

*The globalization of production, the rise of multinational corporations, and the growing importance of intangible assets have transformed the landscape of corporate income taxation. Governments have competed to attract capital, which has become increasingly mobile across borders, through lower corporate income tax rates and tax incentives, while domestic and international reforms have sought to curb profit shifting and protect tax bases. This chapter shows that tax competition remains a defining feature of the global economy, but its nature is changing. Tax competition has moderated on some dimensions following major anti-avoidance reforms, although competitive pressures remain, notably among economies at similar stages of development. Differences in corporate income taxation continue to generate cross-border spillovers, as multinational corporations relocate profits and investment across countries to minimize their tax liabilities, but anti-avoidance efforts are increasingly realigning them. Although corporate income tax cuts can expand productive capacity domestically and abroad, the global effects depend on the extent to which capital relocation can be offset and how governments adjust their budgets. Debt-financed tax cuts can raise global interest rates and crowd out investment abroad, whereas tax cuts financed by lower public investment can undermine domestic productivity and potential output over time. Stronger anti-avoidance frameworks, however, can support output while protecting tax revenues, helping ease trade-offs, particularly in emerging market and developing economies that rely more heavily on corporate income tax revenues.*

## Introduction

Globalization and digitalization—with the secular shift toward investment in intangible assets—have driven a steady rise in the international mobility of

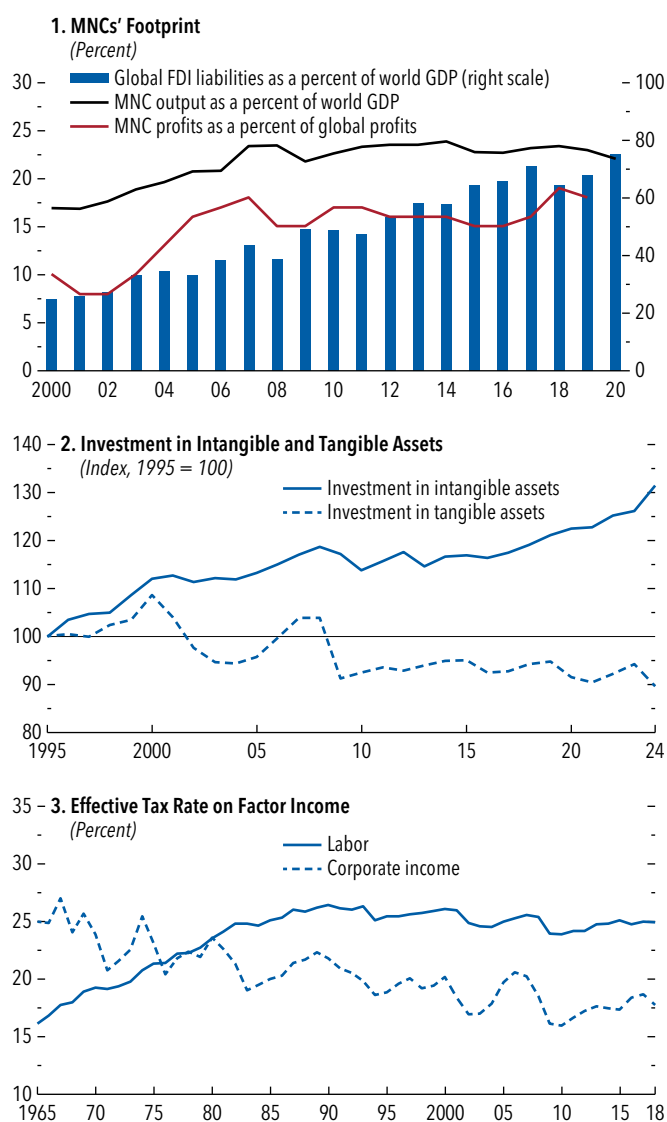
capital in recent decades. Greater global financial integration has led cross-border investment to nearly quadruple since the 2000s. Multinational corporations (MNCs) now account for more than 20 percent of global GDP and approximately 15 percent of global corporate profits (Figure 3.1, panel 1).

At the same time, the pace of digitalization has meant that intangible assets—such as copyrights, databases, patents, processes, software, and trademarks—are now major determinants of firm value and drivers of corporate profit, along with the continued shift from production to services (Figure 3.1, panel 2). And these intangible assets have provided greater scope for MNCs to relocate profits and activity across borders—tax base shifting—to exploit corporate income tax rate differentials between countries and benefit from tax incentives, creating a disconnect between profits and activity.

