

Who Should Tax Multinationals?

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Abstract

The international tax system is a pillar of the post-war economic order, but it faces major challenges with the rise of global value chains, digitalization, and tax avoidance. Debates over international tax reform usually occur within a small epistemic community of experts and technocrats. In this article, we step outside this restricted circle to assess the sources of bottom-up legitimacy and support for the rules that govern *where* multinationals must report profits, and *where* they must pay taxes. We conduct large survey experiments in Brazil, France, and the US to assess mass attitudes toward the allocation of the tax base across countries. We find that people’s views clash with core principles of the current regime, but are aligned with reform proposals that allocate more taxing rights to market jurisdictions. These findings are strikingly consistent across three countries and three distinct studies. At first glance, the consistency of attitudes across countries could spell good things for international cooperation in this arena. However, we also find a significant level of “home bias” in the public’s views on tax allocation. These results shed new light on the legitimacy and feasibility of reform, and on what “value creation” means in a global digital economy.

Multinational enterprises play a dominant role in our modern economy. They account for a third of global output and half of the world's exports (Cadestin et al. 2018). Multinationals earn sizeable profits, but they return a smaller share of those profits to public coffers than purely domestic firms (Costa and Gravelle 2011). This low tax burden can be attributed in part to the planning strategies that companies use to exploit loopholes in the international tax system (Davies et al. 2017).

Recent scandals have shone light on those tax avoidance strategies. The *Panama* and *Paradise Papers* investigations revealed caches of confidential documents about shell companies in tax havens and about the tax bills of tech giants like Apple, Facebook, and Microsoft (International Consortium of Investigative Journalists 2020). These investigations raised the ire of many by highlighting how international tax law can be exploited and by reminding us that tax avoidance has grave consequences for public finance and income distribution. In response, civil society actors have lobbied governments to rethink their approach to the taxation of multinationals (TJN 2020). International organizations have urged member states to enact laws to make tax avoidance more difficult (OECD 2020). Legal scholars, philosophers, and economists have debated plans to fundamentally reshape the international tax system (Pogge and Mehta 2016; Dietsch and Rixen 2016; Piketty 2017)

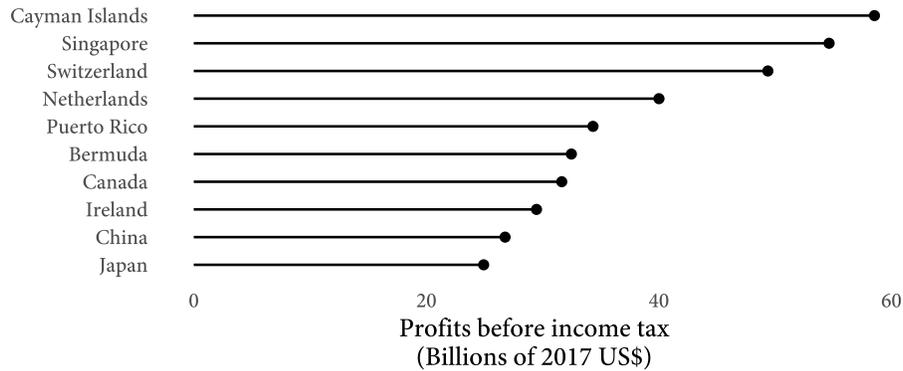
These calls for reform do not come as a surprise. Indeed, the principles that govern the taxation of multinational enterprises were laid out in the 1930s, before the massive increase in cross-border investment of the postwar era and before the digital revolution. Today, the international tax system faces a dual legitimacy crisis related to the *level* of taxation and to the *allocation* of taxing rights across jurisdictions. Solving this crisis requires us to answer two questions with deep distributional implications: *How much* should multinationals pay in taxes, and *who* should collect those revenues?

There is a vast literature on the factors that determine the level of taxation chosen by national governments. Some political economists emphasize fairness motives (Ballard-Rosa, Martin, and Scheve 2016; Scheve and Stasavage 2016; Limberg 2019). Others focus on the partisan, institutional, or economic constraints that shape policy (Clark and Hallerberg 2000; Plümper, Troeger, and Winner 2009; Genschel, Lierse, and Seelkopf 2016). Most contributions to this field are concerned with the choice of *national* tax policies. In contrast, this article addresses the design of *international* tax law.

This distinction between the statutory level of taxation and the allocation of taxing rights matters because, in a globalized economy, tax liabilities depend on both the national tax rates and the international rules that determine which governments are entitled to tax multinationals. While political economists pay a great deal of attention to tax rates, they tend to ignore a second axis of distributional conflict: the allocation of taxing rights across jurisdictions.

This oversight is important, because the current international tax system leads to massive distortions in the geographic distribution of reported profits and (potential) tax revenues. To illustrate, Figure 1 shows the location of profits declared by US-based multinational companies in 2017 (Internal Revenue Service 2019). Conspicuously, American companies declare nearly twice as much profit in the Cayman Islands as in Canada, the US's most important trade and investment partner. Clearly, the mere fact that a company declares profits in a given jurisdiction does not mean that it creates economic value there.

Figure 1: Top 10 locations of foreign profits declared by US-based multinational companies in 2017.



The mismatch between value creation and the geographic distribution of taxable profits has important ramifications. It is well-known that multinationals shoulder a lighter tax burden than purely domestic companies. Costa and Gravelle (2011) estimate that the average foreign tax rate that American multinationals pay abroad is little more than half of the average tax rate of all corporations on US soil (see also Jensen 2013; Bilicka 2019). This disparity can be partly explained by companies’ ability to exploit loopholes in the rules that govern international taxation. Indeed, multinationals often engage in transfer pricing manipulation and they locate assets strategically to steer profits toward low-tax jurisdictions (Karkinsky and Riedel 2012; Davies et al. 2017). Multinationals’ ability to report profits in tax havens has major consequences for public finance: Clausing (2020) estimates that profit shifting cost the American government \$100 billion in revenue for the 2017 year alone.

A few authors have examined the origins of the laws that determine where multinationals’ profits are reported and taxed (Rixen 2008, 2011; Arel-Bundock 2017; Christensen and Hearson 2019; Shin 2019; Hakelberg 2020). Others have highlighted the challenges of applying these laws when value chains span the globe (Findley et al. 2014; Seabrooke and Wigan 2017). This work has made important contributions to our understanding of the phenomenon, but it tends to adopt a state-centric approach or to focus on the role of elite actors such as tax professionals or technocrats.

The present article breaks from this tradition by adopting a bottom-up perspective, and by focusing on mass attitudes toward international taxation. We probe the fiscal intuitions of the general public about a crucial but neglected question in international political economy: Which governments should have the right to collect taxes from multinationals?

To answer this question, we do not rely on normative arguments or economic theory. Instead, our contribution is empirical and explicitly descriptive. Like Gerring (2012), who lamented the decline of descriptive work in political science, we believe that rigorous, theoretically informed, and policy relevant description should take up more space in the pages of professional journals in international relations. In that spirit, we exploit novel experimental designs to establish key stylized facts about mass attitudes toward international taxation. In doing so, we hope that our study will yield new insights into the geography of value creation,

inform our understanding of the legitimacy and feasibility of tax reform, and clear a path for future research.

To assess how ordinary people answer the “Who should tax multinationals?” question, we conduct a series of large-scale survey experiments in Brazil, France, and the United States. In our main experiment, we ask respondents to allocate the taxes paid by fictional multinationals to the countries where they operate, and we assess the weight that people give to various factors when they choose to grant more revenues to some governments over others. Two follow-up studies confirm and add nuance to the results of our main experiment.

Our results show that people’s views clash with fundamental principles of international law, namely that a multinational’s profits should be taxed where it is headquartered or where it has a physical presence, rather than where it sells goods and services. Although the locations of a firm’s headquarter, capital, and workers do matter to an extent, survey respondents attach much more importance to the location of customers when determining which governments should draw tax revenues. This observation is confirmed in a follow-up study in which we directly elicit people’s views. It is also consistent with the results of a framing experiment in which we ask respondents if they support the Digital Services Tax (DST), a prominent reform proposal that ties governments’ taxing rights to the location of multinationals’ customers or users.

These results are strikingly robust and consistent. Despite the highly technical nature of international tax law, the survey responses display coherent patterns in two distinct pre-registered experiments, in a ranking task, and across three countries with very different political environments and positions in the global economy. Moreover, our experiments show that intuitions about international tax reform can be surprisingly resistant to framing effects and counterarguments. This suggests that people’s views on international economic policy are not purely epiphenomenal or elite-driven.

The fact that views on tax allocation are similar across countries could spell good things for the prospect of international cooperation in this arena. However, our experiments also reveal a significant level of home bias: all else equal, respondents allocate substantially more taxes to their own government. This reinforces the idea that fairness in international economics is often viewed through a nationalistic or egoistic lens (Mutz and Lee 2020; Brutger and Rathbun, Forthcoming).

The rest of this article has four sections. First, we argue that there are strong normative and practical reasons to explore mass attitudes toward the taxation of multinationals. Second, we briefly review the key features of the current international tax system to identify the most important policy dimensions along which we need to query public opinion. Third, we use a series of randomized experiments to assess the fiscal intuitions of mass publics in three large countries. Finally, we discuss some of the limitations of our study and identify opportunities for future work.

THE FISCAL INTUITIONS OF MASS PUBLICS MATTER

Ever since the international tax system was created in the 1930s, dissatisfied commentators have proposed plans to improve global tax governance. Despite the great societal importance of the issue, debates over international tax reform occur within a relatively closed epistemic

community, that is, between members of an elite network of tax professionals, academics, technocrats, and politicians (Seabrooke and Wigan 2016; Hearson 2018; Christensen 2020). To some extent this is normal, because tax law is a highly technical field. Much like other areas of international political economy, such as trade and investment, tax policy is often driven by elite actors engaged in “quiet politics” (Culpepper 2010; Dür and De Bièvre 2007; Bauerle Danzman 2019; Christensen 2020).

