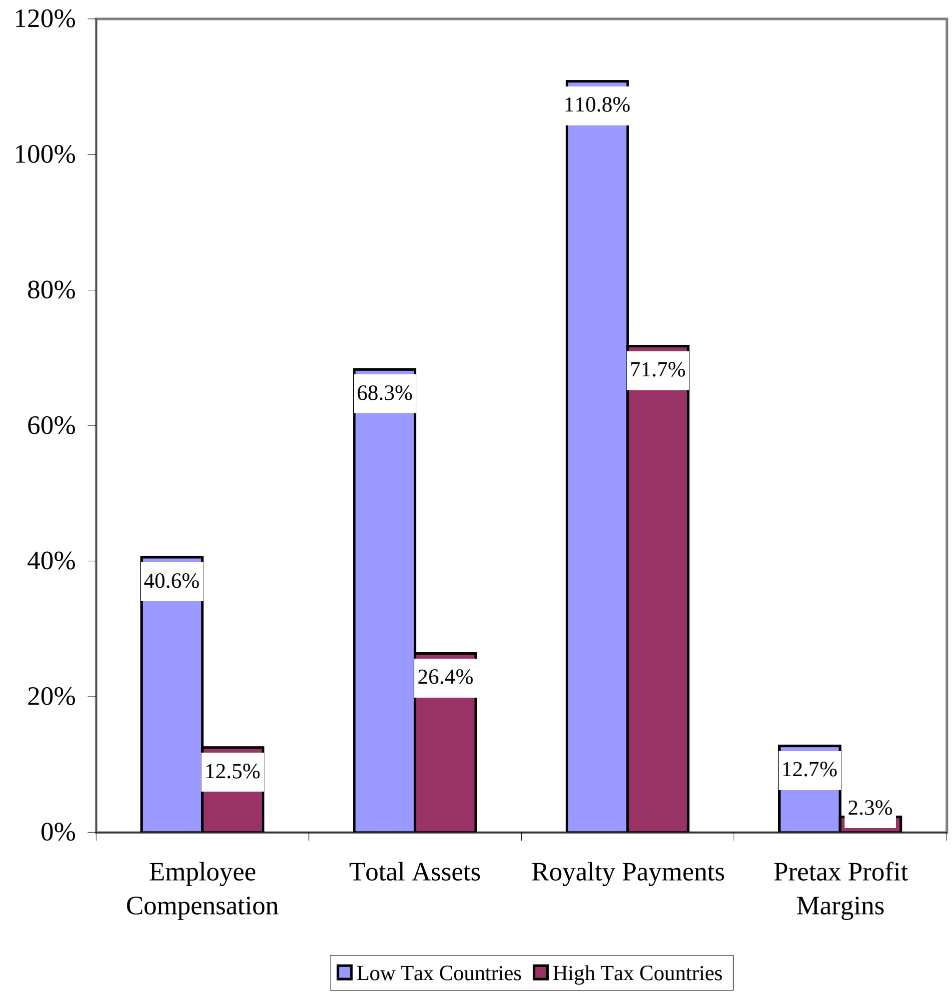


Figure 1B
U.S. Multinational Activity % Change, 1982-1989, by Tax Rates of Country



Source:

Figure 2
Ratio of Foreign Income Taxes to Profit Type Return for U.S. Multinationals, 1982-1995