In response, governments have reduced corporate income tax rates and increased the generosity of tax provisions, including tax incentives, to attract highly mobile capital. However, this has also narrowed the corporate income tax base. Over time, these government actions have been associated with a decline in the tax burden—the share of tax liabilities in taxable income—on capital relative to labor globally (Figure 3.1, panel 3). Yet the taxation of corporate income poses unique challenges to governments as they seek to strike a balance between (1) minimizing tax-induced distortions to encourage domestic investment and prevent capital flight and (2) revenue mobilization, which is particularly important for emerging market and developing economies, given limited fiscal space and the sizable share of corporate income tax revenues in total domestic revenues.

In this context, with fiscal space narrowing and spending needs remaining elevated in many economies, governments are increasingly seeking durable sources of revenue while avoiding measures that could undermine investment, productivity, and growth. As a result, understanding the trade-offs and cross-border implications of corporate income tax policy is more important than ever. This chapter aims to examine the size and

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**Figure 3.1. Globalization and Digitalization Trends**

Sources: Tørsløv, Wier, and Zucman 2022; World Intellectual Property Organization (WIPO)-Luiss Business School Global INTAN-Invest Database, June 2024; and IMF staff calculations.

Note: FDI = foreign direct investment; MNC = multinational corporation.

nature of cross-border spillovers arising both from governments' strategic responses and firms' reallocation of investment and profits across countries and how they have changed. The analysis is structured around the following questions:

- How has the global corporate income tax landscape evolved?
- How large are the spillovers from tax competition and base shifting, and how do these spillovers differ across countries and over time?

- How have recent tax reforms—including measures aimed at curbing tax avoidance—impacted firms' profit shifting and real investment decisions?
- How do spillovers vary under alternative scenarios of tax competition and different ways of financing corporate income tax cuts in the short and long term?

The chapter complements existing work on assessing tax competition that has quantified the revenue implications of firms' behavioral responses and the implications of corporate income taxation for foreign direct investment (FDI) (IMF 2014; IMF 2016; Crivelli, de Mooij, and Keen 2016; IMF 2019; IMF 2023). By disentangling spillovers from strategic tax competition—when governments respond to one another's tax policies when setting their own—and base shifting, the analysis sheds light on their macroeconomic effects and how they vary across countries and over time. The chapter also analyzes how the growing importance of intangible assets and stronger anti-avoidance rules impact firm behavior. Finally, it provides a novel perspective on spillovers by examining how the strategic behavior of governments and MNCs shapes the international transmission of corporate income tax policies in a general equilibrium setting.

Three main findings emerge:

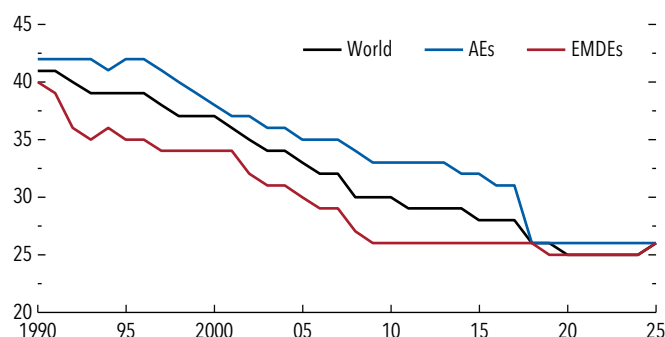
- *First, tax competition remains important, but its form appears to be changing.* Governments continue to respond strategically to one another's corporate income tax policies: a 1 percentage point reduction in the average peer country's statutory corporate income tax rate is associated with a 0.4 percentage point cut in the home country's rate. Competition also tends to be stronger among economies at similar stages of development. However, strategic interactions have weakened since the major anti-avoidance reforms of the 2010s, particularly in regard to statutory tax rates, while tax incentives and other targeted provisions have become increasingly important.
- *Second, corporate income tax policies generate cross-border spillovers through profit shifting, investment reallocation, and knowledge-transfer channels.* A 1 percentage point increase in a country's corporate income tax rate relative to rates elsewhere is associated with a cumulative decline in FDI inflows of about 0.5 percent of GDP over three years. At the firm level, the location of new

investment has become considerably more sensitive to tax differentials since 2017. At the same time, anti-avoidance efforts have weakened the link between tax differentials and profit shifting, while increasing the sensitivity of real investment decisions to tax rates. As a result, profits and real economic activity could become more closely aligned, even as tax differentials continue to influence where MNCs invest.