In recent years, however, corporate tax avoidance has become a salient political issue, sparking conversation and action well outside the walls of universities and parliaments. Stories like the *Panama Papers* leak were prominently covered by the world’s major newspapers, including the *New York Times*, *El País*, *The Guardian*, and *Le Monde*. Anti-tax avoidance protesters filled streets in the UK, France, and several other countries. Vast fortunes were seized by authorities, and elected officials embroiled in tax scandal were forced to resign.¹

These developments have raised the stakes for politicians, who are keenly aware that the problem of tax avoidance resonates with many voters. This is evident in the work of Mérand (2021), who conducted an embedded ethnography of decision making at the highest levels of the European Commission. After observing international negotiations and behind-the-scenes discussions between key actors, the author concludes that Pierre Moscovici and his colleagues designed initiatives to curb tax avoidance as an explicit left-wing response to the rising tide of right-wing populism in Europe.

For politicians, the success of such initiatives is often measured by the extent to which they resonate with the perceptions and demands of voters. To see how this can matter, consider the 2021 announcement that the Biden administration would support the introduction of a Global Minimum Tax. Under this plan, the country where a multinational’s headquarter is located would apply a top-up tax to ensure that the company’s effective tax rate crosses a specified threshold (e.g., 15 or 21%). Left-leaning commentators celebrated this change in American policy, but much of the expert discussion missed a crucial point: this Global Minimum Tax would increase the *level* of taxation and undermine tax havens, but it would do little to correct the unbalanced *allocation* of taxing rights between non-haven countries.

Outside of the United States (and perhaps Germany), both the level and the allocation of taxes are salient political issues. In 2020, for example, the French finance minister declared: “It’s not possible, not sustainable, that we tax manufacturing industries while billions in profits earned by Google, Apple, Facebook, and Amazon *on European soil* evaporate” (emphasis added).² The same year, the Czech finance minister argued that “Internet giants do not pay taxes *in our country* to an extent that would match their profits *in our country*” (emphasis added).³ Under Biden’s Global Minimum Tax, digital giants would pay higher taxes in the United States, since this is where their headquarters are located. However, French voters who spend hours on Facebook every week may still be shocked to learn that the company pays little to no corporate income tax to the French government.⁴ These voters would then be susceptible to cueing and mobilization by politicians and civil society actors. Unless it

1. In 2020, the Swiss government froze \$900 million in assets belonging to an Angolan oil tycoon. In 2016, the Icelandic prime minister was ousted in the midst of a tax scandal.

2. Cited in Melander (2020).

3. Cited in Tax Analysts (2020).

4. The OECD reform proposal also includes a *Pillar 1* which would reallocate part of the tax revenues to market jurisdictions, but projections suggest that the amount of taxes reallocated in this way would be small.

addresses both the level and allocation issues, a Global Minimum Tax may not quell the wave of cynicism and popular discontent that ignited the recent “digital tax wars.”

Our study is thus motivated by a strong belief that (a) the taxation of multinationals is a salient political issue in the electorate; (b) politicians know that this issue resonates with the public, and they craft policies in response to – or in an attempt to exploit – popular sentiment; and (c) tax reform proposals can vary widely in the extent to which they address the public’s perceptions of the problem.

Crucially, even if political scientists were to reject all three of the arguments above, they would still have to concede that the closed nature of the tax community is problematic. In a democratic system, the legitimacy of public policy must rest on the assent of citizens. The fact that most people have not considered the technical details behind specific tax reforms does not entail that we should ignore their views. To the contrary, our normative stance is that academics and policymakers must take into account the views of ordinary citizens when they design new policies, even if those views are not well-informed and considered technical judgments. If a policy clashes with citizens’ intuitions, policymakers must bear the extra burden of education. Engaging with citizens’ views is an imperative in a democracy.

By surveying the public’s views on the taxation of multinationals, our study contributes to a new strand of research about mass attitudes on issues that international relations scholars traditionally considered to be the exclusive domain of “quiet politics.” Researchers have published path-breaking work on the public’s reaction to trade (Mansfield and Mutz 2009; Pelc 2013; Guisinger 2017), foreign direct investment (Pandya 2013; Feng, Kerner, and Sumner 2019), capital controls (Steinberg and Nelson 2019), and offshoring (Owen and Johnston 2017). In contrast, little attention has been paid to mass attitudes toward international tax policy, one of the most important and controversial topics in international political economy. By studying the fiscal intuitions of ordinary citizens, we hope to chart a path for the development of a grounded theory of value creation and taxation in a modern globalized economy.

Our interest in mass attitudes requires us to ask questions about a technical topic to a population of non-specialists. As a result, we have to be especially careful in designing our survey questionnaire and in interpreting our findings. We cannot assume that people hold well-formed *ex ante* preferences or opinions about a topic as complex as international tax law. Instead, our survey experiments are designed to elicit what we call “fiscal intuitions,” which we interpret as a set of dispositions toward the appropriateness of broad and simplified policy options, rather than specific technical proposals.

TAX BASE ALLOCATION IN A GLOBALIZED ECONOMY

Our investigation of mass attitudes toward international taxation is designed to produce stylized facts which are both theoretically motivated and policy relevant. To identify the most important dimensions along which we should query public opinion, we now give a brief overview of the current international tax system and of some key reform proposals. This overview leads us to focus on four principled factors which could guide the geographic allocation of taxing rights: residence, capital, labor, and sales. We also highlight the impor-

tance of one psychological phenomenon which could impede international cooperation in this arena: home bias.

Tax base allocation: Residence vs. Source

The principles that underpin the international tax system were developed in the inter-war years, as governments were laying foundations for the post-World War I economic recovery. Since then, those principles have been enshrined in thousands of bilateral tax treaties (BTTs).

The primary goal of BTTs is to coordinate tax policies across borders to avoid double taxation. Consider the case of Royal Dutch Shell. In 2018, the company owned subsidiaries in over 80 countries. If every one of those governments taxed Shell's worldwide profits at the full corporate tax rate, without making allowance for taxes paid in other jurisdictions, the company's profits would soon evaporate. This would eliminate incentives to make cross-border investments and have negative consequences for trade and FDI. Clearly, national governments need to coordinate to forestall double taxation.

BTTs achieve this coordination by relying on a convenient, but problematic, legal fiction: the Arm's Length Principle.⁵ Under this principle, the operations of a multinational in different countries are treated *as if* they were conducted by unrelated entities, and transactions between related parties are required to be conducted at market price.

Roughly speaking, the rights to tax the profits of each pseudo-independent entity are split between governments from the "source" and "residence" countries. In that context, the expression "residence" usually refers to the country where a firm is incorporated, or where its "mind and management" are located. The expression "source" refers to the location where the economic activity actually takes place.

Governments in countries of residence usually have wide latitude to tax income from passive sources, such as royalties, interest, and dividends. In contrast, most BTTs severely constrain the ability of source countries to tax the same streams of income, by reducing withholding tax rates on outbound cross-border payments. This allocation of the passive tax base is one of the reasons why critics claim that most tax treaties favor residence over source jurisdictions; they point out that intra-group dividend, interest, and royalty payments can often be used to strip income from capital-importing countries toward capital-exporting countries where multinationals tend to be headquartered.

Whereas passive income is typically taxed at residence, the primary right to tax active business income lies in the source jurisdictions. When two countries sign a BTT, they agree to a physical test that defines the conditions under which a source government can apply its corporate income tax. When a firm creates a "permanent establishment" in a jurisdiction – such as a branch, offices, factories, or mines – the government of that jurisdiction gains the right to tax the active business profits of the firm at source.

5. The Arm's Length Principle is a problematic legal fiction. It treats entities as unrelated when they are, in fact, related. It seeks to find market prices for transactions that have no market analogue, or that might not occur at all if multinationals were unable to exploit their ownership and internalization advantages (Dunning 1980). As a result, many subjective and *ad hoc* elements inevitably creep into transfer pricing analysis. This often makes it possible for multinationals to manipulate the prices of intra-firm transactions in order to strip income from entities in high-tax jurisdictions. See our online appendix or Malesky (2015) for an introduction to transfer pricing manipulation.

From a practical perspective, the residence criterion for taxation is relatively unambiguous.⁶ To identify the residence, we can look at specific indicators such as the jurisdiction where a firm is legally incorporated, the place where its board meets, etc.

In contrast, the source criterion can be hard to conceptualize and operationalize. Indeed, when a firm's operations span jurisdictions, it can be difficult to establish the true "source" of profits, that is, the geographic location where the most important economic activities occur. As Justice Brandeis noted in a 1920 Supreme Court opinion, a government that wishes to tax returns from cross-border commercial activity often faces "the impossibility of allocating specifically the profits earned by the processes conducted within its borders (U.S. Reports 1920)."

The problem that Brandeis highlighted 100 years ago has only grown since, with the rise of global value chains and digitalization. How can we determine what share of Facebook's global profits arise from the labor of American engineers, the capital used in data centers in Sweden, the ads sold in Germany, or user engagement data collected from French users?

The sources of value creation: Labor, Capital, and Sales

Thomas Sewall Adams, one of the founding figures of the field of Public Finance, lamented our inability to find a "scientific" solution to the problem of assigning economic value to the geographically dispersed activities of a firm.⁷ As a second best alternative, he recommended the adoption of uniform "rules of thumb" that would roughly align states' taxing rights to the value creation that occurs within their borders (Adams 1917). These rules of thumb have to be defined with both *theoretical* and *policy* considerations in mind. From a theoretical perspective, this entails identifying the economic origins of value creation. From a policy perspective, sources of value creation have to map onto observable characteristics of the firm.

