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THE RACE BETWEEN TAX ENFORCEMENT AND TAX PLANNING:
EVIDENCE FROM A NATURAL EXPERIMENT IN CHILE

Sebastián Bustos
Dina Pomeranz
Juan Carlos Suárez Serrato
José Vila-Belda
Gabriel Zucman

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Sebastián Bustos, Dina Pomeranz, Juan Carlos Suárez Serrato, José Vila-Belda, and Gabriel Zucman
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ABSTRACT

Profit shifting by multinational corporations is thought to reduce tax revenue around the world. We analyze the introduction of standard regulations aimed at limiting profit shifting. Using administrative tax and customs data from Chile in difference-in-differences event-study designs, we find that the reform was ineffective in reducing multinationals' transfers to lower-tax countries and did not significantly raise tax payments. At the same time, interviews with tax advisors reveal a drastic increase in tax advisory services. The qualitative interviews also allow us to identify and then quantitatively confirm a common tax planning strategy in response to the reform. These results illustrate that when enforcement can be circumvented by sophisticated tax planning, it can benefit tax consultants at the expense of tax authorities and taxpayers.

Sebastián Bustos
Center for International Development
Harvard University
79 JFK Street
Cambridge, Mass 02138
sebastian.bustos@gmail.com

Dina Pomeranz
Department of Economics
University of Zurich
Schoenberggasse 1
8057 Zurich
Switzerland
dina.pomeranz@econ.uzh.ch

Juan Carlos Suárez Serrato
Department of Economics
Duke University
213 Social Sciences Building
Box 90097
Durham, NC 27708
and NBER
jc@jcsuarez.com

José Vila-Belda
Department of Economics
University of Fribourg
Bd de Pérolles 90
CH - 1700 Fribourg
vilabeldaj@gmail.com

Gabriel Zucman
Department of Economics
University of California, Berkeley
530 Evans Hall, #3880 Berkeley,
CA 94720
and NBER
zucman@berkeley.edu

1   Introduction

It is a long-standing concern that multinational corporations avoid paying taxes by shifting profits to low-tax countries and that profit shifting significantly affects the public finances of governments around the world. Under the leadership of the OECD, many countries have implemented standardized regulations that strengthen information reporting and enforcement. However, rigorous evaluation of these regulations has proven difficult, both because their introduction is often gradual and because researchers lack access to the necessary data.

This paper improves our understanding of the effectiveness of transfer pricing regulations through a comprehensive analysis of a natural experiment introducing OECD transfer pricing standards. In 2011, Chile implemented a big reform aimed at limiting profit shifting. The reform significantly expanded information reporting requirements on international transfers by multinationals, changed legal rules to make it easier for the tax authority to enforce transfer pricing rules, and increased resources devoted to the enforcement of these rules by the tax authority. As a result, the reform transformed the country in one year from a laggard to a leader in the implementation of OECD transfer pricing standards.

The unique combination of this large reform and access to the universe of administrative corporate tax data, customs data, and interviews with transfer pricing experts allows us to provide a comprehensive study of the introduction of regulations aimed at limiting profit shifting. Using difference-in-differences event study designs with firm-level and transaction-level data allows us to measure the effects of the reform on several margins of behavior.

The reform did not reduce the propensity of multinationals to make tax-motivated payments to their foreign affiliates for intellectual property, interests, or services. We also find no evidence that the reform impacted prices of traded goods. Consistent with these results, there is no significant effect on corporate tax payments. The null effect on tax revenue is robust to zooming in on subgroups of firms that are more likely to be affected by the reform. Since we find no impact on tax payments and no reduction in any of the main channels of profit shifting, we conclude that the reform did not succeed at reducing profit shifting.

In contrast, the reform had a strong impact on the transfer pricing consulting industry. Within three years of the reform, the number of transfer pricing experts working at the Big 4 consulting firms (i.e., Deloitte, EY, KPMG, and PWC) in Chile increased 12-fold. We obtained information on this process by complementing our results from administrative

data with insights from in-depth interviews with transfer pricing experts. These interviews included in-house accountants, external tax advisors from consulting firms, and specialists at the government's transfer pricing enforcement unit. The interviews also allow us to further investigate the underlying mechanism through which multinationals responded to the reform and provide interesting qualitative findings. First, while multinationals usually approach tax consultants for compliance support, consultants leverage these relationships by up-selling clients on tax planning services. Second, the Big 4 consulting firms quickly responded to the increased demand, first by importing experienced transfer pricing experts from subsidiaries in other countries and then by training the next generation of Chilean experts. Third, one tax-minimizing strategy that tax consultants suggest to clients is to consolidate cost centers in tax-advantaged locations. We quantitatively confirm this mechanism in the administrative data by showing that multinationals concentrate cost centers in fewer countries.

Given that the reform increased both compliance and enforcement costs, but did not result in additional tax collections, our combined evidence suggests that the reform benefited the tax advisory industry but decreased overall welfare.[1] These findings showcase the importance of taking the tax advisory industry into account when designing tax monitoring reforms, as new reporting requirements can create an incentive to purchase external tax preparation services, which may in turn facilitate the adoption of more sophisticated tax planning strategies.

We develop these results in four steps. First, we show that multinationals engage in tax-motivated transactions. Intra-group royalties, interest, and service payments flow disproportionately to affiliates in lower-tax countries. To establish this fact, we exploit changes in tax rates of the countries where a multinational firm has foreign affiliates. This within-firm research design allows us to include destination-country fixed effects and firm-year fixed effects, so that results are not contaminated by fixed features of destination countries or by firm-level shocks. We find that a one percentage point reduction in the tax rate of a destination country is associated with 5.5% increase in payments to affiliated firms. In contrast, payments to non-affiliated firms are not sensitive to the destination country tax rate.[2]

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[1]Our model in Section 3 formalizes the effects of the reform on welfare. While compliance costs benefit consultants, these costs capture a welfare loss since they "represent resources that, under other circumstances, could have been used to add to the productive capacity of the country" (Slemrod, 2006).

[2]We follow prior work by interpreting these results as evidence of profit shifting (e.g., Hines and Rice, 1994; Huizinga and Laeven, 2008; Dharmapala and Riedel, 2013; Clausing, 2016; Dowd et al., 2017; Heckemeyer and Overesch, 2017). While the results may arise from the illegal manipulation of intra-group transactions,

Second, we study whether the reform impacted multinationals' propensity to make intra-group payments to lower-tax countries. The reform was motivated by the belief that a significant fraction of these cross-border transactions are due to profit shifting and that tax monitoring would allow the tax authority to curtail this behavior and increase tax revenues. However, we find that the reform did not have this effect. There is no reduction in the sensitivity of intra-group payments of royalties, interests, or services to changes in destination country tax rates. The identifying assumption of this analysis is that, absent the reform, a firm's semi-elasticity of payments to affiliates would have evolved in parallel to the firm's semi-elasticity of payments to non-affiliates. In support of this assumption, we show that the tax-sensitivity of intra- and extra-group payments evolved in parallel before the reform. We also study the effects of the reform on prices of traded goods. To do so, we identify trade in goods that is likely to be intra-group using our combined customs and tax data. Comparing goods prices of these transactions to those of domestic firms, we find that the reform did not impact the prices that multinationals used for neither imports nor exports.

Third, we measure the effect of the reform on multinationals' corporate income tax payments using a difference-in-differences event-study design. We compare the evolution of taxes paid by multinationals to those of internationally active firms that are not part of a multinational group, i.e., Chilean firms with exports, imports, or cross-border payments to non-affiliates. The identifying assumption is that these domestic and multinational firms were not differentially affected by other shocks at the time of the reform. While multinationals differ from domestic firms in a number of ways, we argue that these firms are comparable once we scale firm outcomes relative to their size and control for pre-reform characteristics interacted with year fixed effects. In support of this assumption, we show that there are parallel pre-trends in tax payments. In addition, we conduct a placebo test where we show that the domestic sales of multinational firms are not differentially affected by the reform.

Consistent with the absence of a reduction in the sensitivity of intra-group transactions to tax rates, the difference-in-differences results show no significant increase in tax payments by multinationals following the reform. The point estimate is far from statistically significant and ranges between -0.15% and +0.47%, depending on the included post-treatment duration. Compared to estimates by Tørsløv et al. (2021) who find that Chile lost about 20% of

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they can be also be driven by legal tax planning structures that engineer higher payments to affiliates in low tax countries.

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corporate tax revenue due to profit shifting by multinationals in 2015, even the highest point estimate would imply that the reform closed this tax revenue gap by only 2.35%. The result that the reform did not increase tax payments is robust to a number of sensitivity tests. It holds not just in the full sample, but across a number of subgroups of firms that might be expected to be more affected by the reform, such as Chilean-owned multinationals, multinationals with affiliates in tax havens, firms that had not revealed their multinational status to the government prior to the reform, or relatively smaller firms.

Fourth, to better understand the null effects of the reform on tax payments and intra-group transactions, we conducted in-depth interviews with transfer pricing experts in Chilean multinationals, tax consulting firms, and specialists in the tax authority.[3] Data collected in these interviews show that the reform led to a large increase in the demand for tax advisory services. Specifically, the number of transfer pricing specialists in the Big 4 consulting firms grew from 8 to 95 between 2010 and 2014.[4] Interviewees shared that tax consultants offer two types of service: compliance support and tax planning. The initial driver of the industry growth was based on a strong increase in demand by Chilean multinationals for compliance support with the requirements of the reform. This initial demand shock was amplified through a strong supply response by consulting firms, both in terms of up-selling clients to additional tax planning services, and in terms of reallocating international experts to Chile. An important tax planning strategy was to centralize cost centers in fewer locations that were optimized from a business and tax-efficiency perspective—a pattern that we were able to confirm in the administrative tax data. There is a significant reduction in the number of countries, to which multinationals make intra-group payments. This reduction happens only for non-tax haven countries and—in line with the mechanisms described in the interviews—is concentrated in payments for services. Overall, these results suggest that accounting for the role of the tax advisory sector is key to understanding the effects of tax monitoring regimes on revenue and welfare.

This paper contributes to multiple strands of the literature. First, it builds on a literature showing that multinationals lower their tax payments through profit shifting (see, e.g., Jenkins and Wright, 1975; Grubert et al., 1991; Hines and Rice, 1994; Bartelsman and Beetsma,

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[3]Finkelstein et al. (2021) discuss examples of the use of qualitative interviews in recent economics papers, including Taubman et al. (2014); Starr (2014); Alsan et al. (2019); Bergman et al. (2019).

[4]Note that, in contrast to US tax data, tax filings in Chile do not include information on whether an external tax professional was involved in the preparation of the filing.

2003; Huizinga and Laeven, 2008; Koethenbuerger et al., 2019; Tørsløv et al., 2020). A large body of research shows that firms make tax-motivated payments via intangible assets such as patents and trademarks (Dischinger and Riedel, 2011; Karkinsky and Riedel, 2012; Griffith et al., 2014; Alstadsæter et al., 2018; Delis et al., 2021), debt and interest payments (Desai et al., 2007; Mintz and Weichenrieder, 2010; Buettner et al., 2012; Bilicka, 2019), services such as information, financial, marketing and administration (Hebous et al., 2011; Hebous and Johannesen, 2021), and trade in goods (Clausing, 2003; Bernard et al., 2006; Clausing, 2006; Cristea and Nguyen, 2013; Davies et al., 2018; Liu et al., 2019; Wier, 2020). In a study of European multinationals, Lohse and Riedel (2013) study the effects of adopting transfer pricing legislation on reported earnings using financial statements data.[5] See Dharmapala (2020) for a recent survey. Relative to a literature that mostly studies the sensitivity of payments to tax differentials, this paper is the first to study the effects of a comprehensive profit shifting reform by measuring its impact on each of these profit shifting channels as well as on tax payments.

Second, our paper contributes to the surprisingly small literature on tax advisory services (Slemrod, 2019). Previous research has highlighted that tax advisors help shape compliance and avoidance behavior (e.g., Slemrod et al., 2001; Battaglini et al., 2020; Barrios and Gallemore, 2021; Zwick, 2021; Mayo, 2021). While tax advisory firms play a crucial role in helping firms both comply with information requirements and undertake tax planning, their role in determining the effectiveness of tax monitoring reforms has not been studied. Our findings show that the tax advisory industry can benefit from efforts to increase tax compliance and the in-depth interviews suggest important mechanisms through which tax consultants influence the practical effects of tax policy, some of which we are able to test and confirm with the administrative tax data.[6]

Third, this paper also build on the literature on the opportunities and limits to information reporting as a tool to enforce tax compliance. Two key lessons that have emerged from the literature are the importance of establishing a paper trail for tax monitoring and

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[5]Wier (2020) documents the existence of transfer mispricing in South Africa and shows that an OECD reform did not impact transfer mispricing in traded goods. Liu et al. (2019) studies the effects of a UK reform that changed the taxation of corporate profits from a worldwide to a territorial system and find that the reform led to a substantial increase in transfer mispricing.

[6]A related literature studies the role of tax preparers in disseminating information about the tax code, encouraging program participation, and mediating the impact of tax audits (Kopczuk and Pop-Eleches, 2007; Chetty and Saez, 2013; Boning et al., 2020).

the need for credible enforcement for them to be effective (see, e.g., Kopczuk and Slemrod, 2006; Kleven et al., 2016; Gordon and Li, 2009; Kleven et al., 2011a,b; Carrillo et al., 2012; Besley and Persson, 2013; Kumler et al., 2015; Pomeranz, 2015; Carrillo et al., 2017; Slemrod et al., 2017; Naritomi, 2019; Jensen, 2019; Bilicka et al., 2021). Our paper suggests that, in contrast to tax enforcement for small firms with simple accounting structures, increasing reporting requirements and paper trails—even when coupled with increased monitoring and enforcement—may not be sufficient to increase tax collection from large firms whose complex structures may provide more opportunities for tax planning.

Finally, our paper adds more broadly to the literature on tax capacity in developing countries; see Pomeranz and Vila-Belda (2019) for a recent review. Significant attention has been devoted to the taxation of small and medium size firms (see, e.g., Best et al., 2015; Mittal and Mahajan, 2017; Okunogbe and Pouliquen, 2018; Brockmeyer et al., 2019; Waseem, 2018; Jensen, 2019; Basri et al., 2019; Weigel, 2020) and to property taxes (see, e.g., Okunogbe, 2019; Brockmeyer et al., 2021; Balan et al., 2020; Bergeron et al., 2020). Due mostly to data constraints and the lack of exogenous variation, with the notable exception of Holz et al. (2020) and Carrillo et al. (2021), few papers so far have been able to analyze large corporations, even though large corporations represent a highly disproportionate share of total tax revenue.

The remainder of the paper proceeds as follows. Section 2 provides background on the taxation of multinationals and the Chilean reform. The model in Section 3 clarifies the roles of information reporting, enforcement, and tax advisory services. Section 4 describes data and empirical strategies. Section 5 presents our results, Section 6 discusses the role of the tax advisory industry, and Section 7 concludes.

2 The Taxation of Multinational Firms

2.1 International Corporate Taxation and the Chilean Context

The Chilean corporate tax is a standard tax on corporate profits, subject to the usual challenges raised by international tax competition and profit shifting (e.g., see Zucman, 2014, for an overview). A key challenge of taxing multinational firms stems from the fact that profits are generated jointly by subsidiaries located in different countries, but taxation is applied separately by each jurisdiction on the profits of subsidiaries in that jurisdiction.

In its detailed features, the Chilean corporate income tax is very similar to the way the US corporate tax worked before the Tax Cuts and Jobs Act implemented in 2018.[7] Since foreign profits are only taxable once repatriated in Chile, the tax can be postponed by retaining earnings abroad. No regulation compels foreign affiliates to distribute earnings to their Chilean parents. Similarly, affiliates of foreign multinationals operating in Chile are taxable in Chile on their Chilean income. Because the corporate tax rate in Chile is higher than in tax havens, multinationals (both Chilean and foreign) have incentives to shift profits out of Chile into such havens.

Profits can be shifted from one country to another by strategically pricing intra-group transactions of goods, services, and assets. For instance, a subsidiary in Chile can buy services at high prices from an affiliate in a low-tax country. This transaction reduces the tax base in Chile and increases it in the low-tax country, lowering the overall tax bill of the multinational corporation.

To limit such profit shifting and protect their tax base, most countries require firms to follow the "arm's length principle" when pricing intra-group transactions. This principle stipulates that subsidiaries of a multinational firm should transact as if they were separate entities, exchanging goods, services, and assets at their prevailing market price.[8] Zucman (2014) describes the history and implications of these rules. Today, the arm's length principle is embodied in Article 9 of the OECD Model Tax Convention (OECD, 2019a) and further detailed in the OECD's transfer pricing guidelines (OECD, 2017).[9]

In practice, the arm's length principle can be hard to implement since many types of transactions, for instance of intellectual property, are never replicated between third parties and thus lack an observable market price. Similarly, it can be hard to determine the market price of services such as management advice, human resources, or marketing provided by one affiliate to another. Enforcing the arm's length principle is further complicated by the large number of transactions within multinationals, which can allow firms to choose strategic prices even when subject to substantial monitoring. Controlled-foreign corporation rules can also be avoided through careful planning.

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[7]It is a worldwide tax: the global profits of multinationals headquartered in Chile are taxable in Chile, with tax credits to offset taxes paid abroad.

[8]In addition, Chile—like most other countries—has anti-avoidance provisions known as controlled-foreign corporation rules, whereby passive income (such as royalties or interest payments) earned by affiliates of Chilean firms abroad can be subject to taxation in Chile.

[9]For a list of non-OECD countries that follow similar transfer pricing guidelines, see Table A1.

In Chile, the corporate income tax is a major source of tax revenue, accounting for 20% of government revenue on average over 2007–2015 (Bachas et al., 2022).[10] Multinational firms represent a large share of tax collection. Out of approximately 300,000 incorporated firms, only around 5,300 have foreign affiliates, but these multinationals pay over 60% of all corporate income taxes (Servicio de Impuestos Internos, 2021).

2.2   The Chilean Transfer Pricing Reform

Starting in the late 1990s, the OECD has spearheaded efforts to strengthen the reporting requirements of multinationals and their monitoring (e.g. Murphy, 2009; Lohse and Riedel, 2013). The OECD encouraged member countries to introduce legislation—such as the one we analyze in this paper—requiring firms to submit detailed documentation to justify their transfer prices.[11] The Chilean reform incorporates the key elements of these OECD guidelines. Starting in 2011, the tax authority hired specialized auditors and created a new specialized unit to monitor and enforce transfer pricing and the arms-length principle. This was followed in 2012 by the passage of a transfer pricing law.

The reform had three main components. First, the law significantly expanded reporting requirements for multinationals, following the OECD (2010) guidelines. Under the new legislation, multinational firms are required to report all transactions with affiliated subsidiaries abroad and the methods used to price these transactions. The new reports were filed for the first time in 2013, covering transactions conducted in 2012. Second, the law shifted the burden of proof on compliance of transactions with the transfer pricing regulation from the tax authority to the firms. This change paved the way for the tax authority to challenge the pricing of intra-group transactions. Finally, the reform substantially increased the resources devoted to enforcing taxes on multinationals.

The regulatory and enforcement environment of transfer pricing became significantly more strict as a result of the reform. Data from Mescall and Klassen (2018) illustrate the extent to which Chile's reform changed the ease of transfer mispricing for multinational firms.

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[10]The content in this subsection overlaps with our description in Bustos et al. (2019). The statutory corporate tax rate averaged 19% during this period.

[11]In a later stage, the OECD introduced the "base erosion and profit shifting" (BEPS) initiative that started in the mid-2010s. BEPS extends this approach by encouraging more comprehensive information reporting (such as disclosing "aggressive tax planning arrangement," BEPS action 12); it also covers other areas such as the challenges specific to the digital economy and dispute resolution settlement (OECD, 2015). This paper is not an evaluation of BEPS, but it is relevant for assessing the likely impacts of BEPS, since BEPS keeps the arm's length pricing, while further strengthening the reporting requirements of firms.

Based on a country-level assessments by transfer pricing experts from the Big 4 consultancy firms, they analyze the transfer pricing risk for a multinationals for 32 countries. While Chile ranked 31$^{\text{st}}$ prior to the reform (in 2010), it ranked 4$^{\text{th}}$ most strict afterwards (in 2012).

3 A Model of Tax Enforcement Reforms and the Tax Advisory Industry

This section describes a model where multinational corporations may rely on tax advisors for both complying with regulations and pursuing advanced tax planning techniques. Based on our context, we model the regulation as a tax monitoring regime for multinationals.

The case of multinational corporations is interesting because it is hard to obtain information on corporate activities across borders, and because multinational corporations can resort to professional consulting service firms for tax planning advice to lower their tax liabilities. The complementary roles of compliance and avoidance that are embodied by the tax advisory industry can create a trade-off for governments face when enforcing the type of tax regulations that can be exploited by advanced tax planning strategies. The model identifies under which circumstances regulations are more likely to be effective by highlighting the effects of reforms on the supply and demand of specialized consulting services.

3.1 Model Setup

Conceptually, firms may respond to increased monitoring by adjusting real behavior, reporting behavior, or by seeking tax planning advice from consultants. We model these margins of adjustment by extending the classic models of profit shifting of Hines and Rice (1994) and Grubert and Slemrod (1998), following the setup in Suárez Serrato (2018). We assume a Chilean firm has affiliates in J countries. Production in country j is given by $f_j(\cdot)$, which is increasing in capital, $f_j'(K_j) > 0$, and exhibits decreasing returns to investment, $f_j''(K_j) < 0$. The firm pays a nondeductible cost of capital ρ.[12] Absent profit shifting, global after-tax profits are given by: $\sum_j [(1 - t_j)f_j(K_j) - \rho K_j]$.

We consider two dimensions of tax monitoring regimes: compliance requirements F_1, and enforcement F_2. In our setting, F_1 includes information reporting on the intra-group payments of multinationals. The cost of compliance for the firm is $\theta_1 F_1$. To model the

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[12]We assume that the globally-determined cost of capital ρ is independent of the tax policies we consider.

role of enforcement, we assume that firms can engage in profit shifting by misreporting their profitability as r_j, even though their true profitability is $\bar{f}_j = f_j(K_j)/K_j$. Firms face fines when they are caught misreporting. The expected cost of misreporting is given by: $\frac{F_2}{\theta_2}\frac{K_j(r_j - \bar{f}_j)^2}{2}$, where F_2 is the enforcement parameter controlled by the tax authority and θ_2 is the ability of the firm's accountants to structure intra-group transaction in order to avoid detection. Below, we allow θ_1 and θ_2 to depend on whether the multinational firm relies on in-house or consulting accountants.