- *Third, the effects of corporate income tax competition involve important trade-offs.* Lower corporate income tax rates can stimulate investment, innovation, and productive capacity but may also reduce revenue. Overall, the domestic and spillover effects depend on how revenue losses are financed and on the strength of anti-avoidance frameworks. Debt-financed tax cuts can generate negative spillovers in the short term by raising global interest rates and crowding out investment elsewhere. Domestically, tax cuts that come at the cost of public investment can adversely impact output in the long term, but implementing stronger anti-avoidance measures can ease some of the trade-offs, particularly for emerging market and developing economies.

The chapter is structured as follows. First, it provides a short primer on key spillover channels from tax competition and documents how corporate income tax policies have evolved over time and how MNCs may have adjusted. Second, it analyzes the short-term spillovers associated with domestic tax policy changes using empirical and model-based approaches. Third, the analysis is extended to consider governments' strategic interactions, evaluating how the tax policy setting in one country is shaped by tax policy changes elsewhere and how tax differentials affect cross-border investment. Fourth, it focuses on MNCs' decisions—how tax differentials influence where they book profits, where they locate new investment, and how much they invest, given their global production networks. It also examines how these decisions have been affected by anti-avoidance efforts and the shift toward intangible assets. Finally, the chapter uses model-based simulations to examine the long-term spillovers from tax competition and stronger anti-avoidance policies, with particular attention to the trade-offs facing emerging market and developing economies.

**Figure 3.2. Statutory Corporate Income Tax Rates over Time (Percent)**



Sources: Tax Policy Center; and IMF staff calculations.

Note: The figure shows the 10-year purchasing-power-parity GDP-weighted average. AEs = advanced economies; EMDEs = emerging market and developing economies.

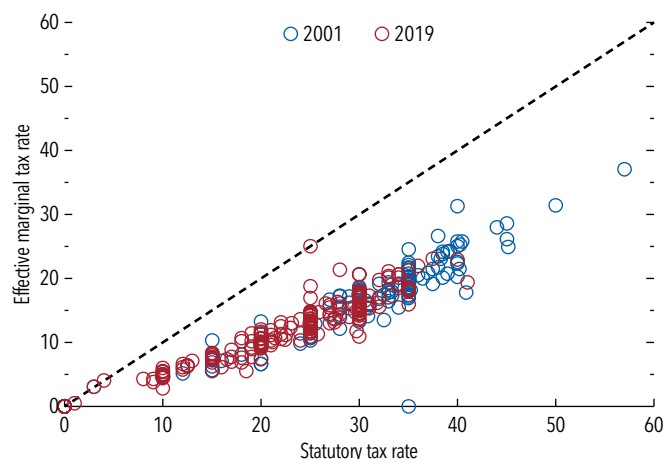
## A Primer on Spillovers from Corporate Income Tax Policy Changes

Tax competition and base shifting can reduce global efficiency. At the domestic level, they can weaken revenue collection, distort the allocation of capital across the private and public sectors, and create opportunities to reclassify labor income as corporate income—and thereby undermine the ability of the corporate income tax to backstop the personal income tax by limiting opportunities for individuals to shift income into lower-taxed corporations (Wilson 1986; IMF and others 2015). At the global level, they can cause capital and profits to move toward low-tax jurisdictions rather than toward locations where returns are highest (Alfaro, Kalemli-Özcan, and Volosovych 2008; Gourinchas and Jeanne 2013).

