Coordination of Transfer Prices on Intra-Firm Trade

Abstract: Transfer prices set on intra-firm trade impact income tax payments that multinational firms make in the different countries in which they operate. At the same time, these prices impact tariff payments made on intra-firm imports. Our study examines the transfer pricing behavior of firms that are subject to both types of payments. We find evidence consistent with less income-tax-motivated income shifting when income tax benefits from shifting are lost to additional tariff payments. In fact, results suggest that when both payments cannot be minimized with a single transfer price and the expected tariff payment is considerable, firms set transfer prices consistent with tariff minimization rather than income tax minimization. Additionally, we find that corporate coordination in setting transfer prices and the presence of a coordinated income tax and tariff enforcement regime further strengthens firms' apparent focus on tariff minimization.

1.   Introduction and Motivation

There is a large body of research that examines factors which influence transfer prices on intra-firm trade. The most prominently featured factors are the incentive to achieve optimal investment of multidivisional (but not necessarily multinational) firms (e.g., Anctil and Dutta [1999]; Baldenius et al. [1999]) and the desire to minimize income tax payments of multinational firms (see Hines [1997]; U.S. Treasury [2007]; U.S. GAO [2008] for a review). When multiple transfer pricing motivations are present, Baldenius et al. [2004] highlights that competing tax and non-tax objectives cannot be jointly optimized with a single transfer price. Our study examines transfer pricing behavior on intra-firm trade in the presence of competing *tax* objectives – the desire to jointly minimize the firm's tariff payments and the firm's income tax payments.[1]

We highlight three key findings: First, when firms cannot achieve tariff minimization and income tax minimization with a single transfer price (i.e., conflicting incentives), we find evidence to suggest that firms place relatively less emphasis on income tax minimization when setting transfer prices. Second, when firms facing conflicting incentives are more likely to coordinate their tax planning activities to minimize aggregate tax payments, they place even less emphasis on income tax minimization. Third, when firms facing conflicting incentives operate in jurisdictions with coordinated governmental enforcement of tariffs and income taxes, they place even less emphasis on income tax minimization. Our findings are consistent with tariffs having a

---

[1] A tariff is a trade tax collected on imported goods. Throughout the paper, we use the terms 'tariff' and 'income tax', though both payments are 'taxes'. According to OECD [2010], the five major sources of tax revenue for a country are 1) taxes on income, profits, and capital gains, 2) social security contributions, 3) taxes on payroll and workforce, 4) taxes on property, and 5) taxes on goods and services. Tariffs fall under 5). To provide some perspective on the economic importance of tariffs—also called 'customs duties'—OECD [2010] reports that tax revenue from i) customs and import duties, and ii) corporate income, profits, and capital gains, as a percent of total tax revenue are 3 and 8 percent, respectively. These figures include all OECD countries and cover the time period 1965 through 2008. Interestingly, although tariff payments provide over a third of the total tax revenue that income taxes provide, the empirical transfer pricing literature is rather void of empirical analyses of tariff payments. Export tariffs provide 1/10th of one percent of total tax revenue in OECD countries and are, more generally, immaterial in global trade [OECD 2010]. Thus, we do not examine export tariffs.

significant influence on transfer pricing behavior and suggest that strategic tax minimization may lead firms to trade-off higher income tax payments for lower tariff burdens.

Clausing [2003] and Bernard et al. [2009] report that approximately 40 percent of all international U.S. trade in goods is intra-firm trade, making transfer prices on intra-firm trade a particularly important avenue through which U.S. multinational firms can shift income from high income tax to low income tax countries (e.g., Grubert [2003]). Conflicting tax minimization objectives arise on intra-firm trade because transfer prices affect the tax base used to determine both tariff payments and income tax payments of the firm. For instance, a firm reduces its tariff payments on a given import transaction by *understating* the value declared. However, if the import is from a country with a relatively lower income tax rate, then the firm reduces its income tax payments by *overstating* the value declared.

Firms that engage in intra-firm trade must coordinate the setting of transfer prices and the supporting documentation across the tax and customs functions in order to reduce aggregate tax payments – tariffs and income taxes – made to governments. Additionally, governments must coordinate enforcement to ensure that firms with competing tax minimization objectives cannot report widely inconsistent transfer prices for tariff and income tax purposes. Therefore, our study has two objectives: to understand the transfer pricing behavior of firms subject to both tariffs and income taxes, and to explore how coordination – at the country level and firm level – influences the joint minimization of these payments.

The empirical transfer pricing literature relies almost exclusively on documenting a negative relation between income tax rates and pre-tax income (e.g., Klassen et al. [1993]; Harris [1993]; Jacob [1996]; Grubert [2003]; Markle [2010]).[2] Yet, Christensen et al. [2001] highlights that income taxes represent 27 percent of total taxes paid by corporations, while indirect business

---

[2] Swenson [2001] is a notable exception as we discuss later.

taxes – including tariffs – represent 46 percent.[3] Desai et al. [2004] finds that foreign direct investment is more sensitive to indirect taxes than income taxes, suggesting indirect taxes (including tariffs) can have a greater impact on decision-making. More particular to our setting, Tang [1993] reports that in a 1990 survey, U.S.-based multinational firms ranked income taxes and import tariffs as number 2 and 5 in order of importance in transfer pricing decisions, respectively. Import tariffs constitute 3 percent, on average, of total tax revenue in OECD countries and as much as 30 percent of total tax revenue in developing countries.[4] The coordination of transfer pricing of related party transactions for income taxes and customs purposes is also increasingly attracting the attention of governments and businesses; it was the subject of two major conferences jointly organized by the World Customs Organization (WCO) and the Organization for Economic Cooperation and Development (OECD) in May 2006 and May 2007 (Ping and Silberzstein [2008]). Consequently, we believe that an empirical examination of the transfer pricing of intra-firm trade in goods should consider incentives created by both tariffs and income taxes.

Using firm-level data collected by the Bureau of Economic Analysis (BEA) over a 23 year period, we contribute to the transfer pricing literature by examining the impact of tariffs on income-tax-motivated transfer pricing behavior. We identify situations where income shifting creates income tax benefits but also additional tariff payments (transfer pricing incentives 'conflict'). We contrast these "conflicting" situations to those where income shifting reduces both income taxes and tariffs (transfer pricing incentives 'align'). Our empirical tests characterize the presence of conflicting incentives as having a moderating effect on the well-

---

[3] Indirect business taxes (e.g., sales, excise, property, tariffs) represent 46 percent of total taxes paid by corporations, while social insurance contributions (e.g., unemployment, disability, and workers' compensation) represent the remaining 27 percent.

[4] OECD [2010] and http://www.wto.org/english/forums_e/ngo_e/posp44_nftc_tarif_paper_e.pdf

documented negative relation between income tax rates and pre-tax income. Consistent with tariff minimization influencing transfer pricing decisions, for the subset of our sample with conflicting transfer pricing incentives, we find a less negative relation between income tax rates and pre-tax income. In fact, when the expected tariff payment is considerable, we document a positive relation between income tax rates and pre-tax income.

There are compelling reasons why finding that firms emphasize tariff minimization (in the presence of competing incentives) should be of broad interest. First, trade taxes (i.e., tariffs) are not creditable (i.e., do not create foreign tax credits) for U.S.-based multinational. In contrast, income tax benefits achieved from transfer pricing, particularly those generated from shifting income out of the U.S. to a low-tax jurisdiction, for a U.S.-based multinational firm, in most cases, represent only temporary tax savings.[5] Second, tariffs and income taxes have different effects on accounting measures of performance. Tariff payments are part of cost of goods sold and so tariff minimization increases pre-tax income, whereas income tax minimization increases only after-tax income (i.e., net income), reducing effective tax rates. Evidence presented in Robinson [2010] suggests that some firms place more importance on pre-tax, rather than after-tax, measures of performance, and may therefore prefer to focus on tariff minimization. Third, tariff payments, unlike income taxes, do not vary with profitability. Thus, firms may establish transfer pricing methods and documentation policies which focus on reducing tariff payments because these payments will be made regardless of a firm's profitability. Finally, multinational firms can obtain tax savings from income shifting via alternative means (i.e., royalties, management fees, interest). Tariff minimization may be a

---

[5] That is, upon repatriation of foreign earnings, U.S. firms are able to utilize the foreign income taxes paid to offset the residual taxes upon repatriation. Tariff minimization can therefore be thought of as total tax minimization (or joint minimization of tariffs and income taxes) in our setting. If tariff minimization is a permanent benefit, whereas income tax minimization is a temporary benefit, then reducing tariffs results in a reduction in total tax payments.

priority in transfer pricing decisions made on intra-firm trade whereas income tax minimization may be a priority in other settings.

Because joint minimization of tariffs and income taxes requires a coordinated effort within the firm, we investigate the extent to which various corporate attributes influence transfer pricing behavior in our setting. In order for a firm to respond to conflicting transfer pricing incentives arising from income taxes and tariffs, management must be aware of the competing objectives and consider the conflict when setting transfer prices. Firm heterogeneity in the coordination of income taxes and tariffs may operate through two channels.

First, it is common for firms to separate their tax and customs functions within the organization, which may impact the *ability* to coordinate tax minimization. The Tax Executive Institute [TEI, 2005] reports that customs functions interact with the corporate tax department in less than 20 percent of their respondent firms. TEI [2005] also reports that a significantly greater proportion of small firms and private firms integrate the tax function into the firm's Enterprise Resource Planning (ERP) system, which allows different departments to share information.[6] Second, there is variation in the financial reporting consequences of income tax and tariff payments, which may impact the *desire* to coordinate tax minimization. Robinson et al. [2010], Armstrong et al. [2010], and TEI [2005] report that reductions in the effective tax rate are commonly a basis on which tax directors are compensated. As noted above, only income tax minimization decreases the firm's effective tax rate. Consequently, the corporate tax department - seeking to minimize the firm's effective tax rate – may unknowingly bind the customs function to a transfer price that creates additional tariff payments.

---

[6] ERP is an information technology system which supports all the business processes within an organization, such as purchasing, sales and accounting, with data being exchanged between departments. Joint minimization of tariffs and income taxes requires coordination across corporate tax departments and operations or logistics departments

We measure the extent of coordination that is likely to exist within the firm using a number of proxies. We expect and find that small firms, private firms, and firms that engage in more extensive amounts of intra-firm trade, all show greater tendencies towards tariff minimization when transfer pricing incentives conflict. We also find that the presence of a U.S. expatriate in the foreign affiliate and the declaration of the U.S. dollar functional currency for an affiliate, a proxy for centralized U.S. management of the foreign operation (Robinson and Stocken [2010]), are characteristics of firms that appear to place a greater emphasis on tariff minimization when faced with conflicting objectives.

We also examine whether governmental coordination affects transfer pricing behavior in our setting by influencing the likelihood that firms with conflicting objectives could achieve joint minimization of both tariffs and income taxes by using two different transfer prices. Using data from OECD [2006, 2009], we consider measures of whether a country has integrated the administration and enforcement of customs and income tax, or conducts integrated tax audits. We expect and find that the moderating effect of the conflict on income-tax-motivated income shifting is stronger when tax administration and enforcement is coordinated across taxes. This result suggests that when a firm with conflicting incentives *cannot* use different transfer prices for customs and income taxes, they show even greater tendencies towards tariff minimization. By incorporating these cross-country tax administration variables, we provide evidence on how tax administration other than transfer pricing regulations (such as those examined in Mescall [2010]) affect transfer pricing behavior.

Section 2 provides necessary background, Section 3 develops hypotheses, Section 4 describes the data and research design, Section 5 report empirical results; Section 6 concludes.