The first factor that we consider comes to us from Adam Smith, whose labor theory of value influenced generations of political economists, including Marx and Ricardo. The basic idea is straightforward: people's physical and intellectual labor is the ultimate source of value creation, and the exchange value of a good is tightly linked to the labor that it commands. The widespread appeal of this account, centered on the productive role of workers, seems undeniable. It permeates culture and politics, from Brecht's ballad about the water that drives the millwheel but cannot rise above,⁸ to the economic grievances of modern day populists. One explanation for the enduring appeal of the labor theory of value is that, as Schumpeter (1954, 532) notes, it carries "meta-economic" meaning of an ethical color consonant with the views of those who defend the interests of workers.

The second factor which may drive value creation is capital. Even if they often espoused the labor theory of value, the giants of political economy recognized that labor alone was insufficient. In his *Principles of Political Economy*, J.S. Mill (1848, Book I.7) identifies capital as one the "requisites" of production, and develops a theory of capital as a form or "stored-up"

6. Ambiguities can and do arise when jurisdictions apply different – sometimes conflicting – tests to determine where a firm resides.

7. Adams drafted the first successful progressive income tax in the US and had a lasting influence on international tax policy (Graetz and O'Hear 1997).

8. See *The Ballad of the Waterwheel* from *Round Heads and Pointed Heads* (1934).

labor, accumulated through past savings. If production is made possible by this embodied labor, then it seems reasonable to argue that capital is a source of value creation.

The third factor – sales – may best be understood as a proxy for value, rather than as a source of value *per se*.⁹ In every introduction to economics class, students learn that market exchanges generate benefits in the form of consumer and producer surplus. From there, it is a small leap to conclude that the price which people are willing to pay and the quantity they are willing to buy reflect the value they derive from a transaction. More intuitively, it seems reasonable to think about sales as entering in the revenues column of a firm’s accounts, whereas labor and capital enter in the costs column. If people associate sales with the creation of value and profits, our survey respondents should prefer a cross-border allocation of taxing rights that matches the geographic distribution of a company’s sales.

Value creation and international tax reform

The three factors that we identified above — labor, capital, and sales — are not only important because of their theoretical links to classical political economy. They also matter because they are reflected in the most prominent policy alternative to the current international tax system: *Formulary Apportionment* (FA).

FA has been used for decades to split the corporate tax base among American states and among Canadian provinces. A proposal for FA in the European Union—the *Common Consolidated Tax Base* —has been given serious consideration by member states. Tax-focused NGOs have made FA a pillar of their advocacy strategy, and many academics have studied and promoted the approach (Dietsch and Rixen 2016).

Like the Arm’s Length Principle, FA is a legal mechanism which can be used to split the taxable profits of a company between the jurisdictions where it operates. Unlike the current system, FA does not treat subsidiaries and parent companies as independent entities but rather considers them part of a whole (i.e., “unitary taxation”).

To allocate taxing rights, FA proceeds in two steps. First, a multinational reports its group-wide profits, that is, the total profits that the parent and all its subsidiaries make throughout the world. Second, those taxable profits are assigned to different governments based on the geographic distribution of economic activities:

$$t_j = \pi \cdot r_j \left[w_k \frac{K_j}{K} + w_l \frac{L_j}{L} + w_s \frac{S_j}{S} \right], \quad (1)$$

where t_j represents the taxes paid by a firm to the government of country j ; π is the firm’s worldwide profits; r_j is the corporate tax rate in country j ; K_j/K is the proportion of the firm’s total capital assets located in j ; L_j/L is the percentage of the firm’s employees who work in j ; and S_j/S is the share of sales made to customers from j . Finally, w_k, w_l, w_s are weights that determine the relative importance of each factor in the allocation process. For example, when w_s is large, most of the tax revenues are collected where companies sell their products.¹⁰

9. But see Cui (2020) who argues that user engagement with online platforms creates value.

10. Table 1 of the appendix illustrates how to apply the formula using a numerical example. Traditionally, FA systems have applied a “Massachusetts formula” with equal weights, but other schemes are increasingly common.

The weights in Equation 1 are important for both practical and conceptual reasons. On the practical side, if international negotiations lead to the adoption of an FA system, the choice of weights will be one of the most consequential decisions that governments will have to make. Indeed, the theoretical literature on FA suggests that different weighting schemes could have very different distributional implications (McLure 1980; Gordon and Wilson 1986).

Conceptually, the weights of the apportionment formula give us a nice framework to make sense of international tax reform. Indeed, the FA equation draws a link between classical theories of value creation and the practice of tax base allocation, and it helps frame the main normative question at hand: Should multinationals pay taxes where capital is located (w_k), where employees work (w_l), or where goods and services are sold (w_s)?

The FA equation can also act as a conceptual umbrella to organize our thinking about various alternatives to the current international tax system. For example, in recent years, experts and politicians have made several reform proposals, including the *digital services tax* (Cui 2020), *sales-only formulary apportionment* (Auerbach et al. 2017), *destination-based cash flow tax* (Auerbach et al. 2017), and *pillar one* (OECD 2019). These proposals differ in important respects, but they share a key feature: all of them allocate tax revenues to different governments chiefly based on the geographic location of a firms' customers or users (i.e., the w_s weight in Equation 1).

Proponents of these market-based methods are often motivated by classic theoretical results about the efficiency cost of taxation, going all the way back to Ramsey (1927). In this tradition, taxes are expected to be more efficient when applied to inelastic (or immobile) goods and factors. Auerbach et al. (2017) note that market-based methods are “built on the intuition that taxing companies on the basis of something that is relatively immobile—which we take consumers, by and large, to be—limits the scope for the gaming that has caused such difficulties within the current international tax framework.”¹¹ By focusing on the w_s factor of the apportionment formula, these methods allocate taxing rights based on a relatively inelastic factor. In doing so, they also decouple international tax law from classical theories that emphasize the role of labor and capital in value creation.

Among the market-based methods that have been proposed in recent years, the most salient and controversial is undoubtedly the *digital services tax* (DST).¹² With a DST, a government imposes a fixed percentage tax (e.g., 3%) on gross revenues from digital advertising, online sales, social networks, user data sales, and other digital activities. Typically, companies pay this tax to governments in proportion to the location of its end users, identified by Internet Protocol addresses. As of 2020, over 30 countries have announced, drafted, or implemented legislation for a DST or similar digital taxes (KPMG 2020). Since their introduction, DSTs have been the object of important diplomatic skirmishes (Wearden 2020).

The main argument in favor of DSTs is an appeal to fairness. Under current rules, a company can have a *digital presence* with millions of users in a country, but it pays no corporate income tax unless it also has a *physical presence*. Several politicians consider this situation unfair.

11. This quote refers specifically to the destination-based cash flow tax.

12. Strictly speaking, the DST does not allocate taxing rights to the location of sales *per se*, but rather to jurisdictions where customers and users reside.

There are two main arguments against DSTs: industry and location-based discrimination. The *industry* argument is that ring-fencing profits from digital operations is difficult to implement, arbitrary, and discriminatory: it hits digital firms but not others. The *location* argument is that DSTs usually apply only to large digitalized companies and that most such companies are American. Thus, DSTs discriminate based on both the industry and the nationality of firms.

Tax reform in the real world: Home country bias

The discussion above suggests that it makes sense to probe the relationship between fiscal intuitions, the residence criterion (location of management), and the source criterion (location of labor, capital, and sales). These criteria could help us adopt “rules of thumb” to allocate taxing rights to different governments.

Of course, these principled factors are unlikely to be people’s sole consideration when they express views on the allocation of tax revenues to different governments. Recent experimental work in international political economy shows that the public’s views on international economic matters often stray from economic or philosophical principles. For instance, we know that with respect to trade policy, mass publics exhibit a strong bias in favor of outcomes that benefit co-nationals (Mutz and Lee 2020; Brutger and Rathbun, Forthcoming).

Similarly, if we ask people the question “who should tax multinationals?”, their answers are likely to be driven by a form of home country bias. In the empirical portion of this paper, we quantify the strength of this bias by measuring how much more tax revenues people tend to allocate to their own government.

THREE EMPIRICAL STUDIES, REPLICATED IN THREE COUNTRIES

We have made the case that there are sound political and normative reasons to study the intuitions of mass publics with respect to the taxation of multinationals. We argued that these fiscal intuitions could be associated with four dimensions of value creation (residence, labor, capital, sales), but could also be driven by people’s tendency to favor co-nationals.

We now shed empirical light on these issues through three complementary studies, including two randomized experiments and a direct elicitation question. Each of those studies was conducted in the context of large-scale surveys, and were replicated in three countries: Brazil, France, and the United States.

In our main study, we present fictional multinational companies and ask respondents to split a fixed amount of tax revenue between the jurisdictions where those companies operate. This research design allows us to examine the relative weight that people place on the dimensions of value creation, and to ascertain the magnitude of bias in favor of the home country.

To validate the results of our main experiment, we conduct a follow-up study in which we directly elicit respondents’ views over international tax policy. Specifically, we ask them to rank the relative importance of the three tax base allocation factors.

Finally, since market-based methods like the DST have become increasingly salient in recent years, we ascertain the extent to which allocating the corporate income tax on the

basis of sales accords with people's fiscal intuitions. In particular, we measure respondents' support for the DST, and conduct a randomized framing experiment to determine if support for this tax can be dented by counter-arguments. Taken together, our three studies provide crucial insights into mass attitudes about the geography of taxation in a digital economy.

Case selection

To increase the external validity of our findings, we field surveys in three countries: Brazil, France, and the United States.¹³ This three-country design is important, because views about international tax policy could be affected by a country's position in global production chains, or by elite cues from respondents' home country government.