3.2 Profit Shifting and Production

We start by characterizing the profit shifting and production decisions of multinationals. We then consider how tax monitoring reforms affect the choice of accountants. Fixing (θ_1, θ_2) and the capital allocation $\{K_j\}$, firms set reported profits to solve

$$\max_{\{r_j\}} \sum_j K_j \left[(1 - t_j)r_j - \rho - \frac{F_2}{\theta_2}\frac{(r_j - \bar{f}_j)^2}{2} \right] - \theta_1 F_1, \quad \text{subject to:} \quad \sum_j \bar{f}_j K_j = \sum_j r_j K_j,$$

where we constrain firms to report global profit truthfully.[13] Reported profits are then given by

$$r_j = \bar{f}_j + \frac{\theta_2}{F_2}(\tilde{t} - t_j),$$

where $\tilde{t} = \frac{\sum_j t_j K_j}{\sum_j K_j}$ is the capital-weighted average tax rate. To reduce their global tax liabilities, multinationals over-report profits in low-tax countries (i.e., $t_j < \tilde{t}$). Profit shifting is greater when θ_2—the ability to avoid detection through tax planning—is high and when enforcement is lax, i.e., F_2 is low.

Given this profit shifting strategy, firms solve the following capital allocation problem

$$\Pi(\theta_1, \theta_2, F_1, F_2) \equiv \max_{\{K_j\}} \underbrace{\sum_j \left[(1 - t_j)f_j(K_j) - \rho K_j \right]}_{\text{Real Profits} \equiv \pi(\theta_2, F_2)} - \theta_1 F_1 + \underbrace{\frac{\theta_2}{F_2}\sum_j K_j \left[(1 - t_j)(\tilde{t} - t_j) - \frac{(\tilde{t} - t_j)^2}{2} \right]}_{\text{Profit Shifting} \equiv \psi(\theta_2, F_2)},$$

which follows from substituting the optimal profit shifting strategy into the profit function. This equation decomposes the value function, $\Pi(\theta_1, \theta_2, F_1, F_2)$, into real profits, $\pi(\theta_2, F_2)$, compliance costs, $\theta_1 F_1$, and the gains from profit shifting, $\frac{\theta_2}{F_2}\psi(\theta_2, F_2)$. Firms invest across countries to satisfy the condition

$$(1 - t_j)f_j'(K_j) = \rho - \frac{\theta_2}{F_2}\frac{(\tilde{t} - t_j)^2}{2}. \tag{1}$$

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[13]Firms would simply choose to not report any global profits absent such a constraint.

Profit shifting lowers the effective cost of capital in all locations. Thus, while increasing F_2 reduces profit shifting, it also increases the cost of investment. Firms pay taxes on reported profits in country j, denoted by $\tilde{\pi}_j = r_j K_j$.[14]

3.3 Tax Monitoring and Tax Planning

To analyze the tax planning response, we now consider how tax professionals may impact the effects of monitoring reforms. We assume that the economy is populated by a continuum of firms i, which can either have in-house accountants, denoted by I, or consult with a specialized firm, denoted by C. As in Brockmeyer et al. (2021), we model this decision as a discrete choice.

Consistent with our context, specialized consulting firms can provide compliance support at lower cost than in-house experts, i.e., $\theta_1^C < \theta_1^I$, and have more expertise in tax planning, i.e., $\theta_2^C > \theta_2^I$. Implicit in this formulation is the notion that, while firms may initially establish a relationship with a consulting firm to support them in fulfilling compliance requirements, the consulting firm will "upsell" the client firm on tax planning services.[15] Finally, not all multinationals use consultants because each firm has idiosyncratic costs and benefits from contracting such external services. These factors, which we denote $\theta_{0,i}^C \sim G(\cdot)$, include risks from sharing confidential business practices, tax planning benefits linked to a firm's intellectual property, and costs of transitioning accounting systems. For simplicity, we assume $\theta_2^I \approx 0$, implying that firms with in-house accountants do not engage in profit shifting.

An individual firm seeks the services of consulting firms whenever

$$\Delta \Pi \equiv \underbrace{\left[\pi(\theta_2^C, F_2) - \theta_1^C F_1 + \frac{\theta_2^C}{F_2} \psi(\theta_2^C, F_2) \right]}_{\Pi^C} - \underbrace{\left[\pi(0, F_2) - \theta_1^I F_1 \right]}_{\Pi^I} > \theta_{0,i}^C.$$

The fraction of firms that rely on consulting firms is given by $N^C = G(\Delta \Pi)$.

We can now examine how policies F_1 and F_2 affect the choice of in-house vs. external tax preparation. Since consultants have lower compliance costs, increasing information reporting

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[14]Additional enforcement (raising F_2) increases reported profits in high-tax countries but may lower K_j. Throughout, we assume that the reporting effect of F_2 on $\tilde{\pi}_j$ dominates the real effect. Thus, if j is a high-tax country (i.e., $t_j > \tilde{t}$), we expect that increasing enforcement raises reported profits, i.e., $\frac{\partial \tilde{\pi}_j}{\partial F_2} > 0$.

[15]This dynamic is consistent with our in-depth interviews with representatives of multinationals and consulting firms in Chile, discussed below. While this dynamic may occur over time, the model assumes that multinationals obtain the benefits of tax planning services (higher θ_2) immediately upon contracting with the consulting firm.

requirements F_1 increases the share of firms using consultants

$$\frac{\partial N^C}{\partial F_1} = G'(\Delta \Pi)(\theta_1^I - \theta_1^C) > 0.$$

In contrast, increasing enforcement penalties F_2 lowers the tax benefits from profit shifting, which reduces the share of firms that use consultants

$$\frac{\partial N^C}{\partial F_2} = -G'(\Delta \Pi)\frac{\theta_2^C}{F_2^2}\psi(\theta_2^C, F_2) < 0.$$

Define average profits across firms as $\Pi = \mathbb{E}\left[\max\{\Pi^C - \theta_{0,i}^C, \Pi^I\}\right]$ and note that

$$\frac{\partial \Pi}{\partial F_1} = -(\theta_1^C N^C + \theta_1^I(1 - N^C)) \equiv -\bar{\theta}_1 \quad \text{and} \quad \frac{\partial \Pi}{\partial F_2} = -\frac{\theta_2^C}{F_2^2}\psi(\theta_2^C, F_2)N^C.$$

The first equation notes that increasing compliance requirements lowers profits by the average compliance cost across firms, $\bar{\theta}_1$. The second equation notes that increasing enforcement penalties reduces the profits of firms that use consulting accountants by limiting the benefits from profit shifting. Note that, while the reduction in profit shifting may have real effects on capital investment (as in Eq. 1), this effect does not enter into the second expression above since firms had already jointly optimized investment and profit shifting decisions. Similarly, these expressions do not depend on the effects of F_1 and F_2 on the choice of accountants.[16]

3.4 Tax Monitoring and the Demand for Tax Planning

We now consider how the government's choice to monitor firms affects welfare following a tax administration setup as in Keen and Slemrod (2017). A tax monitoring regime is a combination of the parameters that determine compliance requirements F_1 and enforcement penalties F_2. To justify enforcement penalties F_2, the government needs to demand the following compliance requirements: $F_1 = \gamma F_2$.[17] The government sets F_2 to maximize total profits subject to the constraint that corporate tax payments in Chile ($j = 1$) exceed a revenue requirement, R. The government's problem is then:

$$\max_{F_2} \ \Pi \ \text{subject to} \ t_1(N^C\tilde{\pi}_1^C + (1 - N^C)\tilde{\pi}_1^I) - a(F_1, F_2) > R,$$

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[16]Even though consulting firms have lower marginal costs of compliance θ_1^C, the firms that switch are indifferent between the savings from using a consulting firm and the idiosyncratic costs of switching $\theta_{0,i}$. Thus, the fact that the effects of the reform on investment and accounting choices do not have first order effects on profits is a result of the envelope theorem. Busso et al. (2013) formalize this logic for the case of extensive-margin decisions, such as the choice of accountants in our setting..

[17]More generally, assume F_1 is determined by a non-linear function of F_2, e.g., $F_1 = H(F_2)$. The derivations below can be interpreted by viewing γ as the local effect of F_2 on F_1, i.e., $\gamma = \frac{\partial H(F_2)}{\partial F_2}$.

where taxes paid on reported profits are $t_1(N^C\tilde{\pi}_1^C+(1-N^C)\tilde{\pi}_1^I)$ and the costs of administering the information monitoring regime are given by $a(F_1, F_2)$.[18]

The welfare effect of a tax monitoring reform that increases F_2 is then:

$$\underbrace{-\gamma\bar{\theta}_1 - \frac{\theta_2^C}{F_2^2}\psi(\theta_2^C, F_2)N^C}_{\text{(1) Effect on Profits}<0} - \underbrace{\lambda\left[\gamma\frac{\partial a}{\partial F_1} + \frac{\partial a}{\partial F_2}\right]}_{\substack{\text{(2) Administrative} \\ \text{Costs} > 0}} + \underbrace{\lambda t_1 N^C\frac{\partial\tilde{\pi}_1}{\partial F_2}}_{\substack{\text{(3) Effect on Reported} \\ \text{Profits} > 0}} - \lambda\left[\gamma\underbrace{\frac{\partial N^C}{\partial F_1}}_{>0} + \underbrace{\frac{\partial N^C}{\partial F_2}}_{<0}\right] \underbrace{t_1\Delta\tilde{\pi}_1}_{\substack{\text{(5) Diff in Reported} \\ \text{Profits} > 0}}, \quad (2)$$

$$\underbrace{\phantom{-\lambda\left[\gamma\frac{\partial N^C}{\partial F_1}+\frac{\partial N^C}{\partial F_2}\right]}}_{\text{(4) Effect on Accounting Choice}}$$

where λ is the Lagrange multiplier of the budget constraint and $\Delta\tilde{\pi}_1 = \tilde{\pi}_1^I - \tilde{\pi}_1^C > 0$ is the difference in reported profits between firms that use in-house accountants and those that use consultants.[19] The reform lowers profits by increasing the compliance costs of all firms and reducing profit shifting for the fraction of firms, N^C, that engage in profit shifting.[20] Implementing the reform is costly: Both F_1 and F_2 increase administrative costs for the government, $a(F_1, F_2)$. The third term shows that additional penalties reduce profit shifting along the intensive margin, which contributes to tax collections. The last two terms characterize the effects of the policy through the choice of accountants. The fourth term shows that the reform can increase or decrease the fraction of firms that rely on consulting firms for tax advice. When this fraction increases, tax revenues decline, since $\Delta\tilde{\pi}_1 > 0$.

The coefficient γ identifies when tax monitoring regimes are effective. When γ is small, the reform has smaller negative effects on profits through compliance costs and lower administrative costs. Moreover, a low value of γ may even imply that multinational corporations would be *less* likely to rely on consulting accountants, i.e., $\gamma\frac{\partial N^C}{\partial F_1} + \frac{\partial N^C}{\partial F_2} < 0$, which would increase tax revenue by decreasing the use of more potent profit shifting technologies.[21] Thus, reforms that have larger effects on enforcement and have lower compliance costs are more effective at raising welfare and revenue. Indeed, a reform that does not increase compliance

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[18]We treat Chile as a high-tax country, which loses revenue from profit shifting, i.e., $t_1 > \tilde{t}$.

[19]λ captures the opportunity cost of government funds. Since revenue R is fixed, this value corresponds to the marginal social value of lowering taxes on everyone else.

[20]While costs of compliance benefit consultants, these payments capture a loss in welfare to the extent that they divert efforts from other worthwhile activities. For simplicity, we abstract away from fiscal externalities associated with this distortion on economic activity as well as those associated with investment effects of the reform. This calculation also abstracts from the possibility that in the process of complying with the reform, consultants may improve business practices in unrelated domains.

[21]N^C decreases when $\gamma\frac{\partial N^C}{\partial F_1} + \frac{\partial N^C}{\partial F_2} = G'(\Delta\Pi)\left[\gamma(\theta_1^I - \theta_1^C) - \frac{\theta_2^C}{F_2^2}\psi(\theta_2^C, F_2)\right] < 0$. That is, when the additional compliance costs are smaller than the reductions in profit shifting.

requirements, F_1, but that increases penalties, F_2, would correspond to a case where $\gamma = 0$.[22]

In our empirical setting, the reform led to a substantial increase in the number of firms which use consulting firms, i.e., $\gamma \frac{\partial N^C}{\partial F_1} + \frac{\partial N^C}{\partial F_2} > 0$. One interpretation is that the type of monitoring reform that Chile implemented has a large value of γ: high compliance costs paired with weak enforcement opportunity for the government. Our model therefore highlights a reason why avoiding regulations that lend themselves to avoidance through tax planning is key to an effective reform: Compliance costs may lead firms to set up relationships with consultant accountants that—in addition to being better at complying with reporting requirements—may reduce tax revenue through tax planning.[23]

3.5 Tax Monitoring and the Supply of Tax Planning

Our analysis so far has focused on how the reform may affect the demand for tax planning services. Based on interviews with transfer pricing specialists both from consulting firms and multinationals in Chile, we now discuss two ways in which the reform may have affected the supply of tax planning services. First, the Chilean reform followed internationally standardized guidelines led by the OECD, which had been adopted by other countries in prior years. Because the major consulting firms have international affiliates in many of these countries, it was relatively easy for these consultancies to import experts from their global network of affiliates. Second, the structures and management methods of these consulting firms enabled them to replicate and scale the compliance and tax planning technologies relatively easily in new countries. This implies that the supply of tax planning services was relatively elastic. In our model, one could think of the first channel as justifying the relative differences between accounting technologies (i.e., $\theta_1^C < \theta_1^I$ and $\theta_2^C > \theta_2^I$). In addition, the ability to scale these services within accounting consultancies meant that many firms could adopt tax planning strategies without bidding up the cost of tax advisory services.

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[22]In our derivation above, we viewed γ as a feature of the environment. One could alternatively view it as a policy choice, to the extent that governments can increase penalties without additional information.

[23]This insight is consistent with the results of Slemrod et al. (2001), who find that high-income taxpayers reduce tax payments in response to information that their returns will receive extra scrutiny, possibly by engaging the services of tax professionals. Similarly, Bernheim (1987) notes that efforts to increase estate tax revenue can backfire by pushing high-wealth individuals to adopt estate-planning techniques that may lower both estate and income tax payments.

4 Data and Empirical Strategy

We combine micro-level administrative data from the Chilean tax authority and the customs agency with information about multinational affiliations from Orbis and Dun & Bradstreet and information on international corporate tax rates from various sources (described below). To complement the quantitative analysis, we collected extensive qualitative information through in-depth interviews with transfer pricing experts, both in consulting companies and multinational firms, and with tax officials.

4.1 Data

Administrative and Other Quantitative Data

The tax data cover the entire universe of internationally active firms in Chile between 2007–2015. We obtain information of firms' sales, payroll, and tax payments from annual corporate income tax filings. Data on payments to foreign firms stem from mandatory filings of affidavits 1850, 1912 and 1907, which accompany the income tax returns. These forms include the amount of the payment, the country where the recipient firm is located, the relationship to the recipient firm (unaffiliated, subsidiary, owner of the Chilean firm, or jointly owned by a third party) and the purpose of the payment: royalties, services, interests, and "other."[24] Customs data contain the universe of imports and exports of goods at the transaction level: product, unit price, quantity, and country of acquisition (for imports) or country of destination (for exports). The Chilean tax authority provided additional information on firm characteristics such as industry classification and size category.

We complement these datasets with information on the statutory corporate tax rates for countries in which the affiliates of multinationals are located, obtained from the Centre for Business Taxation Tax Database (Habu, 2017). For countries for which this is not available, we use data from the OECD (2019b), and if neither of these sources has the data, we use KPMG (2019).[25] To identify firms with foreign affiliates that did not reveal their status as multinationals to the tax authority, we merge the administrative data to firm directories from Orbis and Dun & Bradstreet, where these firms are listed as multinational firms with

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[24]Royalty payments include payments for intangibles such as copyright and patents. Most of the payments under the "other" category are unclassified, specifically reported as "other income from Chile obtained by non-residents".

[25]We use the data from the Centre for Business Taxation Tax Database for 43 countries, OECD data for 30 countries, and KPMG data for 18.

branches in Chile.

Qualitative Interviews

We complement the quantitative data with 20 in-depth interviews with transfer pricing experts in Chile to better understand the impact of the reform on this industry. In 2014, we carried out in-person interviews with senior transfer pricing consultants in the Chilean branches of three of the Big 4 consulting firms. In 2021, we conducted a larger series of in-depth interviews via video conference. These structured qualitative interviews included transfer-pricing experts from both large and smaller consulting firms, as well as senior in-house tax professionals within multinational firms, and tax officers. The semi-scripted interviews were conducted under anonymity and were designed to understand the role of tax advisors, how the reform changed their business, and their interactions with client firms. Further details on the method used can be found in Appendix B.

We triangulate the information provided by interviewees both across interviews and with the quantitative data wherever possible, thereby iterating between qualitative and quantitative analysis.

Sample and Descriptive Statistics

The study sample includes all internationally active firms that are at least medium size (small firms are excepted from the reform).[26] Firms are classified as internationally active if they have imports, exports or payments to foreign companies, and they are classified as multinationals if they have any affiliates abroad. To focus on economically active firms, we restrict the sample to firms that have positive payroll and input costs in every year.

Table 1 provides summary statistics for 2010 (right before the start of the reform). Panel A presents key variables from the corporate income tax form. The sample includes 11,333 domestic and 2,755 multinational firms. As expected, multinationals tend to be much larger. Their mean annual domestic sales are 35.4 million USD [median 8.9 million] compared to 5.5 million USD for the domestic sample [median 1.8 million].[27] There are similar differences in payroll, assets, profits, and taxes. Internationally active domestic firms pay an average of 64,000 USD in corporate income taxes [median 18,000 USD], while multinationals pay an average of 420,000 USD [median 40,000 USD]. These differences will inform our empirical strategy for those outcomes, for which inter-firm comparisons are necessary.

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[26]This means they have sales of at least 100,000 Chilean UF, corresponding to around 4 million USD.

[27]We convert amounts in tax filings from Chilean Pesos to current USD using annual exchange rates from the IMF. The customs data is already reported in USD.

Panel B of Table 1 shows data from the tax affidavits on payments to both affiliates and non-affiliate firms abroad. This panel includes only firms that report such payments in 2010. Very few domestic firms have any such payments (283 out of 11,333), while more than 40% of multinationals do. On average, such multinationals pay more than 1.4 million USD abroad for royalties, interests, services, and other payments, corresponding to 25% of their taxable profits (EBIT).

4.2 Empirical Strategy

We now describe the three empirical strategies we use to estimate the effects of the reform on tax-motivated payments for royalties, services and interests; prices of trade in goods; and tax payments.

4.2.1 Intra-Group Payments for Royalties, Services and Interests

An important piece of analysis before investigating the impact of the reform is to examine whether multinationals in Chile engage in tax-motivated intra-group transactions. If there were no tax-motivated payments to begin with, this would explain the lack of impact of the reform. We therefore examine whether payments by multinationals to their foreign affiliates respond to changes in the destination country tax rate. If such payments systematically increase when the corporate income tax rate in the affiliate's country falls, this suggests a tax-optimizing motive. For this analysis, we leverage variation in tax differentials across payment destination countries of a given multinational. Importantly, the administrative data allow us to undertake this analysis both for intra-group payments to affiliate firms— which reduce tax liabilities—and for payments to non-affiliate firms abroad—which do not. If payments to affiliates are tax-motivated, we would expect their semi-elasticity with respect to the destination country tax rate to be negative. At the same time, if there is no omitted variable bias, we would expect this semi-elasticity to be zero for payments to non-affiliates.

To estimate these semi-elasticities, we use the following intra-firm difference-in-differences specification:

$$\ln(Y_{ijat}+1) = \beta_1 \text{Tax Rate}_{jt} + \beta_2 \text{Tax Rate}_{jt} \times \text{Affiliate}_a + \beta_3 \ln(\text{GDPpc})_{jt} + u_{it} + \alpha_{ia} + \mu_j + e_{ijat}.$$
(3)

Y_{ijat} is the amount paid by firm i to firms in country j in year t. Outcomes include royalties, services, interests, and "other" payments, as well as total payments.[28] Subscript a denotes

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[28]We use the log of $Y + 1$ so that observations with null payment amount are not set to missing. Results

whether payments were made to an affiliate or to an unaffiliated company abroad. Each observation therefore represents annual firm payments by destination country and affiliation status. $Affiliate_a$ is a dummy that equals one for payments to affiliates. $Tax\ Rate_{jt}$ is the statutory corporate tax rate of country j in year t.

The sample for this analysis includes all multinationals that reported any payments to a foreign affiliate between 2007 and 2015 and we include all parent-affiliate-country-pairs for all years.[29] Controls for destination country fixed effects μ_j account for potential correlations between countries' tax rates and their economic ties to Chile. Controls for the log of the destination country's annual GDP per capita $\ln(\text{GDPpc})_{jt}$ and company-year fixed effects u_{it} are included to avoid confounding changes in destination country tax rates with changes driven by economic developments in the destination country or firm-level shocks. This analysis is therefore based on intra-firm comparisons.

β_1 can be interpreted as the semi-elasticity of payments to non-affiliates with respect to destination country tax rates. β_2 captures the difference in the semi-elasticity of payments to affiliates vs non-affiliates. e_{iajt} is the error term.[30] If payments by Chilean multinationals to their foreign affiliates are in part tax-motivated, we expect the semi-elasticity to be negative for affiliates ($\beta_1 + \beta_2$). In contrast, we do not expect this to be the case when the recipient firm is a non-affiliate (β_1), as there is no tax-minimizing motive in that case.

