

# Conflicting Transfer Pricing Incentives and the Role of Coordination

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**Abstract:** Our study tests the effect of coordination, at both the government- and the firm-level, on the transfer pricing behavior of multinational firms when their income tax and customs duty transfer pricing incentives conflict. We first show that when duties are large and duty-related transfer pricing incentives conflict with income tax transfer pricing incentives, firms focus less (more) on income tax (duty) minimization when setting transfer prices. We find that either the presence of a coordinated income tax and customs enforcement regime or corporate coordination in setting transfer prices further decreases (increases) firms' focus on income tax (duty) minimization, with potentially important implications for firms' aggregate tax burdens. Our study highlights that coordination plays an important role in firms' tax reporting behavior.

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## 1. Introduction

“Transfer pricing is both a corporate tax and a customs valuation issue” (KPMG 2007) because transfer prices set on trade that occurs within a multinational corporation (MNC), or intrafirm trade, simultaneously affect MNCs’ income tax and customs duty obligations. As a result, firms that cannot minimize both income taxes and customs duties with a single transfer price face a complicated optimization problem.<sup>1</sup> We document that their transfer pricing policies appear less (more) influenced by income tax (customs duty) minimization, relative to firms not facing this challenge. We then develop and test hypotheses surrounding how coordination within the government and within the firm can influence these firms’ pricing policies. Our study is novel in that we document, in a specific setting, how coordination influences firms’ tax reporting behavior, with potentially important implications for firms’ aggregate tax burdens.

Evidence that the allocation of profits among affiliated entities within an MNC (through transfer prices on intrafirm trade) is sensitive to income tax rates can be found in the accounting, finance, and economics literatures (see Hines 1997 and U.S. Treasury 2007 for a review). The role of customs duties has been less studied.<sup>2</sup> Moreover, duties and income taxes are rarely studied together, though their tax bases are linked. The potential for income taxes and duties to influence transfer pricing policies is highly relevant in the context of international trade in goods, the setting we chose for our study. However, the ideas we develop here generalize to any setting

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<sup>1</sup> A customs duty is a trade tax imposed on the declared value of imported goods. We focus on import duties rather than export duties because export duties are relatively immaterial in global trade. A firm reduces import duties by *understating* the purchase price, but reduces income taxes by *overstating* the purchase price if the related party sale originates in a low-income-tax country or terminates in a high-income-tax country. See Section 2.3 and Appendix.

<sup>2</sup> To provide some perspective on the economic importance of customs duties, OECD (2010) reports that tax revenue from i) customs duties and ii) corporate profits, 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 duty payments provide over a third of the total tax revenue that income taxes provide, the empirical transfer pricing literature is nearly void of analyses of customs duties.

where business transactions simultaneously influence two tax bases (e.g., the classification of debt and equity simultaneously affects the capital tax and income tax bases).

Although the interaction between prices set on related party transactions for income tax and customs purposes has gained little academic attention, it was the subject of two major conferences. Held in 2006 and 2007, and jointly organized by the World Customs Organization (WCO) and the Organization for Economic Cooperation and Development (OECD), these conferences drew customs and tax authorities from around the world, as well as members of the international trade community. Interest in the joint role that transfer prices play in income tax and duty minimization is increasing due to the growing importance of cross-border intrafirm trade, governments' need to enhance and preserve their tax revenues, and firms' desire for more certainty regarding their tax positions (Ping and Silberzstein 2008).

We contribute to the academic literature by undertaking an empirical analysis of transfer pricing behavior that considers the role of coordination on MNCs seeking to minimize the sum of income tax and duty payments. Using data from confidential and mandatory surveys of U.S. MNCs conducted by the Bureau of Economic Analysis (BEA), we identify foreign affiliates that engage in intrafirm trade in tangible goods with their U.S. parent.<sup>3</sup> Using information on the direction of U.S. parent-affiliate net trade and proxies for the relevant income tax rates and duty rates, we parse our sample of foreign affiliates into two groups: (i) those where a transfer price that decreases income taxes would increase duties (incentives “conflict”), and (ii) those where a transfer price that decreases income taxes would also decrease duties (incentives do not conflict).

First, we use a previously established empirical model for detecting income-tax-motivated transfer pricing to show that firms decrease their use of transfer pricing policies that minimize

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<sup>3</sup> We do not observe pairs of foreign affiliates engaging in inter-affiliate trade, however, our findings generalize to these intrafirm trade transactions as well.

income taxes when incentives conflict, relative to when incentives do not conflict. Unless firms report inconsistent, or “decoupled”, transfer prices to income tax and customs authorities, firms with conflicting incentives should reduce their income-tax-motivated transfer pricing because these firms lower income taxes only by paying greater customs duties. Thus, observing that firms do adjust their transfer pricing policies in the presence of conflicting incentives suggests that decoupling is perceived as costly, on average.

Next, we develop and test two hypotheses that focus on the role of coordination on the transfer pricing policies of firms in the presence of a conflict. Our first hypothesis predicts that governmental coordination of income tax and customs enforcement efforts will further decrease firms’ tendencies to use transfer pricing policies that minimize income taxes. In the absence of this coordination, firms can use decoupled prices to reduce both income taxes and duties, as the decoupling is more likely to go undetected.<sup>4</sup> In the presence of this coordination, firms’ perceived audit risk from reporting decoupled prices rises, prompting them to alter their income tax transfer prices to be more consistent with the price that minimizes duties (or vice versa). Finally, if firms do not decouple prices or if this coordination does not heighten their perceived audit risk, then governmental coordination should have no effect.

Our second hypothesis separately considers corporate coordination of the income tax and customs functions within the firm. The presence of this internal coordination implies that firms are more likely to recognize when conflicting transfer pricing incentives exist. In addition, they are more likely to have information systems in place to solve the optimization problem required to minimize the sum of income taxes and duties. As primary oversight of transfer pricing is typically found in firms’ corporate tax departments (which typically focus on income tax

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<sup>4</sup> Throughout, we use the term “decoupling” to imply that a firm is using inconsistent transfer pricing policies for income tax purposes and customs purposes, and thus, reporting two prices that cannot be simultaneously justified.

minimization) (TEI 2005, E&Y 2008), coordination should reduce the focus on income tax minimization when setting transfer pricing policies on intrafirm trade. This implies that coordination in the presence of conflicting incentives would further decrease firms' tendencies to use transfer pricing policies minimize income taxes.

Consistent with our predictions, we find that when incentives conflict our measures of both governmental coordination and corporate coordination are associated with less income-tax motivated transfer pricing. Governmental coordination is anticipated to increase the real or perceived audit risk to firms' use of decoupled transfer prices; thus, this finding is consistent with firms altering their income tax transfer prices to be more consistent with the price that minimizes duties. Corporate coordination is expected to reducing firms' income-tax transfer pricing myopia; therefore, this finding is consistent with firms altering their income tax transfer prices in a way that facilitates duty minimization. Overall, our results suggest that both external coordination of the enforcement regime and internal coordination of the tax function within the firm have potentially important implications for the firm's aggregate tax burden.

Finally, in supplemental analyses, we explore the broader implications of our results on the aggregate tax burden of firms.<sup>5</sup> Our governmental coordination result implies that, in the absence of a coordinated enforcement regime within the government, some firms decouple prices to minimize the sum of income taxes and duties. Therefore, coordination within governments could *increase* firms' aggregate tax burdens. Similarly, our corporate coordination result implies that, in the absence of a coordinated income tax and customs function within the firm, that some firms minimize income taxes but at the cost of paying greater duties. Thus, coordination within firms could *decrease* firms' aggregate tax burdens.

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<sup>5</sup> In our supplemental tests, we incorporate all taxes (not only income taxes and duties) as we do not observe duties separately from other non-income taxes.

To address this broader issue, we explore whether coordination affects firms' aggregate tax burdens in a manner consistent with our expectations. We find evidence that MNCs with affiliates facing higher governmental coordination report larger aggregate tax burdens, relative to MNCs with affiliates not facing governmental coordination. Additionally, we find that MNCs with affiliates who have higher corporate coordination with their U.S. parent report lower aggregate tax burdens, relative to other MNCs. These results suggest that MNCs can lower their aggregate tax burden by increasing coordination between foreign affiliates and the parent entity, or by operating in jurisdictions that lack coordinated enforcement regime.

Our study makes several important contributions to the academic literature. First, our study is the first empirical analysis of transfer pricing behavior in the presence of conflicting incentives.<sup>6</sup> Second, we document how firms' tax reporting behavior can be influenced by coordination in a specific setting, with potentially broader implications for firms' aggregate tax burdens. Finally, our paper joins work such as Desai, Foley and Hines (2004) and Robinson (2012) in demonstrating that non-income taxes are salient in firms' tax reporting behavior.

Section 2 provides background, Section 3 develops hypotheses, Section 4 outlines the data, Section 5 describes the baseline research design and results, Section 6 incorporates hypotheses regarding coordination into this research design and reports results, Section 7 analyzes the effect of coordination on aggregate tax burdens, and Section 8 concludes.

## 2. *Institutional Background and Relevant Literature*

### 2.1. INCOME TAX TRANSFER PRICING

The operations of MNCs entail numerous transactions between affiliated entities located in different jurisdictions but within the same controlled group. The prices attached to these

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<sup>6</sup> Baldenius, Melumad and Reichelstein (2004) model conflicting incentives arising between external tax reporting and internal compensation, rather than between two external reporting systems.

transactions are known as “transfer prices.” Transfer pricing guidelines for income tax reporting are established by the OECD, and most countries have adopted some form of these regulations. Known as the “arm’s length principle”, valuation for income tax is required to be established using prices that would have been realized if the parties were unrelated.

There is an extensive literature that studies transfer pricing motivated by income tax minimization. This literature recognizes that it is generally advantageous for firms to minimize income reported in affiliates located in high-income-tax jurisdictions and to maximize income reported in affiliates located in low-income-tax jurisdictions. Empirical studies typically rely on statistical relations between income tax rates and profitability (or trade prices, which affect profitability) to provide evidence consistent with income-tax motivated transfer pricing (e.g., Klassen, Lang, and Wolfson 1993, Grubert and Mutti 1991, Hines and Rice 1994).