2.   *Background*

2.1   RELEVANT LITERATURE

Horst [1971] and Kant [1995] produce models that predict that intra-firm trade prices will be affected by the tax minimization strategies of multinational firms. There is a large literature that provides indirect evidence of transfer pricing (see Hines [1997] and U.S. Treasury [2007] for a review), generally relying on statistical relationships between income tax rates and pre-tax income. Other studies obtain transaction level data and examine how the transfer prices of intra-firm transactions differ from those of non-intra-firm transactions (e.g., Clausing [2003], Swenson [2001], Bernard et al. [2006]). Clausing [2003] analyzes monthly data on U.S. international trade prices between 1997 and 1999 and finds that the U.S. has less favorable intra-firm trade balances with low tax countries. This result is anticipated if multinational firms are manipulating transfer prices in order to shift income to low tax countries. For example, there would be an incentive to underprice U.S. intra-firm exports to low tax countries and overprice U.S. intra-firm imports from such countries, following the opposite strategy with respect to transactions with high tax countries. Tariffs are not considered in Clausing [2003].

Swenson [2001] examines the reported customs values of U.S. imports from Canada, France, Germany, Japan, and the U.K between 1981 and 1988. The products in her dataset are imported by foreign controlled U.S. subsidiaries and the product prices are reported at the country, rather than firm, level. Swenson computes a single transfer pricing incentive variable that incorporates incentives created by both tariffs and income taxes and finds that reported prices rise when the combined effect of income taxes and tariffs provide incentives for firms to overstate prices. Bernard et al. [2006] examines the price of U.S. exports of U.S.-based multinational firms and finds, in separate analyses, that lower prices are set for goods exported to

7

countries with lower corporate tax rates and countries with higher tariffs. While, both Swenson [2001] and Bernard et al. [2006] recognize the importance of tariffs and income taxes in setting transfer prices on intra-firm trade, these studies do not examine directly the competing tax minimization objectives that arise at the firm-level.

We study firms' transfer pricing behavior when joint minimization of tariffs and income taxes with a single transfer price cannot be achieved. The notion that firms may face competing objectives in setting transfer prices is examined analytically in Halperin and Srinidhi [1991] and Baldenius et al. [2004]. Halperin and Srinidhi [1991] provides insight on how coordination within the firm impacts transfer pricing decisions. In particular, multinational firms are characterized as centralized, whereby top management chooses the transfer price and output or production levels, or decentralized, whereby top management choses transfer prices and affiliate managers chose output or production levels. In decentralized firms, it is difficult for top management to determine a transfer price that optimizes both tax efficiency and resource allocation. Although our empirical analysis is not intended to be a direct test of Halperin and Srinidhi [1991], we do examine how coordination within the firm influences transfer pricing behavior in the presence of competing tax minimization objectives.

Baldenius et al. [2004] highlights that external factors (i.e., differences in income tax rates) and internal factors (i.e., resource allocation) cannot be jointly optimized with a single transfer price. In their setting, the firm decouples its transfer prices so that it records an internal transfer price to optimize managerial concerns and an external transfer price to minimize tax expense. Our study is related to Baldenius et al. [2004] because tariff and income tax minimization cannot be achieved with a single transfer price due to the introduction of *competing external factors*. Our setting suggests that decoupling may be particularly advantageous for firms

facing tariffs and income taxes as it offers additional flexibility for tax planning without jeopardizing managerial incentives.

2.2   TRANSFER PRICING INCENTIVES – INCOME TAXES

A simple model of income-shifting involves a multinational firm earning income in affiliated businesses located in jurisdictions that impose different income tax rates. In such a setting the objective is generally to locate as much income as can be sustained under scrutiny by tax authorities in affiliates located in low tax jurisdictions. Consider a U.S.-based multinational firm operating in a single foreign jurisdiction whereby the U.S. parent engages in intra-firm trade with its sole foreign affiliate. The firm faces an income tax rate in the U.S., t_{US}, and in the foreign jurisdiction, t_f, If $t_f < t_{US}$, then shifting \$1 of income into the foreign jurisdiction from the U.S. lowers the firm's tax burden by $-\$1 \times (t_f - t_{US})$. Alternatively, if $t_f > t_{US}$, then shifting \$1 of income into the U.S. from the foreign jurisdiction lowers the firms tax burden by $\$1 \times (t_f - t_{US})$.[7] That is, a higher value of t_f is expected to be associated with a lower amount of reported income in the foreign jurisdiction, and vice versa. Numerous studies have documented this negative relation between income tax rates and reported income, consistent with income shifting behavior.

As income is equal to revenues minus expenses, either overstating revenues or understating expenses in the low tax jurisdiction would increase income recognized in the low tax jurisdiction and lower the income tax burden of the multinational firm. Thus, when $t_f < t_{US}$, income can be shifted into the low tax foreign jurisdiction from the U.S. by having the foreign

---

[7] The fact that U.S. based multinational firms operate under a worldwide tax system somewhat complicates this example. If the firm in this example has two affiliates, one operating in a high tax jurisdiction and one operating in a low tax jurisdiction, then the residual tax liability due upon the repatriation of earnings from these affiliates could be reduced to zero. This is because the excess taxes paid in the high tax jurisdiction can be credited against the residual tax due from earnings in the low tax jurisdiction. Importantly, this suggests that the tax benefits of shifting income into low tax affiliates and out of high tax affiliates is potentially a zero sum game. In contrast, tariff minimization (described later) creates permanent tax savings.

affiliate sell goods to its U.S. parent for a high price or purchase goods from its U.S. parent for a low price. Alternatively, when $t_f > t_{US}$, income can be shifted into the low tax U.S. jurisdiction by having the foreign affiliate sell goods for a low price to its U.S. parent or purchase goods for a high price from its U.S. parent.

2.3   TRANSFER PRICING INCENTIVES – TARIFFS

For customs purposes, the transfer price set by the firm impacts the determination of customs value, which is the tax base that determines the tariff payment. The lower the transfer price, the lower the customs value and the applicable tariff payment. Thus, in contrast to income taxes, tariffs unambiguously create incentives for a multinational to understate the value of the goods on intra-firm trade because the purchaser will incur a larger tariff payment on higher values. Because a tariff payment increases expenses, it decreases income, and the income tax benefit reduces the burden of the tariff payment (e.g., the tariff payment is tax deductible). Consequently, in our empirical analysis, we measure expected tariff payments net of the income tax benefit.

Suppose a foreign affiliate faces a tariff payment imposed at a rate, $Tariff_f$, on imports from its U.S. parent.[8] Understating the cost of the goods by \$1 will reduce the actual tariff payment by \$1× $Tariff_f$. Thus, in the absence of income tax minimization objectives, a lower purchase price should always be preferred to a higher price if $Tariff_f > 0$. The tariff payment is

---

[8] The example could also be framed as the U.S. parent faces a tariff payment, $Tariff_{US,}$ on imports from its foreign affiliate. We consider both cases in our study. However, for simplicity, here we only offer one example. We focus on import tariffs because export tariffs provide only $1/10^{th}$ of one percent of total tax revenue in OECD countries and are, more generally, immaterial in global trade [OECD 2010]. Import tariffs, on the other hand, represent 3 percent, on average, of total tax revenue in OECD countries (OECD [2010]. A tariff is one method of protectionism, an economic policy in which a government restricts trade to protect its own industries and people. Typically, governments prefer to use import tariffs as methods of economic protection, as they raise the price for foreign companies to import their goods. Export tariffs, on the other hand, raise the price for domestic companies to export their goods and are therefore viewed as harmful to the domestic economy.

deductible in the foreign jurisdiction for purposes of determining the income tax base making the

after-tax cost of the tariff equal to $Tariff_f \times (1 - t_f)$.

2.4   TRANSFER PRICING INCENTIVES – COMBINING INCOME TAXES AND TARIFFS

Figure 1 illustrates two situations where transfer pricing incentives induced by income

taxes conflict with incentives induced by tariffs: i) a foreign affiliate is importing from the U.S.

parent (i.e., U.S. exports) and $t_f > t_{US}$, or ii) a foreign affiliate is exporting to the U.S. parent (i.e.,

U.S. imports) and $t_f < t_{US}$.

Figure 1: Transfer Pricing Incentives with Income Taxes and Tariffs
(Reference to Scenario # in Appendix A1 and A2)

	Affiliate is high tax relative to U.S. Parent $t_f > t_{US}$	Affiliate is low tax relative to U.S. Parent $t_f < t_{US}$
Affiliate imports from U.S. Parent (i.e., U.S. Exports)	**Conflict** (Scenario 2)	Align (Scenario 1)
Affiliate exports to U.S. Parent (i.e., U.S. Imports)	Align (Scenario 4)	**Conflict** (Scenario 3)

Thus, transfer pricing incentives *conflict* for U.S. exports to high tax countries and U.S. imports

from low tax countries. Alternatively, transfer pricing incentives *align* for U.S. exports to low tax

countries and U.S. imports from high tax countries. Appendix A1 and A2 provide numerical

illustrations of the transfer pricing incentives created by jointly considering tariffs and income

taxes on intra-firm trade.

The effect of tariff payments on income-tax-motivated transfer pricing incentives

depends critically on two things. First, the sign of the income tax rate differential, $(t_f - t_{US})$,

between the trading partners is important because it determines whether the income tax

minimization incentive is to overstate or understate income in the foreign jurisdiction. Second,

the direction of trade is important because it determines whether opportunities to shift the income

tax base via intra-firm trade are available through revenues versus expenses. Depending on the

combination of these two key factors, the income tax benefits associated with income shifting may be offset by additional tariff payments (the transfer pricing incentives 'conflict'), or alternatively, reduced tariff payments may complement the income shifting strategy (the transfer pricing incentives 'align').

Consider Scenarios 2 and 4 in Figure 1 where $t_f > t_{US}$. The firm has incentives to understate income in the high tax foreign jurisdiction. Considering only income taxes, shifting \$1 of income out of the foreign jurisdiction (and into the U.S.) lowers the firm's tax burden by \$1 × $(t_f - t_{US})$. However, there are two ways to shift the income tax base on intra-firm trade. If a high tax foreign affiliate is *selling* to a low tax U.S. parent (Scenario 4), understating income in the foreign jurisdiction will be accomplished by *understating* the price of the goods *sold* to the U.S. parent. Referring to Scenario 4 in Appendix A2, when the foreign affiliate understates the price of the goods sold to the U.S. parent by \$1, the firm reduces its tariff payment by 3¢ [i.e., \$1 × *Tariff*$_{US}$ of 3 percent], and reduces its income tax payment by 4¢ [i.e., \$1 × $(t_f - t_{US})$ − (*Tariff*$_{US}$ × t_{US})]. Both tax payments are reduced with a single transfer price, where the total tax savings is 7¢ [i.e., \$1 × $(t_f - t_{US})$ + *Tariff*$_{US}$ × $(1 - t_{US})$]. Alternatively, if a high tax foreign affiliate is *buying* from a low tax U.S. parent (Scenario 2), understating income in the foreign jurisdiction will be accomplished by *overstating* the price of the goods *purchased* from the U.S. parent. Referring to Scenario 2 in Appendix A1, when the foreign affiliate overstates the price of the goods purchased from the U.S. parent by \$1, the firm increases its tariff payment by 3¢ [i.e., \$1 × *Tariff*$_f$], and reduces its income tax payment by 6¢ [i.e., \$1 × $(t_f - t_{US})$ + (*Tariff*$_f$ × t_f)]. The net tax savings in Scenario 2: Case 1 is 3¢.[9]

---

[9] Importantly, this example ignores the possibility that the firm may have been able to use the tax payment in the high tax jurisdiction to offset residual tax due from a low tax jurisdiction in a future period. If this is the case, the firm in Scenario 2: Case 1 incurs a net tax cost of 3¢. By not having earnings in a high tax jurisdiction to use in the

Scenarios 1 and 3 in Figure 1 produce a similar result. Here, the firm has incentives to overstate income in the low tax foreign jurisdiction (i.e., $t_f < t_{US}$). Considering only income taxes, shifting \$1 of income into the foreign jurisdiction lowers the firm's tax burden by $-\$1 \times (t_f - t_{US})$. If a low tax foreign affiliate is *selling* to a high tax U.S. parent, overstating income in the foreign jurisdiction will be accomplished by *overstating* the price of the goods *sold* to the U.S. parent. Referring to Scenario 3 in Appendix A2, when the foreign affiliate overstates the price of the goods sold to the U.S. parent by \$1, the firm increases its tariff payment by 3¢ [\$1 × $Tariff_{US}$][10], and reduces its income tax payment by 6¢ [i.e., $\$1 \times (t_f - t_{US}) + (Tariff_{US} \times t_{US})$]. The net tax savings in Scenario 3: Case 1 is 3¢. Alternatively, if a low tax foreign affiliate is *buying* from a high tax U.S. parent, overstating income in the foreign jurisdiction will be accomplished by *understating* the price of the goods *purchased* from the U.S. parent. Referring to Scenario 1 in Appendix A1, when the foreign affiliate understates the price of the goods purchased from the U.S. parent by \$1, reduces its tariff payment by 3¢ [i.e., $\$1 \times Tariff_f$], and reduces its income tax payment by 4¢ [i.e., $\$1 \times (t_f - t_{US}) - (Tariff_f \times t_f)$]. Both tax payments are reduced with a single transfer price, where the total tax savings is 7¢.