## Strategic Corporate Income Tax Policymaking by Governments

Corporate income tax systems extend beyond headline statutory tax rates to include base-related provisions and safeguards designed to limit tax avoidance. Governments deploy these instruments to compete with one another to attract corporate profits and investment, with important macroeconomic effects. In particular, governments lower statutory corporate income tax rates in response to rate choices elsewhere, driving a race to the bottom, which appears to have stabilized in recent years (Figure 3.2). Rate-based instruments also include profit-based tax incentives,

**Figure 3.3. Statutory versus Effective Corporate Income Tax Rates, 2001 and 2019**  
(Percent)



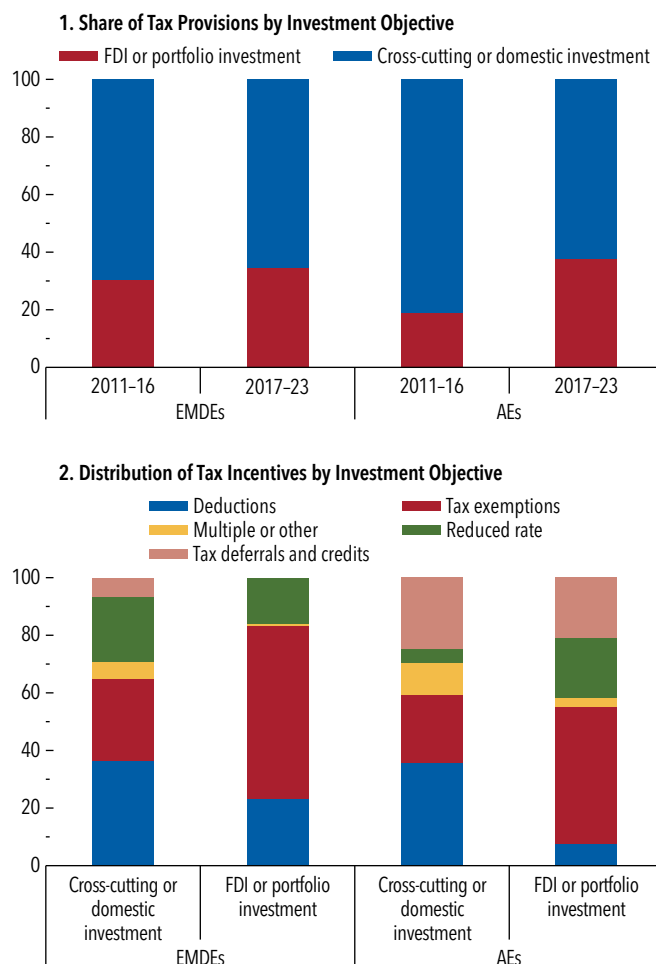
Sources: International Tax Institutions Database; and IMF staff calculations.

such as tax holidays—prevalent across emerging market and developing economies—and patent box regimes that are used by advanced economies to attract intangible assets and provide preferential tax treatment for income derived from patents and other intellectual property (IMF and others 2015). Over time, the nature of tax competition appears to have changed, with a shift from rate cutting toward profit-based incentives (see Box 3.1). Governments may also compete through base-narrowing measures. Generous cost-based incentives—such as investment tax credits, accelerated depreciation, and enhanced allowances for research and development (R&D)—reduce the user cost of capital and can attract investment. Governments appear to have introduced increasingly generous base-narrowing measures to attract capital, as effective rates are lower than statutory rates, and the difference has increased over time in many countries (Figure 3.3).<sup>1</sup>

Governments can also use tax incentives that target specific sectors or firms to incentivize activity and attract capital. The design of investment incentives has become more targeted, with a growing share of provisions aimed at attracting FDI and portfolio flows (Figure 3.4, panel 1). This trend is evident across both advanced economies and emerging market and developing economies and low-income countries. In practice, profit-based incentives—such as exemptions

<sup>1</sup>These rates capture economy-wide base policies that affect the depreciation of assets as well as interest deductibility.