For instance, studies document a negative association between tax rates and profitability, suggesting that transfer prices are influenced by income tax considerations. Clausing (2003) does not examine firm-level incentives or consider customs duties, but her study, which documents a negative association between income tax rates and trade prices, suggests that income-tax-motivated transfer pricing is an important consideration in intrafirm international trade in goods.

## 2.2. CUSTOMS DUTY TRANSFER PRICING

As customs duties are levied on the transaction price, transfer prices will also affect the amount of customs duty paid. While transfer pricing guidelines are established by the OECD, customs valuation methods are established by the WTO. Like income tax transfer pricing regulations, prices for customs duty reporting are also required to be “arm’s length.”

Swenson (2001) examines customs values of certain U.S. imports from five countries and finds evidence consistent with transfer pricing incentives created by income taxes and customs

duties.<sup>7</sup> Bernard, Jensen and Schott (2006) find lower U.S. export prices on goods exported to countries that impose high import duty rates. However, Clausing (2003) finds higher U.S. export prices on goods exported to countries with relatively higher income tax rates. Given these findings, it is not clear how the competing objective of minimizing both income taxes and customs duties would be resolved within a firm.<sup>8</sup>

Conflicting transfer pricing objectives have been studied theoretically and in a different context. Specifically, Baldenius, Melumad and Reichelstein (2004) model competing tax and managerial incentives when internal performance is evaluated at the division-level and divisions face differing tax rates. The model demonstrates that, when two objectives cannot be achieved with a single transfer price, a firm may desire to decouple the transfer price reported externally for tax purposes from the transfer price reported internally for compensation purposes. Our setting differs because transfer prices used for income tax and customs duties are both reported externally for tax purposes, making it costly to decouple prices. This introduces the so-called ‘conflict’ in setting transfer prices in our study that we anticipate will be influenced either by coordination within the government or coordination within the firm.

### 2.3. CONFLICTING INCENTIVES BETWEEN INCOME TAX AND CUSTOMS DUTY TRANSFER PRICING

A simple model of income shifting involves a MNC earning income in affiliates located in jurisdictions that impose different income tax rates. All else equal, in such a setting, the objective is generally to report as much income in low-income-tax jurisdictions as can be sustained under

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<sup>7</sup> Swenson (2001) computes a transfer pricing incentive variable that combines income tax and duty rates for various products imported into the U.S. As the data used in her study for 1981 to 1988 include non-intrafirm trade, imports by entities with foreign parents, and are at the product-level, she cannot examine firm-level incentives, and thus does not explore the transfer pricing optimization problem relevant to firms that face conflicting incentives or the role of coordination in that optimization problem, which are the focus of our study.

<sup>8</sup> Though there are currently few countries in the world with income tax rates higher than the U.S., our study examines transfer pricing behavior during the time period 1982 through 2005, when many countries’ income tax rates were higher than the U.S. This does not limit the generalizability of our results because our insights apply to transactions occurring between two non-U.S. entities as well.



scrutiny by tax authorities. Either overstating related-party revenues or understating related-party expenses in affiliates located in low-income-tax jurisdictions increases income recognized in the low-income-tax jurisdiction and lowers the worldwide income tax burden of the firm. Thus, when the foreign tax rate,  $t_f$ , is less than the U.S. tax rate,  $t_{US}$ , income can be shifted into the low-income-tax foreign jurisdiction from the U.S. by the foreign affiliate selling goods to its U.S. parent at a high price or purchasing goods from its U.S. parent at a low price. Alternatively, when  $t_f > t_{US}$ , income can be shifted into the U.S. by the foreign affiliate selling goods to its U.S. parent at a low price or purchasing goods from its U.S. parent at a high price.

The transfer price also influences the customs value, which is the tax base to which a duty rate is applied. The lower the transfer price, the lower the customs value and the applicable duty payment. Thus, in contrast to income taxes, customs duties unambiguously create incentives to set a lower transfer price because the purchaser will incur a smaller duty payment on lower values. In addition, tax rates are applied to the transfer price of the purchased goods, so the cost/benefit of the transfer price set is a direct function of the duty tax rate, rather than the tax rate *differential* as with income taxes.

Suppose a foreign affiliate faces a customs duty imposed at a rate,  $Duty_f$ , on imports from its U.S. parent. Lowering the cost of the goods by \$1 would reduce the customs duty by  $\$1 \times Duty_f$ . Thus, in the absence of income tax minimization objectives, a low purchase price should always be preferred to a high price if  $Duty_f > 0$ . Furthermore, the duty payment is deductible for income tax purposes in the jurisdiction in which it is paid, so the total cost of a duty paid in a foreign jurisdiction is  $Duty_f \times (1 - t_f)$  or  $Duty_{US} \times (1 - t_{US})$  if paid by the U.S. parent.

Consistent with the above discussion, transfer pricing incentives created by income taxes and customs duties conflict in two cases: for high-income-tax foreign affiliate importers and for low-income-tax foreign affiliate exporters.<sup>9</sup> Figure 1 below summarizes the discussion above.

**Figure 1: Transfer Pricing Incentives to Minimize Income Tax (I) or Customs Duty (C) and the Anticipated Effect on Reported Income**

Foreign affiliate is:	High-income-tax ( $t_f > t_{US}$ )	Low-income-tax ( $t_f < t_{US}$ )
Importer	<b>(I)</b> <b>Conflict</b> I: High Price, Income ↓ C: Low Price, Income ↑	<b>(II)</b> <b>No Conflict</b> I: Low Price, Income ↑ C: Low Price, Income ↑
Exporter	<b>(III)</b> <b>No Conflict</b> I: Low Price, Income ↓ C: Low Price, Income ↓	<b>(IV)</b> <b>Conflict</b> I: High Price, Income ↑ C: Low Price, Income ↓

Traditional transfer pricing studies document a negative relation between income tax rates and profitability in the full sample of foreign affiliates represented by Figure 1, and conclude that transfer prices are influenced by income tax considerations. This result is consistent with the arrows on the “I:” lines shown in quadrants (I) through (IV) of Figure 1, whereby more income is anticipated in low-income-tax jurisdictions and less income is anticipated in high-income-tax jurisdictions. This inverse relation between income and tax rates is expected without regard to the direction of intrafirm trade (i.e., importer versus exporter).

In the conflict quadrants of Figure 1, a single transfer price cannot achieve both customs duty minimization and income tax minimization. The firm will incur additional customs duties when shifting income out of a high-income-tax importer because shifting income requires the firm to

<sup>9</sup> The effect of duty payments on income-tax-motivated transfer pricing incentives depends on two things. First, the sign of the income tax rate differential ( $t_f - t_{US}$ ) between the trading partners (i.e., the U.S. parent and its foreign affiliate) determines whether the incentive is to overstate or understate income in the foreign jurisdiction. Second, the direction of trade determines whether opportunities to shift the income tax base via intrafirm trade are available through the sale price or the purchase price. We provide a further discussion in the Appendix.

increase the transfer price at which goods are purchased, which increases the custom duty. Similarly, the firm will incur additional customs duties when shifting income into a low-income-tax exporter, because to shift income the firm must increase the transfer price at which goods are sold, which again increases the customs duty.

Thus, a conflict between the duty and income tax transfer pricing incentives may entirely mitigate the relation between income tax rates and profitability observed in the absence of the conflict. Note the arrows on the “C” lines shown in quadrants (I) and (IV) are of the opposite direction of the “I” arrows. For a firm that seeks to set transfer prices that minimize its duty payments, the “C” arrows imply that *more* income is anticipated in affiliates located in high-income-tax jurisdictions and *less* income in affiliates located in low-income-tax jurisdictions.

### 3. *Hypothesis Development*

While prior literature finds evidence that income tax and duty considerations separately influence transfer pricing behavior, the literature has not addressed the role of coordination in the presence of conflicting transfer pricing incentives. To ascertain whether coordination affects firms’ transfer pricing behavior in this presence of this conflict, we identify two aspects of coordination that we expect to matter in our setting: i) coordination of tax enforcement within governments (governmental coordination), and ii) coordination of transfer pricing decisions within firms (corporate coordination).

#### 3.1 GOVERNMENTAL COORDINATION

Firms that cannot minimize the sum of duties and income taxes with a single price have incentives to decouple prices, resulting in some firms choosing to play the “audit lottery”. Coordination between the administration and enforcement of revenue and customs should increase these firms’ real or perceived cost of doing so. For example, OECD (2010) notes that

customs valuations can be useful to income tax administrators, and vice versa. Customs officials and income tax administrators have contemporaneous documentation prepared by the taxpayer and that contains detailed information on the circumstance of the transactions. Thus, governmental coordination should decrease the likelihood that firms will attempt to decouple their prices, which would require firms to tell inconsistent stories.

A 2008 E&Y 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 parent company respondents have had their customs transfer 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 statistics confirm that integration of enforcement should decrease firms' 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 administrative body.

If firms with conflicting incentives decouple prices to minimize the sum of duties and income taxes then, in the presence of governmental coordination, we anticipate that these firms will alter transfer prices reported to the income tax authority to align them more closely with prices reported to the customs authority.<sup>10</sup> Alternatively, if firms with conflicting incentives do not attempt to decouple prices, or if firms do not expect governmental coordination to increase the audit risk around decoupling, then governmental coordination should not influence the transfer pricing behavior of these firms. Our first hypothesis is stated as follows:

H<sub>1</sub>: Firms facing conflicting income tax and customs duty transfer pricing incentives exhibit less income-tax-motivated transfer pricing when governmental enforcement of transfer prices for income tax and customs duty purposes is more likely to be coordinated.

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<sup>10</sup> If firms move prices reported to the customs authority closer to prices reported to the income tax authority, our data and research design would not allow us to observe this behavior.

### 3.2 CORPORATE COORDINATION

Coordination between the income tax and customs functions within an organization varies across firms. Two surveys (TEI 2005 and E&Y 2008) suggest that transfer prices set for income tax purposes are likely to be used for customs purposes. TEI (2005) reports that 81 of corporate tax departments claim responsibility for setting transfer prices for income tax purposes. Moreover, E&Y (2008) reports that less than half of corporate tax directors (responsible for setting transfer prices for income taxes) participate in the firm's customs function.<sup>11</sup> Thus, firms with conflicting incentives are likely to set prices that minimize income tax payments, but at the cost of higher duties.