In summary, the transfer pricing incentive for a U.S. export is represented by $(t_f - t_{US}) - [Tariff_f \times (1 - t_f)]$. When $t_f > t_{US}$, the tariff payment reduces the benefit to shifting income via U.S. exports. The transfer pricing incentive for a U.S. import is represented by $(t_f - t_{US}) + [Tariff_{US} \times (1 - t_{US})]$.[11] When $t_f < t_{US}$, the tariff payment reduces the benefit to shifting income via U.S.

---

[10] In the context of intra-firm trade, one party's revenue is the other party's expense, so overstating the price of the goods sold to the U.S. parent will increase the expense, and thus the tariff, paid by U.S. parent.

foreign tax credit calculation, the firm will incur a higher tax cost upon repatriation of earnings from the low tax jurisdiction.

[11] Note that tariff rates need not be as high (in levels) as income tax rates for them to significantly impact the firm's overall transfer pricing incentives. The reason is that income tax incentives are a function of the income tax *differential*, whereas the tariff incentives are a function of the *actual* tariff rate (net of the income tax benefit). These total transfer pricing equations are similar to those in Swenson [2001] though her country-level data restricts her analysis to U.S. imports of foreign controlled U.S. subsidiaries. Additionally, we separately examine the effects of

imports. It is in these two cases that we say that the transfer pricing incentives 'conflict'. A key objective of our empirical analysis is to examine the extent to which conflicting tax minimization objectives introduced by tariff payments alter the traditional income tax incentive to shift income via transfer prices on intra-firm trade.

3.   Hypothesis Development

Following from the incentives described above, we develop several hypotheses to examine the joint effect of tariffs and income taxes on transfer pricing behavior.

3.1   CONFLICTING TRANSFER PRICING INCENTIVES

As discussed in Section 2.4, transfer pricing incentives created by tariffs and income taxes conflict in two cases. In these cases, a single transfer price cannot achieve both tariff minimization and income tax minimization. The firm will incur an additional import tariff when shifting income out of a high tax affiliated importer because shifting income requires the firm to increase the transfer price (i.e., the price of goods purchased) which increases the tariff payment. Similarly, the firm will incur an additional tariff when shifting income into a low tax exporter, because to shift income the firm must increase the transfer price (i.e., the price of goods sold) which again increases the tariff payment.[12] Accordingly, our first hypothesis is stated as follows:

> H_1: Firms reduce their income tax motivated transfer pricing in response to tariffs when transfer pricing incentives conflict.

---

income tax incentives ($t_f - t_{US}$) and tariff incentives [$Tariff_{US} \times (1 - t_{US})$] on transfer pricing behavior, rather than the combined effect of both incentives.

[12] In testing our hypotheses, it is important to recognize that the overall tax burden of the group is affected by the tariff payment, just as the overall tax burden of the group is affected by the income tax benefit from shifting income, regardless of which party to the transaction actually pays the import tariff.

3.2   EFFECT OF COORDINATION ON CONFLICTED FIRMS

We refer to firms that face conflicting transfer pricing incentives as 'conflicted firms'. Next, we investigate whether cross-sectional variation in the "coordination" of conflicted firms affects their transfer pricing policies. In order to ascertain whether coordination impacts the transfer pricing behavior of conflicted firms, we identify two important aspects of coordination that may influence firm behavior: i) coordination of tax planning by firms, and ii) coordination of tax enforcement by governments.

3.2.1   CORPORATE COORDINATION

We conjecture that more centralized organizations have a higher likelihood of jointly considering both tariffs and income taxes when making transfer pricing decisions. Said another way, better coordinated firms are more likely to coordinate tariff and income tax minimization in their tax planning function. "Finance executives tend to ignore import duties because they're buried in either the cost of goods sold or within freight-forward and broker expenses and are rarely an isolated number" [Leone 2009]. Further, "import duties are usually relegated to the logistics department and dealt with separately from other corporate tax issues" [Ibid]. Additionally, "heads of tax are measured by the effective tax rate" and "most organizations just see indirect taxes (i.e., taxes not based on income) as a compliance issue." [Faith 2009].

Ernst & Young [2008] reports that only 3 percent of tax directors of multinational firms view customs duties as the most important tax issue they face, while 39 percent stated transfer pricing for income tax purposes as the most important issue they face. Additionally, fewer than half (48 percent) of firms said the person responsible for transfer pricing for income taxes has input over setting prices for customs purposes. Thus, there appears to be a wide range of overlap in oversight of tariffs and income taxes within an organization when setting transfer prices, and

income tax minimization seems to play a primary role. Thus, our second hypothesis is stated as follows:

H$_2$: Conflicted firms reduce income tax motivated transfer pricing more in response to tariffs when corporate coordination of tax planning is likely.

3.2.2 GOVERNMENTAL COORDINATION

We conjecture that countries' tax administrations influence the probability that multinational firms could achieve joint minimization of tariffs and income taxes by using two different transfer prices.[13] Conflicted firms want to use a low transfer price when determining the customs value and a high transfer price when determining taxable income. However, governmental coordination across tariffs and income taxes better ensures that the principles and assumptions used to determine the transfer price are consistent, thereby preventing a firm from using two different approaches to transfer pricing, with little or no reconciliation.[14]

We examine two forms of governmental coordination: formal and informal integration of the customs and revenue function. Institutionally, the valuation of international transactions between related parties may be reviewed by a single administrative body, or separately by two independent administrative bodies – customs and revenue. The formal integration of these two administrative functions varies across countries. Informal integration of customs and revenue is reflected in the way revenue bodies organize enforcement functions internally. Relevant to our setting are the different approaches that revenue bodies take with respect to audits. For instance, some governments primarily conduct 'separate audits' by tax type (e.g., property tax audits are conducted separately from excise tax audits), while other governments primarily conduct

---

[13] In a similar spirit, Baldenius et al. [2004] report that some multinationals use two sets of prices: one for performance evaluation and motivation purposes and one to comply with arms-length standards.

[14] We are not suggesting that transfer prices used for customs and income taxes need to always be identical. Customs valuation methods and transfer pricing methods are sometimes different, though both are governed by arm's-length principles. Integration of enforcement ensures that the assumptions and principles underlying the valuation of the transaction are the same.

'integrated audits' by taxpayer (e.g., corporate taxpayers are audited separately from individual taxpayers).

An Ernst & Young [2008] survey reports that 33 percent of parent company respondents that have undergone a transfer pricing or customs audit were aware of an information exchange between income tax and customs authorities. Furthermore, 19 percent of the parent company respondents have had their customs pricing challenged based on their income tax transfer pricing for the same goods, or vice versa, with responses greater than 30 percent in some countries. These anecdotes suggest that integration of enforcement decreases the firm's ability to use inconsistent transfer pricing methodologies for customs and income tax purposes because the price reported to one administrative body is known to the other and they are evaluated simultaneously. Additionally, firms should expect that integrated audits provide greater opportunities for mutual co-operation and assistance in evaluation of related party transfer prices.[15] Our third hypothesis is stated as follows:

> H3: Conflicted firms reduce income tax motivated transfer pricing more in response to tariffs when governmental coordination of enforcement is strong.

4. *Research Design and Data*

4.1 BASELINE ESTIMATE: INCOME TAX TRANSFER PRICING INCENTIVES

We begin by estimating Equation (1) below, developed by Hines and Rice [1994], which has been used in numerous studies to provide evidence of transfer pricing induced by income tax incentives (most recently, see Huizinga and Laeven [2008] and Markle [2010]). Specifically, we estimate affiliate-level OLS regressions of Equation (1) as follows:

$$logPTI = \beta_0 + \beta_1\, ITPI + \beta_2\, logAssets + \beta_3\, logComp + \beta_4\, logGDP$$
$$+ \text{Industry, Year Indicators} \tag{1}$$

---

[15] We expect that integrated audits are more likely to uncover transfer pricing manipulation because the auditor has access to both revenue and customs transfer pricing documentation for the taxpayer under audit.

Where,

$logPTI$ = natural log of pre-tax income
$ITPI$ = income tax transfer pricing incentive = $(t_f - t_{US})$
$logAssets$ = natural log of total assets[16]
$logComp$ = natural log of total employee compensation
$logGDP$ = natural log of per capita income (PPP) in the affiliate's country location

A negative coefficient on β_1 is consistent with differences in income tax rates influencing transfer pricing decisions. Referring to Appendix A1, note for instance that in Scenario 1 and Scenario 2: Case 1, there is a negative relation between $(t_f - t_{US})$ (i.e., *ITPI*) and *Pre-Tax Income* of the affiliate (i.e., *logPTI*), consistent with transfer pricing decisions resulting in more income in low tax jurisdictions, and less income in high tax jurisdictions.

In order to measure *ITPI* we need a proxy for the marginal income tax rate faced by each foreign affiliate, t_f, and the U.S. parent, t_{US}. We measure t_f as the ratio of income tax expense to the sum of net income and income tax expense for a particular affiliate each year in our sample period.[17] We measure t_{US} as the maximum corporate statutory rate in effect each year of our sample period.[18] Throughout our study, *ITPI* is the primary independent variable and we test our hypotheses by introducing moderator variables that impact its relation with pre-tax income.

---

[16] The proxy for capital used in Hines and Rice [1994] is fixed assets, rather than total assets. However, we use total assets because this variable is reported more consistently than fixed assets in our data (described below), allowing us to use a larger sample and longer time period. Inferences obtained from our estimation of Equation (1) are unchanged when we substitute fixed assets for total assets using a smaller sample.

[17] If $t_f < 0$ or $t_f > 1$, we set t_f equal to the statutory tax rate in the affiliate's country year. Effective tax rates falling outside [0,1] are noisy proxies for the affiliates' marginal tax rate due to, for example, the asymmetric treatment of tax losses. For these affiliate-year observations, the statutory tax rate is likely to be a more accurate proxy. Our results are not sensitive to bounding t_f for these affiliates at 0 and 1, or deleting them from the sample. These observations represent 2.3 percent of our total sample.