For our survey questions to make sense, we had to choose countries where both foreign and domestic multinationals are active. In addition, we sought to find countries that vary across two key dimensions: they hold different places in the global economy, and their governments have advocated different policies with respect to international taxation.

The United States is home to many of the world's largest multinational corporations and to most of the dominant digital firms. Historically, the American government has argued that multinationals should be taxed on their worldwide profits in the country where they are headquartered (Avi-Yonah 2007).

France is another major economy, but its government holds very different views with respect to international tax policy. In particular, it has recently been promoting the DST, a special tax on the profits of digital firms like Facebook, to be collected not where a firm is headquartered, but rather where its users/consumers are located. The US government is strongly opposed to this tax, because it would disproportionately affect American companies.

Finally, Brazil is an emerging market, a capital importer, and a country with some multinationals, but fewer than France or the United States. Since Brazil holds a different position in the global economy, economic theory suggests that the optimal tax policies for Brazil may not be the same as for the other two countries (Baistrocchi 2008; Hines 1998). Moreover, the Brazilian government has long challenged the international tax orthodoxy, by advocating rules which benefit governments in countries where employees are located and where resources are extracted, rather than countries where multinationals are headquartered.

Study #1: Formulary apportionment

Our first survey experiment is designed to assess the fiscal intuitions of respondents about the allocation of taxing rights across jurisdictions. More specifically, it is designed to show how much weight people think should be given to the residence, labor, capital, and sales in the allocation of these rights. The experiment also allows us to measure the extent of home bias in allocation decisions.

13. Data were collected on the Qualtrics platform between July 23 and August 8, 2020. In Brazil, Netquest recruited participants to fill nationally representative quotas by age, gender, socio-economic level, and state. In France and the United States, Dynata recruited participants to fill nationally representative quotas by age, gender, education, and state/region.

We begin by asking respondents to read a short introductory text (see appendix). This text primes respondents to think about the geographic distribution of business activities before they begin the experimental task. Then, respondents are introduced to a hypothetical multinational company. This company does business in three countries: Brazil, France, and the US.

To convey information about the geographic distribution of economic activities, we display a set of bar charts that show the amount of capital, labor, and sales in each country. The geographic distribution of business activities is randomly generated, as is the location of the company's headquarter. Figure 7 of the appendix shows one of the images used in the experiment.¹⁴

The outcome variable is measured by respondents' answer to this question: "Suppose that this company must pay a total of 10 million [dollars/euros/real] in corporate tax across the three countries. How much tax should be paid in each country?" Importantly, respondents are constrained to split a fixed amount of taxes among three governments. This is a key feature of the design, because our analytical goal is to distinguish the object of interest in our study — the *allocation* of taxing rights and revenues across jurisdictions — from the *level* of taxation.¹⁵ This distinction is important substantively, because while complementary, the allocation of taxing rights and statutory tax rates are outcomes of different political processes: the former is the domain of diplomatic relations and international tax law, whereas the latter are set through national-level politics, protected by strong norms of state sovereignty.

The experimental task generates three data points for our dependent variable: the share of taxes allocated to each of the three countries where the firm operates. Each respondent completes four tasks, with four different randomized companies. Thus, each respondent generates 12 distinct data points for the dependent variable. The unit of analysis is respondent-task-country. With about 2,000 respondents, this gives us approximately 24,000 observations per country.

To analyze the results, we estimate linear regression models with five explanatory variables: the shares of capital, labor, and sales in each country; a binary variable equal to 1 if the firm's headquarter is in the jurisdiction that collects taxes; and a binary variable which equals 1 when a respondent is asked to allocate revenues to their own government. We estimate three linear regression models with heteroskedasticity-consistent standard errors, one for each of the surveys (Brazil, France, United States). The full regression results are reported in Table 5 of the appendix. Several alternative models are also considered in the appendix to ensure that our results are robust to specification choices.

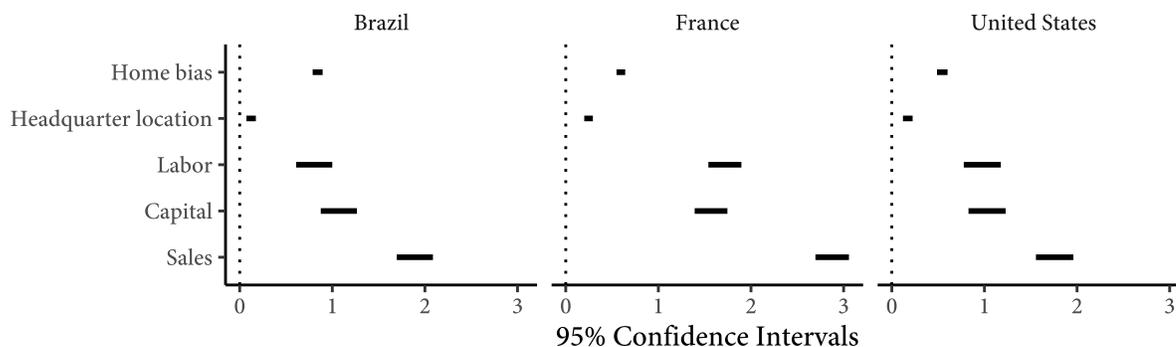
Figure 2 shows the estimated treatment effects of sales, labor, capital, and headquarter location on respondents' tax allocation decisions. According to respondents, the most important factor in determining where a multinational should pay taxes is the location of its sales. In the extreme case where a company shifted all its sales to a new country, Brazilian

14. To avoid implausible situations where, for example, a country has all of its employees but none of its capital in a country, we constrain the height of the bars to be {18.3, 33.3, 48.3} and to sum to 1. The order of countries and factors is randomized at the respondent level but stays constant across tasks.

15. To be even more consistent with our substantive question of interest, the survey question would have had to ask about *taxing rights* instead of *tax revenues*. However, after workshoping various alternatives, we concluded that the idea of "taxing rights" was too complex and abstract for a general population survey.

and American respondents indicate that the company’s tax liabilities in that country should increase by nearly 2 million (out of 10 million); French respondents indicate that the revenue allocated to that government should increase by nearly 3 million. This treatment effect is substantively large, even if we were to consider smaller changes in the geographic distribution of economic activities.

Figure 2: Estimated effects of *Capital*, *Labor*, *Sales*, *Headquarter location*, and *Home bias* on tax allocation. All regressors are on a 0 to 1 scale. Taxes (outcome) are on a 0 to 10 scale, denominated in millions of local currency units.



The estimated effect of *Sales* on tax revenue allocation is about twice as large as the effects of *Capital* or *Labor*. It is also much larger than the *Headquarter location* coefficient, which captures the “taxation at residence” principle. These results provide crucial insights into people’s intuitions with respect to the taxation of multinational corporations.

First, allocating taxation rights based on the location of sales clashes with the arm’s length principle, the residence principle, and the permanent establishment test which states that taxation at source should occur where a firm has a physical presence. In other words, the fiscal intuitions of mass publics clash with the core principles of the current international tax system.

Second, the fiscal intuitions that we document here are in line with efficiency-based arguments from public finance, which emphasize the benefits of taxing immobile or inelastic factors. This suggests that international taxation may be a policy area where the intuitive dispositions of people are fortuitously compatible with the efficiency-based arguments of economists.

Third, international taxation is a technical issue area, and specialists may legitimately wonder if ordinary citizens can hold consistent views on such a complicated topic. If not, the survey responses would be noisy, and we should find little difference between the treatment effects associated with capital, labor, and sales. Instead, we find large systematic differences in those quantities.

The patterns are remarkably similar in Brazil, France, and the United States, despite the fact that these three countries hold very different positions in the international political economy and that their national governments have different stances on who should tax multinational corporations. Despite such crucial contextual differences, the general public in all three countries agree on the most important factors for tax base allocation. This sug-

gests that a tax reform that would allocate corporate tax revenues based on the location of sales would be an easy policy choice to explain to the general public.

Another important set of findings relates to the regression coefficient that measures the extent of home bias, that is, the extent to which respondents allocate more tax revenues to their own government (see appendix for full results). On average, Brazilians allocate R\$842,000 more tax revenue to their own government, the French assign an extra €595,000 to the French government, and Americans give \$545,000 more in tax revenues to the US government. This treatment effect is substantively large: on average, people want to allocate about 6% more taxes to their own home government, regardless of firm characteristics, activities, or nationality.¹⁶ This finding is consistent with prior results from the trade literature showing that nationalistic or egoistic considerations color policy preferences in international economics.

Study #2: Direct elicitation

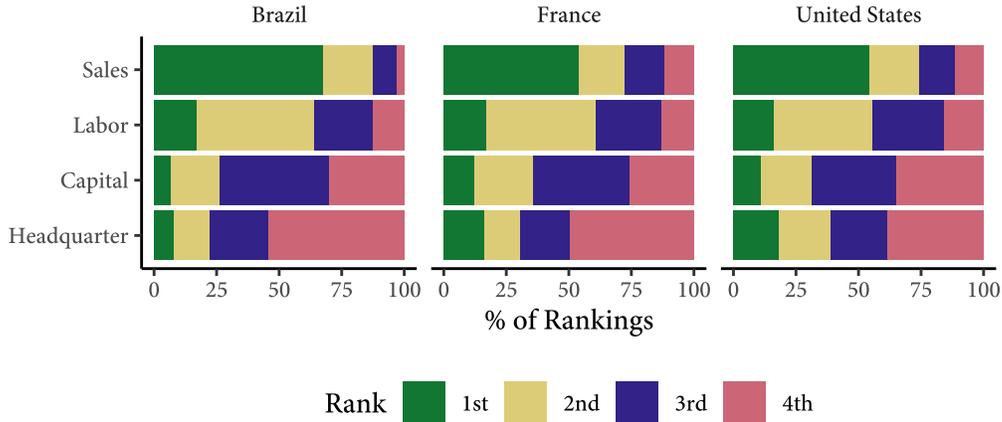
To validate the results of our first experiment, we directly elicit respondents' views about the allocation of taxation rights across countries. Specifically, we ask the following: "The amount of taxes that a multinational company pays in the different countries where it does business should depend first and foremost on..." Respondents choose their response from a list of 4 possibilities: (1) the amount of sales in the different countries, (2) the number of employees in the different countries, (3) the amount of equipment in the different countries, (4) the location of the headquarters and owners. After choosing the most important factor, respondents are asked to rank the second factor from among the remaining possibilities, and so on, until all four factors are ranked.