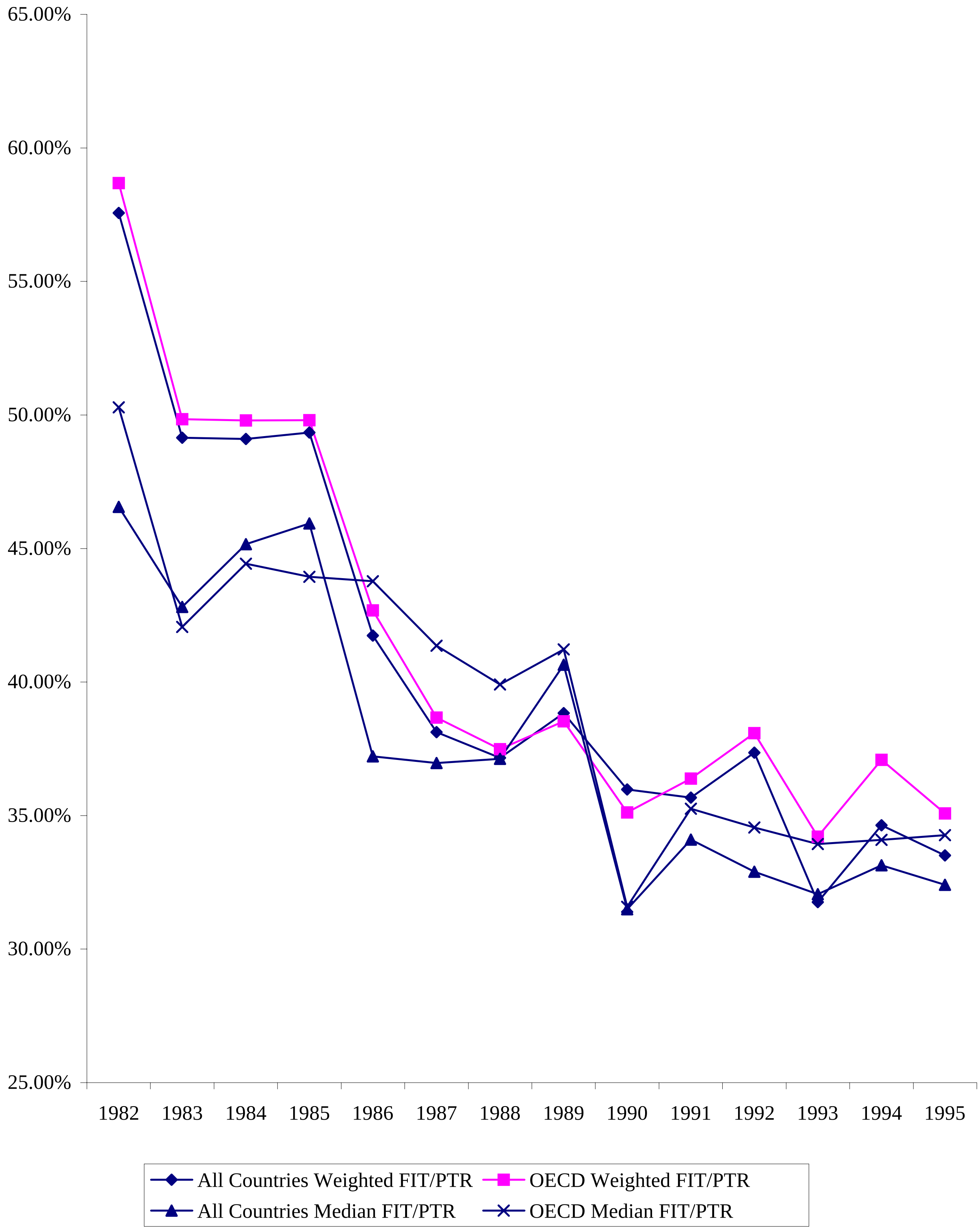


Figure 3
Ratio of Indirect Business Taxes to Total Gross Product for U.S. Multinationals, 1982-1995