We argue that if coordination between the income tax and customs functions within a firm is relatively high, then the transfer price set on intrafirm trade will be more likely to minimize the sum of income taxes and duties. Following from this argument, we anticipate that in the presence of corporate coordination, firms with conflicting incentives will be less likely to set income-tax motivated transfer prices. Thus, our second hypothesis is stated as follows:

H<sub>2</sub>: Firms facing conflicting income tax and customs duty transfer pricing incentives exhibit less income-tax-motivated transfer pricing when corporate transfer pricing decisions for income tax and customs duty purposes are more likely to be coordinated.

## 4. *Sample and Variable Measurement*

### 4.1 SAMPLE

We study transfer pricing behavior of U.S. MNCs using Bureau of Economic Analysis (BEA) *Annual and Benchmark Surveys of U.S. Direct Investment Abroad*. Beginning in 1982, federal law requires U.S. MNCs to report certain financial and operating data for both domestic and foreign operations to the BEA each year. A U.S. MNC is the combination of a single U.S.

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<sup>11</sup> Corporate tax directors generally do not view the customs function as part of the tax function (E&Y 2008).

entity, called the U.S. parent, and at least one foreign affiliate in which the U.S. parent holds, directly or indirectly, at least a 10 percent equity interest. The amount of data collected by the BEA varies by year and depends on whether the affiliate meets a reporting threshold.<sup>12</sup>

The BEA data allow us to observe classified income statements and balance sheets for foreign affiliates that include important items for our analysis, such as income tax expense, net income, total assets, and total employee compensation. The financial data are reported on a fiscal year basis, in U.S. dollars, and in accordance with U.S. Generally Accepted Accounting Principles (GAAP). We also observe other key information such as trade in goods between each affiliate and its U.S. parent and each affiliate's country location and industry membership.<sup>13</sup>

Table 1 Panel A details our final sample selection of 55,893 foreign-affiliate-year observations. 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 entities that may not face incentives created by the U.S. corporate income tax system by eliminating foreign-controlled U.S. subsidiaries, non-corporate affiliates of corporate U.S. parents, and non-corporate U.S. parents (and their affiliates). We exclude banking and insurance entities, and holding company affiliates (i.e., NAICS 5512 and SIC 671) for two reasons. First, these entities do not conduct the type of import and export activity we are interested in examining. Second, as these firms generate little nonfinancial income, the model of expected (i.e., un-shifted) income as a function of labor and capital that we rely on in our empirical tests is not well specified for them.

(Insert Table 1 about here)

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<sup>12</sup> In order to reduce the reporting burden, the BEA requires affiliates to participate in its surveys if its assets, sales, or net income (loss) exceed the threshold for the year. The thresholds are lower in benchmark years (i.e., 1982, 1989, 1994, 1999, and 2004) requiring more affiliates to report. For example, thresholds are \$7 million in 1999, \$30 million in 2000-2003, and \$10 million in 2004. See Mataloni (2003) for detailed information on BEA data.

<sup>13</sup> Reference to the "U.S. parent" describes data for the domestic operations only.

We follow the extant transfer pricing literature and exclude unprofitable affiliates and unprofitable U.S. parents (and their affiliates) because the income shifting incentives for entities with losses are less clear (e.g., De Simone and Seidman 2013, Power and Silverstein 2007).<sup>14</sup> Finally, we delete affiliates that we cannot classify as either a net importer or a net exporter with its U.S. parent and exclude observations missing gross domestic product information. The final sample for our main tests consists of 55,893 affiliate-year observations over 2,418 U.S. parents and 16,744 of their foreign affiliates for a 23-year period. In tests of the effect of governmental coordination, we lose 5,379 affiliate-year observations because some countries represented in our sample did not participate in the OECD survey from which we draw the measures of government-level coordination.

Table 1 Panel B illustrates that an overwhelming majority of foreign affiliates in our final sample operate in the chemical (18 percent), durables (29 percent), or retail (32 percent) industries. The chemical industry faces customs duties on such products as fertilizers, soaps, and cosmetics. Products incurring duties in the durable goods industry include home appliances, consumer electronics, furniture, sports equipment, and toys. Finally, the retail industry faces duties on a wide range of products such as clothing, shoes, and handbags. Duty rates are assessed on very specific products definitions such that products that seem very similar often face wildly disparate rates.<sup>15</sup> Consider the *Toy Biz v. U.S. International Trade Case* (Court Number 96-10-02291) where customs authorities argued that X-Men action figures were “Dolls representing human beings” subject to a 12 percent duty rate. Toy Biz, on the other hand, argued that the

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<sup>14</sup> As a practical matter, the dependent variable in our regression model (described in Section 5) is the log of foreign affiliate pre-tax income and the natural log of a negative number is not defined.

<sup>15</sup> For example, duty rates on sweaters are determined by their material: acrylic or synthetics 32.5 percent, cotton 17.1 percent, cashmere 4.4 percent, silk 1.4 percent.

action figures were “Other toys” subject to a 6.8 percent duty rate.<sup>16</sup> As evidenced by such cases heard in international trade courts, firms actively attempt to minimize duty payments in practice.

## 4.2 VARIABLE MEASUREMENT

### 4.2.1 IMPORTER/EXPORTER

The BEA data contain information on the dollar amount and direction of intrafirm trade in goods between the U.S. parent and its foreign affiliates. To capture firms that face meaningful income tax and customs duty incentives when setting transfer prices, our analysis focuses exclusively on a sample of foreign affiliates that engage in intrafirm trade in goods with their U.S. parent.<sup>17</sup> We classify a foreign affiliate that primarily purchases goods from its U.S. parent as an importer (i.e., *Importer* set equal to 1). Alternatively, we classify an affiliate that primarily sells goods to its U.S. parent as an exporter. We delete affiliates from our sample that do not trade in goods in at least one direction with their U.S. parent, or affiliates where trade is not significantly larger in one direction than the other.<sup>18</sup>

### 4.2.2 INCOME TAX TRANSFER PRICING INCENTIVES (*ITPI*)

The standard measure of income tax transfer pricing (*ITPI*) incentives in the literature is the tax rate differential between two affiliated entities in different jurisdictions. We measure  $t_f$  as the ratio of foreign affiliate income tax expense to the foreign affiliate pre-tax income.<sup>19</sup> We measure

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<sup>16</sup> The court ultimately ruled that mutants were not human.

<sup>17</sup> We cannot observe intrafirm trade among foreign affiliates, but rather only intrafirm trade between foreign affiliates and their U.S. parents.

<sup>18</sup> While most affiliates either import from or export to their U.S. parent, some do both. The combined income tax and duty transfer pricing incentives of such an affiliate are ambiguous (i.e., import transactions will conflict whereas export transactions will not, or vice versa). See Figure 1. Therefore, we classify an affiliate as an importer (exporter) only if its imports (exports) are more than twice its exports (imports).

<sup>19</sup> If  $t_f < 0$  or  $t_f > 1$ , we set  $t_f$  equal to the statutory tax rate in the affiliate’s country-year. 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.



$t_{US}$  as the maximum corporate statutory rate in effect each year of our sample period.<sup>20</sup> If  $t_f > t_{US}$ , then  $ITPI > 0$  (i.e., *High-Income-Tax* is equal to 1).

#### 4.2.3 CONFLICTING TRANSFER PRICING INCENTIVES (*CONFLICT*)

Transfer pricing incentives conflict for high-income-tax importers and low-income-tax exporters (see Figure 1). Accordingly, to identify the sub-sample of affiliates that face conflicting incentives we set *Conflict* equal to 1 either when *Importer* and *High-Income-Tax* are equal to 1, or when *Importer* and *High-Income-Tax* are equal to 0. As coordination has a greater potential to influence transfer pricing behavior when the conflict is strong, we create three additional indicator variables. *Conflict25*, *Conflict50*, and *Conflict75* equal 1 if *Conflict* is equal to 1 *and* the duty incentive is greater than 25, 50, and 75 percent, respectively, of the income tax incentive. By forcing the duty rate to equal or exceed  $|ITPI|$  for each observation in the conflict sub-sample, this ensures they anticipate a non-trivial increase in their duty payment when reducing income taxes through transfer pricing. Thus, duty rates are increasing in the magnitude of the income tax differential in our “conflict” sample.

We do not observe the product mix associated with the intrafirm trade in our data; rather we observe the amount and direction of intrafirm trade. Therefore, we measure *Duty* as the average duty rate in each country-year, as reported by the World Bank.<sup>21</sup> For affiliate exporters – foreign affiliates exporting goods to the U.S. parent – we measure the expected after-income-tax duty

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<sup>20</sup> The BEA data does not capture U.S. income tax expense for domestic operations in 10 of the years in our sample period. When available, the mean and median U.S. effective tax rate calculated from BEA data approximate the U.S. statutory rate and the use of calculated U.S. rates, when available, do not change our inferences.

<sup>21</sup> Pierce and Schott (2009) report more than 20,000 classifications for goods imported into the U.S., each with a different duty rate. This large number of classifications is common. The World Bank calculates “average” duty rates for a country-year by weighting duty rates in effect by a normal basket of goods imported into that country. While the normal basket may not correspond with the basket of traded goods in our sample of affiliates, we expect they are highly correlated. We also recognize that duty rates are bilateral in nature if trade agreements reduce or eliminate the rate on imports from certain countries. An important trade agreement is the North American Free Trade Agreement (NAFTA), which phases out duty rates on trade occurring between the U.S., Canada, and Mexico over a 15-year period beginning in 1995. Although we cannot identify the effect of NAFTA on our sample specifically, we set *Duty* equal to zero for trade occurring between these countries after 1995 and our results are not materially affected.

rate on shifted income as  $Duty_{US} \times (1-t_{US})$ . For affiliate importers – foreign affiliates importing goods from the U.S. parent – the expected after-income-tax duty rate on shifted income equals  $Duty_f \times (1-t_f)$ . This approach reflects that the firm’s duty on intrafirm trade is paid and deducted in the country of the purchaser.<sup>22</sup>

#### 4.2.4 COORDINATION

##### 4.2.4.1 GOVERNMENTAL-LEVEL (*GOV’T-COORDINATION*)

We rely on two measures of governmental coordination from OECD (2006, 2009). *One\_Authority* and *One\_Audit* capture whether the governments’ monitoring of firms’ income tax returns and customs duty declarations is relatively more coordinated.<sup>23</sup> *One\_Authority* is equal to 1 when a country has formally aligned its income tax and trade tax administrators by bringing them within a single management structure. *One\_Audit* is equal to 1 when integrated audits of taxpayers are the primary organization model for tax audits, as opposed to separate audits by tax type. *One\_Authority* captures formal integration (e.g., organizational structure) while *One\_Audit* captures informal integration (i.e., organizational processes).