For robustness, we also report analyses with firm-affiliation status-year fixed effects α_{iat} and country-year fixed effects μ_{jt}.[31] Moreover, we show results on the IHS transformation of outcome variables and on the extensive margin of whether a firm makes any payment

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are qualitatively similar when using the inverse hyperbolic sine (IHS) of payments and when estimating a linear probability model for making any payments to country j.

[29]We construct the data such that a firm-affiliate-country pair is included for all years if the firm makes a transaction to an affiliate in that country in at least one year over 2007-2015. For example, if firm i made payments $Y_t > 0$ to affiliates in country j in 2012 but did not make payments to affiliates in that country in other years, we include payments of $Y_t = 0$ to affiliates in j for all other years. This ensures that the network of affiliates is constant over time and that results are not driven by changes in the network of affiliates.

[30]Over this period, there were corporate tax changes in 60 out of the 91 countries where Chilean firms reported having an affiliate. To show how these changes generate variation across multinationals, we residualize $Tax\ Rate_{jt}$ from firm-year fixed effects and plot the magnitude of the changes in these residuals from 2007 to 2015 in Figure A1. Because we hold the network of affiliates constant for the multinational group, changes are not driven by changes in the network. This figure shows considerable variation in tax incentives across affiliates. A one standard deviation change in tax rates corresponds to a 1.98 percentage point change in the corporate rate and moving an affiliate from the 10th to the 90th percentile represents a tax increase of 4.38 percentage points.

[31]Including country-year fixed effects prevents us from estimating the responsiveness to tax rates for payments to non-affiliates (β_1), as it is collinear with country-year tax rates, but we can still can identify the differential responsiveness of payments to affiliates relative to non-affiliates (β_2).

to destination country j. Throughout this paper, standard errors are clustered at the firm level, and to reduce the effect of outliers, we winsorize all continuous variables in levels at the 99$^{\text{th}}$ percentile of their non-zero values.

Impact of the Reform on Intra-Group Payments

Based on the approach above, we can evaluate whether the reform had an impact on the sensitivity of intra-group payments to changes in destination country tax rates. We extend the estimation of Equation 3 to a triple difference intra-firm specification, comparing a multinational's payments to affiliates and non-affiliates over time. Equation 4 describes this estimation, following the notation of Equation 3.

$$\ln(Y_{ijat} + 1) = \beta_1 \text{Tax Rate}_{jt} + \beta_2 \text{Tax Rate}_{jt} \times \text{Affiliate}_a + \beta_3 \text{Tax Rate}_{jt} \times \text{Affiliate}_a \times \text{Post}_t$$
$$+\beta_4 \text{Post}_t + \beta_5 \text{Tax Rate}_{jt} \times \text{Post}_t + \beta_6 \text{Affiliate}_a \times \text{Post}_t$$
$$+\beta_8 \ln(\text{GDPpc})_{jt} + u_{it} + \alpha_{ia} + \mu_j + e_{ijat}. \tag{4}$$

$Post_t$ equals one for years 2011 and beyond. β_2 captures the difference in the semi-elasticity of payments to affiliates vs non-affiliates before the reform. If the policy change is effective in reducing profit shifting, one would expect the (negative) semi-elasticity to become smaller in absolute terms, that is, the coefficient β_3 on $Tax\ Rate_{jt} \times Affiliate_a \times Post_t$ would be positive. We also estimate the event study specification of Equation 4, obtaining estimates for multinationals' sensitivity to changes in the destination country tax rates by year between 2007 and 2015.

The identifying assumption of this estimation is that, controlling for the evolution of destination countries' GDP per capita and firm fixed effects, firms' semi-elasticity of payments to affiliates would have evolved in parallel to semi-elasticity of their payments to non-affiliates. Consistent with this assumption, we show that the tax-sensitivity of intra- and extra-group payments evolved in parallel in the years leading up to the reform.

4.2.2 International Trade in Goods

We use the Chilean customs data to explore whether the reform impacted the prices of trade in goods by multinationals with their affiliates, as well as the semi-elasticity of payments for import with respect to changes in the trading partners' tax rate. To do so, we analyze unit prices of goods classified at the 8-digit level and intra-group payments for imported

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goods.[32] Ideally, we would want to compare prices and amounts of trade with affiliates to prices and amounts of trade with non-affiliates. Unfortunately, the Chilean customs data does not indicate affiliation status of the trading partner. To address this data limitation, we combine customs and tax data to identify transactions that have a high likelihood of occurring between affiliated firms. We then compare the quarterly unit price of a good in those transactions to quarterly unit prices of that same good in trade among non-affiliated firms. We proceed analogously for payments on imported goods.

To identify trade that is likely to be intra-group, we proceed as follows: Starting from 2012, as part of the reform, firms are required to provide information on the amount of intra-group imports and exports by country, but no information on the type of goods being traded. The customs data include total amounts of imports and exports, (intra- and extra-group combined) at the firm-country level. Matching these two sources, we select firm-country cases where the amount of intra-group trade in the tax data is close to the amount of total imports or exports with a given country in the customs data.[33] We then compare the evolution of unit prices in country-firm pairs with a high share of intra-group trade with the evolution of prices of the same products traded in the same quarter by domestic firms, using the following difference-in-differences specification and its event study equivalent:

$$\ln(\text{Price})_{ipt} = \alpha_0 + \beta_1 \text{Multinational}_i \times \text{Post}_t + \mu_i + \nu_{pt} + e_{ipt}, \tag{5}$$

where $\ln(\text{Price})_{ipt}$ is the average unit price (weighted by trade volume) of imports/exports of product p by firm i in quarter t. Multinational$_i$ is a dummy equal to 1 if the observation corresponds to a multinational, Post$_t$ is a dummy equal to 1 for years 2011 and beyond and μ_i and ν_{pt} are firm and product by quarter fixed effects. Observations are at the product-firm-quarter level. The sample includes trade by multinationals for those countries with which they have a high share of intra-group imports/exports and all trade by domestic firms.

One challenge of combining the trade data from taxes and customs records is that there can be discrepancies, due, for example, to differences in the timing when transactions are recorded. This can lead to the amount of trade recorded in the tax data to exceeding the amounts reported in the customs data. To ensure that our results are not driven by these

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[32]Product codes are generated by combining 6-digit Harmonized System (HS) codes with 2-digit numeric codes for units of measurement. If a product with the same HS code is measured in several different units, the combined codes are treated as separate products.

[33]For comparability, we limit the sample of imports by domestic firms to those products which are also in the sample of likely intra-group imports by multinationals.

potential discrepancies, we report results for three different bandwidths of the shares of intra-group trade relative to total trade: 80% to 120%, 90% to 110%, and 95% to 105%.

4.2.3 Impact of the Reform on Tax Payments

To study the effects of the reform on tax payments, we cannot rely on intra-firm analysis. We therefore compare the evolution of taxes paid by multinationals to those of internationally active firms without foreign affiliates. An important challenge is that multinationals differ quite substantially from internationally active domestic firms. Multinationals are larger and also more likely to be active in different industries. To control for these differences and to make the groups comparable along a number of observable margins, we follow an approach similar to that of Yagan (2015): We scale each outcome by firms' size and control for pre-treatment firm characteristics by year. As shown in the last two rows of Panel A in Table 1, while multinationals pay over 6.5 times more taxes than internationally active domestic firms, their tax/payroll ratios are very similar (0.162 vs 0.163). We also control for a number of pre-treatment firm characteristics interacted with year fixed effects: industry dummies, pre-treatment average sales, pre-treatment average of sales/payroll and of sales/assets (all in linear and quadratic terms). The latter two variables represent a proxy for firm technology.

The pre-reform data cover the years 2007 to 2010. To have a cleaner test of the pre-treatment parallel trend evolution, we normalize the event study coefficient in 2009 to zero, leaving the coefficient in 2010 as a "placebo" year. Accordingly, we use years 2007 to 2009 to construct the average of pre-treatment variables. We then estimate the following difference-in-differences regression, as well as its event study equivalent:

$$\frac{Y_{it}}{\text{Payroll}_{it}} = \alpha_0 + \beta_1 \text{Multinational}_i + \beta_2 \text{Post}_t + \beta_3 \text{Multinational}_i \times \text{Post}_t + \beta_4 X_{it} + u_i + e_{it},$$

$$(6)$$

where Y_{it} denotes the outcome of interest for firm i in year t. *Multinational$_i$* is a dummy equal to one if firm i is a multinational. *Post$_t$* equals one for years 2011 and beyond. X_{it} is a vector of the pre-treatment characteristics interacted with year fixed effects. u_i indicates firm fixed effects and e_{it} is the error term.

The identifying assumption of this estimation is that, absent the reform, the treatment and comparison groups would have evolved in parallel. While this assumption is not directly testable, we can provide two pieces of evidence in support of it. First, we can check whether the groups evolved similarly before the reform, i.e., over the 2007–2010 period. We examine

this by plotting yearly estimates obtained from the event study-equivalent of Equation 6. Second, we analyze the effect on a "placebo" outcome that is not expected to be affected by the reform: domestic sales.

We conduct a number of robustness tests to ensure that our results are not driven by sample selection or the definition of outcome variables. First, we look at post-treatment windows up to 2013, 2014 and 2015. Second, we investigate the impact on subgroups of firms that are more likely to be affected by the reform, including large firms, Chilean-owned firms, and those with affiliates in tax havens. Third, to ensure that we are comparing firms of similar sizes, we impose common support conditions that ensure that treated and control firms have the same range of pre-treatment average sales and payroll. Fourth, we scale the outcome by lagged rather than contemporaneous payroll.[34] Finally, we add payments collected as a result of audits to the voluntarily paid corporate income tax.

5   Results

5.1   Intra-Group Payments for Royalties, Services and Interests

Before investigating the impacts of the reform, we analyze whether Chilean multinationals engage in tax-motivated intra-group payments. Following the empirical approach described in Section 4.2, this intra-firm analysis includes destination country fixed effects and firm-year fixed effects, so that the coefficients of interest are identified by changes in tax rates relative to the average tax paid by a given Chilean multinational in a given year.

Column (1) of Table 2 shows that payments to affiliates have a negative semi-elasticity, i.e., when the tax rate in the destination country falls, multinationals make larger payments to affiliates in that country. A 1% reduction of the statutory corporate tax rate in the destination country is associated with an increase in payments of 5.1 to 5.5 log points (significant at the 1% level).[35] Importantly, there is no such negative semi-elasticity for payments to

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[34]We use contemporaneous payroll in our main specification for two reasons. First, we cannot scale by lagged payroll in 2007 since our data starts in that year. For the specification with lagged payroll, we therefore still scale outcomes in 2007 by contemporaneous payroll. Second, using lagged payroll yields a smaller—in fact, slightly negative—point estimate for the impact of the reform. Thus, we view our main specification as a more conservative null-effect.

[35]One advantage of using data on transactions between affiliates is that our results are not contaminated by the double-counting problem pointed out by Blouin and Robinson (2020). Since most of the prior literature lacks access to transaction-level tax data, estimates of the tax sensitivity of reported profits from financial statements data surveyed in Heckemeyer and Overesch (2017) are not directly comparable to our results.

non-affiliates, indicating that the result is unlikely to be driven by other confounding factors.

We further disentangle this analysis by type of transaction: payments for royalties, services, interests, and other/uncategorized. A large part of the effect is driven by services and royalties (both significant at the 1% level). This is consistent with the notion that payments for which it is harder to find comparable market prices are more likely to be subject to manipulation. These results are robust to a number of variations. Panels B and C of Table 2 show similar results for different numbers of included years. Findings are also robust to inclusion of firm-affiliation status-year fixed effects (Table A2) or country-year fixed effects (Table A3), and we obtain similar results in IHS (Table A4) or when using a linear probability model to analyze extensive margin responses (Table A5).

In sum, this section shows that the intra-group payments of Chilean multinationals—particularly for royalties and services—are significantly influenced by tax differentials across countries. The reform that we study was motivated by the belief that a significant fraction of these payments are due to profit shifting and that tax monitoring would allow the tax authority to curtail this behavior and increase tax revenues.[36]

5.2   Impacts on Intra-Group Payments for Royalties, Services and Interests

Next, we analyze whether the reform was effective in reducing the propensity of Chilean multinationals to shift profits to lower-tax countries through intra-group payments. We estimate a triple-difference intra-firm specification following Equation 4, allowing the semi-elasticity with respect to destination-country tax rates to differ before and after the reform. The identifying assumption is that controlling for the evolution of destination country GDP and including firm fixed effects, tax-sensitivity of payments to affiliates and non-affiliates was not differentially affected by anything other than the reform. While this assumption is not directly testable, Figure 2 shows that these two semi-elasticities evolved in parallel prior to the reform. If the reform was effective at reducing the sensitivity of intra-group payments to destination country tax rates, we would expect the post-treatment coefficients to be positive, indicating a less negative semi-elasticity after the reform. Figure 2 shows that this is not the case for any of the four channels (royalties, services, interests, and other/unclassified).

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[36]An alternative interpretation of this estimate is that multinationals adopt tax planning structures that are in line with transfer price regulations. Establishing the legality of specific transactions requires in-depth audits, which are often debated in courts.

Table 3 presents these results in regression form for total payments and for each of the channels. The second row shows the semi-elasticity of payments to affiliate firms in the pre-treatment period and the first row shows the difference of that semi-elasticity in the post-treatment period. Again, if the reform was effective in reducing tax-motivated profit shifting, this difference would be positive, indicating a smaller magnitude of the (negative) semi-elasticity in the post-treatment period. However, this is not the case in any of the specifications. If anything, the sensitivity to foreign tax rates is even somewhat larger in the post-treatment period (not statistically significant for most specifications). The 95% confidence interval of the semi-elasticity estimate for all payments ranges from -3.3 to 0.7 log points for years until 2013 and from -2.9 to 1.0 log points until 2015. These ranges suggest that, at best, the reform led to a minor reduction in the tax-sensitivity of intra-group payments in absolute terms.[37]

5.3 International Trade in Goods

We now analyze whether the reform affected unit prices and amounts of intra-group trade in goods. Multinationals can shift profits to low-tax countries by over-pricing imports and under-pricing exports. A reduction in profit shifting would therefore imply a reduction of import prices and an increase of export prices. Similarly, multinationals lower tax payments when importing more goods from affiliates in lower-tax countries.

Figure 3 shows the impact on unit prices of imports and exports obtained from the event study version of Equation 5. There is no change in the log of unit prices in either imports or exports after the reform. The estimates for exports are less precise due to sample size: There are fewer multinationals and even fewer domestic firms that export compared to those that import goods. Nevertheless, during the window when the reform took place (2009–2014), the point estimates for exports remain flat. Table 4 shows corresponding regression estimates. Columns (1)–(3) show imports and Columns (4)–(6) show exports. Results are robust both to varying the number of post-treatment years included in the treatment window as well as varying the bandwidth for the definition of transactions that are likely to be intra-group.[38] These results speak directly to the governments concern that multinationals were mispricing goods transactions and show that the reform had no impact on the pricing of intra-group

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[37]Appendix Tables A6 and A7 show that these results are robust to the inclusion of firm-by-year-by-affiliation status fixed effects as well as to inclusion of denstion country-by-year fixed effects.

[38]Appendix Figures A2 and A3 display these robustness checks graphically.

transactions.

5.4 Impacts on Tax Payments

Having found no impact on intra-group payments for different channels, we now investigate the overall effect from all adjustments firms may make on their corporate income tax payments. Following Equation 6, this analysis compares tax payments by multinationals to those of domestic but internationally-active firms.

The identifying assumption of this estimation is that, absent the reform, the outcome variables would have evolved along a parallel trend. Consistent with this assumption, Figure 4 shows that the main outcome for these two groups evolved similarly before the reform. A second way of assessing the plausibility of the identifying assumption is to analyze the effect on a "placebo" outcome that is not expected to be affected by the reform. Figure 5 shows this analysis graphically, and Appendix Table A8 in regression form. There are parallel trends in both the pre- and post-treatment periods, which rules out the potential concern that domestic and multinational firms operated on different trends during this time period.

Looking at the impact on tax payments, Figure 4 shows that, contrary to expectations of the government, the reform seems to have been ineffective at raising additional taxes from multinational corporations. We see no significant increase of tax payments by multinationals after the reform. Table 5 presents regression estimates. The point estimates of the impact on tax/payroll range from -0.00027 to 0.00085, depending on the treatment window. None of the estimates are close to being statistically significant. In percentage terms from the baseline of 2009, these point estimates correspond to a percentage change ranging from -0.15% to $+0.47\%$, depending on the post-treatment window. Results are robust to imposing common support conditions that restrict the sample to domestic and multinational firms with the same range of pre-treatment average sales or assets (Figures A4 and A5 as well as Tables A10 and A11 for common support of sales and payroll, respectively) and to scaling the outcome variable by lagged payroll (Figure A6).

These results imply that the reform fell short of closing the tax revenue gap arising from profit shifting. Tørsløv et al. (2021) estimate that Chile lost about 20% of multinationals' corporate tax revenue due to profit shifting in 2015.[39] Our point estimate therefore suggests

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[39]Tørsløv et al. (2021) find a loss of 12% of all corporate tax revenue. Since multinationals represent 60% of corporate tax revenue in Chile, this translates to a loss of 20% of multinationals' corporate tax revenue.

that the reform changed this tax gap by between -2.35% and 0.75%, depending on the post-treatment window. Even when accounting for estimate uncertainty, the 95% confidence interval rules out effects that closed more than 44% of this the tax revenue gap, as the upper bound of the 95% confidence interval ranges from a 7.5% to 8.9%. One advantage of our study is the ability to include estimates both on tax payments and on each of the potential channels through which multinationals shift profits abroad. The result neither tax payments nor any of these channels are affected by the reform, supports the conclusion that the reform did not significantly limit the profit shifting opportunities of Chilean multinationals.

While voluntary corporate tax payments did not increase, we can analyze whether the conclusion changes when including payments collected from audits. There were transfer pricing audits leading to 17 million USD in payments in 2010 and 204 million USD in 2011-2015. These payments stem from 242 audits representing 8.8% of all multinational firms. 42 of these firms paid additional taxes as a result of these audits. Figure A7 shows the event study plot for tax payments including revenues from audits. The outcome changes only marginally and all point estimates remain far from statistically significant, as shown in Column (2) of Table A12. These results show that the reform was ineffective at raising tax payments even when including payments recovered from audits.

Heterogeneity Analysis

We next examine whether the overall null effect might hide relevant heterogeneity between different types of firms. Figure 6 shows the impact on tax revenue for several subgroups for which one might expect a larger impact. Estimate (1) corresponds to the full sample result from Table 5. In estimates (2) and (3) we look at large vs. medium size firms separately, as medium-size firms might be less likely to have already been compliant with transfer pricing regulations before the reform. Estimates (4) and (5) analyze firms separately by pre-treatment tax payments. Firms with no taxable profits may have less need for tax-motivated transfers. We therefore analyze firms that regularly paid corporate income tax before the reform (4) vs. those who reported zero taxable profits multiple times (5).

Another group of interest is firms with affiliates in tax havens. These firms may have been more aggressive in their tax planning behavior prior to the reform or may be more sophisticated in such planning. Estimate (6) compares multinationals with affiliates in tax havens to domestic firms, while estimate (7) does so for multinationals without such affiliates. Next, estimates (8) and (9) look at foreign-owned vs. Chilean-owned multinationals. One

might expect Chilean firms to respond more to the reform, if foreign-owned firms were already more compliant with international transfer pricing rules due to regulations in their headquarters. However, this does not seem to be the case. Finally, estimates (10), (11), and (12) look at subgroups of multinationals based on when they revealed their multinational status to the tax authority. Estimate (10) includes firms that reported their multinational status prior to the reform, (11) includes those that revealed it only after the reform, and (12) those who never reveal their status in the tax forms, but whom we identified as multinationals based on data from Dunn & Bradstreet and Orbis firm directories.

Overall, these findings suggest that the null effect is quite general and does not hide important firm heterogeneity. For robustness, appendix Figures A8 and A9 show the same analyses including the post-treatment period up to 2014 and 2015, respectively.

Taken together, the findings from the administrative tax and customs data show that the reform did not achieve its goal of reducing tax-motivated intra-group payments of multinational firms and did not significantly increase tax payments. To better understand the context of these findings, we now analyze the role that the tax advisory industry may play in that dynamic.

6   Role of the Tax Advisory Industry

Tax advisors help multinational firms comply with complex and disparate national regulations, ease the administrative burden of complying with tax laws, and help firms avoid paying more than what is due. The transfer pricing regulation aimed to shut down key tax avoidance loopholes and evasion opportunities, but in doing so, it added legal complexity and administrative requirements, creating a new market for the tax advisory industry.

To better understand the role of tax advisors in the context of the Chilean transfer pricing reform, we carried out two rounds of in-depth qualitative interviews. In 2014, we conducted in-person interviews with senior transfer pricing consultants who work in the Chilean branches of three of the Big 4 consulting firms. In 2021, after implementation of much of the quantitative empirical analysis, we conducted video interviews with a wider range of tax specialists: transfer pricing experts in each of the Big 4 as well as in smaller consulting firms, senior tax employees of multinationals in Chile, and officers of the tax authority. The semi-scripted interviews were conducted under confidentiality, and were

designed to understand both the role of tax advisors in firms' response to the reform and the effects of the reform on the development of the advisory industry. Appendix B details the methods used for these qualitative interviews.

In what follows, we describe four key insights that emerged from the interviews. First, the reform created a large boon to the tax advisory industry, increasing the number of experts working in transfer-pricing consulting twelve-fold within the span of 3 years. Second, while the initial driver of this growth was based on a strong demand effect by Chilean multinationals for compliance support, tax advisors responded by upselling clients on additional tax planning services. Third, the advisory industry responded to this demand shock by reallocating international experts to Chile and training the next generation of Chilean advisors. Finally, an important piece of tax planning advice was to centralize cost centers in fewer locations that were optimized both from a business and tax-efficiency perspective—a pattern that we can confirm in the quantitative data.