Figure 4A
Shares of Tax Revenues for 22 OECD Countries, 1972-1994

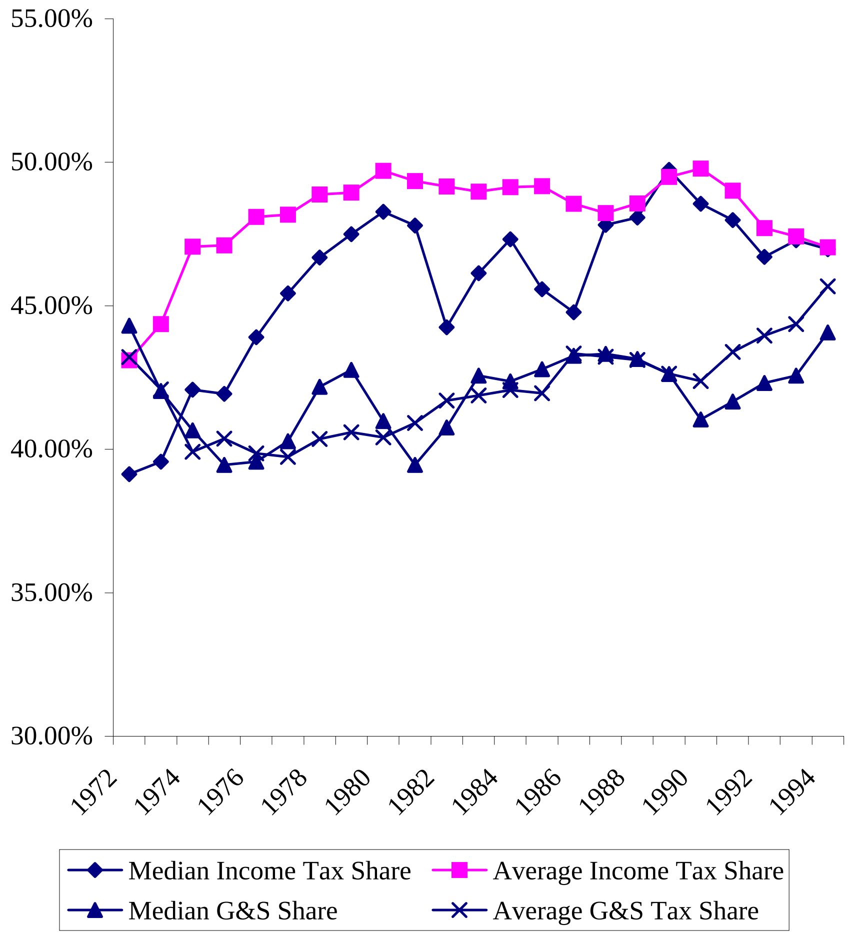


Figure 4B
Shares of Tax Revenue for 22 OECD Countries, 1972-1994

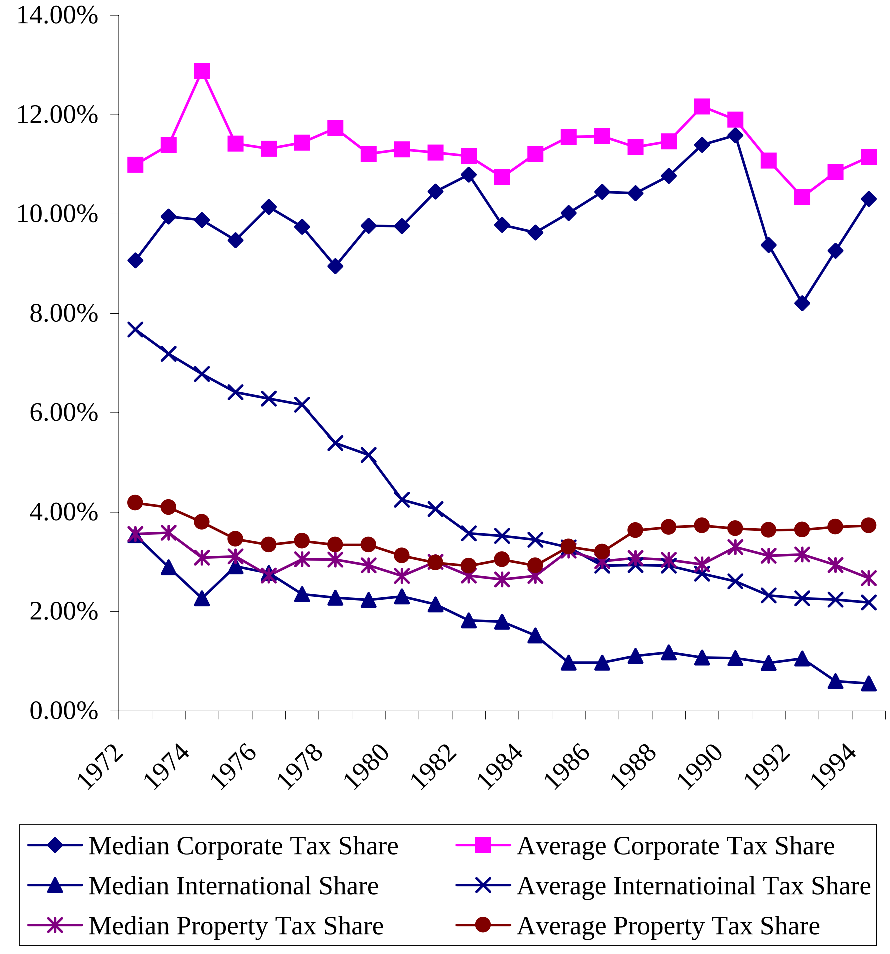


Figure 5
Tax Base Shares, Averages for 22 OECD Countries indexed from 1972 for 1972-1994