[18] The BEA survey forms (described later) do not capture U.S. income tax expense for the domestic operation for 10 of the 23 years in our sample period. However, we do not view this as a serious data limitation because U.S. affiliates are less likely to benefit from tax holidays, exemptions, and other side deals than are foreign affiliates. Thus, the statutory tax rate in the U.S. likely reflects the marginal tax rate of U.S. operations, while we believe a calculated tax rate is necessary to approximate the marginal tax rate of foreign affiliates. In periods when the data are available, the mean and median U.S. effective tax rate calculated using BEA data approximate the U.S. statutory rate and the use of calculated U.S. rates when available do not change our inferences.

The variables *logPTI*, *logAssets*, and *logComp*, are the natural log of pre-tax income, total assets, and total employee compensation of a foreign affiliate, respectively. We expect a positive coefficient on *logAssets* and *logComp*. The natural log of per capita income, *logGDP*, controls for cross-country differences in technology or factor qualities that may affect productivity. There are several channels by which economic development could potentially affect profitability. A positive coefficient on *logGDP* would indicate that higher profitability may be generated in richer countries on account of more advanced technologies. However, a negative coefficient on *logGDP* could indicate that firms require lower returns in richer countries due to stronger property rights or regulation. Huizinga and Laeven [2008] find a negative coefficient on *logGDP* estimating the Hines and Rice [1994] model at the country level. Accordingly, we expect a negative coefficient on *logGDP*.

4.2 TEST OF H1: EFFECT OF CONFLICTING TRANSFER PRICING INCENTIVES

Our first hypothesis predicts that income-tax-motivated transfer pricing behavior will be attenuated when income tax minimization strategies create additional tariff payments. To test our first hypothesis, Equation (2) incorporates the presence of conflicting incentives into Equation (1). We estimate Equation (2) on a sample of firms that engage in intra-firm trade, and test for an interaction effect on *ITPI* because we anticipate that the relation between income tax rates and pre-tax income will vary depending on whether transfer pricing incentives conflict. We estimate affiliate-level OLS regressions of Equation (2) as follows:

$$\log PTI = \beta_0 + \beta_1 ITPI + \beta_2 Conflict + \beta_3 ITPI \times Conflict + \beta_4 logAssets \\ + \beta_5 logComp + \beta_6 logGDP + \text{Industry, Year Indicators} \qquad (2)$$

Where,

Conflict = 1 if transfer pricing incentives created by income taxes and tariffs conflict, 0 otherwise
All other variables are as defined above for Equation (1).

We continue to expect a negative coefficient on β_1 consistent with differences in income tax rates being a factor in transfer pricing decisions of firms that face aligned incentives. A positive coefficient on β_3 would be consistent with H_1 as it would suggest that the negative relation between income tax rates and pre-tax income is weaker when transfer pricing incentives conflict. For example, in Appendix A1, Scenario 2: Case 1 (relative to Scenario 1), there is a negative relation between $(t_f - t_{US})$ (i.e., *ITPI*) and *Pre-Tax Income* of the affiliate (i.e., *logPTI*), whereas in Scenario 2: Case 2 (relative to Scenario 1) there is a less negative (even positive) relation. In Scenario 2: Case 2 the firm is setting the transfer price to minimize its tariff payments, rather than its income tax payments. Because tax savings created by tariff minimization are relatively more permanent than savings created by income tax minimization, consistent with Desai et al. [2004], tariffs should have a significant influence on transfer pricing behavior for conflicted firms.

To measure *Conflict*, we must identify whether i) an affiliate imports from or exports to its U.S. parent, and ii) the relative income tax rate: t_f and t_{US} (e.g., the sign of *ITPI*). As discussed in Section 2.4, transfer pricing incentives conflict for i) a foreign affiliate in a high tax country that imports from its U.S. parent, and ii) a foreign affiliate in a low tax country that exports to its U.S. parent. Accordingly, we set *Conflict* equal to 1 when $t_f > t_{US}$ and the affiliate is an *Importer* (defined below), and when $t_f < t_{US}$ and the affiliate is an *Exporter* (defined below). For all other observations, *Conflict* is set equal to 0.[19]

We classify a foreign affiliate as an *Importer* if the affiliate's imports from its U.S. parent are greater than twice the affiliate's exports to its U.S. parent. Alternately, we classify a foreign affiliate as an *Exporter* if the affiliate's exports to its U.S. parent are greater than twice the

---

[19] This includes coding *Conflict* as zero when the intra-firm trade transaction faces a zero tariff rate.

affiliate's imports from its U.S. parent.[20] This requirement imposes a sufficient trade imbalance between the affiliate and the U.S. such that the entities should have an incentive to alter their transfer pricing behavior while at the same maintaining a sufficient sample of affiliated importers and exporters to run our tests. While some affiliates trade with the U.S. parent in only one direction, others both import from and export to the U.S. parent. Because the interaction between income tax and tariff minimization incentives will differ across import and export transactions for a single affiliate (e.g., import transactions will conflict while export transactions will align), the overall transfer pricing incentives of a foreign affiliate that engages in both import and export transactions with its U.S. parent is ambiguous. For this reason, and consistent with our definitions above, we focus our analysis on affiliates that *primarily* import/export from/to their U.S. parent.

While the *Conflict* indicator variable identifies the two 'types' of intra-firm trade transactions whereby a transfer pricing conflict arises, it is possible that the conflict may not be significant enough to alter transfer pricing behavior for some firms. For instance, if the firm saves $100 in income taxes from shifting income of $500, but makes a $2 additional tariff payment as a result, this may not be viewed by the firm as a conflict of sufficient magnitude to impact transfer pricing behavior. Therefore, we create three additional indicator variables: *Conflict25*, *Conflict50*, and *Conflict75* equal to 1 if *Conflict* is equal to 1 *and* the after-income-tax tariff rate [i.e., *Tariff* $\times$ $(1 - t)$] is greater than 25, 50, and 75 percent, respectively, of the income tax incentive (i.e., |*ITPI*|).

---

[20] This includes coding the affiliate as an *Importer* when exports to the U.S. parent are equal to zero and imports from the U.S. parent are greater than zero, and coding the affiliate as an *Exporter* when imports are equal to zero and exports are greater than zero. Observations where the foreign affiliate does not trade with the U.S. parent or where trade is not significantly larger in one direction than the other are deleted from the sample.

We measure *Tariff* as the average tariff rate in each country-year, as reported by the World Bank.[21] For foreign affiliates that export to the U.S. parent, we measure the expected after-income-tax tariff rate on shifted income as $Tariff_{US} \times (1 - t_{US})$. For foreign affiliates that import from the U.S. parent, we measure the expected after-income-tax tariff rate on shifted income as $Tariff_{f} \times (1 - t_{f})$. This approach reflects that the firm's tariff on intra-firm trade is paid by and deducted in the country of the purchaser.

4.3   TEST OF H2: EFFECT OF CORPORATE COORDINATION ON CONFLICTED FIRMS

Our second hypothesis predicts that the moderating effect of *Conflict* on *ITPI* will be stronger when firms coordinate tariff and income tax minimization objectives when setting transfer prices on intra-firm trade. To test H_2, Equation (3) introduces *Corp-Coordination*, into Equation (2), and tests for an interaction effect on *Conflict* × *ITPI* (i.e., a three-way interaction). We estimate affiliate-level OLS regressions of Equation (3) as follows:

$$
\begin{aligned}
log\ PTI = \ & \beta_0 + \beta_1 ITPI + \beta_2\ Conflict + \beta_3\ Conflict{\times}ITPI + \beta_4\ Corp\text{-}Coordination \\
& + \beta_5\ ITPI{\times}Corp\text{-}Coordination + \beta_6\ Conflict{\times}Corp\text{-}Coordination \\
& + \beta_7\ Conflict{\times}ITPI{\times}Corp\text{-}Coordination + \beta_8 logAssets + \beta_9 logComp \\
& + \beta_{10} logGDP + \text{Industry, Year Indicators}
\end{aligned}
\tag{3}
$$

Where *Corp-Coordination* is alternatively measured as:

Centralized   = 1 if the functional currency of the affiliate is the reporting currency (e.g., U.S. Dollar) under Topic 830, *Foreign Currency Translation*, 0 otherwise
Expat   = 1 if the affiliate employs at least one U.S. expatriate, 0 otherwise
Private   = 1 if the affiliated group does not have publicly-traded equity, 0 otherwise
TradeDum   = *TradeDum* equals 1 if *Pct_Import* or *Pct_Export* are in the top quartile of the sample distribution, 0 otherwise. *Pct_Export* and *Pct_Import* measure the extent of intra-firm trade for the affiliated group as the ratio of total U.S. exports to total U.S. sales, and the ratio of total U.S. imports to total U.S. sales, respectively.

---

[21] It is not possible to compute an entity specific measure of *Tariff* in our data. For instance, Pierce and Schott [2009] report that more than 20,000 different classifications exist for imported goods into the U.S., each with a different applicable tariff rate. Other countries similarly have as many classifications. We do not have detailed transaction-level data that would allow us to identify each affiliate's actual tariff rate. The World Bank calculates 'average' tariff rates for a country-year by weighting tariff rates in effect by a normal basket of goods imported into that country. While the normal basket assumed by the World Bank may not correspond with the basket of goods imported by a particular affiliate, we expect that they will be highly correlated. Additionally, this would create noise, but not bias, in our measure of *Tariff*.

SizeDum = *SizeDum* equals 1 if *Size* is less than the median of the sample distribution, 0 otherwise. *Size* is the natural log of affiliated group total assets.
All other variables are as defined above for Equation (1).

We continue to expect a negative coefficient on β_1 and a positive coefficient on β_3. A positive coefficient on β_7 would be consistent with H$_3$. We anticipate that if the firm coordinates its tax planning efforts to consider both tariffs and income taxes, that the effect of *Conflict* on *ITPI* will be stronger. It is difficult to measure the extent to which tax planning is coordinated, so we introduce five proxies and examine whether they tell a consistent story. To ease comparability, each of the five measures above is set equal to 1 when we expect coordination to be stronger in our setting.

Centralized and *Expat* are indicators of centralized decision-making within a multinational firm (i.e., between U.S. headquarters and foreign operations). Robinson and Stocken [2010] provide evidence consistent with less autonomous affiliates using the U.S. dollar as their functional currency, and the presence of U.S. expatriates being more prevalent in these affiliates. Consistent with Halperin and Srinidhi [1991], centralized decision making facilitates coordination of competing firm objectives. Since corporate tax departments of public companies are focused on the impact of tax measures on net income (Armstrong, Blouin, and Larcker [2010], Robinson, Sikes, and Weaver [2010], TEI [2005]) we expect that public firms are more likely to coordinate minimization of tariffs and income taxes in order to reduce aggregate firm tax expense. However, as private firms tend to be smaller than public firms, private firms may be better able to coordinate its tariff and income tax functions. We also anticipate the overall importance of tariffs to the firm will influence the likelihood that the firm considers both tariffs and income taxes. We capture the importance of tariffs to the firm by *TradeDum*. Finally, we anticipate the ability to coordinate the tax and customs function within the firm would decrease

in firm size. For instance, TEI [2005] reports that a significantly greater proportion of smaller firms incorporate the tax function into the firm's Enterprise Resource Planning system, which would also be used by the customs function. We capture relatively smaller firms using *SizeDum*.