Growth in the Tax Advisory Industry

All interviewees mentioned that the transfer pricing reform represented a growth opportunity for the tax advisory market. To quantify these effects, we asked the transfer-pricing experts in each of the Big 4 consulting firms how many consultants were employed in their unit prior to the reform (2010) vs. in 2014. Figure 7 shows the responses. Each of the four companies had two people working in that department before the reform and then expanded their transfer pricing unit very rapidly. This led to a 12-fold increase from 8 to 95 transfer pricing consultants across the four companies. Each of the participants in the 2014 phase of interviews had personally experienced a promotion, going from working with one colleague in a small unit to being the head of an important group within the company. Interviewees also agreed that at the time of the reform, there was almost no consulting supply for transfer pricing outside of the Big 4. Smaller competitors would only enter later, as discussed below.

Complementarity of Compliance and Tax Planning Services

Interviewees explained that transfer pricing advisors offer two broad categories of services. First, compliance services help firms comply with the new legislation, supporting them with new reporting requirements. Given the uncertainty of such new filings, top consulting firms give clients more confidence that filings will be "audit-proof." An important component of audit-proofing is preparing transfer pricing studies that justify why a certain price is adequate for a given transaction. A second type of service is tax planning. This may require

tax advisors to undertake more involved analyses to design transfer pricing strategies with tax savings potential, suggesting new "tax efficiency" strategies for their clients.

Interviewees also mentioned that most clients who came to them for help initially mostly requested support with fulfilling the complex new reporting requirements. New clients were seeking external tax advisory services for the first time, moving away from in-house advisors. Interviewed representatives of multinationals stated that the reform was the primary reason for moving to external consultants, as it was difficult to comply with the new reporting requirements without specialized assistance. One interviewee mentioned, for example, that the new forms were difficult to fill correctly without a price study, which was one reason why firms chose to consult specialized external accountants.

Interviewees from consulting firms mentioned that while the initial focus was to support the clients in getting their paperwork in order, external consultants could also offer a broader approach to tax efficiency. Several respondents pointed out that the first order of business was to put everything in order, since most firms did not have the required internal structures to satisfy the reporting requirements. Thereafter, consultants often pointed out that firms were not always operating in tax efficient ways, and they saw opportunities to support client firms in implementing more tax efficiency strategies. As a result, many clients gradually moved from a focus on getting external support for compliance to more in-depth tax planning consulting. As one interviewee put it, since most firms were first-time clients of external advisors, there was a lot of scope to upsell them on tax planning beyond just compliance.

Supply Response

The rapid expansion of this industry seemed to have been possible due to the elastic supply of transfer pricing experts. Interviewees shared that consultants who previously worked at Big 4 subsidiaries in other countries—such as Argentina, Colombia, Spain or Venezuela—moved to a Big 4 in Chile around 2012 to meet this increased demand. Since they already had deep experience with similar transfer pricing regulations in these countries, they brought a wealth of knowledge applicable to the Chilean reform. For example, one respondent mentioned that these experts already knew how to ensure that intra-group transactions complied with OECD guidelines to avoid raising alarm with the tax authority.

After the initial import of foreign experts, the industry was able to grow by hiring more junior team members from Chile, who were then trained internally in how to establish price studies as well as sophisticated transfer pricing strategies. Some newly trained local experts

went on to start their own boutique consulting firms, catering to smaller client firms.[40]

These interviewees also described mechanisms of revolving doors, with transfer pricing specialists moving between working for consulting companies, the tax authority, and as in-house advisors to multinationals. The number of experts with specialised knowledge in transfer pricing is relatively small, and a similar skill profile is needed for writing transfer pricing regulations and corresponding guidelines (in the OECD or in tax authorities), for helping firms comply with or circumvent such regulations (in consulting firms or directly in multinationals), and for auditing and monitoring firms' compliance (in the tax authority). Several respondents mentioned experts moving between the tax authority and the Big 4 in the years when the reform was being designed and implemented. The phenomenon of revolving doors and its impacts has been widely studied in other contexts, for example in legislative and regulatory lobbying in the US (Blanes i Vidal et al., 2012; Lucca et al., 2014; McCrain, 2018; d'Este et al., 2020; Strickland, 2020).

Centralization of Cost Centers

When asked about specific tax optimization strategies used by firms in Chile, several interviewees from consulting firms mentioned that they recommend consolidation of cost centers, especially services, in fewer—optimally chosen —countries.

This is a mechanism that we can test using our administrative data. Figure 8 shows intra-firm analysis on the evolution of the number of countries to which multinationals make payments to affiliates, compared to the number of countries with payments to non-affiliates. The figure confirms that multinationals heed the advice of tax advisors and shows a clear reduction after the reform in the number of countries to which firms make affiliate payments.

Cost center consolidation can reduce tax liabilities by concentrating costs in lower-tax locations. As Table 6 shows, the reform leads to a decrease in the number of cost centers in non-tax havens; there is no effect on the number of cost centers in tax havens. We also test the prediction from tax advisors that this consolidation effect would be centered on services. We indeed find the largest change in the number of countries with payments for services, followed by "other" payments. One of the advantages of combining insights from interviews with tax experts with our empirical analysis is the ability to validate qualitative predictions with administrative tax data.

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[40]While in 2014 the market was still dominated by the Big 4, in the 2021 phase of interviews we were also able to speak with representatives of smaller consulting firms that had been established since then.

Overall, the insights from our in-depth interviews depict a scenario similar to the one other tax authorities seem to be facing. A report from the British Parliament (Public Accounts Committee, 2013) on tax avoidance and the role of large accountancy firms put it as follows:

> HM Revenue & Customs (HMRC) appears to be fighting a battle it cannot win in tackling tax avoidance. Companies can devote considerable resource to ensure that they minimise their tax liability. There is a large market for advising companies on how to take advantage of international tax law, and on the tax implications of different global structures. The four firms employ nearly 9,000 people and earn £2 billion from their tax work in the UK, and earn around $25 billion from this work globally. HMRC has far fewer resources. In the area of transfer pricing alone there are four times as many staff working for the four firms than for HMRC. [...] We have seen what look like cases of poacher, turned gamekeeper, turned poacher again, whereby individuals who advise government go back to their firms and advise their clients on how they can use those laws to reduce the amount of tax they pay.

The above description seems to match the Chilean context. A tax authority with the necessary enforcement capacity and a reform thoroughly implementing OECD transfer pricing guidelines might not be enough if multinationals can resort to specialized teams capable of circumventing the regulation through tax planning. Our interviews also highlight the complementarity between compliance services and tax planning advice, which creates a risk that compliance requirements may spur the use of tax planning strategies.

7 Conclusion

Our paper provides evidence of the effectiveness of a prominent tax monitoring reform, using rich administrative data on tax collections, intra-group payments, and international trade prices. The reform—based on standard OECD guidelines—combines increased information reporting requirements, increased resources devoted to enforcement, and a change in the burden of proof for justifying the legitimacy of intra-group payments.

Multinational firms in Chile appear to make payments to their affiliates abroad that are suggestive of profit shifting for tax minimization purposes. Contrary to the government's expectations, the reform was not effective in reducing this practice: We observe no reduction in the sensitivity of intra-group payments for royalties, interests and services with respect to changes in the destination country tax rates, and no effect on unit prices in intra-group trade of goods. Consistent with these results, we find no significant increase in tax revenue.

This holds true for different subgroups of multinationals, such as those with affiliates in tax havens, Chilean- and foreign-owned ones, etc.

In-depth interviews with transfer pricing experts in consulting and in multinational firms suggest that while the reform did not increase tax payments, it did have a large effect on the tax advisory industry. The reform led to a twelve-fold increase in the number of transfer pricing experts working at Big 4 consulting firms in Chile. This growth was possible in part because consulting firms brought in experts on similar regulations from other countries. When multinationals approach tax consultants for compliance support, consultants often up-sell them on tax planning services. A frequently mentioned tax planning strategy mentioned in the interviews was concentration of cost centers. Turning back to the administrative data, we indeed find such an effect: There is a sizeable reduction in the number of countries with affiliates to which multinationals make payments, particularly for services.

The reform thus appears to have benefited the Chilean tax-planning industry at the expense of multinationals (which pay more for tax-related services) and the government (which spends more on monitoring, without a concomitant increase in tax revenues). Methodologically, our paper illustrates how combining administrative data analysis with systematic qualitative interviews can be fruitful to understand the impacts of public policy changes.

The key role that the tax-planning industry plays for understanding the effects of tax monitoring regimes on revenue and welfare has several possible policy implications. First, policymakers may need to take into account the risk of an increase in sophisticated planning when setting reporting requirements. Second, they may consider increasing the monitoring and regulation of the providers of tax planning services. These providers could, for instance, be asked to inform the tax authority of new tax-saving strategies they commercialize, or penalties could be increased for providers that sell schemes that turn out to be illegal (for instance, because they have no economic substance). Studying the optimal policy response and the mediating role of the tax-planning industry in how policies turn into practice is a fruitful avenue for future research.

References

Alsan, Marcella, Owen Garrick, and Grant Graziani, "Does Diversity Matter for Health? Experimental Evidence from Oakland," *American Economic Review*, December 2019, *109* (12), 4071–4111.

Alstadsæter, Annette, Salvador Barrios, Gaëtan Nicodème, Agnieszka Maria Skonieczna, and Antonio Vezzani, "Patent Boxes Design, Patents Location, and Local R&D," *Economic Policy*, 2018, *33* (93), 131–177.

Bachas, Pierre, Matthew Fisher-Post, Anders Jensen, and Gabriel Zucman, "Globalization and Factor Income Taxation," Working Paper 29819, National Bureau of Economic Research March 2022.

Balan, Pablo, Augustin Bergeron, Gabriel Tourek, and Jonathan Weigel, "Local Elites as State Capacity: How City Chiefs Use Local Information to Increase Tax Compliance in the DR Congo," 2020.

Barrios, John M and John Gallemore, "Tax Planning Knowledge Diffusion via the Labor Market," Technical Report, National Bureau of Economic Research 2021.

Bartelsman, Eric and Roel Beetsma, "Why Pay More? Corporate Tax Avoidance through Transfer Pricing in OECD Countries," *Journal of Public Economics*, 2003, *87* (9-10), 2225–2252.

Basri, M. Chatib, Mayara Felix, Rema Hanna, and Benjamin A Olken, "Tax Administration vs. Tax Rates: Evidence from Corporate Taxation in Indonesia," Working Paper 26150, National Bureau of Economic Research August 2019.

Battaglini, Marco, Luigi Guiso, Chiara Lacava, and Eleonora Patacchini, "Tax Professionals and Tax Evasion," Working Paper 25745, National Bureau of Economic Research 2020.

Bergeron, Augustin, Gabriel Tourek, and Jonathan Weigel, "Shifting the Laffer Rate in Developing Countries: Evidence from Randomized Tax Rates in the DRC," 2020. Mimeo.

Bergman, Peter, Raj Chetty, Stefanie DeLuca, Nathaniel Hendren, Lawrence F Katz, and Christopher Palmer, "Creating Moves to Opportunity: Experimental Evidence on Barriers to Neighborhood Choice," Working Paper 26164, National Bureau of Economic Research August 2019.

Bernard, Andrew, J. Bradford Jensen, and Peter Schott, "Transfer Pricing by U.S.-Based Multinational Firms," *NBER Working Paper No. 12493*, 2006.

Bernheim, B. Douglas, *Does the Estate Tax Raise Revenue?*, MIT Press,

Besley, Timothy and Torsten Persson, *Taxation and Development*, Vol. 5, Newnes,

Best, Michael Carlos, Anne Brockmeyer, Henrik Jacobsen Kleven, Johannes Spinnewijn, and Mazhar Waseem, "Production versus Revenue Efficiency with Limited Tax Capacity: Theory and Evidence from Pakistan," *Journal of Political Economy*, 2015.

Bilicka, Katarzyna Anna, "Comparing UK Tax Returns of Foreign Multinationals to Matched Domestic Firms," *American Economic Review*, August 2019, *109* (8), 2921–53.

_ , **Elisa Casi-Eberhard, Carol Seregni, and Barbara Stage**, "Qualitative Information Disclosure: Is Mandating Additional Tax Information Disclosure Always Useful?," 2021.

Blouin, Jennifer and Leslie A Robinson, "Double Counting Accounting: How Much Profit of Multinational Enterprises Is Really in Tax Havens?," 2020. Available at SSRN: https://ssrn.com/abstract=3491451.

Boning, William C., John Guyton, Ronald Hodge, and Joel Slemrod, "Heard it through the grapevine: The direct and network effects of a tax enforcement field experiment on firms," *Journal of Public Economics*, 2020, *190*, 104261.

Boyd, Melody and Stefanie DeLuca, "Fieldwork with In-Depth Interviews: How to Get Strangers in the City to Tell You Their Stories," *Methods in social epidemiology*, 2017, pp. 239–253.

Brockmeyer, Anne, Alejandro Estefan, Karina Ramírez Arras, and Juan Carlos Suárez Serrato, "Taxing Property in Developing Countries: Theory and Evidence from Mexico," Working Paper 28637, National Bureau of Economic Research April 2021.

—, **Spencer Smith, Marco Hernandez, and Stewart Kettle**, "Casting a Wider Tax Net: Experimental Evidence from Costa Rica," *American Economic Journal: Economic Policy*, August 2019, *11* (3), 55–87.

Buettner, Thiess, Michael Overesch, Ulrich Schreiber, and Georg Wamser, "The Impact of Thin-Capitalization Rules on the Capital Structure of Multinational firms," *Journal of Public Economics*, 2012, *96*, 930–938.

Busso, Matias, Jesse Gregory, and Patrick Kline, "Assessing the Incidence and Efficiency of a Prominent Place Based Policy," *American Economic Review*, April 2013, *103* (2), 897–947.

Bustos, Sebastiás, Dina Pomeranz, José Vila-Belda, and Gabriel Zucman, "Challenges of Monitoring Tax Compliance by Multinational Firms: Evidence from Chile," *AEA Papers and Proceedings*, 2019, *109*, 500–505.

Carrillo, Paul E., Dave Donaldson, Dina Pomeranz, and Monica Singhal, "Ghosting the Tax Authority: Fake Firms and Tax Fraud," Technical Report November 2021.

—, **Dina Pomeranz, and Monica Singhal**, "Dodging the Taxman: Firm Misreporting and Limits to Tax Enforcement," *American Economic Journal: Applied Economics*, 2017.

—, **M Shahe Emran, and Rivadeneira Anita**, "Do Cheaters Bunch Together? Profit Taxes, Withholding Rates and Tax Evasion," *Profit Taxes, Withholding Rates and Tax Evasion (April 2012)*, 2012.

Chetty, Raj and Emmanuel Saez, "Teaching the Tax Code: Earnings Responses to an Experiment with EITC Recipients," *American Economic Journal: Applied Economics*, January 2013, *5* (1), 1–31.

Clausing, Kimberly A., "Tax-Motivated Transfer Pricing and US Intrafirm Trade Prices," *Journal of Public Economics*, 2003, *87* (9), 2207–2223.

—, "International Tax Avoidance and U.S. International Trade," *National Tax Journal*, 2006, *59* (2), 269–287.

—, "The Effect of Profit Shifting on the Corporate Tax Base in the United States and beyond," *National Tax Journal*, 2016, *69* (4), 905–934.

Cristea, Anca D and Daniel X Nguyen, "Transfer Pricing by Multinational Firms: New Evidence from Foreign Firm Ownerships," *University Library of Munich, Germany*, 2013.

Davies, Ronald, Julien Martin, Mathieu Parenti, and Farid Toubal, "Knocking on Tax Haven's Door: Multinational Firms and Transfer Pricing," *Review of Economics and Statistics*, 2018, *100* (1), 120–134.

Delis, Fotis, Manthos D Delis, Luc Laeven, and Steven Ongena, "Global Evidence on Profit Shifting: The Role of Intangible Assets," Discussion Paper DP16615, CEPR 2021.

Desai, Mihir A, C Fritz Foley, and James R Hines Jr, "Dividend Policy inside the Multinational Firm," *Financial management*, 2007, pp. 5–26.

d'Este, Rocco, Mirko Draca, and Christian Fons-Rosen, "Shadow Lobbyists," *Institute for New Economic Thinking Working Paper Series*, 2020, (139).

Dharmapala, Dhammika, "Do Multinational Firms Use Tax Havens to the Detriment of Other Countries?," *CESifo Working Paper No. 8275. Available at SSRN: https://ssrn.com/abstract=3598761*, 2020.

— **and Nadine Riedel**, "Earnings Shocks and Tax-Motivated Income-Shifting: Evidence from European Multinationals," *Journal of Public Economics*, 2013, *97*, 95–107.

Dischinger, Matthias and Nadine Riedel, "Corporate Taxes and the Location of Intangible Assets within Multinational Firms," *Journal of Public Economics*, 2011, *95* (7-8), 691–707.

Dowd, Tim, Paul Landefeld, and Anne Moore, "Profit Shifting of US Multinationals," *Journal of Public Economics*, 2017, *148*, 1–13.

Ernst & Young, "EY Worldwide Transfer Pricing Reference Guide 2018-19," 2019. https://www.ey.com/gl/en/services/tax/international-tax/transfer-pricing-and-tax-effective-supply-chain-management/worldwide-transfer-pricing-reference-guide—country-list (accessed on 08-October-2019).

Finkelstein, Amy, Lawrence Katz, Laura Feeney, and Yijin Yang, "Strengthening Randomized Evaluations through Incorporating Qualitative Research," Blog Post, Abdul Latif Jameel Poverty Action Lab 11 August 2021 2021.

Gordon, Roger and Wei Li, "Tax Structures in Developing Countries: Many Puzzles and a Possible Explanation," *Journal of Public Economics*, 2009, *93* (7), 855–866.

Griffith, Rachel, Helen Miller, and Martin O'Connell, "Ownership of Intellectual Property and Corporate Taxation," *Journal of Public Economics*, 2014, *112*, 12–23.

Grubert, Harry and Joel Slemrod, "The Effect of Taxes on Investment and Income Shifting to Puerto Rico," *Review of Economics and Statistics*, 1998, *80* (3), 365–373.

␣ **, John Mutti et al.**, "Taxes, Tariffs and Transfer Pricing in Multinational Corporate Decision Making," *The Review of Economics and Statistics*, 1991, *73* (2), 285–293.

Habu, Katarzyna, "Centre for Business Taxation Tax Database 2017," 2017. https://ora.ox.ac.uk/objects/uuid:81f28d9a-fe6e-445b-8d34-a641b573d986 (accessed 19-August-2019).

Hebous, Shafik and Niels Johannesen, "At Your Service! The Role of Tax Havens in International Trade with Services," *European Economic Review*, 2021, *135*, 103737.

␣ **, Martin Ruf, and Alfons J Weichenrieder**, "The Effects Of Taxation On The Location Decision Of Multinational Firms: M&A Versus Greenfield Investments," *National Tax Journal*, 2011, *64* (3), 817–38.

Heckemeyer, Jost H and Michael Overesch, "Multinationals' Profit Response to Tax Differentials: Effect Size and Shifting Channels," *Canadian Journal of Economics/Revue canadienne d'économique*, 2017, *50* (4), 965–994.

Hines, James R. and Eric M. Rice, "Fiscal Paradise: Foreign Tax Havens and American Business," *The Quarterly Journal of Economics*, 1994, *109* (1), 149–182.

Holz, Justin E, John A List, Alejandro Zentner, Marvin Cardoza, and Joaquin Zentner, "The $100 Million Nudge: Increasing Tax Compliance of Businesses and the Self-Employed using a Natural Field Experiment," Working Paper 27666, National Bureau of Economic Research August 2020.

Huizinga, Harry and Luc Laeven, "International Profit Shifting within Multinationals: A Multi-Country Perspective," *Journal of Public Economics*, 2008, *92* (5), 1164–1182.

i Vidal, Jordi Blanes, Mirko Draca, and Christian Fons-Rosen, "Revolving Door Lobbyists," *American Economic Review*, December 2012, *102* (7), 3731–48.

Jenkins, Glenn P and Brian D Wright, "Taxation of Income of Multinational Corporations: The Case of the United States Petroleum Industry," *The Review of Economics and Statistics*, 1975, pp. 1–11.

Jensen, Anders, "Employment Structure and the Rise of the Modern Tax system," Technical Report, National Bureau of Economic Research 2019.

Karkinsky, Tom and Nadine Riedel, "Corporate Taxation and the Choice of Patent Location within Multinational Firms," *Journal of International Economics*, 2012, *88* (1), 176–185.

Keen, Michael and Joel Slemrod, "Optimal Tax Administration," *Journal of Public Economics*, July 2017, *152*, 133–142.

Kleven, Henrik Jacobsen, Claus Thustrup Kreiner, and Emmanuel Saez, "Why Can Modern Governments Tax so Much? An Agency Model of Firms as Fiscal Intermediaries," *Economica*, 2016, (83), 219–246.

—, **Martin B Knudsen, Claus Thustrup Kreiner, Søren Pedersen, and Emmanuel Saez**, "Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark," *Econometrica*, 2011, *79* (3), 651–692.

—, **Martin B. Knudsen, Claus Thustrup Kreiner, Søren Pedersen, and Emmanuel Saez**, "Unwilling or Unable to Cheat? Evidence From a Tax Audit Experiment in Denmark," *Econometrica*, 2011, *79* (3), 651–692.

Koethenbuerger, Marko, Mohammed Mardan, and Michael Stimmelmayr, "Profit Shifting and Investment Effects: The Implications of Zero-Taxable Profits," *Journal of Public Economics*, 2019, *173*, 96–112.

Kopczuk, Wojciech and Cristian Pop-Eleches, "Electronic filing, tax preparers and participation in the Earned Income Tax Credit," *Journal of Public Economics*, August 2007, *91* (7-8), 1351–1367.

— **and Joel Slemrod**, "Putting Firms into Optimal Tax Theory," *American Economic Review*, 2006, pp. 130–134.

KPMG, "Corporate Tax Rate Table," 2019. https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html (accessed 20-August-2019).

Kumler, Todd, Eric Verhoogen, and Judith A Frías, "Enlisting Employees in Improving Payroll-Tax Compliance: Evidence from Mexico," Technical Report, National Bureau of Economic Research 2015.

Liu, Li, Tim Schmidt-Eisenlohr, and Dongxian Guo, "International Transfer Pricing and Tax Avoidance: Evidence from Linked Trade-Tax Statistics in the UK," *The Review of Economics and Statistics*, 2019.