Given the complexity of the issue, it would have been unreasonable to ask respondents to rank the tax allocation factors without offering more context. For this reason, we purposely designed our questionnaire to ensure that respondents would rank allocation factors after completing the experiment introduced in the previous section. It seems reasonable to expect that after deciding how to split the tax liabilities of four hypothetical companies, respondents will have reflected on their own intuitions and will be able to express them in a simple ranking task. Importantly, since the features of the companies in the preceding experiment were chosen randomly, we do not expect it to contaminate the ranking task by systematically biasing responses toward any of the factors.

Figure 3 shows the results from this direct elicitation study. They are remarkably consistent with the experimental results. In all three countries, over half of respondents believe that the amount of taxes paid to different governments should depend first and foremost on the location of sales. Over 75% of respondents believe that sales should be one of the top 2 factors to consider. The location of employees is also an important factor for people's preferred tax base allocation, whereas capital and headquarters location trail far behind.

16. When comparing the substantive size of this causal effect to the *sales*, *labor*, and *capital* coefficients, it is important to remember that those three variables are coded on a 0 to 1 scale.

Figure 3: Respondent rankings of four tax allocation factors in three countries.



Study #3: Digital Services Tax

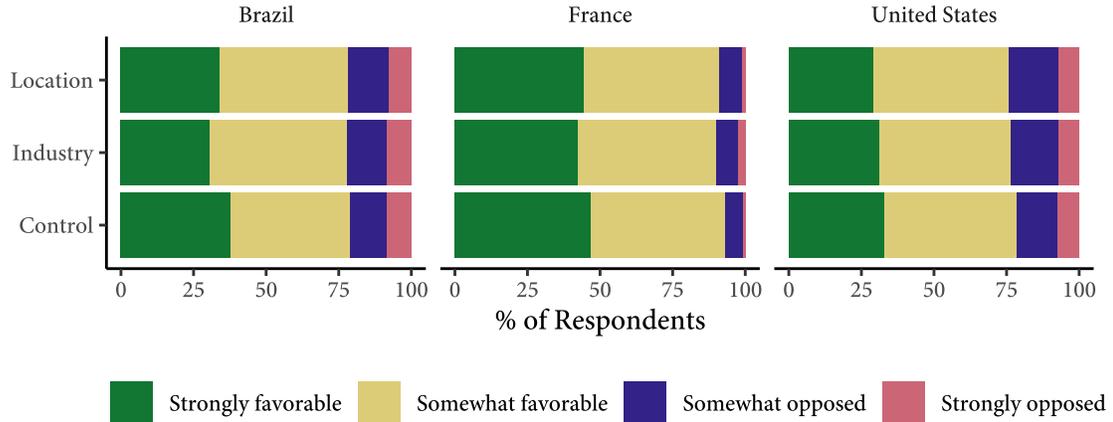
Our first two studies assessed how respondents ranked the importance of each factor in the FA formula. We found that survey respondents assign a great deal of importance to the location of sales in allocating tax revenues to different governments. This suggests that market-based methods have considerable potential for international reform because they are consistent with both efficiency-based arguments and people’s intuitions.

Our final experiment is designed to measure the level and the malleability of public support for one of the most prominent and controversial market-based methods: the digital services tax. To do this, we asked respondents in all treatment arms to read an introductory text that explains what is a Digital Services Tax, and why some governments have adopted it. In the control condition, respondents see no other text. In two separate treatment arms (*Industry* and *Location*), we augment the vignette with the two principal anti-DST arguments, related to discrimination against digital or American multinationals.¹⁷ Finally, we ask the following: “How favorable or opposed are you to imposing a special tax on big digital companies?” The responses to this question allow us to ascertain the overall level of support for such a tax (the results in the control group) and the extent to which standard objections to the tax reduce that support (the treatment effects).

The results of this experiment are shown in Figure 4. Each column shows the responses from a different country. Each row shows the responses in one of the treatment arms. Support for a DST is very high in all three countries. In Brazil and the United States, over 75% of respondents are either somewhat or strongly favorable to a DST. In France, that proportion exceeds 90%. Interestingly, support for a DST does *not* seem to be affected by counter-arguments related to discrimination against digital or American firms, even in the US sample. The differences across treatment groups are substantively small, and the groups are statistically indistinguishable. Support for a DST is widespread and strong.

17. In the *Industry* case, we use the following text: “Opponents of the digital tax argue that it is unfair because it targets big digital companies but not other kinds of companies.” In the *Location* treatment, we use the following: “Opponents of the digital tax argue that it is unfair because it mostly targets big digital companies from the United States but not companies from other countries.”

Figure 4: Support for a digital services tax in three countries and three treatment groups.



LIMITATIONS AND FUTURE WORK

To our knowledge, this is the first study to examine mass attitudes toward international tax law, and more precisely to determine which factor of value creation is deemed the most relevant to allocate taxing rights. Accordingly, we had vague priors about the relative importance of each factor, and we consciously avoided pre-registering expectations about the relative sizes of our causal estimates. Likewise, given the descriptive and exploratory scope of our investigation, we did not design experiments to probe the mechanisms through which certain tax base allocation schemes come to be seen as “appropriate” or “fair.” We hope that by documenting key features of mass attitudes on the taxation of multinationals, we can chart a path for future work that unpacks the psychological mechanisms that underlie preference formation. The research community should now ask why market-based taxation is so intuitively appealing to non-specialists.

Our interest in the cross-country allocation of the tax base, and our research designs, forced us to consider a sample of countries which are both the homes of some multinationals, and the hosts of others. Given the large costs of cross-national surveys and the difficulties of conducting interviews in authoritarian contexts, we chose to limit our attention to three diverse and economically important democracies: Brazil, France, and the United States. In the future, it would be interesting to assess whether mass attitudes about international taxation are similar in other settings. Considering our findings, it would be especially interesting to survey capital-importing countries, where a market-based tax base allocation may not yield as much revenue.

Finally, our surveys were consciously designed to isolate people’s views on the *allocation* of taxing rights to different governments from concerns about the absolute *level* of taxation. It was essential to make the analytical distinction between those two problems in order to answer the research question that we posed in the title: *Who* should tax multinationals? Of course, in real life, concerns about level and allocation are intertwined. We now need to develop more complex research designs to address both issues, and to integrate explicitly the tax avoidance strategies of multinationals and offshore financial centers.

CONCLUSION

In this article, we focused on an important but neglected facet of international political economy: the allocation of taxing rights across jurisdictions. We argued that people's views on different allocation schemes can be linked to theories of value creation in classical political economy, and are partly driven by the well-established tendency to favor co-nationals. Using large scale survey experiments in three countries, we examined the foundations of mass attitudes toward international taxation.

Despite the fact that international tax law is a highly technical field, ordinary citizens' fiscal intuitions are strikingly consistent. Across two experiments and a direct elicitation study, we find clear and regular patterns in survey responses. The same results emerge in Brazil, France, and the United States, three countries that occupy very different positions in our increasingly globalized and digitalized economy. Moreover, not only are the fiscal intuitions that we uncover consistent, but our experiments also show that they are difficult to manipulate through framing and counter-arguments. This suggests that to avoid facing an uphill battle for acceptance and legitimacy, policy entrepreneurs would do well to consider how publics form views about international taxation.

We find substantial support for reform proposals that would fundamentally transform the international tax landscape. Respondents in Brazil, France, and the US support allocating tax revenues to jurisdictions where multinationals' capital and labor are located. However, we find that where a firm sells its products is about twice as important as the other two factors. These results clash with the principles that underpin the current international tax system. The findings support proposals to adopt market-based apportionment methods or a formulary apportionment system with an important sales component.

The importance of sales as a tax allocation factor reveals an unexpected area of agreement between economic theory and the fiscal intuitions of ordinary citizens in three very different countries. Indeed, several classic works in public finance suggest that governments should prioritize the taxation of relatively immobile factors to limit the dead-weight loss of taxation. Several economists argue that since the location of customers is typically less easy to manipulate than the location of capital or labor, sales are a more efficient basis on which to design an international tax system. Our empirical results show that this efficiency-based argument is compatible with the views of citizens in three large democracies. Our research has thus highlighted a special case where the mass public and economists, perhaps for different reasons, agree about what should be done in a key policy area.

REFERENCES

- Adams, Thomas S. 1917. "The Taxation of Business." *Proceedings of the Annual Conference on Taxation under the Auspices of the National Tax Association* 11:185–194.
- Arel-Bundock, Vincent. 2017. "The Unintended Consequences of Bilateralism: Treaty Shopping and International Tax Policy." *International Organization* 71 (2): 349–371.