4.4   TEST OF H3: EFFECT OF GOVERNMENTAL COORDINATION ON CONFLICTED FIRMS

Our third hypothesis predicts that the moderating effect of *Conflict* on *ITPI* will be stronger when governments coordinate tariff and income tax enforcement, thereby discouraging conflicted firms from reporting two different transfer prices. To test H_3, Equation (4) introduces *Gov't-Coordination*, into Equation (2), and tests for an interaction effect on *Conflict* × *ITPI* (i.e., a three-way interaction). We estimate affiliate-level OLS regressions of Equation (4) as follows:

$$
\begin{aligned}
log\ PTI = \beta_0 &+ \beta_1 ITPI + \beta_2\ Conflict + \beta_3 Conflict{\times}ITPI + \beta_4\ Gov't\text{-}Coordination \\
&+ \beta_5\ ITPI{\times}Gov't\text{-}Coordination + \beta_6\ Conflict{\times}Gov't\text{-}Coordination \\
&+ \beta_7\ Conflict{\times}ITPI{\times}Gov't\text{-}Coordination + \beta_8 logAssets + \beta_9 logComp \\
&+ \beta_{10} logGDP + \text{Industry, Year Indicators}
\end{aligned} \tag{4}
$$

Where *Gov't-Coordination* is alternatively measured as:

1Authority   = 1 if administration of revenue and customs operations are integrated formally under a single management structure, 0 otherwise, as reported by OECD
1Audit   = 1 if the government primarily conducts integrated audits by taxpayer, 0 otherwise, as reported by the OECD
All other variables are as defined above for Equation (1).

We continue to expect a negative coefficient on β_1 and a positive coefficient on β_3. A positive coefficient on β_7 would be consistent with H_2, because it suggests that the moderating effect of *Conflict* is stronger when governmental coordination makes it more difficult to report different transfer prices for customs and income tax purposes.

Both *1Authority* and *1Audit* capture whether the monitoring of income taxes and customs is relatively more coordinated.[22] These measures come from a survey administered by the

---

[22] We characterize the tax administration variables in reference to the country of the related party importer rather than the country of the affiliate in order to characterize the appropriate side of the transaction for which we expect tax administration to matter. This means that the tax administration variables are set to the U.S. values for all foreign

Organization for Economic Cooperation and Development (OECD) entitled "Tax Administration in OECD and Selected Non-OECD and Selected Non-OECD Countries: A Comparative Information Series" (OECD 2006, 2009). *1Authority* captures whether a country has formally aligned its administration of tax and customs operations by bringing them within a single management structure. *1Audit* captures whether integrated audits of taxpayers are the primary organization model for tax audits. In contrast, separate multifunctional departments, which are largely self-sufficient and independent of each other (e.g., 'separate audits' are done for each tax type), may be responsible for each tax,.[23] Governmental departments that operate in an integrated fashion are more likely to share information, thereby requiring some consistency in the implementation of transfer pricing principles and increasing the firm's risk of opportunistically reporting different numbers for income tax and customs purposes.

4.5   SAMPLE AND DESCRIPTIVE STATISTICS

We study income shifting behavior of U.S. multinational firms using Bureau of Economic Analysis (BEA) Surveys of U.S. Direct Investment Abroad. The information reported to the BEA includes affiliate-level financial and operating data on the foreign activity of U.S. multinational firms. Specifically, we observe classified income statements and balance sheets for foreign affiliates that include key items required to estimate the model of transfer pricing in Hines and Rice (1994), such as the income tax provision, net income, total assets, and total employee compensation. Important for our study, we observe other key operating and financial

---

affiliates that export to the U.S. parent (because the U.S. parent is the importer) and are set to the values applicable to the affiliate's country of location for all foreign affiliates that import from the U.S. parent.

[23] We view *1Authority* as capturing formal integration (e.g., organizational structure), whereas *1Audit* captures informal integration (i.e., organizational processes). Formal or informal integration could increase the probability of detection for a taxpayer using different transfer prices for income taxes and customs.

indicators such as import and export activity between each affiliate and its U.S. parent, and each affiliate's country location and industry membership.[24]

Our final sample selection of 55,893 affiliate-year observations is detailed in Table 1. We begin with 226,365 affiliate-year observations in the period 1982 through 2005 that provide all of the required variables for our study. We first exclude affiliates that may not face incentives created by the U.S. corporate income tax system by eliminating foreign-controlled U.S. subsidiaries, affiliates of U.S. parents that are non-corporate entities, and U.S. parents (and their affiliates) that are non-corporate entities. We exclude banking and insurance affiliates of U.S. parents, banking and insurance U.S. parents (and their affiliates), and holding company affiliates for two reasons. [25] First, it is not clear whether the pre-tax income of these entities is expected to be a function of the input factors, labor and capital, that we use to control for expected ('un-shifted') pre-tax income. Second, they do not conduct the type of import and export activity that we are interested in examining.

[Insert Table 1 about here]

We drop unprofitable affiliates and unprofitable U.S. parents (and their affiliates) because the income shifting incentives for entities with losses are less clear (e.g., Blouin, Robinson and Seidman, 2010). We are interested in studying the joint effect of tariffs and income taxes, so we delete from the sample any affiliate that cannot be classified as an *Importer* or *Exporter*. Lastly, we drop observations missing *logGDP*. The final sample for our main tests consists of 55,893 affiliate-year observations comprised of 2,418 U.S. parents and 16,744 of their foreign affiliates over a 23 year period. In tests of the effect of governmental coordination, we lose 5,379 affiliate-

---

[24] Reference to the 'U.S. parent' describes the domestic operations only.
[25] Industry codes 5512 (NAICS) and 671 (SIC) identify holding companies.

year observations, because some countries represented in our sample did not participate in the OECD survey from which the *Gov't-Coordination* measures are drawn.

Table 2 provides descriptive statistics for our sample and regression variables.[26] All observations in our sample report positive pre-tax income; the median affiliate in our sample reports pre-tax income of $4.4 million. The control variables suggest that the average foreign affiliate in our sample is relatively large, with median assets of $37.3 million and median compensation of $6.6 million, and is located in a relatively large country (median GDP of $550 billion.)

[Insert Table 2 about here]

The mean value of *ITPI*, our focal independent variable, is -0.023 suggesting that the average transfer pricing incentive for income tax purposes in our sample is to shift income out of the U.S. and into a low tax foreign affiliate. However, 45 percent of affiliates in our sample are considered high-tax relative to their U.S. parent. While this may seem high given the statutory tax rates in effect today, statutory tax rates in much of the world were higher in the 1980's and the U.S. was relatively low tax. We observe a nearly-monotonic downward trend in our data beginning in the late 1980's: in 1988, 65.6% of the sample is high-tax relative to the U.S. but by 2005 only 29.7% of the sample is relatively high-tax. Our sample period covers 1982 through 2005.

By reference to the affiliates, high-tax importers and low-tax exporters will increase tariff payments when they minimize income taxes; in contrast, high-tax exporters and low-tax importers will decrease tariff payments when they minimize income taxes. The mean value of *Conflict*, an indicator variable identifying the former group, is 0.499 indicating that approximately half of the affiliates in our sample face conflicting transfer pricing incentives.

---

[26] To maintain confidentiality, all medians reported are the mean of the middle 5 values.

Mean values of *Conflict25*, *Conflict50*, and *Conflict75* indicate that 32, 23 and 18 percent, respectively, of the sample are conflicted *and* face a tariff rate on intra-firm trade that is greater than 25, 50, and 75 percent of *ITPI*, the income tax transfer pricing incentive.

Our measures of *Gov't-Coordination*, *1Authority* and *1Audit*, indicate that approximately 29 percent of the sample faces formal integration of customs and revenue, while 62 percent face informal integration. Approximately 17 percent of affiliates are owned by private U.S. parents, 22 percent are U.S. dollar functional currency, and 17 percent of affiliates employ a U.S. expatriate.

5. *Empirical Results*

5.1 BASELINE RESULT: INCOME TAX TRANSFER PRICING INCENTIVES

Table 3 column (1) reports summary statistics from estimating Equation (1). Consistent with prior research that examines transfer pricing incentives created by income taxes, we find a negative and significant coefficient on *ITPI*. The negative coefficient on β_1 suggests that transfer pricing results in higher than expected profitability in relatively low tax countries and lower than expected profitability in relatively high tax countries. Specifically, a coefficient of -0.5424 indicates that, on average, a *decrease* in t_f of ten percentage points is associated with a 5.4 percent *increase* in reported pre-tax income in the foreign affiliate. We also obtain results on control variables that are qualitatively similar to those in Huizinga and Laeven [2008] that estimates country-level regressions (using similar data for European-based multinational firms).[27] As in Huizinga and Laeven [2008], *logGDP* enters into the regression negatively, suggesting that firms likely require higher returns in poorer countries.

---

[27] Huizinga and Laeven [2008] introduce a tax incentive measure that considers tax rate differences between affiliates in the same affiliated group rather than only tax rate differences between an affiliate and its parent. While

[Insert Table 3 here]

5.2   RESULTS FOR H₁: CONFLICTING TRANSFER PRICING INCENTIVES

Table 3, columns (2) through (4), report summary statistics from estimating Equation (2). We tabulate results using *Conflict25*, *Conflict50*, and *Conflict75* to highlight the magnitude of the slope difference on *ITPI* when the conflict is considerable. In Column (2), when the *Tariff* (after-tax) is greater than 25 percent of *ITPI* (e.g., *Conflict25* = 1), the relation between *ITPI* and *logPTI* is positive ($\beta_1+\beta_3>0$; p<.0001). More specifically, the coefficient on *ITPI* for conflicted firms of 0.8152 ($\beta_1+\beta_3$=-0.5424+1.3576) indicates that when income tax minimization would result in a considerable increase in the firm's tariff payments, a *decrease* in t_f of ten percentage points is associated with an 8.2 percent *decrease* in reported pre-tax income in the foreign affiliate.

This result suggests that when tariff payments are considerable, relative to the potential income tax benefits that can be obtained from income shifting, firms set transfer prices primarily to minimize tariffs, rather than income taxes. Firms with conflicting incentives minimize tariffs by understating the price of export sales of low tax affiliates, and understating the price of import purchases of high tax affiliates; setting transfer prices in this manner would create a positive relation between income tax rates and income. Notice in columns (2) through (4) that the coefficients on ($\beta_1+\beta_3$) are monotonically increasing as the conflicting incentives created by tariffs and income taxes increase in magnitude. Overall, we find support for H₁.

The coefficient on *Conflict* in Equation (2) is positive and significant if we define the 25 percent qualifier above as low as 2 percent, however the magnitude of the coefficient is smaller

---

we find this measure intriguing, tax rate differences between an affiliate and its parent in our setting is the tax incentive measure we would like to use, because we are examining a sample of affiliates that trade directly with their U.S. parent. Therefore, transfer pricing on intra-firm trade with the U.S. parent is likely to be the primary method of income shifting in these affiliates.

and the significance is weaker - *Conflict2* (β_3=0.1652; p<.0092). Based on the results from estimating Equation (2), we use *Conflict25* to test for a three-way interaction in H_2 and H_3 to ensure that our moderator variable (i.e., *Conflict*) identifies the sub-sample for which tariffs are clearly an important consideration in transfer pricing decisions while at the same time maintaining a sufficient sample size to estimate three-way interactions.

5.3   RESULTS FOR H_2: CORPORATE COORDINATION

Table 4 reports summary statistics from estimating Equation (3). Columns (1) and (2) report results using *Centralized* and *Expat*, respectively, as our affiliate-level measures of *Corp-Coordination*. In Column (1), we expect and find a positive coefficient on the three-way interaction term (β_7=.5483; p<.0001). The positive coefficient on β_7 means that the two-way interaction parameter of 0.4538 on β_1+β_3 moves higher; e.g., to 1.0066 (β_1+β_3+β_7=-.7155+1.1738+.5483). Thus, a *decrease* of ten percentage points in the effective income tax rate, t_f, is associated with a 10.1 percent greater *decrease* in reported pre-tax income in the foreign affiliate. Column (2) shows a similar result on *Expat*. This is consistent with centralized decision making within a multinational firm increasing the likelihood that multiple tax minimization objectives are considered in transfer pricing decisions made by conflicted firms.