##### 4.2.4.2 CORPORATE-LEVEL (*CORP-COORDINATION*)

It is difficult to measure the extent to which firms coordinate the income tax and customs functions, so we rely on multiple affiliate-level and firm-level proxies for corporate coordination. Consistent with Halperin and Srinidhi (1991), centralized decision making facilitates coordination of competing objectives within the firm. We draw two affiliate-level proxies for centralized decision making from Robinson and Stocken (2013), who find evidence consistent

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<sup>22</sup> We measure expected duty payments net of the income tax benefit (i.e.,  $Duty \times (1-t)$ ) because duty payments are deductible. Thus, the income tax benefit from the deduction reduces the burden of the duty payment.

<sup>23</sup> We characterize the tax administration variables in reference to the country of import rather than the country of the export in order to characterize the appropriate side of the transaction for which we expect tax administration to matter. Thus, the tax administration variables are set to the U.S. values for all foreign 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.

with affiliates using the U.S. dollar functional currency as having relatively less autonomy (i.e., decision rights are primarily located in the U.S. headquarters). They also find that U.S. expatriates are more prevalent in these affiliates. *Centralized* and *Expat* are indicator variables equal to 1 if the affiliate uses the U.S. dollar as its functional currency or employs a U.S. expatriate, respectively.

We also identify three firm-level proxies for the likely extent of coordination between the income tax and duty function within an organization: *Private*, *TradeDum*, and *SizeDum*. Our first measure, *Private*, is equal to 1 when the firms' equity is privately owned. Armstrong, Blouin, and Larcker (2012) and Robinson, Sikes, and Weaver (2010) find that tax departments of public companies are rewarded for lowering the firm's effective tax rate (ETR), through income-tax-motivated transfer pricing, for example.<sup>24</sup> As customs duties are not included in the numerator of ETR, duty minimization does not decrease the ETR. As private firms are more likely to focus on cash taxes paid, rather than myopically focus on minimizing the ETR, they should be more likely to coordinate the duties and income tax function.

Our second firm-level measure, *TradeDum*, is motivated by our expectation that when international trade is relatively significant to the firm as a whole, the firm will be more likely to coordinate its income tax and duty function. Thus, *TradeDum* equals 1 if either the ratio of total U.S. exports to total U.S. sales (i.e., *Pct\_Export*) or the ratio of total U.S. imports to total U.S. sales (i.e., *Pct\_Import*) is above the median of the sample distribution.

Our third firm-level measure, *SizeDum*, is motivated by our expectation that the ability to coordinate the income tax and customs functions within the firm decreases in firm size. Consistent with this, TEI (2005) reports that a significantly greater proportion of smaller firms

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<sup>24</sup> As public firms devote relatively more time and resources to tax planning in general (TEI 2005) they may alternatively be more likely to hire professionals that effectively coordinate the income tax and duty functions.

incorporate the income tax function into the firm's Enterprise Resource Planning system, which would also be used by the customs function. *SizeDum* equals 1 if *logFirmAssets*, the natural log of firm total assets, is below the median of the sample distribution.

#### 4.2.5 OTHER VARIABLES

As described in Section 5.1, we rely on Hines and Rice (1994), which outlines a model to detect income-tax motivated transfer pricing in affiliate-level or country-level data. In their model, the natural log of pre-tax profitability, *logPTI*, is expressed as a function of the natural log of real input measures – total assets, *logAssets*, and total employee compensation, *logComp*. The natural log of gross domestic product, *logGDP*, controls for cross-country differences in technology or factor qualities that may affect productivity.

#### 4.3 DESCRIPTIVE STATISTICS

Table 2 provides descriptive statistics for our sample and regression variables. The median foreign affiliate in our sample reports pre-tax income, assets, and compensation of \$4.4, \$37.4, and \$6.6 million, respectively, and is located in a relatively developed country (median *GDP* of \$550 billion). The mean value of *ITPI* is -0.023, suggesting that the average income tax transfer pricing incentive in our sample is to shift income out of the U.S. and into a low-income-tax foreign affiliate. However, 45 percent of affiliates in our sample are considered high-income-tax relative to their U.S. parent. While this percentage may seem large given the statutory tax rates in effect today, the U.S. was relatively low-income-tax in the 1980's when statutory tax rates in much of the world were higher.<sup>25</sup> We observe a nearly-monotonic downward trend in relative tax rates in our data beginning in the late 1980's: in 1988, 65.6 percent of the sample is high-income-tax relative to the U.S. but decreases to 29.7 percent by 2005.

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<sup>25</sup> Despite the low foreign tax rates in effect today, relative to the U.S., our study generalizes to international trade occurring between any two countries facing different income tax rates, not just the U.S. and foreign countries, to which our dataset restricts our attention.

(Insert Table 2 about here)

The mean value of *Conflict* is 0.499 indicating that approximately half of the affiliates in our sample face conflicting transfer pricing incentives. Mean values of *Conflict25*, *Conflict50*, and *Conflict75* indicate that 32, 23 and 18 percent, respectively, of the sample face an economically meaningful conflict as a consequence of the duty rate exceeding 25, 50, and 75 percent of the income tax transfer pricing incentive. As our measures of conflict consider the level of *Duty* relative to *ITPI*, a firm where *Conflict25* = 1 does not necessarily face a high absolute customs duty but rather a high customs duty relative to the income tax differential. For example, the median *Duty (ITPI)* for firms where *Conflict25* = 1 is 4.7 percent (3.8 percent), while the median *Duty (ITPI)* for firms where *Conflict75* = 1 is 5.2 percent (2.2 percent), respectively. The average duty rate in our sample is 5.3 percent.

Our measures of *Gov't-Coordination* indicate that approximately 29 percent of the sample faces formal integration of the trade and income tax authorities (*One\_Authority*), while 62 percent face informal integration through the audit process (*One\_Audit*). Consistent with a significant amount of autonomy generally granted to foreign affiliates, 22 percent use the U.S. dollar as their functional currency (*Centralized*), and 17 percent employ a U.S. expatriate (*Expat*). Approximately 17 percent of affiliates in our sample are owned by private U.S. parents.

## 5. *Baseline Research Design and Results*

To demonstrate behavior in our sample consistent with existing *income tax* transfer pricing studies, we first estimate a model developed by Hines and Rice (1994) and used in numerous studies to detect income-tax-motivated transfer pricing (most recently, Huizinga and Laeven 2008, Markle 2013). Specifically, we estimate foreign affiliate-level OLS regressions of Equation (1) as follows:

$$\log PTI = \beta_0 + \beta_1 ITPI + \beta_2 \log Assets + \beta_3 \log Comp + \beta_4 \log GDP + \text{Industry, Year Indicators} \quad (1)$$

Where,

$\log PTI$	= natural log of affiliate pre-tax income <sup>26</sup>
$ITPI$	= income tax transfer pricing incentive = $(t_f - t_{US})$
$\log Assets$	= natural log of affiliate total assets <sup>27</sup>
$\log Comp$	= natural log of affiliate total employee compensation
$\log GDP$	= natural log of per capita income of the affiliate's country

A negative coefficient on  $\beta_1$  is consistent with income-tax-motivated transfer pricing (i.e., higher than expected profitability in low-income-tax countries and lower than expected profitability in high-income-tax countries) and has been documented extensively in prior literature. In Table 3 column (1) we report a coefficient of -0.542 on  $\beta_1$ , consistent with prior literature including Huizinga and Laeven (2008) who report a coefficient of -0.595 in a similar specification. This implies that decreasing the foreign tax rate by one percent, *ceteris paribus*, raises foreign affiliate profitability by 0.54 percent.<sup>28</sup> Interpreting our estimate at the sample mean  $ITPI$  of -0.023, this implies income tax savings of 0.02 percent of foreign affiliate pre-tax income ( $0.54 \times -0.033$ ) on a foreign tax rate decrease of one percent.

The coefficient on  $\log GDP$  reflects the *net* effect of economic development on profitability. For instance, higher profitability might materialize in developed countries due to more advanced technology, or alternatively, profitability could be negatively impacted if firms require higher

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<sup>26</sup> While gross margin may more directly capture fluctuation in profits due to transfer prices set on intrafirm trade, the BEA data do not provide sufficient income statement detail to measure gross margin. Thus, we follow prior literature in using pre-tax income.

<sup>27</sup> 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, allowing us to use a larger sample and longer time period. Inferences obtained from estimating Equation (1) are unchanged when we substitute fixed assets for total assets using a smaller sample.

<sup>28</sup> When we estimate Equation (1) in the sample of 77,855 affiliates we drop from our study because they do not engage in intrafirm trade in goods with their U.S. parent (see Table 1), the coefficient on  $ITPI$  is -0.936 ( $p < 0.01$ ). This implies a sensitivity of income to tax rates nearly twice that observed in our sample. We conjecture that our sample appears to have relatively limited opportunities to shift income as compared to firms with higher levels of “migratory” intangibles. Prior research that includes such affiliates also estimate larger coefficients on the income tax incentive variable; e.g., Hines and Rice (1994) estimate a coefficient of -2.83 in a sample including many tax haven affiliates. Our sample is constructed based on our desire to focus on the optimization problem introduced by conflicting incentives created by different taxes and the role of coordination in tax minimization.

returns in less developed countries to compensate for risks associated with less effective property rights and regulations. As in Huizinga and Laeven (2008),  $\log GDP$  enters the regression negatively, suggesting that the latter effect is stronger.

We next incorporate the presence of conflicting transfer pricing incentives into Equation (1) and demonstrate an interaction effect between  $ITPI$  and our measure of conflict. If firms cannot costlessly decouple the prices reported to income tax and customs authorities, then the negative relation between pre-tax income and  $ITPI$  will be attenuated when income tax and duty minimization incentives conflict.