- Auerbach, Alan J, Michael P Devereux, Michael Keen, and John Vella. 2017. "International tax planning under the destination-based cash flow tax." *National Tax Journal* 70 (4): 783–802.
- Avi-Yonah, Reuven. 2007. *International Tax as International Law: An Analysis of the International Tax Regime*. Cambridge Tax Law Series. Cambridge University Press.
- Baistrocchi, Eduardo. 2008. "The Use and Interpretation of Tax Treaties in the Emerging World: Theory and Implications." *British Tax Review* 2008 (4): 352–391.
- Ballard-Rosa, Cameron, Lucy Martin, and Kenneth Scheve. 2016. "The Structure of American Income Tax Policy Preferences." *The Journal of Politics* 79 (1): 1–16.
- Bauerle Danzman, Sarah. 2019. *Merging interests: when domestic firms shape FDI policy*. Cambridge University Press.
- Bilicka, Katarzyna Anna. 2019. "Comparing UK Tax Returns of Foreign Multinationals to Matched Domestic Firms." *American Economic Review* 109 (8): 2921–2953.
- Brutger, Ryan, and Brian Rathbun. Forthcoming. "Fair share?: Equality and equity in American attitudes towards trade." *International Organization*.
- Cadestin, Charles, Koen De Backer, Isabelle Desnoyers-James, Sébastien Miroudot, Ming Ye, and Davide Rigo. 2018. *Multinational enterprises and global value chains: New Insights on the tradeinvestment nexus*. Technical report, OECD Science, Technology and Industry Policy Papers. OECD Publishing, Paris. <https://doi.org/10.1787/194ddb63-en>.
- Christensen, Rasmus Corlin. 2020. "Elite Professionals in Transnational Tax Governance." *Global Networks*.
- Christensen, Rasmus Corlin, and Martin Hearson. 2019. "The New Politics of Global Tax Governance: Taking Stock a Decade after the Financial Crisis." *Review of International Political Economy* 26 (5): 1068–1088.
- Clark, William Roberts, and Mark Hallerberg. 2000. "Mobile Capital, Domestic Institutions, and Electorally Induced Monetary and Fiscal Policy." *American Political Science Review* 94 (2): 323–346.
- Clausing, Kimberly A. 2020. *How Big Is Profit Shifting?* SSRN Scholarly Paper ID 3503091. Rochester, NY: Social Science Research Network.
- Costa, Melissa, and Jennifer Gravelle. 2011. "Taxing Multinational Corporations: Average Tax Rates Symposium on International Taxation and Competitiveness." *Tax Law Review* 65 (3): 391–414.
- Cui, Wei. 2020. "The Digital Services Tax: A Conceptual Defense." *Tax Law Review* 73 (1): 69–112.
- Culpepper, Pepper D. 2010. *Quiet politics and business power: Corporate control in Europe and Japan*. Cambridge University Press.

- Davies, Ronald B., Julien Martin, Mathieu Parenti, and Farid Toubal. 2017. “Knocking on Tax Haven’s Door: Multinational Firms and Transfer Pricing.” *The Review of Economics and Statistics* 100 (1): 120–134.
- Dietsch, Peter, and Thomas Rixen. 2016. *Global Tax Governance: What’s Wrong, and How to Fix It*. ECPR Press.
- Dunning, John H. 1980. “Toward an eclectic theory of international production: Some empirical tests.” *Journal of international business studies* 11 (1): 9–31.
- Dür, Andreas, and Dirk De Bièvre. 2007. “Inclusion without influence? NGOs in European trade policy.” *Journal of Public Policy*, 79–101.
- Feng, Yilang, Andrew Kerner, and Jane L. Sumner. 2019. “Quitting globalization: trade-related job losses, nationalism, and resistance to FDI in the United States.” *Political Science Research and Methods*, 1–20.
- Findley, Michael G, Daniel L Nielson, Jason Sharman, and Jason Campbell Sharman. 2014. *Global Shell Games: Experiments in Transnational Relations, Crime, and Terrorism*. 128. Cambridge University Press.
- Genschel, Philipp, Hanna Lierse, and Laura Seelkopf. 2016. “Dictators Don’t Compete: Autocracy, Democracy, and Tax Competition.” *Review of International Political Economy* 23 (2): 290–315.
- Gerring, John. 2012. “Mere description.” *British Journal of Political Science*, 721–746.
- Gordon, Roger, and John D Wilson. 1986. “An Examination of Multijurisdictional Corporate Income Taxation under Formula Apportionment.” *Econometrica: Journal of the Econometric Society*, 1357–1373.
- Graetz, Michael J., and Michael M. O’Hear. 1997. “The Original Intent of U. S. International Taxation.” *Duke Law Journal* 46 (5): 1021–1109.
- Guisinger, Alexandra. 2017. Oxford University Press.
- Hakelberg, Lukas. 2020. *The hypocritical hegemon: How the United States shapes global rules against tax evasion and avoidance*. Cornell University Press.
- Hearson, Martin. 2018. “Transnational Expertise and the Expansion of the International Tax Regime: Imposing ‘Acceptable’ Standards.” *Review of International Political Economy* 25 (5): 647–671.
- Hines, James R. 1998. *“Tax Sparing” and Direct Investment in Developing Countries*. Technical report w6728. National Bureau of Economic Research.
- Internal Revenue Service. 2019. *Country-by-Country reports (Form 8975)*. <https://www.irs.gov/statistics/soi-tax-stats-country-by-country-report>.
- International Consortium of Investigative Journalists. 2020. *ICIJ Offshore Leaks Database*. <https://offshoreleaks.icij.org/>.

- Jensen, Nathan M. 2013. "Domestic Institutions and the Taxing of Multinational Corporations." *International Studies Quarterly*, n/a–n/a.
- Karkinsky, Tom, and Nadine Riedel. 2012. "Corporate Taxation and the Choice of Patent Location within Multinational Firms." *Journal of International Economics* 88 (1): 176–185.
- KPMG. 2020. *Taxation of the Digitalized Economy*. Technical report.
- Limberg, Julian. 2019. "'Tax the Rich'? The Financial Crisis, Fiscal Fairness, and Progressive Income Taxation." *European Political Science Review* 11 (3): 319–336.
- Malesky, Edmund J. 2015. "Transfer Pricing and Global Poverty." *International Studies Review* 17 (4): 669–677.
- Mansfield, Edward D., and Diana C. Mutz. 2009. "Support for Free Trade: Self-Interest, Sociotropic Politics, and Out-Group Anxiety." *International Organization* 63 (3): 425–457.
- McLure, Charles E. Jr. 1980. "The State Corporate Income Tax: Lambs in Wolves' Clothing." In *The Economics of Taxation*. The Brookings Institution.
- Melander, Ingrid. 2020. *France, Germany Want Progress on Taxing Tech Giants - Reuters*. <https://www.reuters.com/article/us-eu-tax-digital-france/france-germany-want-progress-on-taxing-tech-giants-idUSKBN1FR29K>.
- Mérand, Frédéric. 2021. *The Political Commissioner: A European Ethnography*. Oxford University Press.
- Mill, John Stuart. 1848. *Principles of Political Economy*.
- Mutz, Diana C., and Amber Hye-Yon Lee. 2020. "How Much is One American Worth? How Competition Affects Trade Preferences." *American Political Science Review* 114 (4): 1179–1194.
- OECD. 2019. *Public Consultation Document: Secretariat Proposal for a "Unified Approach" under Pillar One*. Technical report.
- . 2020. *Base Erosion and Profit Shifting: International Collaboration to End Tax Avoidance*. <https://www.oecd.org/tax/beps/>.
- Owen, Erica, and Noel P. Johnston. 2017. "Occupation and the Political Economy of Trade: Job Routineness, Offshorability, and Protectionist Sentiment." *International Organization* 71 (4): 665–699.
- Pandya, Sonal S. 2013. *Trading Spaces: Foreign Direct Investment Regulation, 1970–2000*. Cambridge University Press.
- Pelc, Krzysztof J. 2013. "Googling the WTO: What Search-Engine Data Tell Us About the Political Economy of Institutions." *International Organization* 67 (03): 629–655.
- Piketty, Thomas. 2017. *Capital in the Twenty-First Century*. Reprint édition. Belknap Press: An Imprint of Harvard University Press.

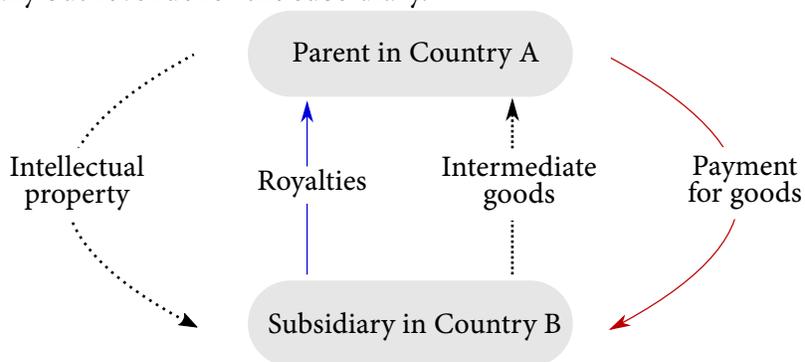
- Plümper, Thomas, Vera E Troeger, and Hannes Winner. 2009. "Why Is There No Race to the Bottom in Capital Taxation?" *International Studies Quarterly* 53 (3): 761–786.
- Pogge, Thomas, and Krishen Mehta, eds. 2016. *Global Tax Fairness*. Oxford: Oxford University Press.
- Ramsey, F. P. 1927. "A Contribution to the Theory of Taxation." *The Economic Journal* 37 (145): 47–61.
- Rixen, Thomas. 2008. *The Political Economy of International Tax Governance*. Palgrave MacMillan.
- . 2011. "From double tax avoidance to tax competition: Explaining the institutional trajectory of international tax governance." *Review of International Political Economy* 18 (2): 197–227.
- Scheve, Kenneth, and David Stasavage. 2016. *Taxing the Rich: A History of Fiscal Fairness in the United States and Europe*. Princeton University Press.
- Schumpeter, Joseph A. 1954. *History of Economic Analysis*. Routledge [2006].
- Seabrooke, Leonard, and Duncan Wigan. 2016. "Powering Ideas through Expertise: Professionals in Global Tax Battles." *Journal of European Public Policy* 23 (3): 357–374.
- . 2017. "The Governance of Global Wealth Chains." *Review of International Political Economy* 24 (1): 1–29.
- Shin, Mi Jeong. 2019. "Why do countries change the taxation of foreign-source income of multinational firms?" *International Political Science Review*.
- Steinberg, David A., and Stephen C. Nelson. 2019. "The Mass Political Economy of Capital Controls." *Comparative Political Studies* 52 (11): 1575–1609.
- Tax Analysts. 2020. *Czech Finance Ministry Proposes 7 Percent DST*. <https://www.taxnotes.com/tax-notes-today-international/digital-economy/czech-finance-ministry-proposes-7-percent-dst/2019/09/06/29x7d>.
- TJN. 2020. *Tax Justice Network*. <https://www.taxjustice.net/>.
- U.S. Reports. 1920. "Underwood Typewriter Company v. Chamberlain, Treasurer of the State of Connecticut." 254 US 113. Judge: Louis Dembitz Brandeis.
- Wearden, Graeme. 2020. "Davos 2020: Prince Charles, Donald Trump and Sajid Javid Speak -Day Two as It Happened." *The Guardian*.