Table 4 columns (4), and (5) report results using *TradeDum*, and *SizeDum*, respectively, as our firm-level measures of *Corp-Coordination*. We find a positive coefficient on β_7 using these proxies suggesting that firms that engage in relatively more extensive intra-firm trade, and relatively smaller firms are more likely to consider multiple tax minimization objectives when setting prices on intra-firm trade. In column (3), consistent with private firms potentially being able to coordinate income tax and tariff reporting due to their smaller size, we find a positive coefficient on β_7 when estimating Equation (3) for *Private*.

[Insert Table 4 about here]

5.4   RESULTS FOR H$_3$: GOVERNMENTAL COORDINATION

Table 5 reports summary statistics from estimating Equation (4). Columns (1) and (2)

present results using *1Authority* and *1Audit*, respectively, as our measure of *Gov't-Coordination*.

In Column (1), find a positive coefficient on the three-way interaction term (β_7=.8099; p<.0001)

suggesting that conflicted firms further attenuate their income tax transfer pricing activity when

operating in a country that has formally integrated in customs and income tax enforcement

activities. Results imply that a *decrease* of ten percentage points in the effective income tax rate,

t_f, is associated with a 16.1 percent greater *decrease* in reported pre-tax income in the foreign

affiliate (i.e.,the two-way interaction parameter of 0.8063 on β_1+β_3 moves higher; e.g., to 1.612

(β_1+β_3+β_7=-.6328+1.4391+.8099)).

Column (2) presents results using *1Audit* as our measure of *Gov't-Coordination*. Again,

we find a positive coefficient on β_7, suggesting that informal integration of customs and revenue

also further constrains transfer pricing on intra-firm trade.[28] The interpretation of *1Audit* is the

same as the interpretation of *1Authority*; both formal and informal integration appear to matter

for the transfer pricing decisions of conflicted firms. Since joint minimization of tariffs and

income taxes is arguably more difficult for conflicted firms that face integrated customs and

income tax enforcement, and reduction of tariffs yields permanent tax savings, these conflicted

firms appear to focus their transfer pricing on tariff minimization.

[Insert Table 5 about here]

---

[28] It is likely that when multiple taxes are audited simultaneously that customs and revenue share information, even if they are not formally integrated into one agency. However, to ensure that audits of simultaneous taxes are most likely to include both income taxes and tariffs, we also estimate Equation (3) using *1Audit* on the subsample for which *1Authority* = 1 and find the same result.

6. Conclusion

Income-tax-motivated transfer pricing has been studied in prior literature; intra-firm trade is a primary channel through which multinational firms shift income. However, with the exception of Swenson [2001], the interaction between tariff incentives and income tax incentives in setting transfer prices on intra-firm trade has largely been ignored. Using firm-level survey data collected by the Bureau of Economic Analysis, we examine whether tariff payments affect incentives to shift the income tax base when the incentives conflict (e.g., a single transfer price will not jointly minimize both tariffs and income taxes). We also examine whether corporate coordination of the firm's tax function or governmental coordination of tax enforcement affect the transfer pricing behavior of firms that face competing tax minimization incentives.

Using a sample of foreign affiliates that engage in intra-firm trade with their U.S. parent from 1982 through 2005, we find that when tariff minimization and income tax minimization cannot be achieved by using a single transfer price, the negative relation between income tax rates and reported pre-tax income is weaker. Specifically, a subsample of firms with significant conflicts between their tariff-minimizing and income tax-minimizing transfer pricing incentives (importing affiliates located in high tax countries and exporting affiliates located in low tax countries) exhibit a *positive* negative relation between income tax rates and reported pre-tax income. This suggests that transfer pricing decisions are made to minimize tariff payments rather than income taxes and is consistent with non-creditable taxes playing a more significant role in tax minimization strategies, consistent with the findings in Desai et al. [2004].

We also examine whether the moderating effect of the conflict is stronger for firms that are more likely to coordinate their tax minimization efforts. If firms are more likely to consider tariff payments when minimizing income taxes, then tariffs should be *more* of a mitigating

device in transfer pricing decisions made by conflicted firms. We expect and find that income-tax-motivated income shifting behavior for conflicted firms appears to decrease when the U.S. operation has relatively greater authority over foreign affiliates. These findings are novel because they link the organizational structure of the firm to its tax planning decisions. We also find that private firms, firms that engage in more extensive amounts of intra-firm trade, and smaller firms appear to focus more on tariff minimization in the presence of conflicting incentives.

Finally, we examine whether the moderating effect of tariffs on income tax minimization is stronger for firms that face integrated administration and enforcement of tariff and income tax payments. In practice, if firms cannot report different transfer prices on intra-firm trade for customs and income taxes, then tariffs should be *more* of a mitigating device for conflicted firms. We find that in jurisdictions where the customs and income tax administrations are integrated, income-tax-motivated income shifting behavior for conflicted firms appears to further decrease. Additionally, when the revenue body conducts simultaneous audits of multiple types of tax, income-tax-motivated income shifting behavior again decreases.

Overall, we find that when the expected tariff payment associated with shifting one dollar of income is considerable, firms instead set transfer prices to reduce tariffs. Thus, our study suggests that tariffs play a considerable role in the transfer pricing behavior of multinational firms and highlights the importance of incorporating multiple taxes – income taxes and tariffs - into an analysis of intra-firm trade. Our study also supports the notion that non-income based taxes may play a greater role in firm decision-making, consistent with Desai et al. [2004].

APPENDIX A1

NUMERICAL ILLUSTRATION OF ALIGNED VERSUS CONFLICTED TRANSFER PRICING INCENTIVES
FOR AFFILIATE IMPORTING FROM U.S. PARENT

Scenario 1

Scenario 1 *Foreign affiliate imports from U.S. parent*	BENCHMARK CASE Transfer price = $50 $t_f < t_{US}$			INCENTIVES ALIGN Transfer price = $49 $t_f < t_{US}$			
	U.S. Parent	**Foreign Affiliate**	**Firm**	**U.S. Parent**	**Foreign Affiliate**	**Firm**	**Tax Savings**
Income Tax Rate (t)	0.35	0.30		0.35	0.30		
Tariff Rate on Imports	na	0.03		na	0.03		
($t_f - t_{US}$)			**-0.05**			**-0.05**	
Unaffiliated Sales	100.00	100.00	200.00	100.00	100.00	200.00	
Affiliated Sales (Exports)	50.00	0.00	0.00	49.00	0.00	0.00	
Unaffiliated COGS (Local)	20.00	20.00	40.00	20.00	20.00	40.00	
Affiliated COGS (Imports)	0.00	50.00	0.00	0.00	49.00	0.00	
Gross Margin before Tariff	130.00	30.00	160.00	129.00	31.00	160.00	
Tariff Payment	na	1.50	1.50	na	1.47	1.47	**0.03**
Pre-Tax Income	130.00	**28.50**	158.50	129.00	**29.53**	158.53	
Income Tax Payment	45.50	8.55	54.05	45.15	8.86	54.01	**0.04**
Net Income	84.50	19.95	104.45	83.85	20.67	104.52	

Scenario 2

Scenario 2 *Foreign affiliate imports from U.S. parent*	BENCHMARK CASE Transfer price = $50 $t_f > t_{US}$			INCENTIVES CONFLICT: CASE 1 Transfer price = $51 $t_f > t_{US}$				INCENTIVES CONFLICT: CASE 2 Transfer price = $48 $t_f > t_{US}$			
	U.S. Parent	**Foreign Affiliate**	**Firm**	**U.S. Parent**	**Foreign Affiliate**	**Firm**	**Tax Savings**	**U.S. Parent**	**Foreign Affiliate**	**Firm**	**Tax Savings**
Income Tax Rate (t)	0.35	0.40		0.35	0.40			0.35	0.40		
Tariff Rate on Imports	na	0.03		na	0.03			na	0.03		
($t_f - t_{US}$)			**0.05**			**0.05**				**0.05**	
Unaffiliated Sales	100.00	100.00	200.00	100.00	100.00	200.00		100.00	100.00	200.00	
Affiliated Sales (Exports)	50.00	0.00	0.00	51.00	0.00	0.00		48.00	0.00	0.00	
Unaffiliated COGS (Local)	20.00	20.00	40.00	20.00	20.00	40.00		20.00	20.00	40.00	
Affiliated COGS (Imports)	0.00	50.00	0.00	0.00	51.00	0.00		0.00	48.00	0.00	
Gross Margin before Tariff	130.00	30.00	160.00	131.00	29.00	160.00		128.00	32.00	160.00	
Tariff Payment	na	1.50	1.50	na	1.53	1.53	**-0.03**	na	1.44	1.44	**0.06**
Pre-Tax Income	130.00	**28.50**	158.50	131.00	**27.47**	158.47		128.00	**30.56**	158.56	
Income Tax Payment	45.50	11.40	56.90	45.85	10.99	56.84	**0.06**	44.80	12.22	57.02	**-0.12**
Net Income	84.50	17.10	101.60	85.15	16.48	101.63		83.20	18.34	101.54	

NUMERICAL ILLUSTRATION OF ALIGNED VERSUS CONFLICTED TRANSFER PRICING INCENTIVES
FOR AFFILIATE EXPORTING TO U.S. PARENT

Scenario 3	BENCHMARK CASE			INCENTIVES CONFLICT: CASE 1				INCENTIVES CONFLICT: CASE 2			
Foreign affiliate exports to U.S. parent	Transfer price = $50 $t_f < t_{US}$			Transfer price = $51 $t_f < t_{US}$				Transfer price = $48 $t_f < t_{US}$			
	U.S. Parent	**Foreign Affiliate**	**Firm**	**U.S. Parent**	**Foreign Affiliate**	**Firm**	**Tax Savings**	**U.S. Parent**	**Foreign Affiliate**	**Firm**	**Tax Savings**
Income Tax Rate (t)	0.35	0.30		0.35	0.30			0.35	0.30		
Tariff Rate on Imports	0.03	na		0.03	na			0.03	na		
($t_f - t_{US}$)			**-0.05**			**-0.05**				**-0.05**	
Unaffiliated Sales	100.00	100.00	200.00	100.00	100.00	200.00		100.00	100.00	200.00	
Affiliated Sales (Exports)	0.00	50.00	0.00	0.00	51.00	0.00		0.00	48.00	0.00	
Unaffiliated COGS (Local)	20.00	20.00	40.00	20.00	20.00	40.00		20.00	20.00	40.00	
Affiliated COGS (Imports)	50.00	0.00	0.00	51.00	0.00	0.00		48.00	0.00	0.00	
Gross Margin before Tariff	30.00	130.00	160.00	29.00	131.00	160.00		32.00	128.00	160.00	
Tariff Payment	1.50	na	1.50	1.53	na	1.53	-0.03	1.44	na	1.44	0.06
Pre-Tax Income	28.50	**130.00**	158.50	27.47	**131.00**	158.47		30.56	**128.00**	158.56	
Income Tax Payment	9.98	39.00	48.98	9.61	39.30	48.91	0.06	10.70	38.40	49.10	-0.12
Net Income	18.53	91.00	109.53	17.86	91.70	109.56		19.86	89.60	109.46	

Scenario 4	BENCHMARK CASE			INCENTIVES ALIGN			
Foreign affiliate exports to U.S. parent	Transfer price = $50 $t_f > t_{US}$			Transfer price = $49 $t_f > t_{US}$			
	U.S. Parent	**Foreign Affiliate**	**Firm**	**U.S. Parent**	**Foreign Affiliate**	**Firm**	**Tax Savings**
Income Tax Rate (t)	0.35	0.40		0.35	0.40		
Tariff Rate on Imports	0.03	na		0.03	na		
($t_f - t_{US}$)			**0.05**			**0.05**	
Unaffiliated Sales	100.00	100.00	200.00	100.00	100.00	200.00	
Affiliated Sales (Exports)	0.00	50.00	0.00	0.00	49.00	0.00	
Unaffiliated COGS (Local)	20.00	20.00	40.00	20.00	20.00	40.00	
Affiliated COGS (Imports)	50.00	0.00	0.00	49.00	0.00	0.00	
Gross Margin before Tariff	30.00	130.00	160.00	31.00	129.00	160.00	
Tariff Payment	1.50	na	1.50	1.47	na	1.47	0.03
Pre-Tax Income	28.50	**130.00**	158.50	29.53	**129.00**	158.53	
Income Tax Payment	9.98	52.00	61.98	10.34	51.60	61.94	0.04
Net Income	18.53	78.00	96.53	19.19	77.40	96.59	

REFERENCES

ANCTIL, R., AND S. DUTTA. "Negotiated Transfer Pricing and Divisional versus Firm-wide Performance Evaluation." *The Accounting Review* 74 (1999): 87-104.