Specifically, we estimate affiliate-level OLS regressions of Equation (2) as follows:

$$\log PTI = \beta_0 + \beta_1 ITPI + \beta_2 Conflict + \beta_3 Conflict \times ITPI + \beta_4 \log Assets + \beta_5 \log Comp + \beta_6 \log GDP + \text{Industry, Year Indicators} \quad (2)$$

Where,

$Conflict$  = 1 if transfer pricing incentives created by income taxes and customs duties conflict, 0 otherwise (i.e.,  $Conflict_{25}$ ,  $Conflict_{50}$ ,  $Conflict_{75}$ )

*All other variables are as defined above for Equation (1).*

Table 3, Columns (2) through (4), report results from estimating Equation (2). In all cases, we continue to observe a negative relation between pre-tax income and  $ITPI$  for the non-conflict observations. However, we estimate a positive relation between pre-tax income and  $ITPI$  for the conflict observations ( $\beta_1 + \beta_3 > 0$ ;  $p < .01$ ). Observations where  $Conflict = 1$  face duty incentives that are considerable relative to their income tax incentives (i.e., duty rates greater than a specified percentage of the income tax differential); conflict observations with higher values of  $ITPI$  will also face higher duty rates. Thus, lower than expected profitability in low-income-tax countries and higher than expected profitability in high-income-tax countries is consistent with duty

minimization objectives having a greater influence on firms' transfer pricing policies than income tax minimization objectives.

Untabulated results indicate that when a conflict exists, but is less economically significant, income-tax-motivated transfer pricing behavior appears to still dominate. For instance, the coefficient on *Conflict*  $\times$  *ITPI* in Equation (2) is positive and significant if we require duty rates to be greater than 2 percent of the income tax differential. However, the magnitude of the coefficient is smaller ( $\beta_3 = 0.165$ ) so the overall slope on *ITPI* ( $-0.872+0.165$ ) for the conflict observations remains negative and significant ( $\beta_1+\beta_3<0$ ;  $p<.01$ ). Thus, duty minimization still decreases a firm's income-tax-motivated transfer pricing behavior when the duty incentives are conflicting and small, but duty minimization dominates when the expected duty payments relative to income tax savings are significant.

We tabulate results using *Conflict25*, *Conflict50*, and *Conflict75* to highlight the slope difference on *ITPI* as the transfer pricing conflict becomes more substantial.<sup>29</sup> We use *Conflict25* to test  $H_1$  and  $H_2$  to ensure that *Conflict* identifies a sub-sample for which customs duties are likely to be a salient consideration in transfer pricing decisions while maintaining a sufficient sample size to estimate three-way interactions. Overall, these baseline results establish that firms facing large duty rates (relative to the income tax differential) significantly alter the prices they would otherwise set to minimize income taxes, in the presence of conflicting incentives. We next turn to the role of coordination in the transfer pricing behavior of these firms.

(Insert Table 3 here)

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<sup>29</sup> We also estimate Equation (2) using a continuous measure, whereby *Conflict* is equal to the ratio of the duty rate to the absolute value of *ITPI* for conflict observations. The estimated coefficient on *ITPI* is  $-0.694$  ( $p<0.01$ ) and the coefficient on the interaction term is  $1.799$  ( $p<0.01$ ). However, we rely on a dichotomous measure of *Conflict* as our tests of  $H_1$  and  $H_2$  require three-way interactions. A binary variable makes those results easier to interpret, particularly since we estimate our regressions in natural log.



## 6. Role of Coordination on Conflicting Transfer Pricing Incentives

### 6.1 EMPIRICAL SPECIFICATION

Our hypotheses predict that firms facing conflicting transfer pricing incentives will focus less on income tax minimization when there is relatively greater coordination in governments' or firms' income tax and customs functions. Equation (3) introduces *Coordination* into Equation (2), and tests for an interaction effect on  $Conflict \times ITPI$  (i.e., a three-way interaction).

$$\begin{aligned} \log PTI = & \beta_0 + \beta_1 ITPI + \beta_2 Conflict + \beta_3 Conflict \times ITPI + \beta_4 Coordination \\ & + \beta_5 ITPI \times Coordination + \beta_6 Conflict \times Coordination \\ & + \beta_7 Conflict \times ITPI \times Coordination + \beta_8 \log Assets + \beta_9 \log Comp \\ & + \beta_{10} \log GDP + \text{Industry, Year Indicators} \end{aligned} \quad (3)$$

Where,

*Coordination* = 1 if the affiliate faces a coordinated governmental authority (*One\_Authority* and *One\_Audit*) or if the affiliate is more likely to be coordinated with its US parent (*Centralized*, *Expat*, *Private*, *TradeDum*, and *SizeDum*), 0 otherwise.

All other variables are as defined above for Equations (1) and (2).

The results reported in Table 3 suggest that in the presence of conflicting incentives, firms decrease (increase) the use of transfer pricing policies that focus on income tax (customs duty) minimization.  $H_1$  then considers that when governments coordinate trade tax and income tax enforcement, firms facing conflicting incentives are less likely to decouple transfer prices due to the heightened audit and detection risk. The prediction then is that, in the presence of conflicting incentives, this coordination should further decrease (increase) the use of transfer pricing policies that focus on income tax (customs duty) minimization. Thus, a positive coefficient on  $\beta_7$  in Equation (3) when using measures of governmental coordination to capture *Coordination* is consistent with  $H_1$ .

Next,  $H_2$  considers that when firms coordinate their customs and income tax functions, they are more likely to minimize the sum of income taxes and duties. The prediction then is that, in the presence of conflicting incentives, coordinated firms are less likely to myopically focus on income tax minimization, and that this should in turn further decrease (increase) the use of transfer pricing policies that focus on income tax (customs duty) minimization. Thus, a positive coefficient on  $\beta_7$  when using proxies for corporate coordination to capture *Coordination* in Equation (3) is consistent with  $H_2$ .

## 6.2 $H_1$ – RESULT

Table 4 reports results from estimating Equation (3) using our measures of *Gov't-Coordination* in turn. In Column (1), which uses *One\_Authority*, we expect and find a positive coefficient on the three-way interaction term ( $\beta_7=0.810$ ;  $p<.0001$ ). This result suggests that firms facing conflicting transfer pricing incentives further decrease (increase) their income tax (customs duty) transfer pricing behavior in the presence of governmental integration of trade tax and income tax enforcement.

(Insert Table 4 about here)

Column (2) presents results using *One\_Audit* as our measure of *Coordination*. Again, we find a positive coefficient on  $\beta_7$ .<sup>30</sup> The interpretation of *One\_Audit* is the same as the interpretation of *One\_Authority*. Thus, both formal and informal integration appear to matter for the transfer pricing decisions of firms facing conflicting transfer pricing incentives. Joint minimization of duties and income taxes is arguably more difficult for firms facing conflicting transfer pricing incentives that also face integrated customs and income tax enforcement. Results presented in

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<sup>30</sup> It is likely that when multiple taxes are audited simultaneously, trade tax and income tax authorities share information even if they are not formally integrated into one agency. However, to ensure that audits of simultaneous taxes are likely to include both income taxes and customs duties, we also estimate Equation (3) using *One\_Audit* on the subsample for which *One\_Authority* = 1 and find the same result.

Table 4 support  $H_1$  and suggest that in the presence of government coordination, conflict firms increase their coupling of transfer prices for income taxes and customs duties resulting in transfer prices that appear consistent with duty minimization.

### 6.3 $H_2$ – RESULT

Table 5 reports results from estimating Equation (3) using our proxies for corporate coordination. Column (1) reports results using *Centralized* as our measure of corporate coordination. We expect and find a positive coefficient on the three-way interaction term ( $\beta_7=0.548$ ;  $p<.0001$ ). Columns (2) through (5) show a similar pattern using our other measures corporate coordination. Thus, results presented in Table 5 provide support for  $H_2$ . That is, coordination of income tax and duty function within the firm generally serves to raise awareness of a transfer pricing conflict. The observation that firms respond to that awareness by decreasing (increasing) income-tax (customs duty) motivated transfer pricing behavior suggests that coordination prevents firms from myopically establishing transfer pricing policies that fixate on income tax minimization.

(Insert Table 5 about here)

### 7. *Supplemental Analyses: Coordination and Aggregate Tax Burdens*

Our multivariate analyses provide evidence that firms facing conflicting incentives further alter their transfer pricing objectives in the presence of coordination. Though implied by our main results, we conduct supplemental analysis here to more directly examine how coordination alters either affiliates' or firms' aggregate tax burdens.

## 7.1 AFFILIATE-LEVEL TAX BURDENS

In this section, we use the descriptive statistics in Table 2 and the coefficient estimates in Tables 4 and 5 to estimate profitability for the average conflicted affiliate in our sample.<sup>31</sup> By comparing the effect of coordination on the profitability of conflicted affiliates, all else held constant, we are able to estimate the average change in the sum of income taxes and customs duties due to the presence of coordination for each affiliate in the multinational group. Table 2 shows that the average affiliate in our sample is an exporter with a foreign income tax rate of approximately 32.7% whose trading partner faces an average import tariff rate of 5.3%. A low-tax exporter saves income tax with a high price, raising revenue for the low-tax affiliate and COGS for the high-tax trading partner (i.e., the U.S. at 35% for most of our sample period).

Consistent with the arguments underlying  $H_1$ , we expect governmental coordination to increase the aggregate tax burden of affiliates facing conflicting incentives because governmental coordination should decrease the likelihood of decoupling. Our estimates using *One\_Audit* are consistent with this expectation. That is, a conflicted affiliate facing a taxing authority that conducts audits integrated across various types of taxes reports 5.77% more pre-tax income than a conflicted affiliate facing a taxing authority that does not conduct integrated audits.<sup>32</sup> This implies that governmental coordination is associated with a larger affiliate-level tax burden because the duties paid on higher priced exports are greater than the income taxes saved from reporting income in the jurisdiction with the lower income tax rate. However, our estimates using *One\_Authority* are inconsistent with our expectations. A conflicted affiliate facing a formally aligned income tax and customs administration reports 3.63% lower pre-tax

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<sup>31</sup> Because our regression specification includes firm and industry fixed effects, these estimates are the profitability of an affiliate in the “Other” industry (sic > 9000) in 2005 with the sample mean for all input variables.