Lohse, Theresa and Nadine Riedel, "Do Transfer Pricing Laws Limit International Income Shifting? Evidence from European Multinationals," 2013. Available at SSRN: https://ssrn.com/abstract=2334651 or http://dx.doi.org/10.2139/ssrn.2334651.

Lucca, David, Amit Seru, and Francesco Trebbi, "The Revolving Door and Worker Flows in Banking Regulation," *Journal of Monetary Economics*, 2014, *65*, 17–32.

Mayo, Jennifer, "Navigating the Notches: Charity Responses to Ratings," 2021. unpublished.

McCrain, Joshua, "Revolving Door Lobbyists and the Value of Congressional Staff Connections," *The Journal of Politics*, 2018, *80* (4), 1369–1383.

Mescall, Devan and Kenneth J. Klassen, "How Does Transfer Pricing Risk Affect Premiums in Cross-Border Mergers and Acquisitions?," *Contemporary Accounting Research*, 2018, *35* (2), 830–865.

Mintz, Jack M and Alfons J Weichenrieder, *The Indirect Side of Direct Investment: Multinational Company Finance and Taxation*, MIT press, 2010.

Mittal, Shekhar and Aprajit Mahajan, "VAT in Emerging Economies: Does Third Party Verification Matter?," 2017.

Murphy, Richard, "Country-by-Country Reporting–Holding multinational corporations to account wherever they are," *Financial Integrity and Economic Development Task Force*, 2009.

Naritomi, Joana, "Consumers as Tax Auditors," *American Economic Review*, September 2019, *109* (9), 3031–72.

OECD, "Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations," 2010.

—, "BEPS 2015 Final Reports," 2015.

—, *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2017*, OECD Publishing, 2017.

—, *Model Tax Convention on Income and on Capital 2017 (Full Version)*, OECD Publishing, 2019.

—, "Statutory Corporate Income Tax Rate," 2019.

Okunogbe, Oyebola, "State Capacity and Taxation: The Role of Detection and Enforcement Capacity on Property Tax Compliance in Liberia," 2019. Mimeo.

Okunogbe, Oyebola Motunrayo and Victor Pouliquen, "Technology, Taxation, and Corruption: Evidence from the Introduction of Electronic Tax Filing," *World Bank Policy Research Working Paper*, 2018, (8452).

Pomeranz, Dina, "No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax," *American Economic Review*, August 2015, *105* (8), 2539–69.

_ **and José Vila-Belda**, "Taking State-Capacity Research to the Field: Insights from Collaborations with Tax Authorities," *Annual Review of Economics*, 2019, *11*.

Public Accounts Committee, "Tax Avoidance: The Role of Large Accountancy Firms," *Forty-fourth report of session 2012-13*, 2013.

Servicio de Impuestos Internos, "Ingresos Tributarios Anuales," `https://www.sii.cl/sobre_el_sii/serie_de_ingresos_tributarios.html` April 2021. Accessed: 2022-01-18.

Slemrod, Joel, "The (compliance) cost of taxing business," *University of Michigan. Mimeo*, 2006.

_ , "Tax Compliance and Enforcement," *Journal of Economic Literature*, December 2019, *57* (4), 904–54.

_ , **Brett Collins, Jeffrey L. Hoopes, Daniel Reck, and Michael Sebastiani**, "Does Credit-Card Information Reporting Improve Small-Business Tax Compliance?," *Journal of Public Economics*, 2017, *149*, 1–19.

_ , **Marsha Blumenthal, and Charles Christian**, "Taxpayer Response to an Increased Probability of Audit: Evidence from a Controlled Experiment in Minnesota," *Journal of Public Economics*, 03 2001, *79*, 455–483.

Starr, Martha A., "Qualitative and Mixed-Methods Research in Economics: Surprising Growth, Promising Future," *Journal of Economic Surveys*, 2014, *28* (2), 238–264.

Strickland, James M, "The Declining Value of Revolving-Door Lobbyists: Evidence from the American States," *American Journal of Political Science*, 2020, *64* (1), 67–81.

Suárez Serrato, Juan Carlos, "Unintended Consequences of Eliminating Tax Havens," Working Paper 24850, National Bureau of Economic Research July 2018.

Taubman, Sarah L., Heidi L. Allen, Bill J. Wright, Katherine Baicker, and Amy N. Finkelstein, "Medicaid Increases Emergency-Department Use: Evidence from Oregon's Health Insurance Experiment," *Science*, 2014, *343* (6168), 263–268.

Tørsløv, Thomas, Ludvig Wier, and Gabriel Zucman, "The Missing Profits of Nations," 2020. NBER working paper 24701.

_ , _ , **and** _ , "The Missing Profits of Nations," Working Paper August 2021.

Waseem, Mazhar, "Taxes, Informality and Income Shifting: Evidence from a Recent Pakistani Tax Reform," *Journal of Public Economics*, 2018, *157*, 41–77.

Weigel, Jonathan, "The Participation Dividend of Taxation: How Citizens in Congo Engage More with the State When it Tries to Tax Them," *Quarterly Journal of Economics*, 2020, *Forthcoming*.

Wier, Ludvig, "Tax-Motivated Transfer Mispricing in South Africa: Direct Evidence Using Transaction Data," *Journal of Public Economics*, 2020, *184*, 104153.

Yagan, Danny, "Capital Tax Reform and the Real Economy: The Effects of the 2003 Dividend Tax Cut," *American Economic Review*, 2015, *105* (12), 3531–3563.

Zucman, Gabriel, "Taxing Across Borders: Tracking Personal Wealth and Corporate Profits," *Journal of Economic Perspectives*, 2014, *28* (4), 121–148.

Zwick, Eric, "The Costs of Corporate Tax Complexity," *American Economic Journal: Economic Policy*, May 2021, *13* (2), 467–500.

Figure 1: Strictness of Transfer Pricing Enforcement Before and After the Reform

(a) Transfer pricing risk 2010

(b) Transfer pricing risk 2012

Notes: These figures show the country-level assessment of Transfer Pricing Risk according to data from Mescall and Klassen (2018). The authors define this as the risk of a decrease in future cash flows that result from tax authorities' actions related to a corporation's transfer pricing activities. Chile had the second lowest risk in 2010 and the fourth highest in 2012, after the implementation of the reform.

Figure 2: Impact of the Reform on the Sensitivity of International Payments
to Changes in the Destination Country Tax Rate

(a) Services

(b) Royalties

(c) Interests

(d) Other
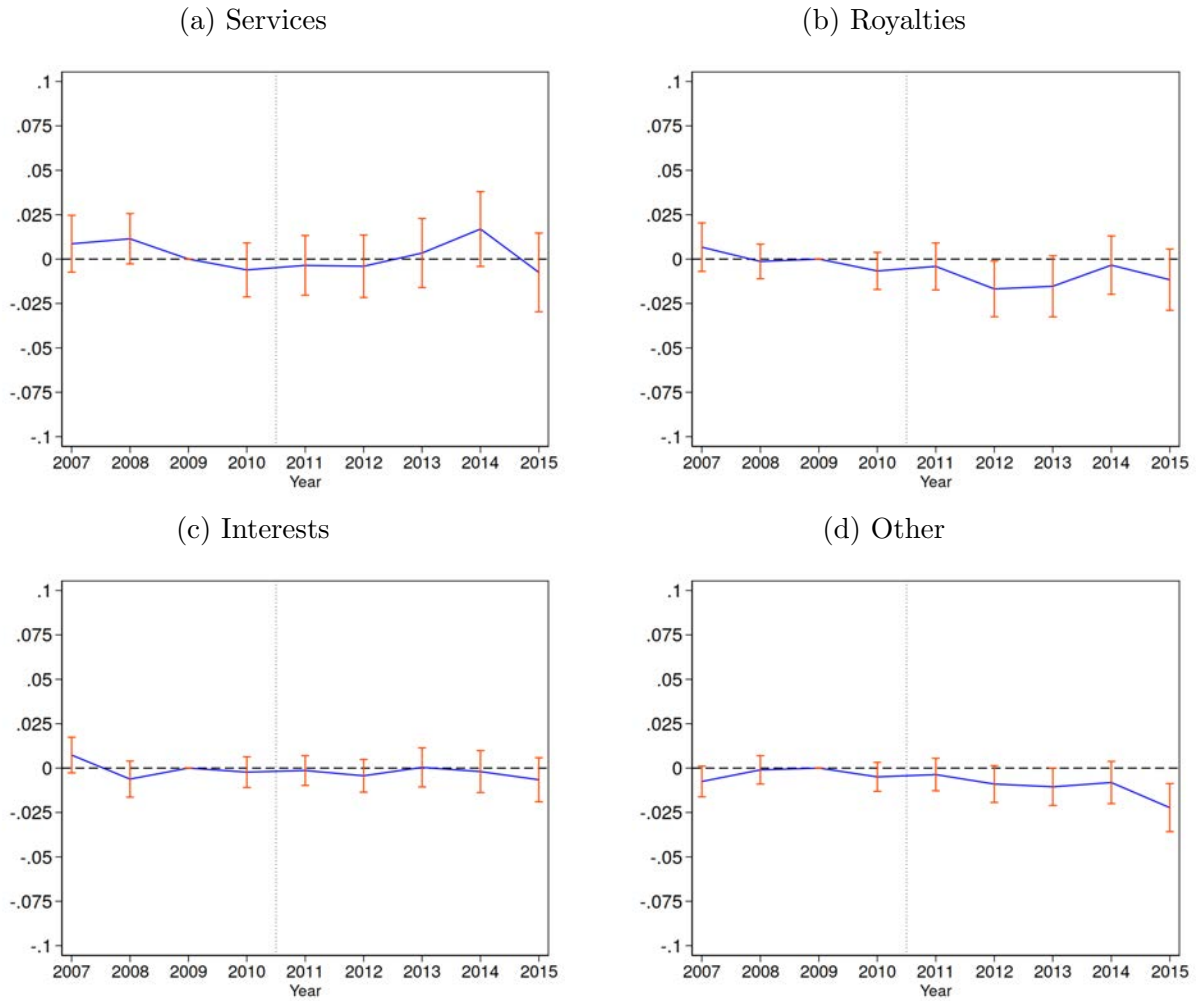
Notes: The figure shows the impact estimates obtained from the event study specification of Equation 4, which compares multinationals' payments to affiliates vs. non-affiliates. This analysis is at the level of firm-year-country-affiliation status, i.e., payments by firm i to affiliates vs non-affiliates in country j in year t. Outcomes in in $log(Y + 1)$. Standard errors clustered at the firm level. Vertical bars represent 90% confidence intervals.

Figure 3: Impact on Unit Prices of Imports and Exports

(a) Impact on Unit Prices of Imports

C.I. at 90%
Obs: 1,612,259
Nr products: 3,160
Nr treated firms: 395
Nr control firms: 9,010
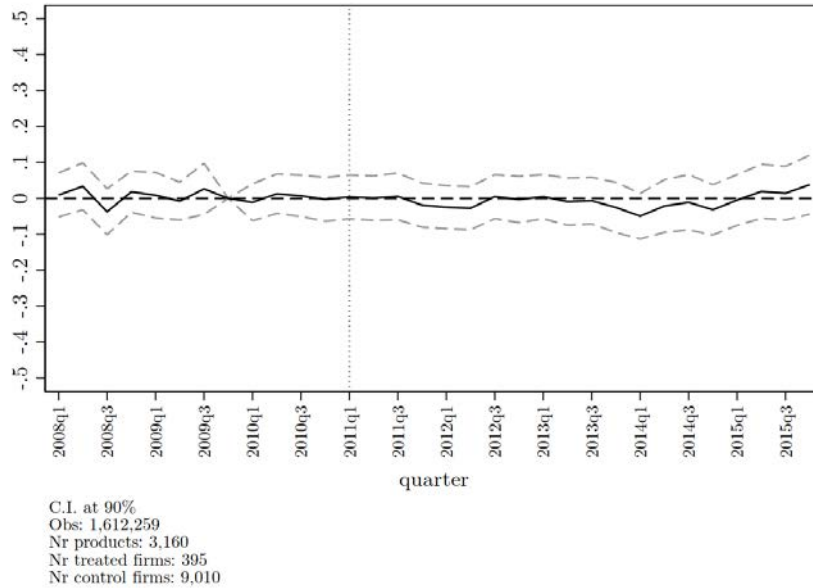
(b) Impact on Unit Prices of Exports

C.I. at 90%
Obs: 145,898
Nr products: 2,454
Nr treated firms: 283
Nr control firms: 3,054

Notes: These figures show quarterly estimates based on Equation 5, showing the evolution of log of unit prices of multinational firms' likely intra-group trade compared to domestic firms' trade of the same product, controlling for firm and product × quarter fixed effects. Likely intra-group trade is defined by country-years for which intra-group imports or exports in the tax data amount to 80% to 120% of imports and exports for that country-firm in the customs data, respectively (see Section 5.3 for details). Robustness with different windows is shown in Figure A3. Standard errors clustered at the firm level. Dashed lines represent 90% confidence intervals.

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Figure 4: Impact of the Reform on Corporate Income Tax
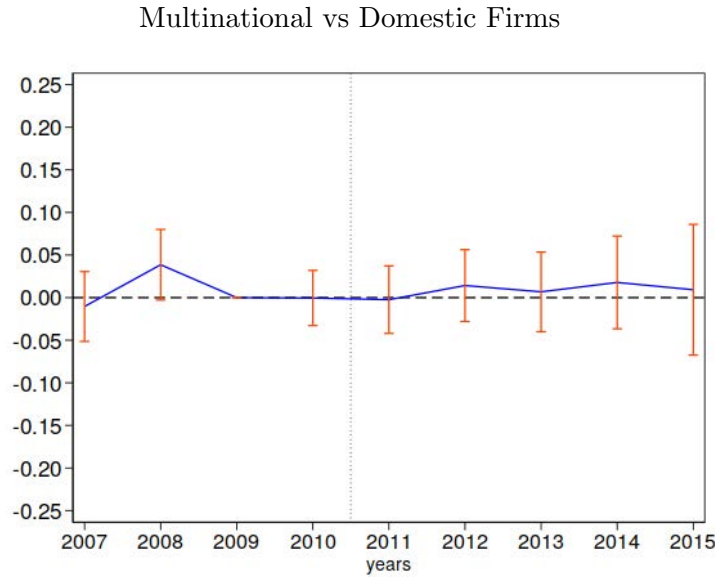
Multinational vs Domestic Firms

Notes: Outcome variable: corporate income tax paid/payroll, expressed in standard deviations. The figure shows the impact estimates obtained from the event study specification of Equation 6, which compares multinationals to domestic firms. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

Figure 5: Placebo Outcome: Domestic Sales

Multinational vs Domestic Firms
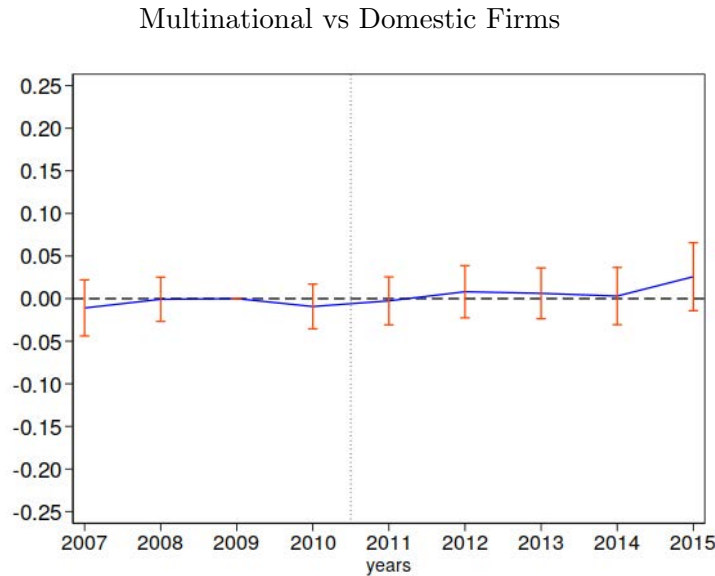
Notes: Outcome variable: domestic sales/payroll, expressed in standard deviations. The figure shows the impact estimates obtained from the event study specification of Equation 6, which compares multinationals to domestic firms. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

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Figure 6: Impact of the Reform on Corporate Income Tax: Subgroup Analysis
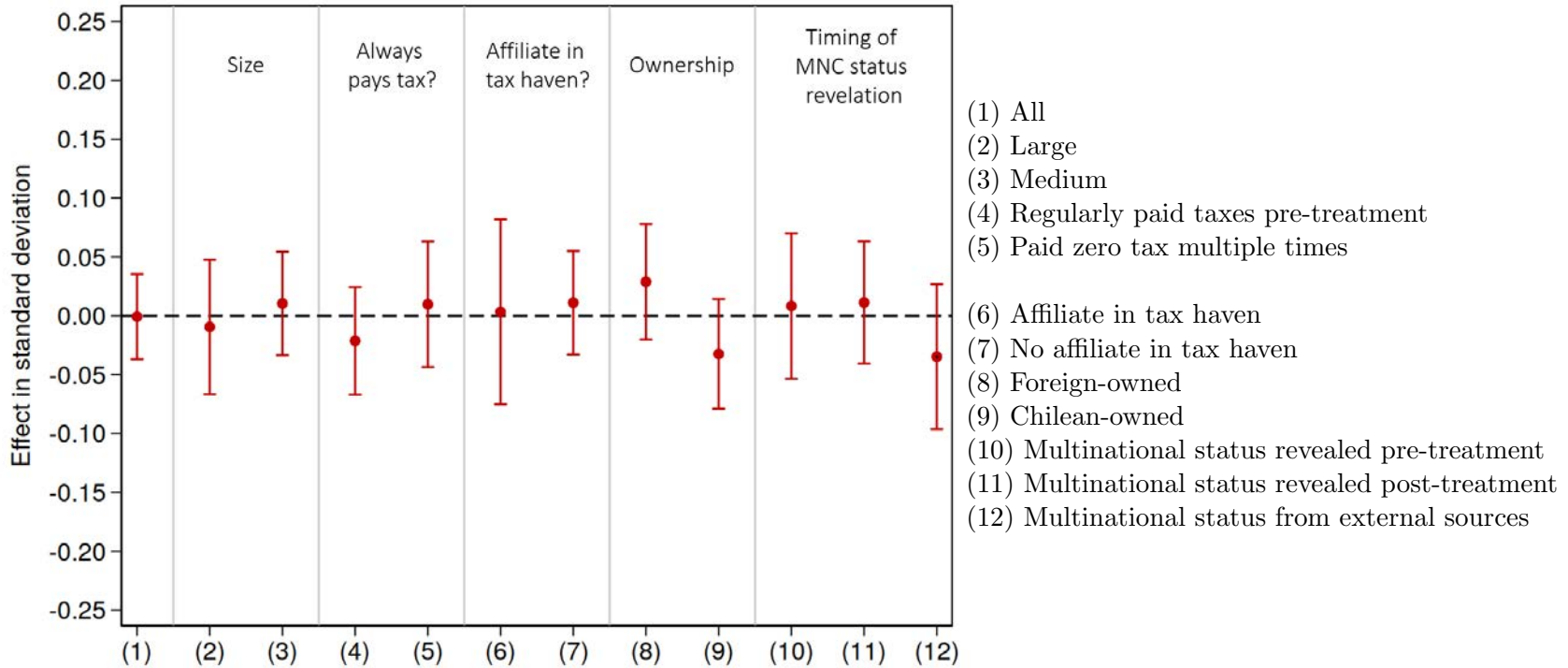
(1) All
(2) Large
(3) Medium
(4) Regularly paid taxes pre-treatment
(5) Paid zero tax multiple times

(6) Affiliate in tax haven
(7) No affiliate in tax haven
(8) Foreign-owned
(9) Chilean-owned
(10) Multinational status revealed pre-treatment
(11) Multinational status revealed post-treatment
(12) Multinational status from external sources

Notes: Dots represent point estimates of difference-in-differences analysis following Equation 6, comparing multinational to domestic firms before and after the reform for 2007-2013. Appendix Figures A8 and A9 show the same for the period up to 2014 and 2015. Bars represent 90% confidence intervals. Outcome variable: corporate income tax/payroll winsorized at the 99th percentile of non-zero values, expressed in standard deviations. (1) shows the main estimate obtained using the full sample. Estimates by firm size (2 and 3) are obtained from a regression that compares large/medium multinationals to large/medium domestic firms. Estimates (4) and (5) are obtained from a regression that compares multination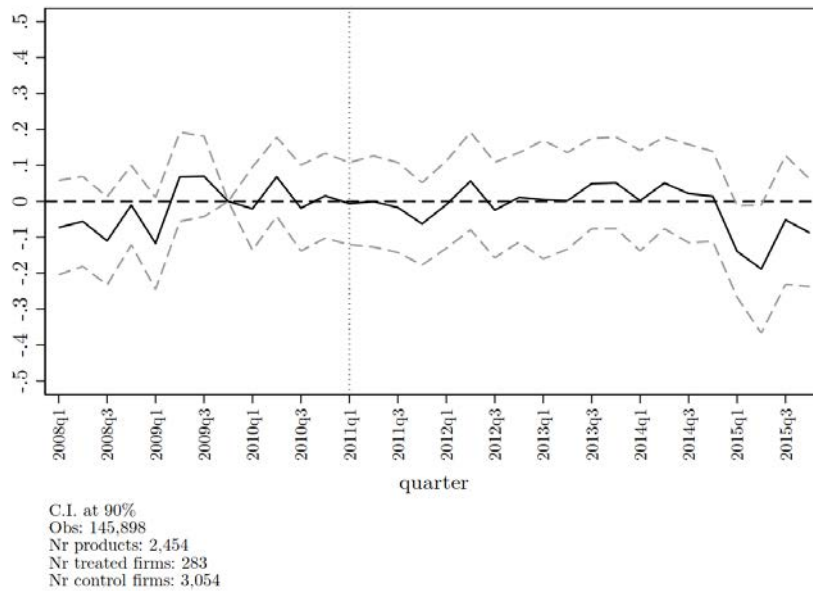als that regularly paid taxes/paid zero taxes more than once to the same subgroup of domestic firms. Estimates (6)-(12) are obtained from regressions that compare a restricted group of multinationals to the full sample of control firms: (6) multinationals with affiliates in a tax haven, (7) those without any affiliate in tax havens, (8) foreign-owned multinationals, (9) Chilean-owned multinationals, (10)-(12) firms classified based on when they revealed their multinational status to the tax authority: pre-treatment, post-treatment, or never. The latter are identified as multinationals based on external sources, as described in Section 5.4.