ARMSTRONG, C.; J. BLOUIN; AND D. LARCKER. "The Incentives for Tax Planning." University of Pennsylvania working paper, 2010.

BALDENIUS, T., S. REICHELSTEIN; AND S. SAHAY. "Negotiated versus Cost-Based Transfer Pricing." *Review of Accounting Studies* 4 (1999): 67-91.

BALDENIUS, T.; N. MELUMAD; AND S. REICHELSTEIN. "Integrating Managerial and Tax Objectives in Transfer Pricing." *The Accounting Review* 79(3) (2004): 591-615.

BERNARD, A.; J. JENSEN; AND P. SCHOTT. "Transfer Pricing by U.S. Based Multinational Firms." NBER working paper No. 12493, 2006.

BERNARD, A.; J. JENSEN; AND P. SCHOTT. "Importers, Exporters, and Multinationals: A Portrait of Firms in the U.S. that Trade Goods" in Producer Dynamics: New Evidence from Micro Data, T. Dunne, J.B. Jensen, and M.J. Roberts Ed.s, University of Chicago Press (2009).

BLOUIN, J.; L. ROBINSON, J. SEIDMAN. "Tax Loss Asymmetry and Income Shifting Behavior." University of Pennsylvania working paper, 2010.

CHRISTENSEN, K.; R. CLINE; AND T. NEUBIG. "Total Corporate Taxation: "Hidden," Above-the-Line, Non-Income Taxes." National Tax Journal, 54(3) (2001): 495-506.

CLAUSING, K. "Tax-motivated Transfer Pricing and US Intra-Firm Trade Prices." *Journal of Public Economics* 87(9-10) (2003): 2207-2223.

DESAI, M.; F. FOLEY; AND J. HINES. "Foreign Direct Investment in a World of Multiple Taxes." *Journal of Public Economics* 88(12) (2004): 2727-2744.

ERNST & YOUNG LLP. "Precision under Pressure, Global Transfer Pricing Survey 2007-2008," EYGM Limited, 2008.
 http://www2.eycom.ch/publications/items/tax_tp_2007/200712_ey_global_tp_survey.pdf
(Accessed on September 26, 2010)

FAITH, J. "Indirect Taxes Come Out of the Shadows." *International Tax Review*, April (2009).

GRUBERT, H. "Intangible Income, Intercompany Transactions, Income Shifting, and the Choice of Location." *National Tax Journal*, 56(1) (2003): 221-242.

HALPERIN R., AND SRINIDHI, B. "U.S. Income Tax Transfer Pricing Rules and Resource Allocation: The Case of Decentralized Multinational Firms." *The Accounting Review*, 66(1) (1991): 141-157.

HARRIS, D. "The impact of U.S. Tax Law Revision on Multinational Corporations' Capital Location and Income-Shifting Decisions." *Journal of Accounting Research*, 31(Supplement) (1993): 111-140.

HINES, J. "Tax Policy and the Activities of Multinational Corporations." In: Auerbach, A.J. (Ed.), Fiscal Policy: Lessons from Economic Research. MIT Press, Cambridge (1997): 401-445.

HINES, J., AND E. RICE. "Fiscal Paradise: Foreign Tax Havens and American Business". *Quarterly Journal of Economics* 109(1) (1994): 149-81.

HORST, T. "The Theory of the Multinational Firm: Optimal Behavior under Different Tariff and Tax Rates". *Journal of Political Economy*, 79 (1971): 1059–1072.

JACOB, J. "Taxes and Transfer Pricing: Income Shifting and the Volume of Intrafirm Transfers." *Journal of Accounting Research*, 34(2) (1996): 301-312.

KANT, C. "Minority Ownership, Deferral, Perverse Intrafirm Trade and Tariffs." *International Economic Journal*, 9(1) (1995): 19-37.

KLASSEN, K.; M. LANG; AND M. WOLFSON. "Geographic Income Shifting by Multinational Corporations in Response to Tax Rate Changes," *Journal of Accounting Research* (31 Supplement) (1993): 140-173.

LEONE, M. "Import Duties: Bend Me, Shape Me, Any Way You Want Me." May 8, 2009. http://www.cfo.com/article.cfm/13634571?f=search (Accessed on September 26, 2010)

MARKLE, K. "Shift Happens: A Comparison of the Tax-motivated Income Shifting of Multinationals in Territorial and Worldwide Countries", University of North Carolina working paper, 2010.

MESCALL, D. "How do Transfer Pricing Policies Affect Premia in Cross-Border Mergers and Acquisitions?" University of Saskatchewan working paper, 2009.

MILLS, L.; M. ERICKSON; AND E. MAYDEW. "Investments in Tax Planning." *The Journal of the American Taxation Association*, Spring 20:1 (1998): 1-20.

ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD). "Tax Administration in OECD and Selected Non-OECD Countries: Comparative Information Series (2006)."

ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD). "Tax Administration in OECD and Selected Non-OECD Countries: Comparative Information Series (2009)." http://www.oecd.org/dataoecd/57/23/42012907.pdf (Accessed on 25 September 2010)

ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD) (2010),"Comparative Tables", *Revenue Statistics* (database). doi: 10.1787/data-00262-en (Accessed on 25 September 2010)

PIERCE, J., AND P. SCHOTT. "A Concordance between Ten-Digit U.S. Harmonized System Codes and SIC/NAICS Product Classes and Industries." U.S. Bureau of the Census, Yale University, and NBER working paper, 2009.

PING, L., AND C. SILBERZSTEIN, 2008. "Transfer Pricing, Customs Duties and VAT Rules: Can We Bridge the Gap?" World Customs Organisation and OECD Centre for Tax Policy and Administration. http://www.oecd.org/dataoecd/40/54/39265412.pdf (Accessed on 28 September 2010)

ROBINSON, J.; S. SIKES; AND C. WEAVER. "Performance Measurement of Corporate Tax Departments." *The Accounting Review:* 85(3) (2010): 1035-1064.

ROBINSON, L. "Do Firms Incur Costs to Avoid Reducing Pre-Tax Earnings? Evidence from the Accounting for Low-Income Housing Tax Credits." *The Accounting Review* 85(2) (2010) 637-669.

ROBINSON, L., AND P. STOCKEN. "Organizational Structure and Performance of Multinational Firms." Tuck School of Business working paper, 2010.

SWENSON, D. "Tax Reforms and Evidence of Transfer Pricing." *National Tax Journal*, Vol. LIV, No. 1 (2001), pp. 7-25.

TANG, ROGER. "Transfer Pricing in the 1990's: Tax and Management Perspectives." London: Quorum Books, 1993.

TAX EXECUTIVES INSTITUTE (TEI). 2004-2005 Corporate Tax Department Survey. Tax Executives Institute, Inc., Washington D.C.

UNITED STATES DEPARTMENT OF THE TREASURY (U.S. TREASURY). Report to Congress on Earnings Stripping, Transfer Pricing and U.S. Income Tax Treaties. November 2007. http://www.treasury.gov/offices/tax-policy/library/ajca2007.pdf (Accessed on October 28, 2010).

UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE (U.S. GAO). "U.S. Multinational Corporations, Effective Tax Rates Are Correlated with Where Income Is Reported." Report to the Committee on Finance, U.S. Senate (2008). http://www.gao.gov/new.items/d08950.pdf (Accessed on 28 September 2010)

TABLE 1
Sample Selection

Sample Selection	Observations	Foreign Affiliates	U.S. Parents
Affiliates reporting required data from 1982-2005	226,365	59,900	4,893
Less:			
Foreign-controlled U.S. subsidiaries	5,815	2,054	144
Non-corporate entities	15,866	3,478	174
Banks and insurance entities	13,630	3,870	322
Holding company affiliates	12,193	2,000	12
Unprofitable entities	41,394	8,549	386
Affiliates not classified as importer/exporter from/to U.S. parent	77,855	22,436	1,390
Missing GDP	3,719	769	47
Final sample	55,893	16,744	2,418

TABLE 2
Descriptive Statistics

Variable	N	Mean	Median	Std. Dev.	P25	P75
Indicator Variables						
Importer	55893	0.773				
Exporter	55893	0.227				
High Tax	55893	0.454				
Conflict	55893	0.499				
Conflict25	55893	0.323				
Conflict50	55893	0.232				
Conflict75	55893	0.179				
1Audit	50514	0.620				
1Authority	50514	0.286				
Private	55893	0.169				
Centralized	55893	0.222				
Expat	55893	0.167				
Continuous Variables						
t_f	55893	0.345	0.350	0.174	0.244	0.445
Tariff	55893	0.053	0.042	0.050	0.027	0.060
ITPI	55893	-0.023	-0.010	0.174	-0.124	0.070
logPTI	55893	8.404	8.392	1.727	7.344	9.481
logAssets	55893	10.650	10.530	1.491	9.576	11.596
logComp	55893	8.723	8.789	1.768	7.810	9.792
logGDP	55893	19.894	20.126	1.205	19.071	20.772
Size	55893	14.829	14.936	1.809	13.682	16.040
Pct_Export	55893	0.148	0.121	0.139	0.052	0.199
Pct_Import	55893	0.065	0.032	0.100	0.005	0.082

All variables are computed from BEA data unless otherwise noted. To maintain confidentiality, all medians reported are the mean of the middle 5 values. *Importer* equals 1 if the affiliate's imports from its U.S. parent are greater than twice the affiliate's exports to its U.S. parent, 0 otherwise. *Exporter* equals 1 if the affiliate's exports to its U.S. parent are greater than twice the affiliate's imports from its U.S. parent, 0 otherwise. *High Tax* equals 1 if $t_f > t_{US}$, 0 otherwise, where t_f equals the ratio of foreign income tax expense to the sum of net income and foreign income tax expense for a particular affiliate in a particular year, and t_{US} equals the highest U.S. statutory rate. *Conflict* equals 1 if i) *Importer* equals 1 and *High Tax* equals 1, or ii) *Exporter* equals 1 and *High Tax* equals 0, 0 otherwise. *Conflict25*, *Conflict50*, and *Conflict75* equal 1 if *Conflict* equals 1 and *Tariff* (defined below) is greater than 25, 50, and 75 percent, respectively, of the income tax transfer pricing incentive (e.g., the absolute value of *ITPI*). *ITPI* measures the transfer pricing incentive created by income taxes and is equal to (t_f - t_{US}). *Tariff* is the 'average' tariff rate in the country of import, as reported by the World Bank, net of the income tax rate in the importing country: t_f or t_{US}. *1Authority* equals 1 if the revenue body and customs agency are formally integrated into

a single governmental authority, 0 otherwise, as reported by the OECD. *1Audit* equals 1 if the revenue body conducts tax audits such that multiple types of tax liabilities are audited simultaneously, 0 otherwise, as reported by the OECD. *logPTI* equals the natural log of affiliate pre-tax income. *logAssets* equals the natural log of affiliate total assets. *logComp* equals the natural log of affiliate total employee compensation. *logGDP* equals the natural log of per capita income (PPP) in the affiliate's country of location, as reported by the Economist Intelligence Unit. *Centralized* equals 1 if the functional currency of the affiliate is the reporting currency (e.g., U.S. Dollar) under Topic 830, *Foreign Currency Translation*, 0 otherwise. *Expat* equals 1 if the affiliate employs at least one U.S. expatriate, 0 otherwise. *Private* equals 1 if the affiliated group does not have publicly-traded equity, 0 otherwise. *Size* is the natural log of affiliated group total assets. *Pct_Export* and *Pct_Import* measure the extent of intra-firm trade for the affiliated group as the ratio of total U.S. exports to total U.S. sales, and the ratio of total U.S. imports to total U.S. sales, respectively.