<sup>32</sup> For purposes of this exercise, we assume that the higher pre-tax income is entirely from higher priced exports.

income, implying that governmental coordination is actually associated with a smaller affiliate-level tax burden.

Consistent with our arguments underlying H<sub>2</sub>, corporate coordination should decrease the aggregate tax burden of affiliates facing conflicting incentives because it should reduce their myopic focus on income taxes. Our estimates using each of our five corporate coordination measures are consistent with this expectation. For instance, using *Centralized*, we estimate that a conflicted affiliate reports 3.33% *lower* pre-tax income; using *Expat*, we estimate that a conflicted affiliate reports 13.53% *lower* pre-tax income. Results estimated using all five proxies for *Corp-Coordination* imply that corporate coordination is associated with a smaller affiliate-level tax burden.

As we obtained mixed results on our two governmental coordination measures, and these estimates pertain to the tax burden of each affiliate, rather than the entire firm, we conduct supplemental tests in the next section to expand our focus to firms' aggregate tax burdens.

## 7.2 FIRM-LEVEL TAX BURDENS

Our study focuses on a specific channel through which coordination can influence the tax-related behavior of firms; i.e., we present evidence consistent with coordination within governments and coordination within firms influencing the transfer pricing behavior of firms who are attempting to minimize the sum of income taxes and customs duties. As our results generalize to other contexts and imply a relation between coordination and firms' aggregate tax burdens, we conclude by investigating how coordination affects MNCs' aggregate tax burdens.<sup>33</sup>

Our study suggests that coordination can influence the level of *total* taxes paid by the MNC, and that either coordination within the firm or within the tax enforcer could alter firm behavior in

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<sup>33</sup> For instance, Gallemore and Labro (2013) document that high internal information quality firms (i.e., "coordinated" firms) are more adept at reducing their income tax burdens. This is true even in the absence of a conflict.

ways that produces opposing effects on firms' aggregate tax burdens. More specifically, our analyses imply that (a) coordination within governments should *increase* firms' aggregate tax burdens, while (b) coordination within firms should *decrease* firms' aggregate tax burdens.

To explore the relation between coordination and total taxes, we follow Robinson (2012) to define total taxes. We also follow Robinson (2012) and specify MNCs' aggregate tax burdens as a function of firm characteristics that generate tax burdens, such as inventory and PP&E (which generates property taxes), imports (which generate duties), and profitability, the relative significance of foreign operations, and the weighted average consolidated statutory income tax rate (which generate income taxes). Here, we incorporate the level of coordination that the foreign affiliates of the MNC face into the model. We present the results in Table 6.

(Insert Table 6 about here)

The variables of interest in each regression are *Coordinated* and *Not Coordinated*. Depending on the specification, *Coordinated* reflects the proportion of MNCs' sales in its foreign affiliates that are either in jurisdictions facing governmental coordination or are coordinated with their U.S. parent. *Not Coordinated* is the proportion of sales in foreign affiliates without these coordination attributes. In Columns (1) and (2), *Coordinated* represents the proportion of sales where *One\_Authority* and *One\_Audit* are equal to one, respectively, while *Not Coordinated* represents the proportion of sales where *One\_Authority* and *One\_Audit* are equal to zero. In Columns (3) and (4), *Coordinated* represents the proportion of sales where *Centralized* and *Expat* are equal to one, respectively, while *Not Coordinated* represents the proportion of sales where *Centralized* and *Expat* are equal to zero. The excluded group in all specifications represents domestic sales (for which there is no variation in the level of coordination) and affiliates for which we do not have measures of coordination.

We expect that U.S. MNCs facing a relatively greater proportion of governmental coordination will have higher total tax burdens than U.S. MNCs facing a relatively lower proportion of coordinated taxing authorities. Thus, we predict that the coefficient on *Coordinated* in Columns (1) and (2) will be positive and significantly greater than the coefficient on *Not Coordinated*. Results are broadly consistent with expectations. In Column (1), which specifies *Gov't-Coordination* as *One\_Authority*, we estimate a coefficient on *Coordinated* that is both positive and significantly greater than the coefficient on *Not Coordinated* (F test = 4.24.) In Column (2), where *One\_Audit* is our proxy for *Gov't-Coordination*, we estimate that the effect of *Coordinated* is positive but is not statistically more positive than the effect of *Not Coordinated* (F test = 1.89.) These results suggest that the total tax burden of U.S. MNCs is higher when they face a higher percentage of coordinated foreign taxing authorities.

Next, we investigate whether the total tax burden of MNCs varies with the proportion of foreign affiliates that are coordinated with the U.S. parent. Here, we predict that the coefficient on *Coordinated* in Columns (3) and (4) will be significantly less than the coefficient on *Not Coordinated*. We specify *Corp-Coordination* as either *Centralized* or *Expat*.<sup>34</sup> Results are consistent with this prediction. In both Column (3), where *Corp-Coordination* is defined by whether the foreign affiliate uses the U.S. dollar as its functional currency, and Column (4), where *Expat* is our proxy for *Corp-Coordination*, we estimate that the effect of *Coordinated* is significantly more negative than the effect of *Not Coordinated* (F test = 37.59 and 10.50, respectively.) These results suggest that U.S. MNCs can lower their total tax burden by increasing the coordination between foreign affiliates and the parent entity.

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<sup>34</sup> We calculate *Coordinated* and *Not Coordinated* as the percentage of foreign subsidiaries either coordinated or not coordinated under a particular measure of *Corp-Coordination*, which requires subsidiary-level variation. Thus, we are unable to use our other *Corp-Coordination* variables in this specification because they are calculated at the consolidated firm level.

## 8. *Conclusion*

The interaction between duty incentives and income tax incentives in setting transfer prices on intrafirm trade has largely been ignored in the academic transfer-pricing literature. Using affiliate-level data, we demonstrate that conflicting transfer pricing incentives (i.e., when a single price will not jointly minimize customs duties and income taxes) alter traditional income-tax-motivated transfer pricing behavior. Our results suggest that the average foreign affiliate of a U.S. MNC in our sample that faces a significant transfer pricing conflict sets transfer prices to minimize duty payments rather than income taxes.

We build on this baseline result to examine whether governmental tax enforcement coordination and/or corporate tax planning coordination affect the transfer pricing behavior of firms that face conflicting incentives. We first test whether the effect of the conflict on income-tax-motivated transfer pricing is stronger for firms that face integrated administration or integrated enforcement of duty and income tax payments. In practice, if firms cannot report inconsistent transfer prices on intrafirm trade for customs and income taxes, then duty minimization should become a greater consideration in transfer pricing decisions for conflict firms. Results are consistent with this expectation: firms facing a significant transfer pricing conflict appear even less likely to engage in income-tax-motivated income shifting behavior in jurisdictions where the customs and income tax administrations are coordinated.

We also examine whether the effect of the transfer pricing conflict is stronger for firms that are more likely to coordinate their tax minimization efforts. Duty minimization should become a greater consideration in transfer pricing decisions when firms are more likely to be aware of conflicting duty payments in setting transfer prices for income tax purposes. Consistent with this expectation, we do not observe income-tax-motivated income shifting in firms facing a



significant transfer pricing conflict when the U.S. operation has relatively greater information about and 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 firms facing conflicting incentives that are also private, engaged in more extensive amounts of international trade, or smaller appear to focus more (less) on income tax (duty) minimization.

Finally, we investigate whether U.S. MNCs' aggregate tax burdens are affected by the change in transfer pricing behavior we document. We find evidence that U.S. MNCs with a greater percentage of affiliates facing governmental coordination report greater tax burdens. Additionally, we find that U.S. MNCs with a higher percentage of affiliates coordinated with the U.S. parent report significantly lower tax burdens. Thus, the transfer pricing behavior we document at the affiliate-level appears to significantly impact the total tax burden of the firm.

In summary, we find that when the expected duty payment associated with shifting one dollar of income is considerable relative to the expected income tax savings, firms appear to forgo some income tax savings. When the firm faces government coordination or is itself coordinated in setting its transfer prices, it forgoes additional income tax savings. Thus, our study suggests that coordination plays a considerable role in the transfer pricing behavior of multinational firms.

**APPENDIX**  
**TRANSFER PRICING INCENTIVES – COMBINING INCOME TAXES AND CUSTOMS DUTIES**

Consider the first column in Figure 1 where  $t_f > t_{US}$ . The firm has incentives to understate income in the high-income-tax foreign affiliate. Considering only income taxes, shifting \$1 of income out of the foreign affiliate (and into the U.S. parent) lowers the firm's tax burden by  $\$1 \times (t_f - t_{US})$ . However, there are two ways to shift the income tax base on intrafirm trade. If a high-income-tax foreign affiliate is *selling* to its U.S. parent, understating income in the foreign affiliate will be accomplished by *understating* the price of the goods *sold* to the U.S. parent. This will reduce both income tax payments and customs duty payments, as import duties are minimized on the lower price. Alternatively, if a high-income-tax foreign affiliate is *buying* from its U.S. parent, understating income in the foreign affiliate will be accomplished by *overstating* the price of the goods *purchased* from the U.S. parent. In this case, lowering income tax results in a higher duty.

The second column in Figure 1 where  $t_f < t_{US}$  produces a similar result. Here, the firm has incentives to overstate income in the low-income-tax foreign affiliate. Considering only income taxes, shifting \$1 of income into the foreign affiliate lowers the firm's tax burden by  $-\$1 \times (t_f - t_{US})$ . If a low-income-tax foreign affiliate is *selling* to its U.S. parent, overstating income in the foreign affiliate will be accomplished by *overstating* the price of the goods *sold* to the U.S. parent. This results in income tax savings but a higher duty payment. Alternatively, if a low-income-tax foreign affiliate is *buying* from its U.S. parent, overstating income in the foreign affiliate will be accomplished by *understating* the price of the goods *purchased* from the U.S. parent, resulting in both income tax and duty savings.

In summary, the transfer pricing incentive for foreign affiliate importers is represented by  $(t_f - t_{US}) - (Duty_f \times (1 - t_f))$ . When  $t_f > t_{US}$ , the duty payment reduces the benefit to shifting income. The transfer pricing incentive for a foreign affiliate exporter is represented by  $(t_f - t_{US}) + (Duty_{US} \times (1 - t_{US}))$ . When  $t_f < t_{US}$ , the duty payment reduces the benefit to shifting income. It is in these two cases that we say that the transfer pricing incentives “conflict.”