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Figure 7: Number of Transfer Pricing Consultants
in Big 4 Consulting Firms in Chile
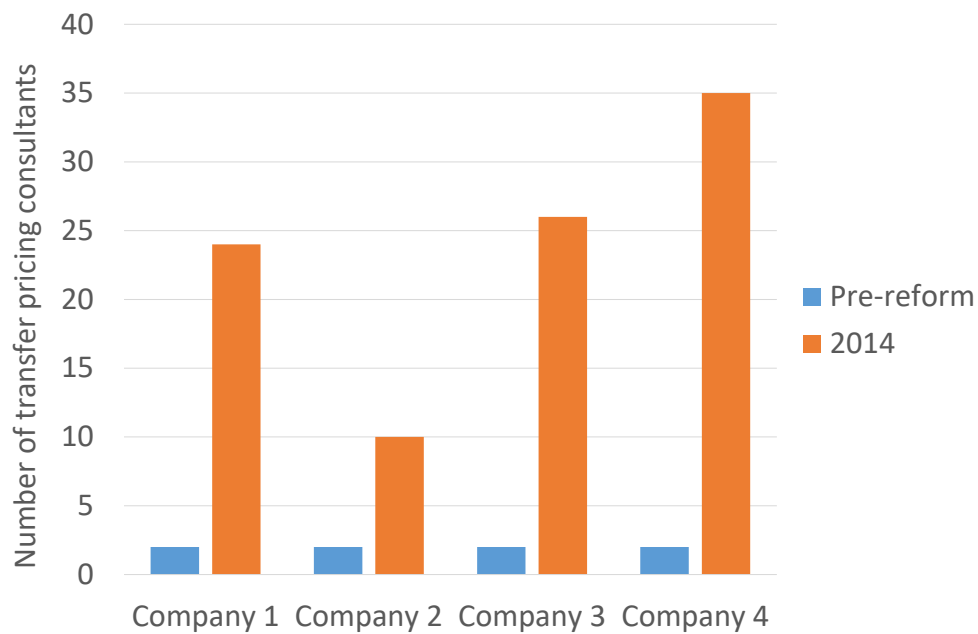
Notes: Data obtained from interviews with representatives
from the Big 4 consulting firms in Chile.

Figure 8: Effects of the Reform on the Consolidation of Cost Centers

Affiliate vs. non-affiliate payments
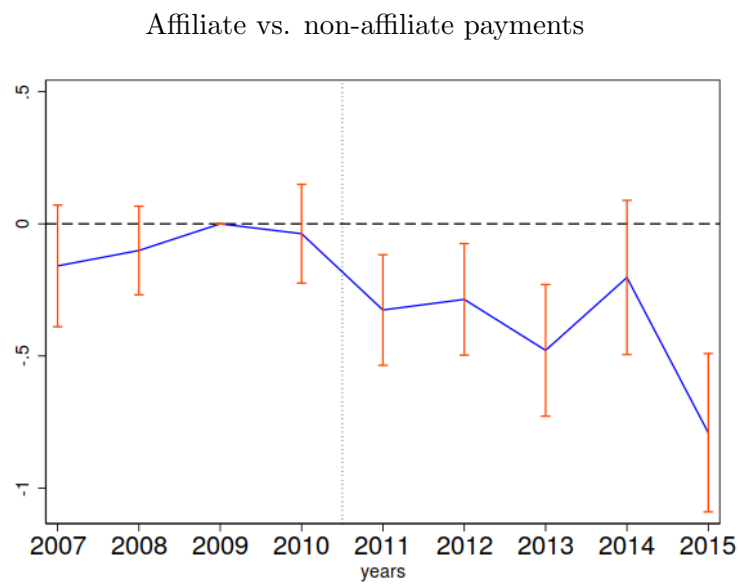
Notes: Outcome variable: number of countries to which multinational firms make payments. The figure shows the impact estimates obtained from the event study specification of Equation 6, replacing the *multinational* variable with *affiliate*, comparing affiliate to non-affiliate payments. Estimation includes multinational firms only. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

Table 1: Firm-Level Summary Statistics, 2010

Panel A. Income Tax Data
(Full Sample)

	Domestic firms	Multinational firms
Domestic sales	5,509	35,443
	(15,537)	(63,234)
	[1,824]	[8,883]
Payroll	881	4,577
	(2,355)	(7,521)
	[306]	[1,495]
Assets	10,834	121,904
	(48,272)	(262,342)
	[2,115]	[17,940]
EBIT	610	5,657
	(2,746)	(13,201)
	[169]	[770]
Taxes	64	420
	(219)	(1,028)
	[18]	[40]
Taxes/Payroll	0.162	0.163
	(0.330)	(0.395)
	[0.064]	[0.036]
Number of firms	11,333	2,755

Panel B. International Payments
(Sample with Total Payments > 0)

	(1)	(2)
	Domestic firms	Multinational firms
Total payments	199	1,446
	(554)	(5,977)
	[49]	[110]
Royalties	95	435
	(278)	(1,673)
	[0]	[0]
Interests	30	512
	(356)	(4,669)
	[0]	[0]
Services	57	330
	(191)	(1,065)
	[1]	[6]
Other	16	169
	(200)	(2,038)
	[0]	[0]
Number of firms	283	1,136

Notes: Variables in thousands of USD, winsorized at the 99th percentile of non-zero values. Total payments is computed as the sum of its winsorized components. The table shows means, standard deviations (in parentheses) and medians [in brackets] for 2010, the last year before the reform started. Sample includes firms that were at least medium sized and internationally active as defined in Section 4.1. The number of firms in Panel B is smaller since it only includes firms that reported payments on their affidavits in 2010.

Table 2: Sensitivity of International Payments to Changes in the Destination Country Tax Rate

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Other
Panel A: Up to 2013					
Tax rate × affiliate	-0.055***	-0.028***	-0.029***	-0.009**	-0.005
	(0.012)	(0.008)	(0.009)	(0.004)	(0.003)
Tax rate	0.011	-0.006	0.016	0.004	-0.005
	(0.014)	(0.009)	(0.013)	(0.006)	(0.005)
Observations	45,248	45,248	45,248	45,248	45,248
Adjusted-R2	0.388	0.339	0.358	0.376	0.261
Panel B: Up to 2014					
Tax rate × affiliate	-0.051***	-0.027***	-0.027***	-0.009**	-0.005
	(0.011)	(0.007)	(0.009)	(0.004)	(0.003)
Tax rate	0.015	-0.014	0.034***	0.003	-0.009*
	(0.014)	(0.009)	(0.013)	(0.005)	(0.005)
Observations	51,712	51,712	51,712	51,712	51,712
Adjusted-R2	0.375	0.334	0.351	0.355	0.238
Panel C: Up to 2015					
Tax rate × affiliate	-0.051***	-0.027***	-0.027***	-0.010**	-0.005*
	(0.011)	(0.007)	(0.009)	(0.004)	(0.003)
Tax rate	0.022	-0.008	0.037***	0.003	-0.009*
	(0.014)	(0.009)	(0.013)	(0.005)	(0.005)
Observations	58,176	58,176	58,176	58,176	58,176
Adjusted-R2	0.366	0.330	0.347	0.341	0.228
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	Yes	Yes	Yes	Yes	Yes
Firm FE × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Firm FE × destination country	Yes	Yes	Yes	Yes	Yes
Destination country FE	Yes	Yes	Yes	Yes	Yes
Number of firms	1,206	1,206	1,206	1,206	1,206
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68
Mean outcome in 2009	2.178	0.821	1.283	0.238	0.220

Notes: The table shows the impact estimates obtained from Equation 3. This analysis is at the level of firm-year-country-affiliation status, i.e., payments by firm i to affiliates vs non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. Outcomes in $\log(Y+1)$. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table 3: Impact of the Reform on the Sensitivity of International Payments to Changes in Destination Country Tax Rates

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Others
Panel A: Up to 2013					
Tax rate × affiliate × post	-0.013	-0.011*	-0.004	-0.001	-0.004
	(0.010)	(0.007)	(0.008)	(0.004)	(0.004)
Tax rate × affiliate	-0.049***	-0.022***	-0.028***	-0.009*	-0.003
	(0.013)	(0.008)	(0.010)	(0.005)	(0.003)
Observations	45,248	45,248	45,248	45,248	45,248
Adjusted-R2	0.266	0.189	0.224	0.285	0.186
Panel B: Up to 2014					
Tax rate × affiliate × post	-0.006	-0.009	-0.000	-0.001	-0.004
	(0.010)	(0.007)	(0.008)	(0.004)	(0.004)
Tax rate × affiliate	-0.047***	-0.022***	-0.027***	-0.009*	-0.002
	(0.013)	(0.008)	(0.010)	(0.005)	(0.003)
Observations	51,712	51,712	51,712	51,712	51,712
Adjusted-R2	0.262	0.188	0.227	0.270	0.182
Panel C: Up to 2015					
Tax rate × affiliate × post	-0.010	-0.009	-0.003	-0.002	-0.007**
	(0.010)	(0.007)	(0.008)	(0.004)	(0.004)
Tax rate × affiliate	-0.045***	-0.021***	-0.025**	-0.009*	-0.001
	(0.012)	(0.008)	(0.010)	(0.005)	(0.003)
Observations	58,176	58,176	58,176	58,176	58,176
Adjusted-R2	0.259	0.184	0.230	0.263	0.181
Tax rate	Yes	Yes	Yes	Yes	Yes
Tax rate × post	Yes	Yes	Yes	Yes	Yes
Post × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	Yes	Yes	Yes	Yes	Yes
Firm FE × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Destination country FE	Yes	Yes	Yes	Yes	Yes
Number of firms	1,206	1,206	1,206	1,206	1,206
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68

Notes: The table shows the impact estimates obtained from Equation 4. This analysis is at the level of firm-year-country-affiliation status, i.e., payments by firm i to affiliates vs non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. *Post* is a dummy equal to 1 from 2011 onwards. Outcomes in $\log(Y+1)$. Appendix tables A6 and A7 show robustness checks by controlling for firm-by-year-by-affiliate fixed effects and destination country-by-year fixed effects, respectively. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table 4: Impact on Unit Prices in Imports and Exports
Difference-in-Differences Estimates

	Imports			Exports		
	(1) 80% to 120%	(2) 90% to 110%	(3) 95% to 105%	(4) 80% to 120%	(5) 90% to 110%	(6) 95% to 105%
Panel A: Up to 2013						
Post × multinational	-0.013	0.010	0.012	-0.006	0.012	0.036
	(0.017)	(0.020)	(0.026)	(0.039)	(0.049)	(0.048)
Observations	999,485	948,294	891,709	92,817	83,927	67,822
Adjusted-R2	0.664	0.663	0.658	0.806	0.807	0.781
Panel B: Up to 2014						
Post × multinational	-0.017	0.008	0.007	-0.003	0.019	0.045
	(0.019)	(0.021)	(0.029)	(0.039)	(0.047)	(0.048)
Observations	1,212,606	1,150,871	1,081,662	110,951	100,407	81,520
Adjusted-R2	0.661	0.660	0.655	0.801	0.802	0.776
Panel C: Up to 2015						
Post × multinational	-0.011	0.019	0.015	-0.021	0.001	0.023
	(0.020)	(0.023)	(0.030)	(0.040)	(0.048)	(0.050)
Observations	1,420,110	1,348,004	1,266,980	128,065	115,820	94,272
Adjusted-R2	0.659	0.658	0.653	0.799	0.800	0.774
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Product × quarter FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Regression analysis based on Equation 5, comparing the log of unit prices in multinational firms' intra-group imports and exports to those of domestic firms' imports and exports, controlling for firm and product × quarter fixed effects. Sample starts in 2009 (due to imbalances in 2007-2008) and ends in the last quarter of the respective year shown in panels. In Columns (1) and (4), the sample of transactions representing likely intra-group trade is defined as those where intra-group imports or exports for a country-firm from the tax data amount to between 80% and 120% of imports and exports for that country-firm pair reported in the customs data, respectively (see Section 5.3 for details). Columns (2), (3), (5) and (6) use narrower bandwidths for the definition of these samples. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table 5: Impact of the Reform on Tax Payments

	(1) Tax paid up to 2013	(2) Tax paid up to 2014	(3) Tax paid up to 2015
Post × treated	-0.00027 (0.00704)	0.00084 (0.00738)	0.00085 (0.00820)
Effect in % change	-0.15 %	0.47 %	0.45 %
Pre-treatment avg sales/payroll × year	Yes	Yes	Yes
(Pre-treatment avg sales/payroll) squared × year	Yes	Yes	Yes
Pre-treatment avg sales/assets × year	Yes	Yes	Yes
(Pre-treatment avg sales/assets) squared × year	Yes	Yes	Yes
Pre-treatment avg sales × year	Yes	Yes	Yes
(Pre-treatment avg sales squared) × year	Yes	Yes	Yes
Industry × year	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	98,539	112,616	126,693
Adjusted-R2	0.021	0.020	0.024
Mean outcome of treated firms in 2009	0.15	0.15	0.15
Number of treated firms	2,752	2,752	2,752
Number of control firms	11,325	11,325	11,325

Notes: Impact estimates based on Equation 6. Outcome: corporate income tax/payroll. Outcome and control variables winsorized at the 99th percentile of non-zero values. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table 6: Effects of the Reform on the Consolidation of Cost Centers

	(1) All	(2) Tax havens	(3) Non tax havens	(4) Copyrights	(5) Interests	(6) Services	(7) Others
Panel A: Up to 2013							
Post × affiliate	-0.290***	0.003	-0.293***	-0.024	0.006	-0.156**	-0.063**
	(0.106)	(0.011)	(0.101)	(0.053)	(0.021)	(0.075)	(0.027)
Affiliate	-0.891***	-0.036***	-0.855***	-0.185***	-0.016	-0.856***	0.001
	(0.179)	(0.013)	(0.171)	(0.058)	(0.036)	(0.163)	(0.019)
Observations	8,060	8,060	8,060	8,060	8,060	8,060	8,060
Adjusted-R2	-0.072	-0.161	-0.072	-0.075	-0.144	-0.104	0.094
Panel B: Up to 2014							
Post × affiliate	-0.250**	0.005	-0.254**	-0.007	0.019	-0.124	-0.070***
	(0.104)	(0.011)	(0.099)	(0.051)	(0.021)	(0.076)	(0.026)
Affiliate	-0.891***	-0.036***	-0.855***	-0.185***	-0.016	-0.856***	0.001
	(0.179)	(0.013)	(0.171)	(0.058)	(0.036)	(0.163)	(0.019)
Observations	9,294	9,294	9,294	9,294	9,294	9,294	9,294
Adjusted-R2	-0.043	-0.129	-0.043	-0.049	-0.124	-0.076	0.162
Panel C: Up to 2015							
Post × affiliate	-0.344***	0.001	-0.346***	-0.018	0.026	-0.191**	-0.083***
	(0.106)	(0.012)	(0.102)	(0.050)	(0.021)	(0.076)	(0.027)
Affiliate	-0.891***	-0.036***	-0.855***	-0.185***	-0.016	-0.856***	0.001
	(0.179)	(0.013)	(0.171)	(0.058)	(0.036)	(0.163)	(0.019)
Observations	10,520	10,520	10,520	10,520	10,520	10,520	10,520
Adjusted-R2	-0.030	-0.115	-0.029	-0.025	-0.113	-0.060	0.155
Firm FE × year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of firms	750	750	750	750	750	750	750
Pre-treatment mean affiliates	1.4694	0.0193	1.4501	0.5009	0.1419	0.7145	0.1419
Pre-treatment mean non-affiliates	2.2890	0.0718	2.2172	0.5832	0.1751	1.5552	0.1366

Notes: Regression analysis based on Equation 6, comparing affiliate payments to non-affiliate payments, controlling for firm × year fixed effects. The outcome variable is the number of countries to which firms make payments. Column (1) shows the number of countries to which firms make any type of payments to affiliates. Columns (2) and (3) show the number of tax haven and non-tax haven countries to which firms make payments to affiliates. Columns (4), (5), (6), and (7) refer to the number of countries to which firms make intra-group payments for royalties, interests, services, and other payments, respectively. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. *Post* is a dummy equal to 1 from 2011 onward. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Appendices (For Online Publication Only)

A Additional Figures & Tables

Figure A1: Histogram of the Difference of Tax Rate Residuals between 2007 and 2015
Firm-Country Level

(Standard deviation: 1.98)
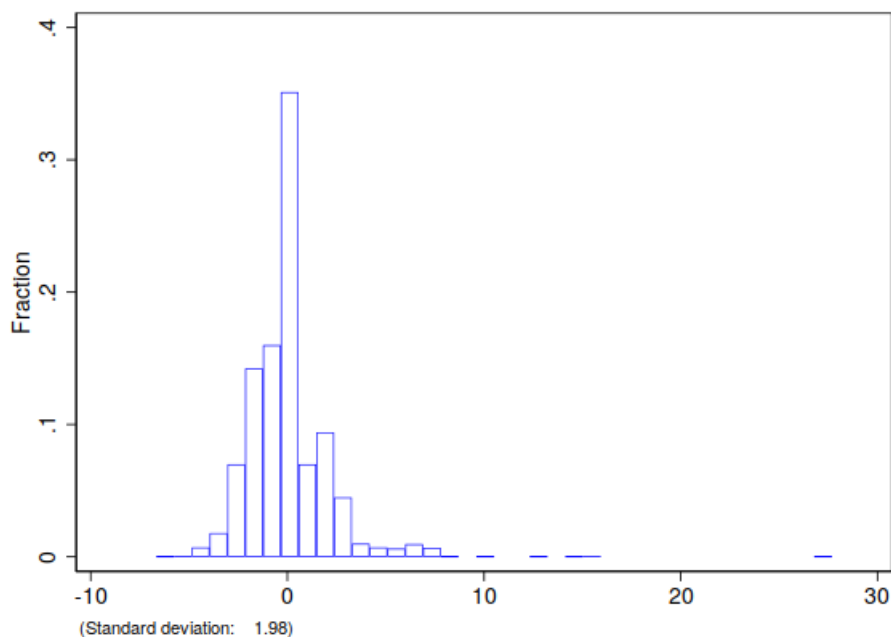
Notes: This histogram illustrates the over-time variation in statutory corporate tax rates leveraged in Equation 3. Observations are at the level of firm-year-affiliation status-country, i.e., payments by firm i in year t to an affiliate or a non-affiliate in country j. Destination country tax rates are regressed on firm-year fixed effects to obtained residualized tax rates. The histogram plots the magnitude of the changes in these residuals from 2007 to 2015, showing considerable variation in tax incentives across multinationals.

Figure A2: Impact on Unit Prices in Imports
Robustness Check: Country-Firm Pairs with Different Intra-Group Trade Shares

(a) Sample: Country-firm pairs with an intra-group trade share between 90% and 110%

C.I. at 90%
Obs: 1,529,272
Nr products: 2,899
Nr treated firms: 317
Nr control firms: 8,967

(b) Sample: Country-firm pairs with an intra-group trade share between 95% and 105%

C.I. at 90%
Obs: 1,437,954
Nr products: 2,374
Nr treated firms: 227
Nr control firms: 8,878
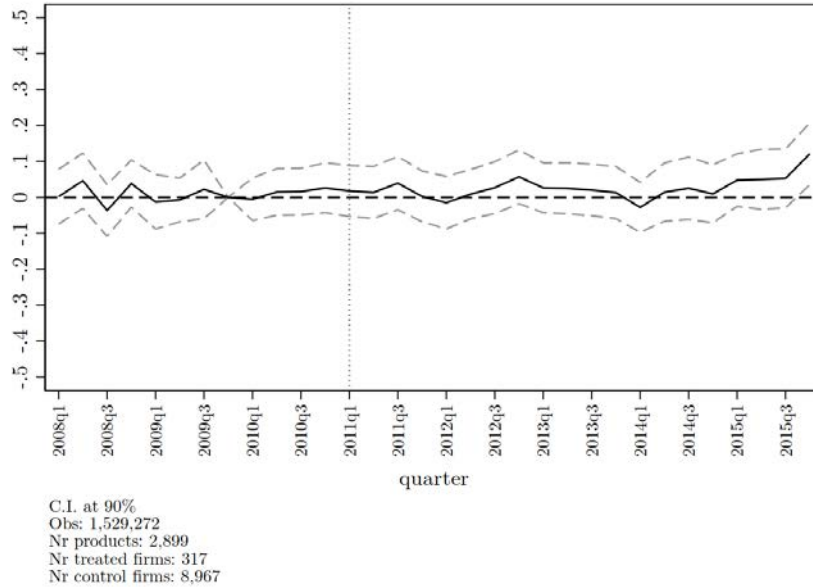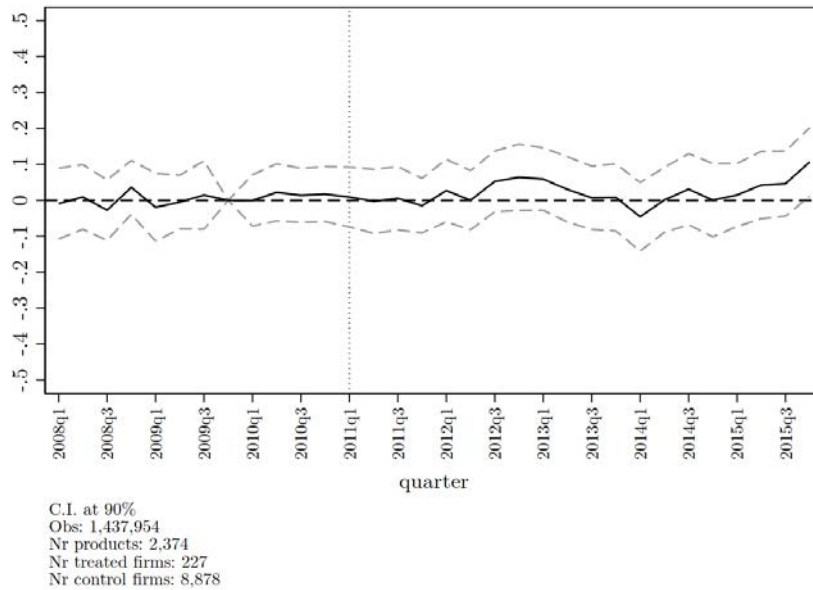
Notes: These figures show quarterly estimates based on Equation 5, comparing the evolution of unit prices in multinational firms' intra-group imports to those of domestic firms' imports, controlling for firm and product × quarter fixed effects. The outcome variable is the log of unit price. Standard errors clustered at the firm level. Dashed lines represent 90% confidence intervals.