1 ONLINE APPENDIX: WHO SHOULD TAX MULTINATIONALS?

1.1 example: tax avoidance via transfer pricing

Imagine a simple corporate structure with two entities: a parent company in country A and a subsidiary in country B. First, the parent develops intellectual property. Then, the subsidiary uses the intellectual property to produce an intermediate good. Finally, the parent uses the intermediate good to produce a final good. This structure is illustrated in Figure 5. Under the ALP, exchanges of goods, services or intellectual property between the parent and the subsidiary must be treated as transactions between independent entities. In Figure 5, the subsidiary makes royalty payments to purchase the right to use intellectual property from the parent. In turn, the parent makes payments to the subsidiary to purchase intermediate goods. For tax purposes, the royalties are treated as income for the parent, and they are taxable in country A. The same royalties are treated as a cost for the subsidiary, and they reduce its tax liabilities in country B. The reverse is true for payments made to purchase intermediate goods. Ultimately, the ALP allocates the taxable profits of a firm to different governments with reference to the balance of transactions between related companies.

Figure 5: A simple corporate structure composed of a parent company and a subsidiary that operate at arm's length. The dotted arrows represent flows of goods or services. The solid lines represent monetary payments. For tax purposes, the blue arrow is treated as revenue for the parent company but a cost for the subsidiary. The red line is treated as a cost for the parent company but revenue for the subsidiary.



One problem with this approach is that companies can manipulate the prices of intra-firm transactions to minimize their tax burden. For example, assume that the corporate tax rate is lower in country A than in country B. In that case, the multinational's goal is to maximize the share of profits declared in A and to minimize the share of profits declared in B. To achieve this, it may artificially inflate the value of the intellectual property, which would increase royalty payments and shift reported profits from the high-tax to the low-tax jurisdiction. The firm may also understate the value of intermediate goods to limit payments from the parent to the subsidiary, thus keeping more profits in country A. Alternatively, the parent may give a high-interest loan to the subsidiary and claim that this return is justified because the parent shoulders more of the risks.

1.2 example: formulary apportionment

Table 1 illustrates how equation 1 can be applied in practice, using a simplified numerical example. A multinational has activities in two countries and makes \$1M in profits. To calculate the taxes that it should pay to each government, we begin by calculating the company's share of capital, labor, and sales in each country. For example, the company makes \$1M in sales in country A (1/10th of sales) and \$9M in sales in country B (9/10th of sales). Then, we apply equation 1 with equal weights $w_k = w_l = w_s = 1/3$ to allocate the share of total profits (1M\$) that should be taxed in each jurisdiction: 45% of the firm's profits (\$450K) should be taxed in country A, and 55% should be taxed in country B (\$550K). Finally, we apply each of the country's corporate tax rates to determine how much tax should be paid to each government. In our example, the corporate tax rate in country A is 25%, and the government collects \$112 500; the corporate tax rate in country B is 15%, and the government collects \$82,500.

Table 1: A multinational company with operations in two countries makes \$1M in world-wide profits. Applying the apportionment formula in equation 1 with weights $w_k = w_l = w_s = 1/3$ means that 45% of the firm's total profits could be taxed in country A, and 55% could be taxed in country B.

	Country A Corporate tax rate: 25%		Country B Corporate tax rate: 15%	
	Quantity	Share	Quantity	Share
Capital (\$)	3 000 000	3/4	1 000 000	1/4
Employees (#)	500	1/2	500	1/2
Sales (\$)	1 000 000	1/10	9 000 000	9/10
Profit share	$1/3 \cdot 3/4 + 1/3 \cdot 1/2 + 1/3 \cdot 1/10 = 0.45$		$1/3 \cdot 0.25 + 1/3 \cdot 1/2 + 1/3 \cdot 9/10 = 0.55$	
Profits	$0.45 \cdot 1\,000\,000 = 450\,000$		$0.55 \cdot 1\,000\,000 = 550\,000$	
Taxes	$0.25 \cdot 450\,000 = 112\,500$		$0.15 \cdot 550\,000 = 82\,500$	

1.3 descriptive statistics

Figure 6 shows the distribution of the dependent variable in the tax allocation experiment. Tables 2, 3, and 4 show the socio-demographic balance across treatment groups in the digital services tax experiment.

1.4 regression results

- Table 5 shows the main regression results reported in the article.
- Table 6 replicates our main results in a pooled regression model with country fixed effects, which combines the data collected in Brazil, France, and the United States.
- Table 7 replaces the *Home bias* variable by dummy variables for each country.
- Table 8 replaces the *Home bias* variable by feelings thermometers for each country.

Figure 6: Distribution of the dependent variable in the formulary apportionment experiment.

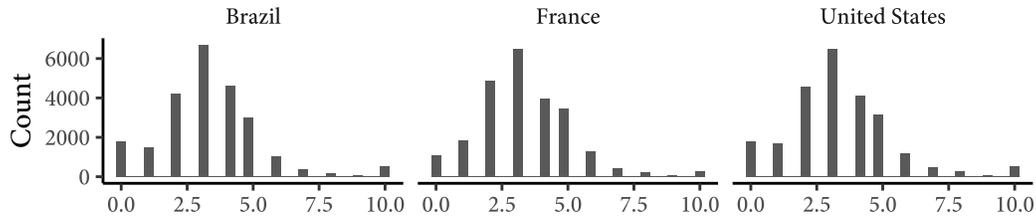


Table 2: Descriptive statistics in the Brazil sample.

		Control (N=562)		Industry (N=554)		Location (N=577)	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age		38.4	15.2	38.7	14.9	38.3	14.7
Socio-Economic Level		4.4	1.4	4.5	1.3	4.3	1.3
		N	Pct.	N	Pct.	N	Pct.
Urban	Big city	280	49.8	271	48.9	293	50.8
	Countryside	22	3.9	19	3.4	28	4.9
	Small city	201	35.8	204	36.8	204	35.4
	Suburb	47	8.4	52	9.4	45	7.8
	Village	12	2.1	8	1.4	7	1.2

Table 3: Descriptive statistics in the France sample.

		Control (N=666)		Industry (N=667)		Location (N=667)	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age		48.6	16.8	48.0	17.3	48.9	16.8
Education		13.1	5.5	13.5	5.6	13.0	5.9
Income		5.0	2.0	4.9	1.9	5.1	1.9
		N	Pct.	N	Pct.	N	Pct.
Urban	Big city	200	30.0	194	29.1	195	29.2
	Countryside	58	8.7	73	10.9	67	10.0
	Small city	192	28.8	198	29.7	183	27.4
	Suburb	101	15.2	99	14.8	127	19.0
	Village	115	17.3	103	15.4	95	14.2

Table 4: Descriptive statistics in the United States sample.

		Control (N=576)		Industry (N=572)		Location (N=554)	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age		48.3	17.6	48.6	17.6	48.1	18.7
Education		13.3	4.9	13.2	4.9	13.2	5.1
Income		5.5	2.2	5.5	2.2	5.5	2.2
		N	Pct.	N	Pct.	N	Pct.
Urban	Big city	156	27.1	145	25.3	138	24.9
	Countryside	38	6.6	30	5.2	43	7.8
	Small city	159	27.6	158	27.6	138	24.9
	Suburb	209	36.3	223	39.0	212	38.3
	Village	14	2.4	16	2.8	23	4.2

- Table 9 treats the *Sales*, *Labour*, and *Capital* as ordinal variables.

1.5 questionnaire design

Introductory vignette for the digital services taxation framing experiment:

“Zara is a multinational company from Spain. It is the largest clothing retailer in the world. Zara has employees, factories, and stores in several countries. Because Zara does business in many countries, it pays taxes to many governments. The amount of taxes that Zara pays to each government varies from country to country. We would like to have your views about how multinational companies like Zara should be taxed.”

In the Digital Services Tax experiment, we asked respondents in all experimental conditions to read a vignette that explains what a Digital Services Tax is:

In general, companies only pay corporate taxes in countries where they have employees or equipment. Digital companies often do business in countries where they have *no* employees or equipment. This means that a digital company like Facebook can have millions of users in a country but pay no corporate tax in that country. Some governments argue that this situation is unfair. They have decided to impose a special tax on the profits of big digital companies like Google, Apple, Facebook, and Amazon.