TABLE 3
Ordinary Least Square Regressions of Foreign Affiliate Profitability
on Transfer Pricing Incentives

	Predicted Sign	Dependent Variable = *logPTI*			
		(1) Baseline	(2) Conflict25	(3) Conflict50	(4) Conflict75
β₁ *ITPI*	**-**	**-0.5424******	**-0.6792******	**-0.5954******	**-0.5691******
		(0.0319)	**(0.0339)**	**(0.0327)**	**(0.0323)**
β₂ *Conflict*			0.0572***	0.0159	-0.0035
			(0.0117)	(0.0138)	(0.0155)
β₃ *Conflict×ITPI*	**+**		**1.3576******	**1.6450******	**1.8043******
			(0.1198)	**(0.2092)**	**(0.2949)**
β₄ *logAssets*	+	0.8433***	0.8481***	0.8457***	0.8446***
		(0.0076)	(0.0076)	(0.0076)	(0.0076)
β₅ *logComp*	+	0.0522***	0.0512***	0.0518***	0.0521***
		(0.0057)	(0.0057)	(0.0057)	(0.0057)
β₆ *logGDP*	-	-0.0618***	-0.0605***	-0.0602***	-0.0604***
		(0.0048)	(0.0048)	(0.0048)	(0.0048)
β₀ *Intercept*		0.3005*	0.2148	0.2378	0.2555
		(0.1595)	(0.1598)	(0.1597)	(0.1598)
Year Fixed Effects		Yes	Yes	Yes	Yes
Industry Fixed Effects		Yes	Yes	Yes	Yes
R-square		0.6040	0.6056	0.6047	0.6044
Conflict N			18033	12999	10035
Sample N		55893	55893	55893	55893

*, **, *** denotes significance at the 10%, 5% and 1% two-tailed level, respectively. We estimate affiliate-level OLS regressions and report robust standard errors, clustered by firm and year, in parentheses. All variables are computed from BEA data unless otherwise noted. *logPTI* equals the natural log of affiliate pre-tax income. *logAssets* equals the natural log of affiliate total assets. *logComp* equals the natural log of affiliate total employee compensation. *logGDP* equals the natural log of per capita income (PPP) in the affiliate's country of location, as reported by the Economist Intelligence Unit. *ITPI* measures the transfer pricing incentive created by income taxes and is equal to $(t_f - t_{US})$, where t_f equals the ratio of foreign income tax expense to the sum of net income and foreign income tax expense for a particular affiliate in a particular year, and t_{US} equals the highest U.S. statutory rate. *Conflict25*, *Conflict50*, and *Conflict75* are indicator variables equal to 1 if *Conflict* is equal to 1 and *Tariff* (net of the income tax benefit) is greater than 25, 50, and 75 percent, respectively, of the income tax transfer pricing incentive (e.g., the absolute value of *ITPI*). *Tariff* and *Conflict* are defined in Table 2.

TABLE 4

Ordinary Least Square Regressions of Foreign Affiliate Profitability
on Transfer Pricing Incentives and Corporate Coordination

	Predicted Sign	(1) Centralized	(2) Expat	(3) Private	(4) TradeDum	(5) SizeDum
		Dependent Variable = *logPTI*				
β_1 *ITPI*	-	-0.7155***	-0.3897***	-0.6832***	-0.5047***	-0.6669***
		(0.0380)	(0.0747)	(0.0364)	(0.0411)	(0.0478)
β_2 *Conflict25*		0.0759***	0.0588**	0.0302**	0.0885**	0.0267
		(0.0128)	(0.0260)	(0.0143)	(0.0140)	(0.0170)
β_3 *Conflict25×ITPI*	+	1.1738***	0.8028***	1.2027***	1.0199***	0.8888***
		(0.1371)	(0.2399)	(0.1304)	(0.1342)	(0.1699)
β_4 *Corp-Coordination*		0.0590	-0.1374***	-0.1661***	-0.0094	-0.1283***
		(0.0167)	(0.0174)	(0.0191)	(0.0221)	(0.0158)
β_5 *ITPI×Corp-Coordination*		0.1465**	-0.3538***	0.0535	-0.4640***	-0.0304
		(0.0696)	(0.0796)	(0.0838)	(0.0645)	(0.0621)
β_6 *Conflict25× Corp-Coordination*		-0.0769**	-0.0009	-0.0146	-0.0933***	0.0587**
		(0.0311)	(0.0288)	(0.0338)	(0.0251)	(0.0235)
β_7 *Conflict25×ITPI× Corp-Coordination*	+ Col 3 -	0.5483**	0.6599**	0.8605***	0.7933***	0.8619***
		(0.2583)	(0.2716)	(0.3102)	(0.2859)	(0.2368)
β_8 *logAssets*	+	0.8468***	0.8382***	0.8443***	0.8486***	0.8369
		(0.0077)	(0.0078)	(0.0076)	(0.0077)	(0.0078)
β_9 *logComp*	+	0.0522***	0.0479***	0.0494***	0.0509***	0.0510***
		(0.0058)	(0.0058)	(0.0057)	(0.0058)	(0.0057)
β_{10} *logGDP*	-	-0.0588***	-0.0588***	-0.0584***	-0.0607***	-0.0550***
		(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0049)
β_0 *Intercept*		0.1719	0.4645***	0.4427***	0.2186	0.2878*
		(0.1592)	(0.1642)	(0.1617)	(0.1586)	(0.1589)
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects		Yes	Yes	Yes	Yes	Yes
R-square		0.6058	0.6064	0.6067	0.6063	0.6065
Sample N		55893	55893	55893	55893	55893

*, **, *** denotes significance at the 10%, 5% and 1% two-tailed level, respectively. We estimate affiliate-level OLS regressions and report robust standard errors, clustered by firm and year, in parentheses. All variables are computed from BEA data unless otherwise noted. Column (1) reports results using *Centralized* as our measure of *Corp-Coordination*. *Centralized* equals 1 if the functional currency of the affiliate is the reporting currency (e.g., U.S. Dollar) under Topic 830, *Foreign Currency Translation*, 0 otherwise. Column (2) reports results using *Expat* as our measure of *Corp-Coordination*. *Expat* equals 1 if the affiliate employs at least one U.S. expatriate, 0 otherwise. Column (3) reports results using *Private* as our measure of *Corp-Coordination*. *Private* equals 1 if the affiliated group does not have publicly-traded equity, 0 otherwise. Column (4) reports results using *TradeDum* as our measure of *Corp-Coordination*. *TradeDum* equals 1 if *Pct_Import* or *Pct_Export* are in the top quartile of the sample distribution, 0 otherwise. *Pct_Export* and *Pct_Import* measure the extent of intra-firm trade for the affiliated group as the ratio of total U.S. exports to total U.S. sales, and the ratio of total U.S. imports to total U.S. sales, respectively. Column (5) reports results using *SizeDum* as our measure of *Corp-Coordination*. *SizeDum* equals 1 if *Size* is less than the median of the sample distribution, 0 otherwise. *Size* is the natural log of affiliated group total assets. *logPTI* equals the natural log of affiliate pre-tax income. *logAssets* equals the natural log of affiliate total assets. *logComp* equals the natural log of affiliate total employee compensation. *logGDP* equals the natural log of per capita income (PPP) in the affiliate's country of location, as reported by the Economist Intelligence Unit. *ITPI* measures the transfer pricing incentive created by income taxes and is equal to $(t_f - t_{US})$, where t_f equals the ratio of foreign income taxes paid over the sum of net income and foreign taxes paid for a particular affiliate in a particular year, and t_{US} equals the highest U.S. statutory rate. *Conflict25* equals 1 if *Conflict* equals 1 and *Tariff* (net of the income tax benefit) is greater than 25 percent of the income tax transfer pricing incentive (e.g., the absolute value of *ITPI*). *Tariff* and *Conflict* are defined in Table 2.

TABLE 5

Ordinary Least Square Regressions of Foreign Affiliate Profitability
on Transfer Pricing Incentives and Government Coordination

		Dependent Variable = logPTI	
	Predicted Sign	(1) 1Authority	(2) 1Audit
β_1 *ITPI*	-	**-0.6328*****	**-0.5440*****
		(0.0402)	**(0.0493)**
β_2 *Conflict25*		0.0551***	0.0103
		(0.0136)	(0.0252)
β_3 *Conflict25×ITPI*	+	**1.4391*****	**0.9526*****
		(0.1452)	**(0.2830)**
β_4 *Gov't-Coordination*		-0.0533***	-0.0111
		(0.0142)	(0.0131)
β_5 *ITPI×Gov't-Coordination*		-0.2629***	-0.2224***
		(0.0709)	(0.0614)
β_6 *Conflict25×Gov't-Coordination*		0.0289	0.0860***
		(0.0287)	(0.0285)
β_7 *Conflict25× ITPI×Gov't-Coordination*	+	**0.8099*****	**1.0397*****
		(0.2845)	**(0.3145)**
β_8 *logAssets*	+	0.8531***	0.8538***
		(0.0079)	(0.0079)
β_9 *logComp*	+	0.0480***	0.0478***
		(0.0059)	(0.0059)
β_{10} *logGDP*	-	-0.0492***	-0.0509***
		(0.0054)	(0.0054)
β_0 *Intercept*		0.0550	0.0805
		(0.1636)	(0.1635)
Year Fixed Effects		Yes	Yes
Industry Fixed Effects		Yes	Yes
R-square		0.6128	0.6047
Sample N		50514	50514

*, **, *** denotes significance at the 10%, 5% and 1% two-tailed level, respectively. We estimate affiliate-level OLS regressions and report robust standard errors, clustered by firm and year, in

parentheses. All variables are computed from BEA data unless otherwise noted. Column (1) reports results using *1Authority* as our measure of *Gov't-Coordination*. *1Authority* equals 1 if the revenue body and customs agency are formally integrated into a single governmental authority, 0 otherwise, as reported by the OECD. Column (2) reports results using *1Audit* as our measure of *Gov't-Coordination*. *1Audit* equals 1 if the revenue body conducts tax audits such that multiple types of tax liabilities are audited simultaneously, 0 otherwise, as reported by the OECD. *logPTI* equals the natural log of affiliate pre-tax income. *logAssets* equals the natural log of affiliate total assets. *logComp* equals the natural log of affiliate total employee compensation. *logGDP* equals the natural log of per capita income (PPP) in the affiliate's country of location, as reported by the Economist Intelligence Unit. *ITPI* measures the transfer pricing incentive created by income taxes and is equal to (t_f - t_{US}), where t_f equals the ratio of foreign income tax expense to the sum of net income and foreign income tax expense for a particular affiliate in a particular year, and t_{US} equals the highest U.S. statutory rate. *Conflict25* equals 1 if *Conflict* equals 1 and *Tariff* (net of the income tax benefit) is greater than 25 percent of the income tax transfer pricing incentive (e.g., the absolute value of *ITPI*). *Tariff* and *Conflict* are defined in Table 2.