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Figure A3: Impact on Unit Prices in Exports
Robustness Check: Country-Firm Pairs with Different Intra-Group Trade Shares

(a) Sample: Country-firm pairs with an intra-firm trade share between 90% and 110%

C.I. at 90%
Obs: 131,888
Nr products: 2,157
Nr treated firms: 226
Nr control firms: 2,974

(b) Sample: Country-firm pairs with an intra-firm trade share between 95% and 105%

C.I. at 90%
Obs: 106,963
Nr products: 1,804
Nr treated firms: 172
Nr control firms: 2,773
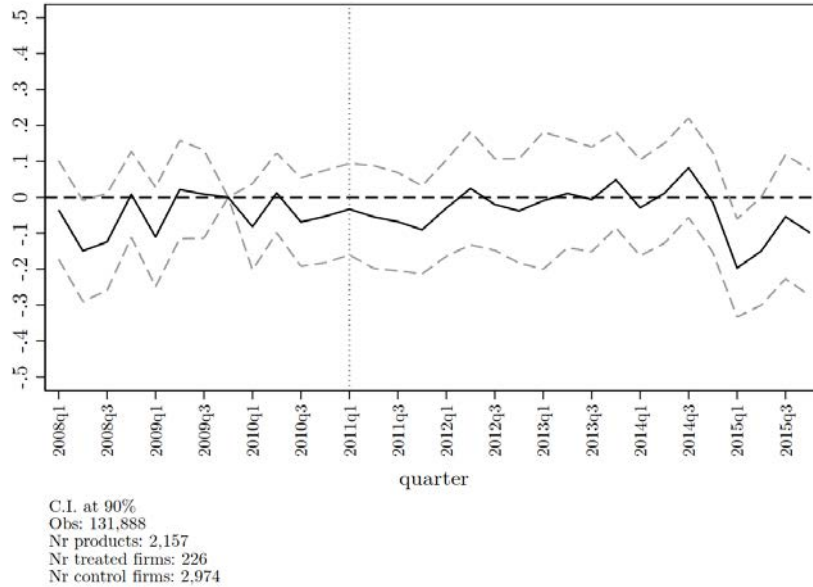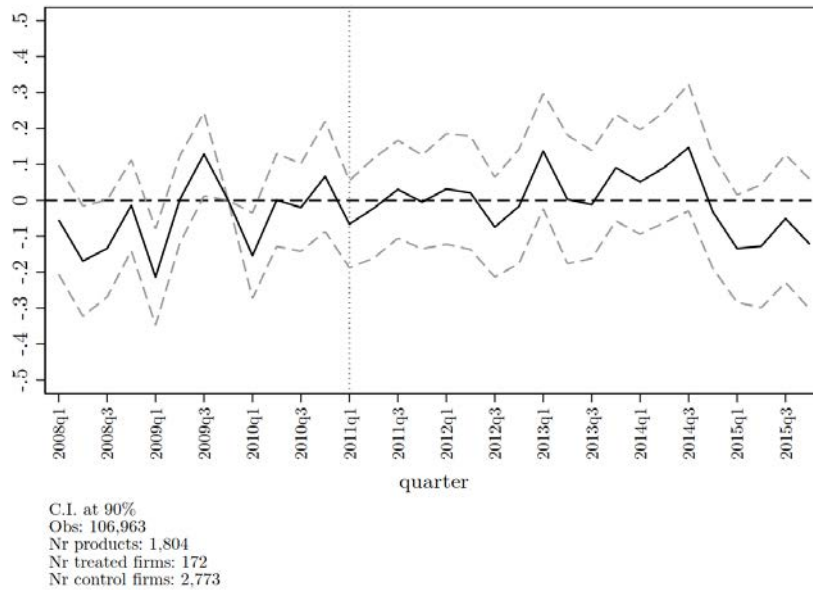
Notes: These figures show quarterly estimates based on Equation 5, comparing the evolution of unit prices in multinational firms' intra-group exports to those of domestic firms' exports, controlling for firm and product × quarter fixed effects. The outcome variable is the log of unit price. Standard errors clustered at the firm level. Dashed lines represent 90% confidence intervals.

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Figure A4: Impact of the Reform on Corporate Income Tax
Common Support based on Pre-Treatment Average Sales

Impact on Tax Payments

Impact on Domestic Sales

Notes: Outcome variable: corporate income tax paid /payroll, expressed in standard deviations. The figure shows the impact estimates obtained from the event study specification of Equation 6, which compares multinationals to domestic firms. The sample is restricted to the subset of firms with pre-treatment average sales (winsorized at the 99th percentile) larger than the minimum value of multinationals, and smaller than the maximum value of domestic firms. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

Figure A5: Impact of the Reform on Corporate Income Tax
Common Support Based on Pre-Treatment Average Assets

Impact on Tax Payments

Impact on Domestic Sales

Notes: Outcome variable: corporate income tax paid /payroll, expressed in standard deviations. The figure shows the impact estimates obtained from the event study specification of Equation 6, which compares multinationals to domestic firms. The sample is restricted to the subset of firms with pre-treatment average assets (winsorized at the 99th percentile) larger than the minimum value of multinationals, and smaller than the maximum value of domestic firms. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

Figure A6: Impact of the Reform on Corporate Income Tax
Scaling by Lagged Payroll

Impact on Tax Payments

Impact on Domestic Sales
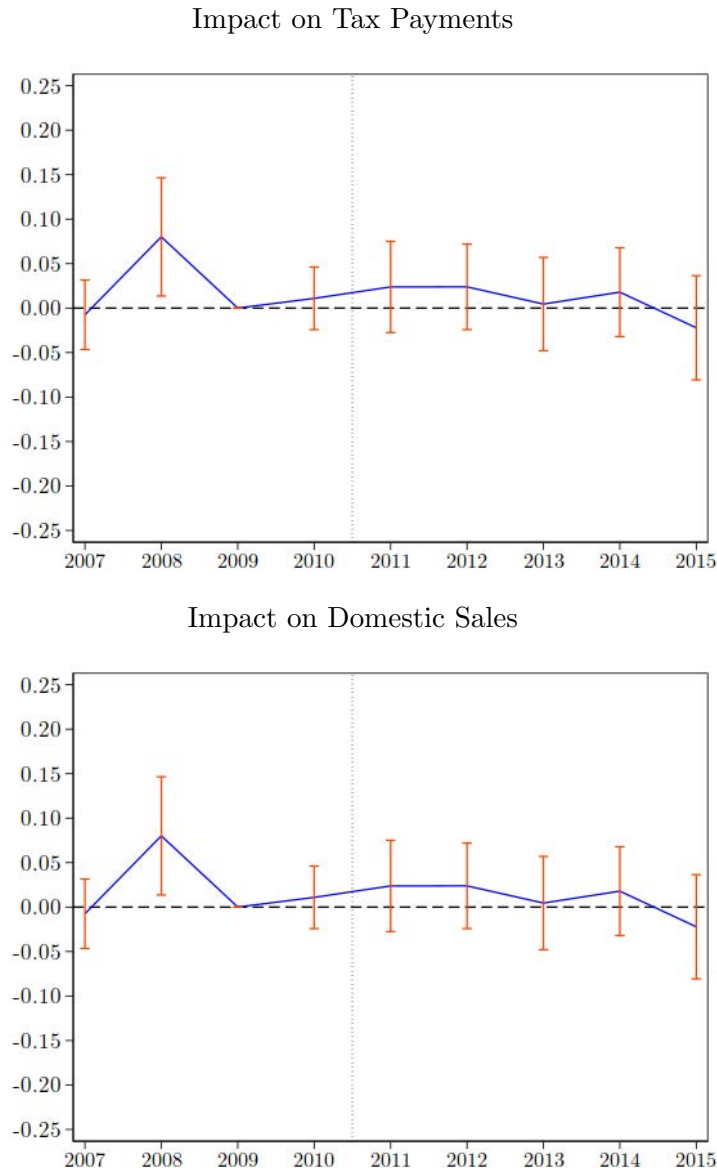
Notes: Outcome variable: corporate income tax paid /lagged payroll, expressed in standard deviations. The figure shows the impact estimates obtained from the event study specification of Equation 6, which compares multinationals to domestic firms. Event study plots that correspond to Appendix Table A9. The sample is restricted to the subset of firms with pre-treatment average sales (winsorized at the 99th percentile) larger than the minimum value of multinationals, and smaller than the maximum value of domestic firms. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

Figure A7: Impact of the Reform on Corporate Income Tax, Including Audits

Multinational vs Domestic Firms
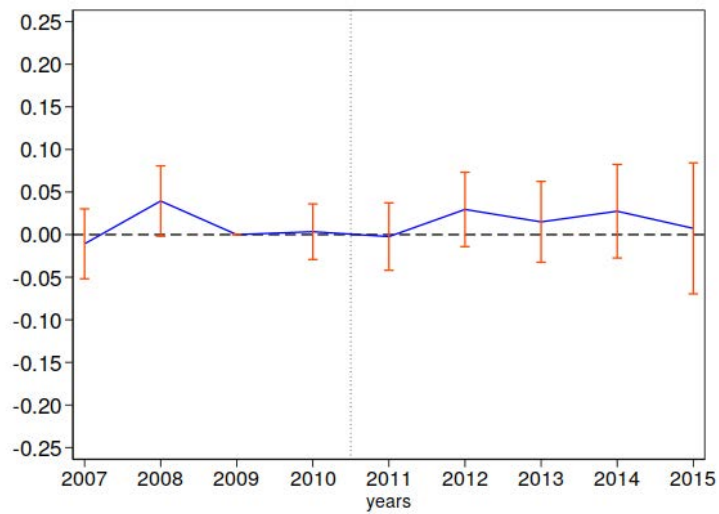
Notes: Outcome variable: corporate income tax paid (including audits)/payroll, expressed in standard deviations. The figure shows the impact estimates obtained from the event study specification of Equation 6, which compares multinationals to domestic firms. 2009 is normalized to zero, 2010 serves as a placebo year. Standard errors clustered at the firm level. Outcomes winsorized at the 99th percentile of non-zero values. Vertical bars represent 90% confidence intervals.

Figure A8: Impact of the Reform on Corporate Income Tax: Subgroup Analysis
Robustness Check I: 2007-2014
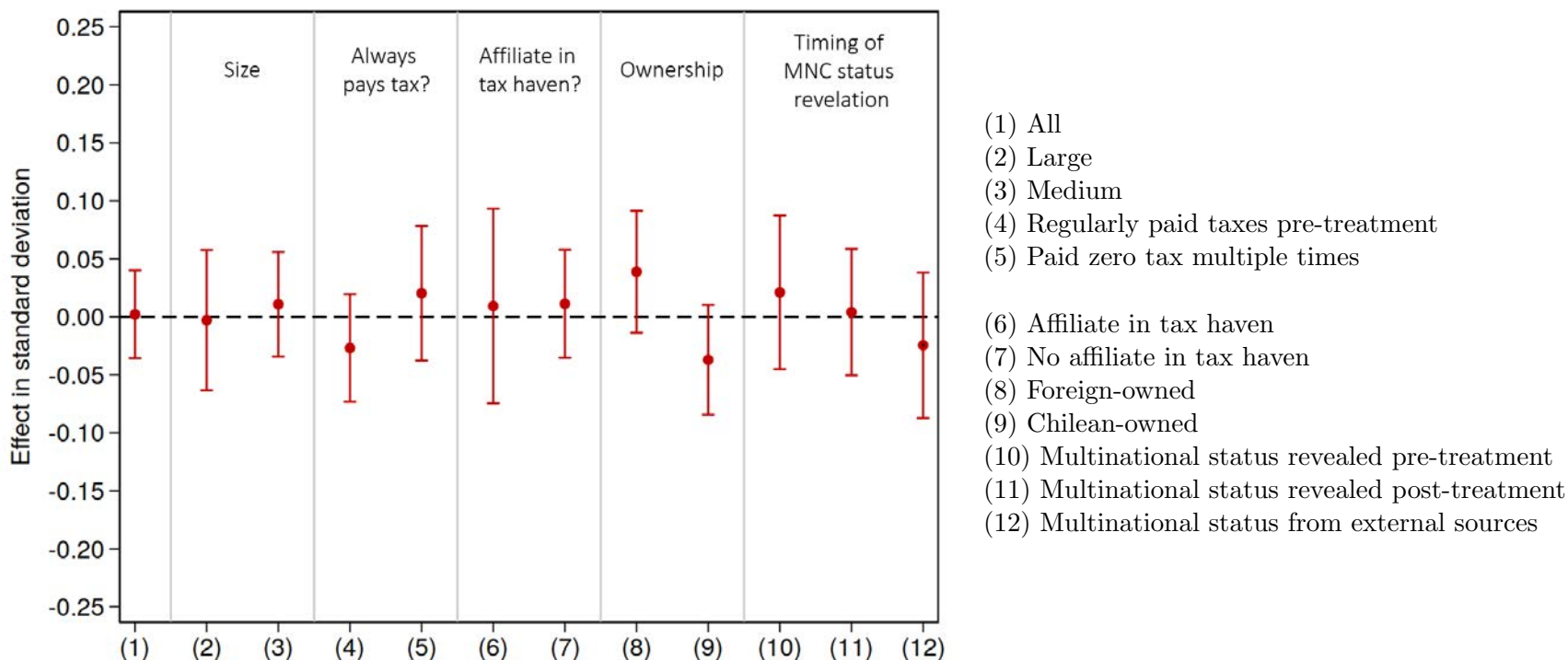
(1) All
(2) Large
(3) Medium
(4) Regularly paid taxes pre-treatment
(5) Paid zero tax multiple times

(6) Affiliate in tax haven
(7) No affiliate in tax haven
(8) Foreign-owned
(9) Chilean-owned
(10) Multinational status revealed pre-treatment
(11) Multinational status revealed post-treatment
(12) Multinational status from external sources

Notes: Dots represent point estimates of difference-in-differences analysis following Equation 6, comparing multinational to domestic firms before and after the reform for 2007-2014. Bars represent 90% confidence intervals. Outcome variable: corporate income tax/payroll winsorized at the 99th percentile of non-zero values, expressed in standard deviations. (1) shows the main estimate obtained using the full sample. Estimates by firm size (2 and 3) are obtained from a regression that compares large/medium multinationals to large/medium domestic firms. Estimates (4) and (5) are obtained from a regression that compares multinationals that regularly paid taxes/paid zero taxes more than once to the same subgroup of domestic firms. Estimates (6)-(12) are obtained from regressions that compare a restricted group of multinationals to the full sample of control firms: (6) multinationals with affiliates in a tax haven, (7) those without any affiliate in tax havens, (8) foreign-owned multinationals, (9) Chilean-owned multinationals, (10)-(12) firms classified based on when they revealed their multinational status to the tax authority: pre-treatment, post-treatment, or never. The latter are identified as multinationals based on external sources, as described in Section 5.4.

Figure A9: Impact of the Reform on Corporate Income Tax: Subgroup Analysis
Robustness Check II: 2007-2015
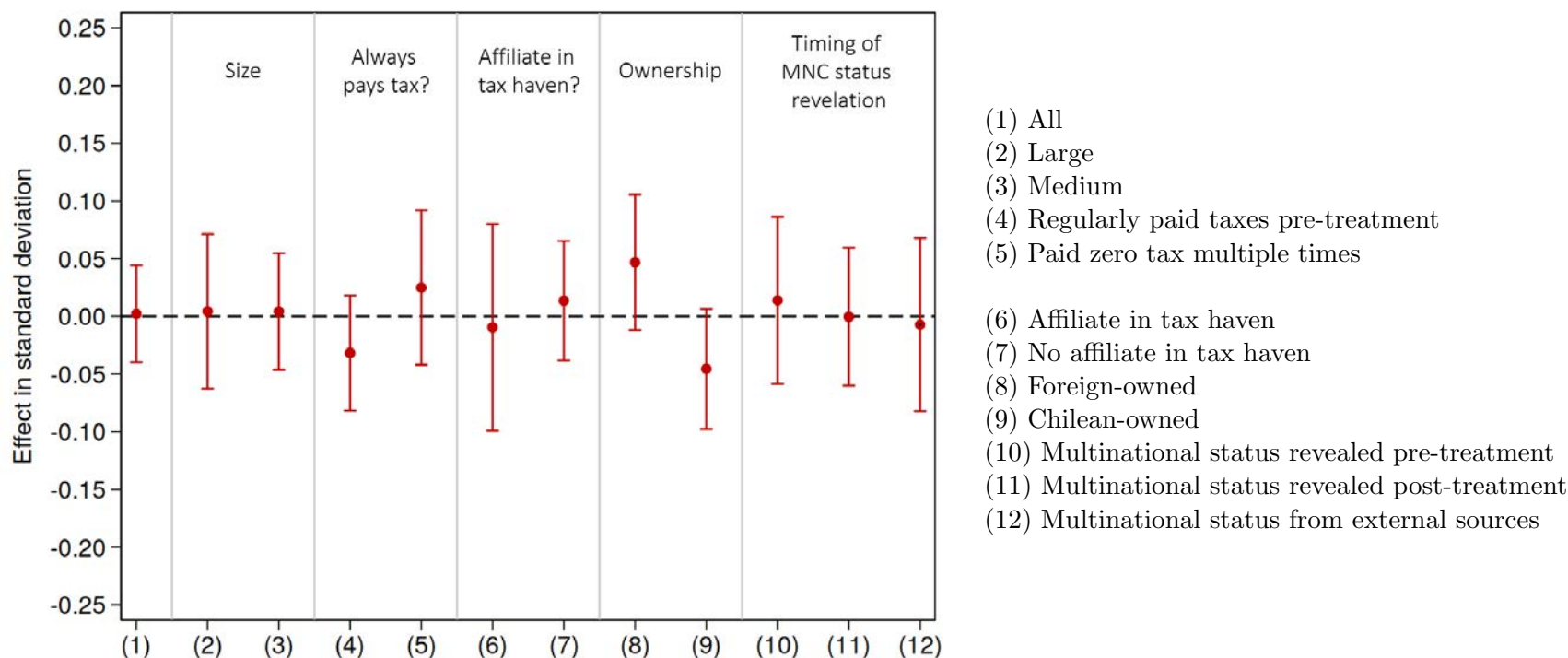
(1) All
(2) Large
(3) Medium
(4) Regularly paid taxes pre-treatment
(5) Paid zero tax multiple times

(6) Affiliate in tax haven
(7) No affiliate in tax haven
(8) Foreign-owned
(9) Chilean-owned
(10) Multinational status revealed pre-treatment
(11) Multinational status revealed post-treatment
(12) Multinational status from external sources

Notes: Dots represent point estimates of difference-in-differences analysis following Equation 6, comparing multinational to domestic firms before and after the reform for 2007-2015. Bars represent 90% confidence intervals. Outcome variable: corporate income tax/payroll winsorized at the 99th percentile of non-zero values, expressed in standard deviations. (1) shows the main estimate obtained using the full sample. Estimates by firm size (2 and 3) are obtained from a regression that compares large/medium multinationals to large/medium domestic firms. Estimates (4) and (5) are obtained from a regression that compares multinationals that regularly paid taxes/paid zero taxes more than once to the same subgroup of domestic firms. Estimates (6)-(12) are obtained from regressions that compare a restricted group of multinationals to the full sample of control firms: (6) multinationals with affiliates in a tax haven, (7) those without any affiliate in tax havens, (8) foreign-owned multinationals, (9) Chilean-owned multinationals, (10)-(12) firms classified based on when they revealed their multinational status to the tax authority: pre-treatment, post-treatment, or never. The latter are identified as multinationals based on external sources, as described in Section 5.4.

Table A1: Non-OECD Countries Which Follow OECD Transfer Pricing Guidelines

1	Azerbaijan	32	Malawi
2	Bangladesh	33	Malaysia
3	Belarus	34	Malta
4	Bolivia	35	Morocco
5	Bosnia and Herzegovina	36	Namibia
6	Bulgaria	37	Nigeria
7	Cambodia	38	Pakistan
8	Cape Verde	39	Papua New Guinea
9	China	40	Peru
10	Colombia	41	Philippines
11	Congo Brazaville	42	Qatar
12	Costa Rica	43	Republic of Serbia
13	Cote d'Ivoire	44	Romania
14	Croatia	45	Russia
15	Dominican Republic	46	Saudi Arabia
16	Ecuador	47	Senegal
17	El Salvador	48	Singapore
18	Fiji	49	South Africa
19	Gabon	50	South Sudan
20	Georgia	51	Srilanka
21	Ghana	52	Taiwan
22	Gilbraltar	53	Tanzania
23	Guatemala	54	Thailand
24	Hong Kong	55	Tunisia
25	India	56	Uganda
26	Indonesia	57	Ukraine
27	Kazakhstan	58	Venezuela
28	Kenya	59	Vietnam
29	Kosovo	60	Zambia
30	Lebanon	61	Zimbabwe
31	Madagascar		

Notes: This table lists all non-OECD countries whose tax legislation follows OECD Transfer Pricing Guidelines (partly of fully). All OECD countries have adopted such guidelines. Source: Ernst & Young (2019).