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**TABLE 1**  
*Sample Selection*

<b>Panel A: Sample Selection</b>	<u>Foreign Affiliate- Years</u>	<u>Foreign Affiliates</u>	<u>U.S. Parents</u>
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 trading goods with U.S. parent	77,855	22,436	1,390
Missing GDP	3,719	769	47
Final sample	55,893	16,744	2,418

**Panel B: Industry Composition of Sample**

<u>Industry</u>	<u>Percent</u>
Retail	32.4
Durables	29.2
Chemical	17.8
Food	5.3
Textile	5.0
Computers	4.5
Extraction	2.3
Services	2.1

Panel B lists industry groups that represent at least 1 percent of the final sample of foreign affiliates.

**TABLE 2**  
*Descriptive Statistics*

<b>Panel A: Full Sample</b>						
Variable	<u>N</u>	<u>Mean</u>	<u>Median</u>	<u>Std. Dev.</u>	<u>P25</u>	<u>P75</u>
<u>Indicator Variables</u>						
<i>Importer</i>	55893	0.773				
<i>High-Income-Tax</i>	55893	0.454				
<i>Conflict</i>	55893	0.499				
<i>Conflict25</i>	55893	0.323				
<i>Conflict50</i>	55893	0.232				
<i>Conflict75</i>	55893	0.179				
<i>One_Authority</i>	50514	0.286				
<i>One_Audit</i>	50514	0.620				
<i>Private</i>	55893	0.169				
<i>Centralized</i>	55893	0.222				
<i>Expat</i>	55893	0.167				
<u>Continuous Variables</u>						
$t_f$	55893	0.345	0.350	0.174	0.244	0.445
<i>Duty</i>	55893	0.053	0.042	0.050	0.027	0.060
<i>ITPI</i>	55893	-0.023	-0.010	0.174	-0.124	0.070
<i>logPTI</i>	55893	8.404	8.392	1.727	7.344	9.481
<i>logAssets</i>	55893	10.650	10.530	1.491	9.576	11.596
<i>logComp</i>	55893	8.723	8.789	1.768	7.810	9.792
<i>logGDP</i>	55893	19.894	20.126	1.205	19.071	20.772
<i>logFirmAssets</i>	55893	14.829	14.936	1.809	13.682	16.040
<i>Pct_Export</i>	55893	0.148	0.121	0.139	0.052	0.199
<i>Pct_Import</i>	55893	0.065	0.032	0.100	0.005	0.082
<u>Descriptive Information</u>						
<i>PTI</i>	55893	21,247	4,411	87,687	1,548	13,114
<i>Assets</i>	55893	158,131	37,403	592,971	14,421	108,729
<i>Compensation</i>	55893	21,716	6,561	77,986	2,466	17,904
<i>GDP</i>	55893	751,436	550,122	730,989	191,643	1,049,903

We compute all variables using BEA data unless otherwise noted. Continuous variables in their unlogged form are presented in thousands, except GDP which is presented in millions. *Importer* equals 1 if the foreign affiliate imports from its U.S. parent, 0 otherwise. *High-Income-Tax* equals 1 if  $t_f > t_{US}$ , 0 otherwise, where  $t_f$  equals the ratio of foreign income tax expense to pre-tax income, and  $t_{US}$  equals the U.S. statutory rate. *Conflict* equals 1 when both *Importer* and *High-Income-Tax* are equal to 1, or both *Importer* and *High-Income-Tax* are equal to 0, 0 otherwise. *Conflict25*, *Conflict50*, and *Conflict75* equal 1 if *Conflict* equals 1 and *Duty* (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 income tax transfer pricing incentive and is equal to  $(t_f - t_{US})$ . *Duty* is the average country-year import duty rate, as reported by the World Bank, net of the income tax rate in the importing country:  $t_f$  or  $t_{US}$ . *One\_Authority* equals 1 if the revenue body and customs agency are formally integrated into a single governmental authority, 0 otherwise, as reported by OECD (2006, 2009). *One\_Audit* 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 (2006, 2009). *Private* equals 1 if the firm does not have publicly-traded equity, 0 otherwise. *Centralized* equals 1 if the functional currency of the foreign affiliate is the U.S. dollar, 0 otherwise. *Expatriate* equals 1 if the foreign affiliate employs at least one U.S. expatriate, 0 otherwise. *PTI* (*logPTI*) equals (the natural log of) foreign affiliate pre-tax income. *Assets* (*logAssets*) equals (the natural log of) foreign affiliate total assets. *Compensation* (*logComp*) equals (the natural log of) foreign affiliate total employee compensation. *GDP* (*logGDP*) equals (the natural log of) gross domestic product in the foreign affiliate's country, as reported by the Economist Intelligence Unit. *logFirmAssets* is the natural log of firm total assets. *Pct\_Export* and *Pct\_Import* measure the significance of intrafirm trade for the firm 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*

Dependent Variable = $\log PTI$					
	Predicted Sign	(1) Baseline	(2) <i>Conflict25</i>	(3) <i>Conflict50</i>	(4) <i>Conflict75</i>
$\beta_1 ITPI$	-	<b>-0.5424<sup>***</sup></b> (0.0490)	<b>-0.6792<sup>***</sup></b> (0.0534)	<b>-0.5954<sup>***</sup></b> (0.0502)	<b>-0.5691<sup>***</sup></b> (0.0497)
$\beta_2 Conflict$			0.0572 <sup>***</sup> (0.0144)	0.0159 (0.0166)	-0.0035 (0.0187)
$\beta_3 Conflict \times ITPI$	+		<b>1.3576<sup>***</sup></b> (0.1628)	<b>1.6450<sup>***</sup></b> (0.2611)	<b>1.8043<sup>***</sup></b> (0.3733)
$\beta_4 \log Assets$	+	0.8433 <sup>***</sup> (0.0149)	0.8481 <sup>***</sup> (0.0148)	0.8457 <sup>***</sup> (0.0149)	0.8446 <sup>***</sup> (0.0149)
$\beta_5 \log Comp$	+	0.0522 <sup>***</sup> (0.0128)	0.0512 <sup>***</sup> (0.1274)	0.0518 <sup>***</sup> (0.0128)	0.0521 <sup>***</sup> (0.0128)
$\beta_6 \log GDP$	-	-0.0618 <sup>***</sup> (0.0090)	-0.0605 <sup>***</sup> (0.0089)	-0.0602 <sup>***</sup> (0.0089)	-0.0604 <sup>***</sup> (0.0089)
$\beta_0 Intercept$		0.3005 (0.2991)	0.2148 (0.2980)	0.2378 (0.2986)	0.2555 (0.2992)
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, in parentheses. All variables are computed from BEA data unless otherwise noted.  $\log PTI$  equals the natural log of foreign affiliate pre-tax income.  $ITPI$  measures the income tax transfer pricing incentive and is equal to  $(t_f - t_{US})$ , where  $t_f$  equals the ratio of foreign income tax expense to pre-tax income, and  $t_{US}$  equals the U.S. statutory rate.  $Conflict25$ ,  $Conflict50$ , and  $Conflict75$  are indicator variables equal to 1 if  $Conflict$  is equal to 1 and  $Duty$  (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  $ITPI$ ).  $Conflict$  equals 1 when both  $Importer$  and  $High-Income-Tax$  are equal to 1, or both  $Importer$  and  $High-Income-Tax$  are equal to 0, 0 otherwise where  $Importer$  equals 1 if the foreign affiliate imports from its U.S. parent and  $High-Income-Tax$  equals 1 if  $t_f > t_{US}$ .  $Duty$  is the average country-year import duty rate, as reported by the World Bank, net of the income tax rate in the importing country:  $t_f$  or  $t_{US}$ .  $\log Assets$  equals the natural log of foreign affiliate total assets.  $\log Comp$  equals the natural log of foreign affiliate total employee compensation.  $\log GDP$  equals the natural log of gross domestic product in the foreign affiliate's country, as reported by the Economist Intelligence Unit.

**TABLE 4**  
*Ordinary Least Square Regressions of Foreign Affiliate Profitability  
on Transfer Pricing Incentives and Governmental Coordination*

Dependent Variable =  $\log PTI$

	Predicted Sign	(1) <i>One_Authority</i>	(2) <i>One_Audit</i>
$\beta_1$ <i>ITPI</i>	-	<b>-0.6328***</b> <b>(0.0670)</b>	<b>-0.5440***</b> <b>(0.0650)</b>
$\beta_2$ <i>Conflict25</i>		0.0551*** (0.0160)	0.0103 (0.0270)
$\beta_3$ <i>Conflict25</i> × <i>ITPI</i>	+	<b>1.4391***</b> <b>(0.1976)</b>	<b>0.9526***</b> <b>(0.3081)</b>
$\beta_4$ <i>Gov't-Coordination</i>		-0.0533*** (0.1989)	-0.0111 (0.0215)
$\beta_5$ <i>ITPI</i> × <i>Gov't-Coordination</i>		-0.2629*** (0.0927)	-0.2224** (0.0878)
$\beta_6$ <i>Conflict25</i> × <i>Gov't-Coordination</i>		0.0289 (0.0337)	0.0860*** (0.0323)
$\beta_7$ <i>Conflict25</i> × <i>ITPI</i> × <i>Gov't-Coordination</i>	+	<b>0.8099**</b> <b>(0.3446)</b>	<b>1.0397***</b> <b>(0.3608)</b>
$\beta_8$ <i>logAssets</i>	+	0.8531*** (0.0149)	0.8538*** (0.0150)
$\beta_9$ <i>logComp</i>	+	0.0480*** (0.0128)	0.0478*** (0.0127)
$\beta_{10}$ <i>logGDP</i>	-	-0.0492*** (0.0093)	-0.0509*** (0.0094)
$\beta_0$ <i>Intercept</i>		0.0550 (0.2688)	0.0805 (0.2691)
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, in parentheses. We compute all variables using BEA data unless otherwise noted. Column (1) reports results using *One\_Authority* as our measure of *Gov't-Coordination*. *One\_Authority* 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 *One\_Audit* as our measure of *Gov't-Coordination*. *One\_Audit* 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. *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 *Duty* (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*). *Conflict* equals 1 when both *Importer* and *High-Income-Tax* are equal to 1, or both *Importer* and *High-Income-Tax* are equal to 0, 0 otherwise where *Importer* equals 1 if the foreign affiliate imports from its U.S. parent and *High-Income-Tax* equals 1 if  $t_f > t_{US}$ . *Duty* is the average country-year import duty rate, as reported by the World Bank, net of the income tax rate in the importing country:  $t_f$  or  $t_{US}$ . *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 gross domestic product in the affiliate's country of location, as reported by the Economist Intelligence Unit.