1.6 deviation from the pre-analysis plan

We only deviated from the pre-analysis plan in two ways.

Table 5: Full regression results for the models summarized in Figure 2 of the article. The outcome variable is the amount of tax allocated to one specific government, between 0 and 10 millions in local currency units. The Headquarter dummy variable is equal to one if the firm’s headquarter is located in the government’s jurisdictions. The Sales, Labor, and Capital apportionment factors are scaled on a 0 to 1 scale.

	Brazil	France	USA
(Intercept)	1.756 (0.060)	0.999 (0.054)	1.840 (0.062)
Headquarter	0.124 (0.026)	0.246 (0.024)	0.173 (0.027)
Capital	1.070 (0.100)	1.569 (0.090)	1.028 (0.102)
Sales	1.891 (0.100)	2.877 (0.092)	1.758 (0.103)
Labor	0.805 (0.099)	1.718 (0.091)	0.977 (0.102)
Home	0.842 (0.028)	0.595 (0.024)	0.545 (0.029)
Num.Obs.	24 036	24 000	24 276
R2	0.065	0.094	0.038

Heteroskedasticity-consistent standard errors in parentheses.

Table 6: Replication of :w dmain results in a pooled country fixed effects model which combines data from all three locations that we surveyed.

	Model 1
(Intercept)	1.529 (0.035)
Headquarter	0.181 (0.015)
Capital	1.227 (0.056)
Sales	2.178 (0.057)
Labor	1.168 (0.056)
Home	0.660 (0.016)
Survey in France	0.000 (0.016)
Survey in US	0.000 (0.017)
Num.Obs.	72 312
R2	0.060

Heteroskedasticity-consistent standard errors in parentheses.

Table 7: Alternative specifications. The Home Bias variable is replaced by dummy variables for each recipient government.

	Brazil	France	USA
(Intercept)	2.594 (0.064)	1.046 (0.055)	1.853 (0.064)
Headquarter	0.123 (0.026)	0.246 (0.024)	0.172 (0.027)
Capital	1.077 (0.100)	1.571 (0.090)	1.028 (0.102)
Sales	1.893 (0.100)	2.875 (0.092)	1.759 (0.103)
Labor	0.808 (0.099)	1.718 (0.091)	0.976 (0.102)
Government FRA	-0.738 (0.030)	0.548 (0.027)	-0.027 (0.027)
Government USA	-0.946 (0.031)	-0.094 (0.026)	0.532 (0.033)
Num.Obs.	24 036	24 000	24 276
R2	0.067	0.094	0.038

Heteroskedasticity-consistent standard errors in parentheses.

Table 8: Alternative specifications. Before the experiment, we asked respondents to express their positive or negative feelings toward five countries on a scale of 0 to 10: Brazil, China, France, Russian, United States. In these models, we control for the expressed feeling toward the country where the headquarter of a firm is located. In the right-most models, we standardize the feeling thermometers within respondents by dividing by its maximum value.

	Raw			Standardized		
	BRA	FRA	USA	BRA	FRA	USA
(Intercept)	1.735 (0.069)	0.847 (0.059)	1.602 (0.070)	1.668 (0.072)	0.742 (0.061)	1.507 (0.071)
Headquarter	0.138 (0.026)	0.245 (0.024)	0.172 (0.027)	0.140 (0.026)	0.244 (0.024)	0.171 (0.027)
Capital	1.092 (0.102)	1.556 (0.091)	1.007 (0.103)	1.097 (0.101)	1.567 (0.091)	0.975 (0.102)
Sales	1.874 (0.101)	2.880 (0.093)	1.746 (0.104)	1.872 (0.101)	2.882 (0.093)	1.760 (0.103)
Labor	0.840 (0.101)	1.734 (0.092)	0.977 (0.103)	0.837 (0.101)	1.743 (0.092)	1.012 (0.102)
Government Feeling	0.044 (0.005)	0.065 (0.005)	0.069 (0.005)			
Government Feeling (Std.)				0.452 (0.049)	0.613 (0.039)	0.679 (0.047)
Num.Obs.	24 036	24 000	24 276	23 964	23 916	24 168
R2	0.027	0.078	0.029	0.027	0.079	0.031
Std.Errors	Robust	Robust	Robust	Robust	Robust	Robust

Heteroskedasticity-consistent standard errors in parentheses.

Figure 7: Screen capture of the treatment in the formulary apportionment experiment.

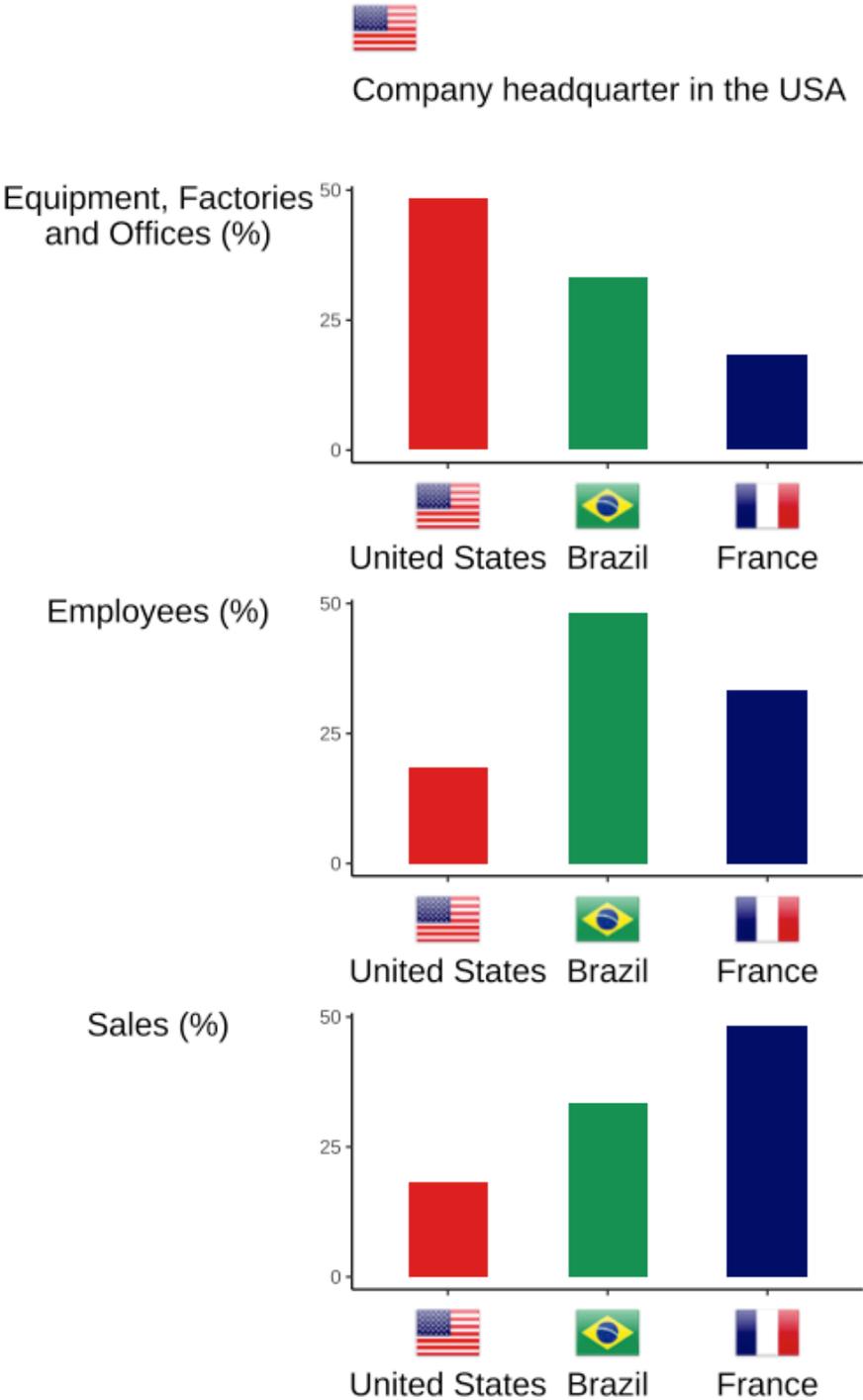


Table 9: Alternative specifications, treating apportionment factors as dummy levels instead of continuous.

	BRA	FRA	USA
(Intercept)	2.796 (0.034)	2.485 (0.030)	2.787 (0.035)
Headquarter	0.139 (0.026)	0.246 (0.024)	0.173 (0.027)
Capital 0.33	0.096 (0.030)	0.149 (0.027)	0.089 (0.031)
Capital 0.48	0.330 (0.031)	0.460 (0.027)	0.301 (0.031)
Sales 0.33	0.190 (0.030)	0.196 (0.026)	0.157 (0.030)
Sales 0.48	0.565 (0.030)	0.862 (0.028)	0.523 (0.031)
Labor 0.33	0.047 (0.030)	0.111 (0.027)	0.104 (0.030)
Labor 0.48	0.245 (0.030)	0.523 (0.028)	0.291 (0.031)
Num.Obs.	24 036	24 000	24 276
R2	0.024	0.075	0.022

Heteroskedasticity-consistent standard errors in parentheses.

First, we did not initially plan to estimate a pooled regression model combining data from our three surveys. As a robustness test, we present the results from this model in appendix. The results are substantively identical to the main ones we discuss in text.

Second, we initially planned to report the results of linear regression models with 2 binary variables indicating which country the respondents were asked to assign tax revenues to in any given task. The respondent's home country was set to act as a reference category. To facilitate the interpretation of our results, we combined those two binary variables and inverted the scale to create a *Home Bias* variable. The model we originally planned to estimate is reported in appendix, and produces substantively identical results to the one we focus on in-text.