Table A2: Sensitivity of International Payments to Changes in Destination Country Tax Rates, Robustness Check I: Firm-by-Year-by-Affiliation Status Fixed Effects

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Other
Panel A: Up to 2013					
Tax rate × affiliate	-0.055***	-0.027***	-0.031***	-0.009*	-0.005
	(0.012)	(0.008)	(0.010)	(0.004)	(0.003)
Tax rate	0.011	-0.006	0.016	0.004	-0.004
	(0.014)	(0.009)	(0.013)	(0.006)	(0.005)
Observations	36,568	36,568	36,568	36,568	36,568
Adjusted-R2	0.279	0.191	0.235	0.209	0.242
Panel B: Up to 2014					
Tax rate × affiliate	-0.051***	-0.027***	-0.027***	-0.009**	-0.005
	(0.012)	(0.007)	(0.009)	(0.004)	(0.003)
Tax rate	0.015	-0.014	0.034***	0.003	-0.009*
	(0.014)	(0.009)	(0.013)	(0.005)	(0.005)
Observations	41,792	41,792	41,792	41,792	41,792
Adjusted-R2	0.287	0.196	0.246	0.208	0.239
Panel C: Up to 2015					
Tax rate × affiliate	-0.051***	-0.027***	-0.027***	-0.010**	-0.006**
	(0.011)	(0.007)	(0.009)	(0.004)	(0.003)
Tax rate	0.022	-0.008	0.037***	0.003	-0.009
	(0.014)	(0.009)	(0.013)	(0.005)	(0.005)
Observations	47,016	47,016	47,016	47,016	47,016
Adjusted-R2	0.297	0.199	0.255	0.216	0.249
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Destination country FE	Yes	Yes	Yes	Yes	Yes
Firm FE × year × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Number of firms	586	586	586	586	586
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68
Mean outcome in 2009	2.255	0.853	1.391	0.198	0.226

Notes: This table examines the robustness of the results presented in Table 2 by adding firm-by-year-by-affiliation status fixed effects. This analysis is at the level of firm-year-country-affiliation status, i.e., payments by firm i to affiliates vs non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. Outcomes in $\log(Y+1)$. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A3: Sensitivity of International Payments to Changes in the Destination Country Tax Rates, Robustness Check II: Destination Country-by-Year Fixed Effects

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Other
Panel A: Up to 2013					
Tax rate × affiliate	-0.055***	-0.028***	-0.029***	-0.009**	-0.005
	(0.012)	(0.008)	(0.009)	(0.004)	(0.003)
Observations	45,248	45,248	45,248	45,248	45,248
Adjusted-R2	0.260	0.180	0.220	0.282	0.180
Panel B: Up to 2014					
Tax rate × affiliate	-0.051***	-0.027***	-0.027***	-0.009**	-0.005
	(0.011)	(0.007)	(0.009)	(0.004)	(0.003)
Observations	51,712	51,712	51,712	51,712	51,712
Adjusted-R2	0.257	0.179	0.225	0.266	0.177
Panel C: Up to 2015					
Tax rate × affiliate	-0.051***	-0.027***	-0.027***	-0.010**	-0.005*
	(0.011)	(0.007)	(0.009)	(0.004)	(0.003)
Observations	58,176	58,176	58,176	58,176	58,176
Adjusted-R2	0.254	0.175	0.229	0.259	0.176
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	Yes	Yes	Yes	Yes	Yes
Firm FE × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Destination country × year	Yes	Yes	Yes	Yes	Yes
Number of firms	1,206	1,206	1,206	1,206	1,206
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68
Mean outcome in 2009	2.178	0.821	1.283	0.238	0.220

Notes: This table examines the robustness of the results presented in Table 2 by adding destination country-by-year fixed effects. This analysis is at the level of firm-year-country-affiliation status, i.e. payments by firm i to affiliates vs non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. Outcomes in $\log(Y+1)$. Note that when we include country-by-year fixed effects, we cannot estimate the responsiveness to tax rates for payments to non-affiliates due to collinearity. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A4: Sensitivity of International Payments to Changes in Destination Country Tax Rates, Robustness Check III: IHS Transformation of Outcome Variables

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Other
Panel A: Up to 2013					
Tax rate × affiliate	-0.058***	-0.029***	-0.032***	-0.009**	-0.005
	(0.012)	(0.008)	(0.010)	(0.005)	(0.004)
Tax rate	0.011	-0.006	0.017	0.004	-0.005
	(0.015)	(0.010)	(0.013)	(0.006)	(0.005)
Observations	45,248	45,248	45,248	45,248	45,248
Adjusted-R2	0.265	0.189	0.224	0.285	0.187
Panel B: Up to 2014					
Tax rate × affiliate	-0.054***	-0.029***	-0.029***	-0.010**	-0.005
	(0.012)	(0.007)	(0.010)	(0.005)	(0.003)
Tax rate	0.016	-0.015	0.036***	0.003	-0.009*
	(0.015)	(0.010)	(0.013)	(0.006)	(0.005)
Observations	51,712	51,712	51,712	51,712	51,712
Adjusted-R2	0.262	0.188	0.227	0.270	0.183
Panel C: Up to 2015					
Tax rate × affiliate	-0.054***	-0.029***	-0.029***	-0.011**	-0.005*
	(0.012)	(0.007)	(0.009)	(0.004)	(0.003)
Tax rate	0.023	-0.009	0.039***	0.003	-0.009*
	(0.015)	(0.010)	(0.013)	(0.006)	(0.006)
Observations	58,176	58,176	58,176	58,176	58,176
Adjusted-R2	0.259	0.184	0.230	0.262	0.182
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	Yes	Yes	Yes	Yes	Yes
Firm FE × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Destination country FE	Yes	Yes	Yes	Yes	Yes
Number of firms	1,206	1,206	1,206	1,206	1,206
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68
Mean outcome in 2009	2.315	0.872	1.368	0.253	0.235

Notes: This table examines the robustness of the results presented in Table 2 by using the inverse hyperbolic sine (IHS) transformation of the outcome variables. This analysis is at the level of firm-year-country-affiliation status, i.e. payments by firm i to affiliates vs non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A5: Sensitivity of International Payments to Changes in Destination Country
Tax Rates, Robustness Check IV: Extensive Margin

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Other
Panel A: Up to 2013					
Tax rate × affiliate	-0.00487***	-0.00231***	-0.00298***	-0.00072*	-0.00042
	(0.00094)	(0.00059)	(0.00077)	(0.00037)	(0.00027)
Tax rate	0.00096	-0.00024	0.00128	0.00015	-0.00043
	(0.00133)	(0.00085)	(0.00117)	(0.00057)	(0.00044)
Observations	45,248	45,248	45,248	45,248	45,248
Adjusted-R2	0.249	0.186	0.208	0.267	0.213
Panel B: Up to 2014					
Tax rate × affiliate	-0.00461***	-0.00226***	-0.00284***	-0.00079**	-0.00046*
	(0.00091)	(0.00055)	(0.00075)	(0.00036)	(0.00025)
Tax rate	0.00129	-0.00100	0.00282**	0.00009	-0.00083*
	(0.00128)	(0.00087)	(0.00117)	(0.00050)	(0.00044)
Observations	51,712	51,712	51,712	51,712	51,712
Adjusted-R2	0.245	0.185	0.213	0.256	0.202
Panel C: Up to 2015					
Tax rate × affiliate	-0.00468***	-0.00226***	-0.00292***	-0.00089**	-0.00052**
	(0.00088)	(0.00053)	(0.00072)	(0.00035)	(0.00023)
Tax rate	0.00191	-0.00053	0.00299***	0.00000	-0.00081*
	(0.00129)	(0.00085)	(0.00115)	(0.00047)	(0.00045)
Observations	58,176	58,176	58,176	58,176	58,176
Adjusted-R2	0.242	0.182	0.215	0.251	0.198
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	Yes	Yes	Yes	Yes	Yes
Firm FE × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Destination country FE	Yes	Yes	Yes	Yes	Yes
Number of firms	1,206	1,206	1,206	1,206	1,206
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68
Mean outcome in 2009	0.198	0.073	0.122	0.021	0.021

Notes: This table examines the robustness of the results presented in Table 2 by estimating a linear probability model, where the outcome equals to 1 when firm i makes a payment to the destination country j in year t and zero otherwise. This analysis is at the level of firm-year-country-affiliation status, i.e., payments by firm i to affiliates vs non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. Outcome is a dummy equal to 1 when a firm makes a payment. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A6: Impact of the Reform on the Sensitivity of International Payments to Changes in Destination Country Tax Rates, Robustness Check I: Firm-by-Year-by-Affiliation Status FE

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Others
Panel A: Up to 2013					
Tax rate × affiliate × post	0.000	-0.006	0.002	-0.002	-0.005
	(0.014)	(0.009)	(0.011)	(0.004)	(0.004)
Tax rate × affiliate	-0.055***	-0.025***	-0.032***	-0.008	-0.003
	(0.013)	(0.009)	(0.010)	(0.005)	(0.004)
Observations	36,568	36,568	36,568	36,568	36,568
Adjusted-R2	0.279	0.191	0.236	0.209	0.242
Panel B: Up to 2014					
Tax rate × affiliate × post	0.009	-0.004	0.009	-0.003	-0.004
	(0.013)	(0.008)	(0.011)	(0.004)	(0.004)
Tax rate × affiliate	-0.055***	-0.025***	-0.032***	-0.008	-0.003
	(0.013)	(0.009)	(0.010)	(0.005)	(0.004)
Observations	41,792	41,792	41,792	41,792	41,792
Adjusted-R2	0.287	0.196	0.246	0.208	0.239
Panel C: Up to 2015					
Tax rate × affiliate × post	0.008	-0.004	0.008	-0.004	-0.005
	(0.013)	(0.009)	(0.011)	(0.004)	(0.004)
Tax rate × affiliate	-0.055***	-0.025***	-0.032***	-0.008	-0.003
	(0.013)	(0.009)	(0.010)	(0.005)	(0.004)
Observations	47,016	47,016	47,016	47,016	47,016
Adjusted-R2	0.297	0.199	0.256	0.216	0.249
Tax rate	Yes	Yes	Yes	Yes	Yes
Tax rate × post	Yes	Yes	Yes	Yes	Yes
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	No	No	No	No	No
Firm FE × affiliate dummy	No	No	No	No	No
Destination country FE	Yes	Yes	Yes	Yes	Yes
Number of firms	586	586	586	586	586
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68

Notes: This table examines the robustness of the results presented in Table 3 by adding firm-by-year-by-affiliation status fixed effects. This analysis is at the level of firm-year-country-affiliation status, i.e. payments by firm i to affiliates vs. non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. *Post* is a dummy equal to 1 from 2011 onwards. Outcomes in $\log(Y + 1)$. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A7: Impact of the Reform on Sensitivity of International Payments to Changes in Destination Country Tax Rate, Robustness Check II: Destination Country-by-Year FE

	(1) All	(2) Royalties	(3) Services	(4) Interests	(5) Others
Panel A: Up to 2013					
Tax rate × affiliate × post	-0.013	-0.011	-0.004	-0.001	-0.004
	(0.010)	(0.007)	(0.008)	(0.004)	(0.004)
Tax rate × affiliate	-0.049***	-0.022***	-0.028***	-0.009*	-0.003
	(0.013)	(0.008)	(0.010)	(0.005)	(0.003)
Observations	45,248	45,248	45,248	45,248	45,248
Adjusted-R2	0.260	0.180	0.220	0.282	0.180
Panel B: Up to 2014					
Tax rate × affiliate × post	-0.006	-0.009	-0.000	-0.001	-0.004
	(0.010)	(0.007)	(0.008)	(0.004)	(0.004)
Tax rate × affiliate	-0.047***	-0.022***	-0.027***	-0.009*	-0.002
	(0.013)	(0.008)	(0.010)	(0.005)	(0.003)
Observations	51,712	51,712	51,712	51,712	51,712
Adjusted-R2	0.257	0.179	0.225	0.266	0.177
Panel C: Up to 2015					
Tax rate × affiliate × post	-0.010	-0.009	-0.003	-0.002	-0.007*
	(0.010)	(0.007)	(0.008)	(0.004)	(0.004)
Tax rate × affiliate	-0.045***	-0.021***	-0.025**	-0.009*	-0.001
	(0.013)	(0.008)	(0.010)	(0.005)	(0.004)
Observations	58,176	58,176	58,176	58,176	58,176
Adjusted-R2	0.254	0.175	0.229	0.259	0.177
Tax rate	Yes	Yes	Yes	Yes	Yes
Tax rate × post	Yes	Yes	Yes	Yes	Yes
Log(GDPpc) in destination country	Yes	Yes	Yes	Yes	Yes
Firm FE × year	Yes	Yes	Yes	Yes	Yes
Firm FE × affiliate dummy	Yes	Yes	Yes	Yes	Yes
Destination country FE	No	No	No	No	No
Number of firms	1,206	1,206	1,206	1,206	1,206
Pre-treatment average countries per firm	2.68	2.68	2.68	2.68	2.68

Notes: This table examines the robustness of the results presented in Table 3 by adding destination country-by-year fixed effects. This analysis is at the level of firm-year-country-affiliation status, i.e. payments by firm i to affiliates vs. non-affiliates in country j in year t. *Tax rate* indicates the statutory tax rate in the destination country. *Affiliate* is a dummy equal to 1 when the recipient firm of the payment is a foreign affiliate of a Chilean firm. *Post* is a dummy equal to 1 from 2011 onwards. Outcomes in $\log(Y+1)$. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A8: Placebo Outcome: Impact of the Reform on Domestic Sales

	(1) Up to 2013	(2) Up to 2014	(3) Up to 2015
Post × treated	0.208	0.203	0.303
	(0.292)	(0.289)	(0.301)
Effect in % change	1.70 %	1.68 %	2.51 %
Pre-treatment avg sales/payroll × year	Yes	Yes	Yes
(Pre-treatment avg sales/payroll) squared × year	Yes	Yes	Yes
Pre-treatment avg sales/assets × year	Yes	Yes	Yes
(Pre-treatment avg sales/assets) squared × year	Yes	Yes	Yes
Pre-treatment avg sales × year	Yes	Yes	Yes
(Pre-treatment avg sales) squared × year	Yes	Yes	Yes
Industry × year	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Observations	98,539	112,616	126,693
Adjusted-R2	0.117	0.118	0.107
Mean outcome of treated firms in 2009	12.25	12.25	12.25
Number of treated firms	2,752	2,752	2,752
Number of control firms	11,325	11,325	11,325

Notes: Impact estimates based on Equation 6. Outcome: domestic sales/payroll. Outcome and control variables are winsorized at the 99th percentile of non-zero values. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A9: Impact of the Reform on Tax Payments
Robustness Check I: Scaling by Lagged Payroll

	(1) Tax paid over lagged payroll	(2) Domestic sales over lagged payroll
Panel A: Up to 2013		
Post × treat	-0.0014	0.1104
	(0.0092)	(0.4010)
Effect in % change	-0.95 %	0.91 %
Adjusted-R2	0.037	0.165
Panel B: Up to 2014		
Post × treat	-0.0015	0.0639
	(0.0090)	(0.3787)
Effect in % change	-1.01 %	0.53 %
Adjusted-R2	0.038	0.193
Panel C: Up to 2015		
Post × treat	-0.0047	0.1487
	(0.0091)	(0.3684)
Effect in % change	-3.20 %	1.23 %
Adjusted-R2	0.036	0.213
Pre-treatment avg sales/payroll × year	Yes	Yes
(Pre-treatment avg sales/payroll) squared × year	Yes	Yes
Pre-treatment avg sales/assets × year	Yes	Yes
(Pre-treatment avg sales/assets) squared × year	Yes	Yes
Pre-treatment avg sales × year	Yes	Yes
(Pre-treatment avg sales) squared × year	Yes	Yes
Industry × year	Yes	Yes
Firm FE	Yes	Yes
Mean outcome of affiliates in 2009	0.15	12.12
Number of treated firms	2,759	2,759
Number of control firms	11,327	11,327

Notes: Outcomes: corporate income tax paid/lagged payroll and domestic sales/lagged payroll. The table shows impact estimates obtained from Equation 6. Continuous variables winsorized at the 99th percentile of non-zero values. The sample is restricted to the subset of firms with pre-treatment average sales (winsorized at the 99th percentile) larger than the minimum value of multinationals, and smaller than the maximum value of domestic firms. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A10: Impact of the Reform on Tax Payments

Robustness Check II: Common Support Based on Pre-Treatment Average Sales

	(1) Tax Paid	(2) Domestic Sales
Panel A: Up to 2013		
Post × treated	-0.00283	0.00896
	(0.00728)	(0.29735)
Effect in % change	-1.57 %	0.07 %
Adjusted-R2	0.026	0.115
Panel B: Up to 2014		
Post × treated	-0.00086	0.06197
	(0.00760)	(0.29054)
Effect in % change	-0.48 %	0.52 %
Adjusted-R2	0.025	0.116
Panel C: Up to 2015		
Post × treated	0.00025	0.20380
	(0.00857)	(0.30442)
Effect in % change	0.13 %	1.72 %
Adjusted-R2	0.028	0.106
Pre-treatment avg sales/payroll × year	Yes	Yes
(Pre-treatment avg sales/payroll) squared × year	Yes	Yes
Pre-treatment avg sales/assets × year	Yes	Yes
(Pre-treatment avg sales/assets) squared × year	Yes	Yes
Pre-treatment avg sales × year	Yes	Yes
(Pre-treatment avg sales) squared × year	Yes	Yes
Industry × year	Yes	Yes
Firm FE	Yes	Yes
Mean outcome of treated firms in 2009	0.13	9.69
Number of treated firms	2,249	2,249
Number of control firms	11,186	11,186

Notes: Outcomes: corporate income tax paid/payroll and domestic sales/payroll. The table shows impact estimates obtained from Equation 6. Continuous variables winsorized at the 99th percentile of non-zero values. The sample is restricted to the subset of firms with pre-treatment average sales (winsorized at the 99th percentile) larger than the minimum value of multinationals, and smaller than the maximum value of domestic firms. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A11: Impact of the Reform on Tax Payments
Robustness Check III: Common Support Based on Pre-Treatment Average Assets

	(1) Tax Paid	(2) Domestic Sales
Panel A: Up to 2013		
Post × treated	0.00208	0.05170
	(0.00732)	(0.28149)
Effect in % change	1.22 %	0.44 %
Adjusted-R2	0.020	0.108
Panel B: Up to 2014		
Post × treated	0.00193	-0.01994
	(0.00760)	(0.27675)
Effect in % change	1.14 %	-0.17 %
Adjusted-R2	0.020	0.110
Panel C: Up to 2015		
Post × treated	0.00314	0.05219
	(0.00847)	(0.28923)
Effect in % change	1.74 %	0.45 %
Adjusted-R2	0.028	0.100
Pre-treatment avg sales/payroll × year	Yes	Yes
(Pre-treatment avg sales/payroll) squared × year	Yes	Yes
Pre-treatment avg sales/assets × year	Yes	Yes
(Pre-treatment avg sales/assets) squared × year	Yes	Yes
Pre-treatment avg sales × year	Yes	Yes
(Pre-treatment avg sales) squared × year	Yes	Yes
Industry × year	Yes	Yes
Firm FE	Yes	Yes
Mean outcome of treated firms in 2009	0.12	10.59
Number of treated firms	2,292	2,292
Number of control firms	10,130	10,130

Notes: Outcomes: corporate income tax paid/payroll and domestic sales/payroll. The table shows impact estimates obtained from Equation 6. Continuous variables winsorized at the 99th percentile of non-zero values. The sample is restricted to the subset of firms with pre-treatment average assets (winsorized at the 99th percentile) larger than the minimum value of multinationals, and smaller than the maximum value of domestic firms. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

Table A12: Impact of the Reform on Tax Payments, Including Audits

	(1) Tax paid	(2) Tax paid including audits
Panel A: Up to 2013		
Post × treated	-0.00027	0.00015
	(0.00704)	(0.00704)
Effect in % change	-0.15 %	0.08 %
Adjusted-R2	0.021	0.021
Panel B: Up to 2014		
Post × treated	0.00084	0.00102
	(0.00738)	(0.00737)
Effect in % change	0.47 %	0.57 %
Adjusted-R2	0.020	0.020
Panel C: Up to 2015		
Post × treated	0.00085	0.00086
	(0.00820)	(0.00819)
Effect in % change	0.45 %	0.45 %
Adjusted-R2	0.024	0.024
Pre-treatment avg sales/payroll × year	Yes	Yes
(Pre-treatment avg sales/payroll) squared × year	Yes	Yes
Pre-treatment avg sales/assets × year	Yes	Yes
(Pre-treatment avg sales/assets) squared × year	Yes	Yes
Pre-treatment avg sales × year	Yes	Yes
(Pre-treatment avg sales) squared × year	Yes	Yes
Industry × year	Yes	Yes
Firm FE	Yes	Yes
Mean outcome of treated firms in 2009	0.15	0.15
Number of treated firms	2,752	2,760
Number of control firms	11,325	11,327

Notes: Impact estimates based on Equation 6. Outcome: corporate income tax/payroll. Continuous variables winsorized at the 99$^{\text{th}}$ percentile of non-zero values. Standard errors clustered at the firm level. ***p<0.01, **p<0.05, *p<0.1

B   Qualitative Interviews: Methods

This appendix contains further information on the qualitative interviews discussed in Section 6.

We conducted in-person interviews in November 2014 with senior transfer pricing consultants who work in three of the Big 4 consulting firms in Chile, and interviews over video conference from May to October 2021 with consultants from the remaining Big 4 firm as well as smaller consulting firms in Chile. We identified our respondents through publicly available information on company websites and LinkedIn, as well as a partial snowball sample of referrals from previous respondents.

The interviews were conducted under anonymity. All interviews were conducted in Spanish and transcribed. Overall, we have conducted 20 interviews with an average duration of about an hour.

As discussed in Finkelstein et al. (2021), qualitative methods are being used in tandem with empirical analysis to better understand the mechanisms that drive findings. These methods may be particularly insightful when results are counter-intuitive, and might provide context on the setting, design, and implementation of a policy. Recent examples of these methods being used in economics research include work by Taubman et al. (2014); Starr (2014); Alsan et al. (2019); Bergman et al. (2019). We use semi-structured interviews which allow for more detailed responses and unexpected answers, unlike going through a list of specific predetermined questions as in a survey. For further details on this method, see Boyd and DeLuca (2017).

A script was designed to understand the role of these advisors and how the reform had changed their business and the transfer pricing industry overall. We started the interviews with broader questions about the respondent's background and experience in transfer pricing, and their general opinion on the reform. We then move on to more targeted questions about the impact of the reform on the industry to make sure all interviews cover the same material.

Identifying themes and topics that were brought up by participants in multiple interviews, we adapted the script to incorporate these new findings. This allowed us to corroborate interesting findings from certain interviews with the remaining respondents.