**TABLE 5**  
*Ordinary Least Square Regressions of Foreign Affiliate Profitability  
on Transfer Pricing Incentives and Corporate Coordination*

Dependent Variable = <i>logPTI</i>						
	Predicted Sign	(1) <i>Centralized</i>	(2) <i>Expat</i>	(3) <i>Private</i>	(4) <i>TradeDum</i>	(5) <i>SizeDum</i>
$\beta_1$ <i>ITPI</i>	-	<b>-0.7155<sup>***</sup></b> <b>(0.0495)</b>	<b>-0.3897<sup>***</sup></b> <b>(0.1209)</b>	<b>-0.6832<sup>***</sup></b> <b>(0.0567)</b>	<b>-0.5047<sup>***</sup></b> <b>(0.0576)</b>	<b>-0.6669<sup>***</sup></b> <b>(0.0824)</b>
$\beta_2$ <i>Conflict25</i>		0.0759 <sup>***</sup> (0.0158)	0.0588 <sup>*</sup> (0.0331)	0.0573 <sup>***</sup> (0.0158)	0.0885 <sup>**</sup> (0.0169)	0.0267 (0.0220)
$\beta_3$ <i>Conflict25</i> × <i>ITPI</i>	+	<b>1.1738<sup>***</sup></b> <b>(0.1760)</b>	<b>0.8028<sup>***</sup></b> <b>(0.3018)</b>	<b>1.2027<sup>***</sup></b> <b>(0.1687)</b>	<b>1.0199<sup>***</sup></b> <b>(0.1665)</b>	<b>0.8888<sup>***</sup></b> <b>(0.2463)</b>
$\beta_4$ <i>Corp-Coordination</i>		0.0590 <sup>**</sup> (0.0241)	-0.1374 <sup>***</sup> (0.0298)	-0.1649 <sup>***</sup> (0.0401)	-0.0094 (0.0389)	-0.1283 <sup>***</sup> (0.0326)
$\beta_5$ <i>ITPI</i> × <i>Corp-Coordination</i>		0.1465 (0.1049)	-0.3538 <sup>***</sup> (0.1190)	0.0535 (0.1087)	-0.4640 <sup>***</sup> (0.0828)	-0.0304 (0.0959)
$\beta_6$ <i>Conflict25</i> × <i>Corp-Coordination</i>		-0.0769 <sup>**</sup> (0.0333)	-0.0009 (0.0337)	0.0048 (0.0330)	-0.0933 <sup>***</sup> (0.0270)	0.0587 <sup>**</sup> (0.0285)
$\beta_7$ <i>Conflict25</i> × <i>ITPI</i> × <i>Corp-Coordination</i>	+	<b>0.5483<sup>*</sup></b> <b>(0.2992)</b>	<b>0.6599<sup>**</sup></b> <b>(0.3260)</b>	<b>0.8605<sup>**</sup></b> <b>(0.3987)</b>	<b>0.7933<sup>***</sup></b> <b>(0.2800)</b>	<b>0.8619<sup>***</sup></b> <b>(0.3104)</b>
$\beta_8$ <i>logAssets</i>	+	0.8468 <sup>***</sup> (0.0148)	0.8382 <sup>***</sup> (0.0151)	0.8443 <sup>***</sup> (0.0145)	0.8486 <sup>***</sup> (0.1494)	0.8369 <sup>***</sup> (0.1455)
$\beta_9$ <i>logComp</i>	+	0.0522 <sup>***</sup> (0.0128)	0.0479 <sup>***</sup> (0.0128)	0.0494 <sup>***</sup> (0.0125)	0.0509 <sup>***</sup> (0.0128)	0.0510 <sup>***</sup> (0.0125)
$\beta_{10}$ <i>logGDP</i>	-	-0.0588 <sup>***</sup> (0.0088)	-0.0588 <sup>***</sup> (0.0087)	-0.0584 <sup>***</sup> (0.0088)	-0.0607 <sup>***</sup> (0.0088)	-0.0550 <sup>***</sup> (0.0087)
$\beta_0$ <i>Intercept</i>		0.1719 (0.2970)	0.4645 (0.3105)	0.4273 (0.3024)	0.2186 (0.2937)	0.2878 (0.2896)
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, in parentheses. We compute all variables using 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 foreign affiliate is the U.S. dollar, 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 firm 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\_Export* or *Pct\_Import* are above the median of the sample distribution, 0 otherwise. *Pct\_Export* and *Pct\_Import* measure the significance of international trade for the firm 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 *logFirmAssets* is below the median of the sample distribution, 0 otherwise, where *logFirmAssets* is the natural log of firm total assets. *logPTI* equals the natural log of foreign affiliate pre-tax income. *ITPI* measures the income tax transfer pricing incentive and is equal to  $(t_f - t_{US})$ , where  $t_f$  equals the ratio of foreign income tax expense to pre-tax income, and  $t_{US}$  equals the U.S. statutory rate. *Conflict25*, *Conflict50*, and *Conflict75* are indicator variables equal to 1 if *Conflict* is equal to 1 and *Duty* (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*). *Conflict* equals 1 when both *Importer* and *High-Income-Tax* are equal to 1, or both *Importer* and *High-Income-Tax* are equal to 0, 0 otherwise where *Importer* equals 1 if the foreign affiliate imports from its U.S. parent and *High-Income-Tax* equals 1 if  $t_f > t_{US}$ . *Duty* is the average country-year import duty rate, as reported by the World Bank, net of the income tax rate in the importing country:  $t_f$  or  $t_{US}$ . *logAssets* equals the natural log of foreign affiliate total assets. *logComp* equals the natural log of foreign affiliate total employee compensation. *logGDP* equals the natural log of gross domestic product in the foreign affiliate's country, as reported by the Economist Intelligence Unit.

**TABLE 6**  
*Ordinary Least Square Regressions of U.S. MNC Total Taxes Paid  
on Gov't-Coordination or Corp-Coordination*

Dependent Variable = <i>Total Taxes Paid</i>						
	Predicted Sign vs. <i>Not</i> <i>Coordinated</i>	(1) <i>One_Authority</i>	(2) <i>One_Audit</i>	Predicted Sign vs. <i>Not</i> <i>Coordinated</i>	(3) <i>Centralized</i>	(4) <i>Expat</i>
$\beta_1$ <i>Not Coordinated</i>		0.0175*** (0.0042)	0.0183*** (0.0042)		-0.0135 (0.0471)	-0.0099 (0.0473)
$\beta_2$ <i>Coordinated</i>	>	0.0244*** (0.0044)	0.0228*** (0.0043)	<	-0.0289 (0.0470)	0.0250 (0.0471)
$\beta_3$ <i>Inventory</i>		0.0456*** (0.0046)	0.0453*** (0.0046)		0.0439*** (0.0046)	0.0461*** (0.0046)
$\beta_4$ <i>PPE</i>		0.0055*** (0.0018)	0.0053*** (0.0018)		0.0045*** (0.0018)	0.0045*** (0.0018)
$\beta_5$ <i>Imports</i>		0.0065*** (0.0016)	0.0063*** (0.0016)		0.0064*** (0.0016)	0.0058*** (0.0016)
$\beta_6$ <i>FirmSize</i>		0.0037*** (0.0002)	0.0037*** (0.0002)		0.0036*** (0.0002)	0.0036*** (0.0002)
$\beta_7$ <i>PctForSales</i>		0.0177*** (0.0037)	0.0180*** (0.0037)		0.0188 (0.0473)	0.0235 (0.0474)
$\beta_8$ <i>Profit Margin</i>		0.1154*** (0.0034)	0.1154*** (0.0034)		0.1152*** (0.0034)	0.1146*** (0.0034)
$\beta_9$ <i>Consolidated Stat Rate</i>		0.0118*** (0.0037)	0.0102*** (0.0037)		0.0139*** (0.0036)	0.0160*** (0.0036)
$\beta_0$ <i>Intercept</i>		-0.0307*** (0.0041)	-0.0300*** (0.0041)		-0.0298*** (0.0041)	-0.0314*** (0.0041)
Year Fixed Effects		Yes	Yes		Yes	Yes
Industry Fixed Effects		Yes	Yes		Yes	Yes
R-square		0.1619	0.1618		0.1623	0.1608
Sample N		15,498	15,498		15,498	15,498
F test between $\beta_1$ and $\beta_2$		4.24***	1.89		37.59***	10.50***

\*, \*\*, \*\*\* denotes significance at the 10%, 5% and 1% two-tailed level, respectively. We estimate consolidated-level OLS regressions and report robust standard errors, clustered by firm, in parentheses. We compute all variables using BEA data unless otherwise noted. Column (1) reports results using *One\_Authority* as our measure of *Gov't-*

*Coordination. One\_Authority* 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 *One\_Audit* as our measure of *Gov't-Coordination*. *One\_Audit* 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. Column (3) reports results using *Centralized* as our measure of *Corp-Coordination*. *Centralized* equals 1 if the functional currency of the foreign affiliate is the U.S. dollar, 0 otherwise. Column (4) 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. *Total Taxes Paid* is defined as income taxes plus other taxes, scaled by consolidated total assets. *Not Coordinated (Coordinated)* reflects the proportion of MNCs' affiliate sales that are not coordinated (coordinated) using the definition of *Gov't-Coordination* or *Corp-Coordination* specified in that column. *Inventory* equals consolidated inventory, scaled by consolidated total assets. *PPE* equals consolidated net PPE, scaled by consolidated total assets. *Imports* equals consolidated imports, scaled by consolidated total assets. *FirmSize* equals the natural log of worldwide sales. *PctForSales* equals total foreign sales as a percentage of worldwide sales. *Profit Margin* equals consolidated income before income and other taxes, scaled by lagged consolidated total assets. *Consolidated Stat Rate* is the statutory income tax rate of each affiliate, weighted by pre-tax income.