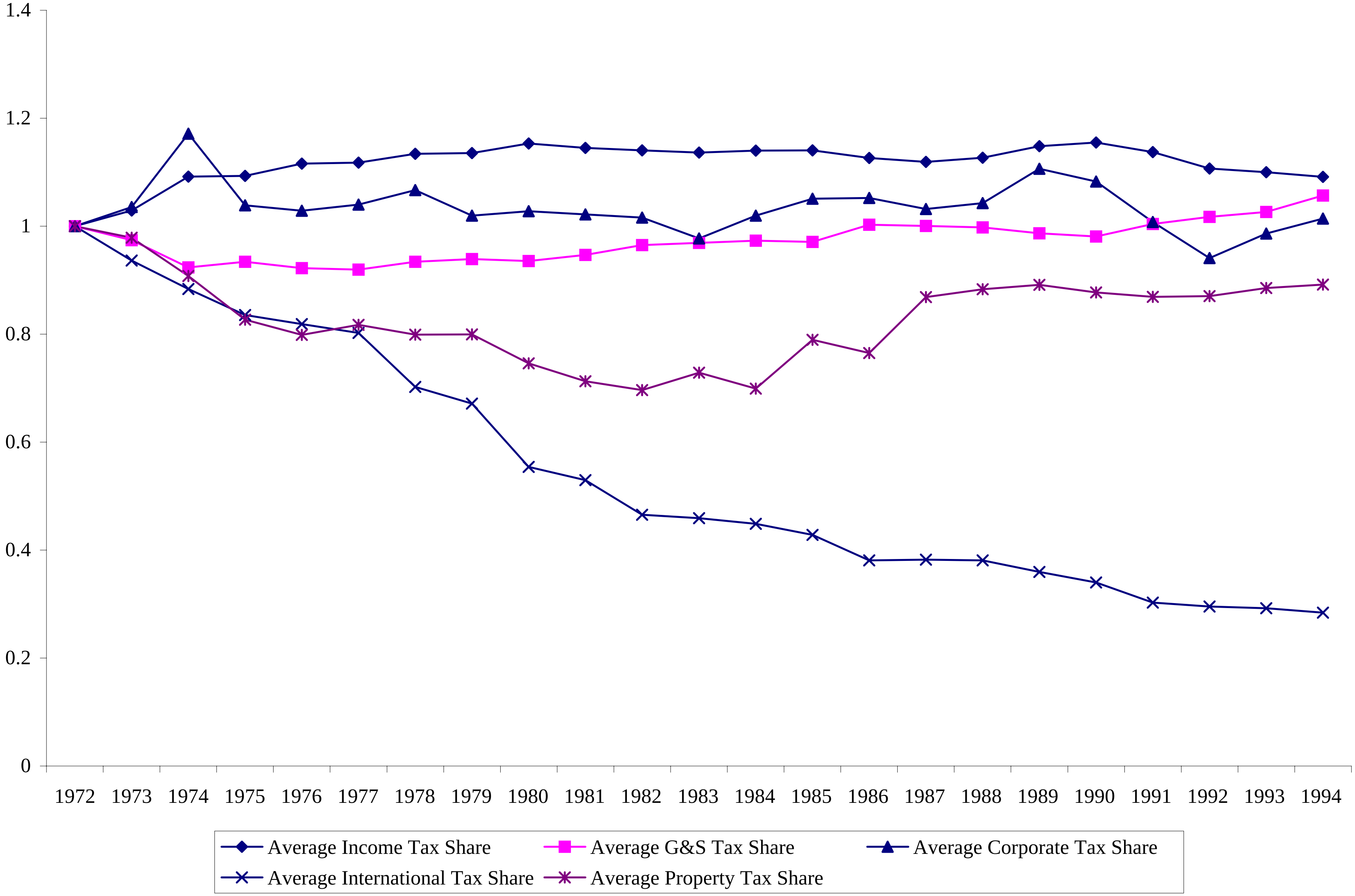
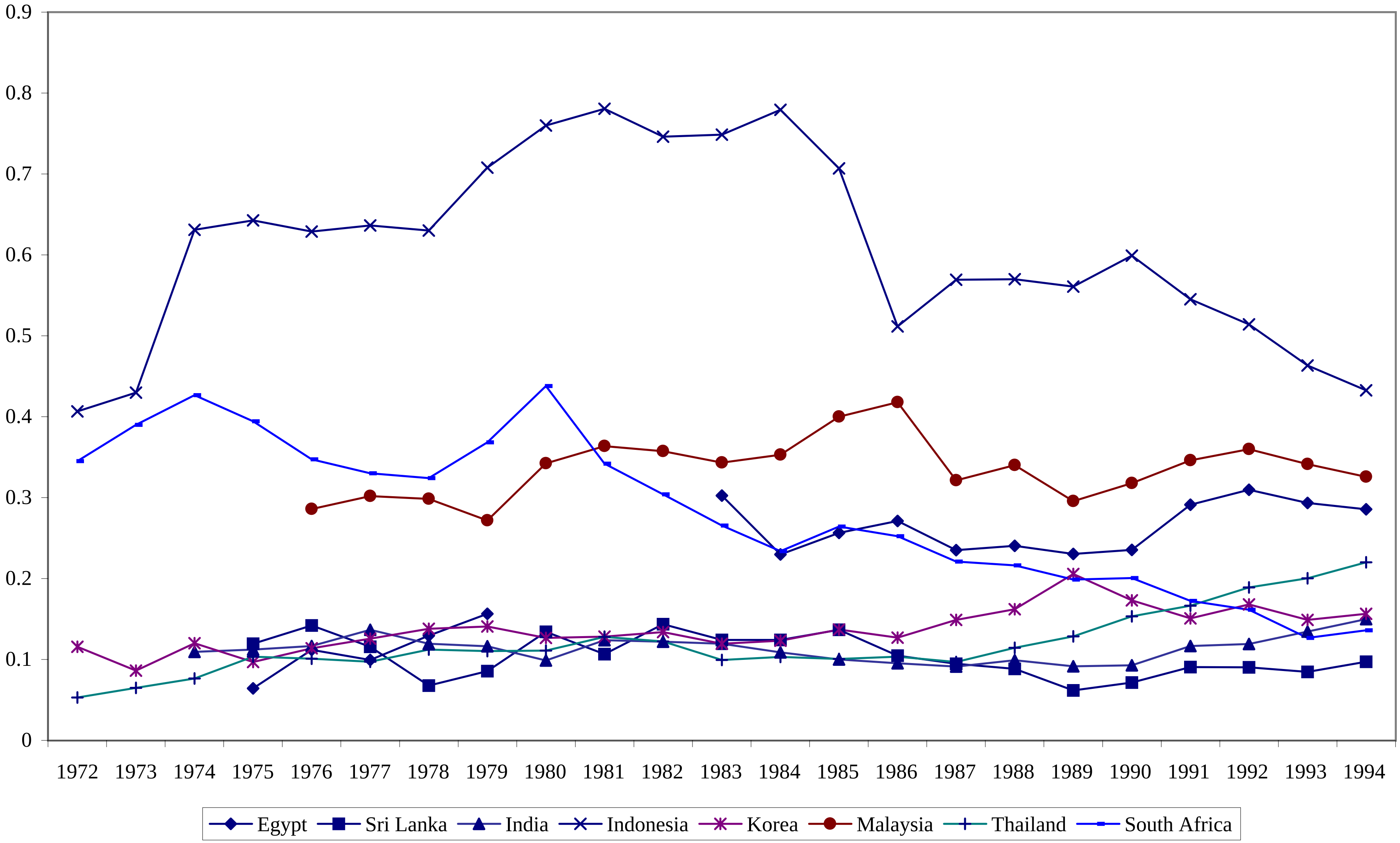


Figure 6
Ratio of Corporate Tax Revenue to Total Tax Revenue in Developing Countries, 1972-1994



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