**Figure 3.4. Tax Rate and Base Policies**  
(Percent)

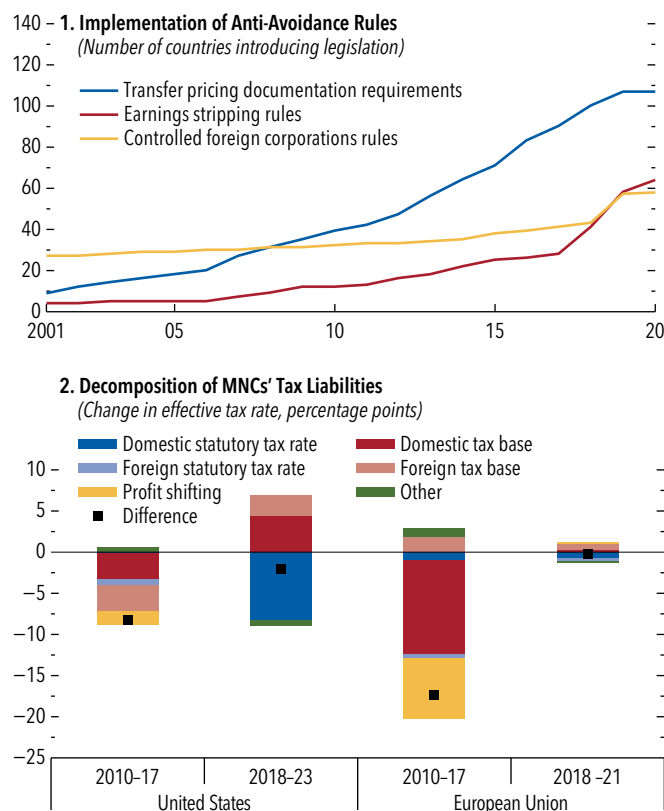


Sources: Global Tax Expenditures Database; and IMF staff calculations.

Note: AEs = advanced economies; EMDEs = emerging market and developing economies; FDI = foreign direct investment.

and preferential tax rates—are widely used to attract international investment. At the same time, emerging market and developing economies and low-income countries rely more heavily on such instruments than advanced economies in competing for mobile capital (Figure 3.4, panel 2).

However, since 2013, the international corporate income tax landscape has undergone significant reform, starting with the 15-point Action Plan from the Organisation for Economic Co-operation and Development (OECD)/Group of Twenty (G20) Base Erosion and Profit Shifting (BEPS) initiative, followed by guidance in 2015 on anti-avoidance measures that target specific profit-shifting channels and strengthen the link between profits and underlying economic

**Figure 3.5. Anti-Avoidance Rules and the Taxation of Multinational Corporations**

Sources: Bureau of Economic Analysis (BEA) Database; International Tax Institutions Database; Orbis; and IMF staff calculations.

Note: Panel 2 shows backward-looking effective tax rates. Negative (positive) values indicate a contribution to reducing (increasing) MNCs' effective tax rates. Period labels refer to cumulative year-on-year changes over the indicated interval. For example, 2010-17 cumulates all annual changes from 2009-10 to 2016-17. MNCs = multinational corporations.

activity (see Box 3.2). Reforms have included controlled foreign corporation rules, strengthened transfer pricing regulations, and interest limitation rules. Countries have discretion over whether, when, and how to implement these measures, and although many of them pre-date the BEPS initiative, their adoption has since broadened, although somewhat unevenly (Figure 3.5). Soon after adoption of these measures, the United States enacted the Tax Cuts and Jobs Act (TCJA) in 2017, which lowered the statutory rate, moved the country to a more territorial taxation system, and included provisions to curb base erosion and profit shifting and influence the location of mobile income—notably Global Intangible Low-Taxed Income (GILTI, a minimum tax on foreign earnings), Base Erosion Anti-Abuse Tax (BEAT, targeting cross-border deductions), and Foreign-Derived Intangible Income (FDII, providing preferential

treatment for export-related intangible income).<sup>2</sup> By introducing minimum taxation of foreign income, the TCJA contributed to a compression of the global distribution of effective tax rates, likely reinforcing broader trends toward convergence in corporate income tax burdens.

### Strategic Base Shifting by Multinational Corporations

In turn, MNCs respond to the resulting international corporate income tax system by exploiting cross-country tax differentials when choosing where to book profits, locate investment (extensive margin), and expand investment (intensive margin).<sup>3</sup>

Strategies employed by MNCs include transferring ownership of intangible assets to a subsidiary in a low-tax jurisdiction and paying royalties (*location of intangibles*); adjusting intrafirm prices, with affiliates in higher-tax countries underpricing sales (or overpricing purchases), especially when hard-to-value intangible assets are involved (*transfer pricing*); using intra-group borrowing arrangements whereby high-tax affiliates make tax-deductible interest payments to low-tax affiliates (*debt shifting*).<sup>4</sup> These practices can substantially reduce effective tax burdens on corporations without corresponding changes in real activity.

The increasing importance of intangible capital has amplified these dynamics. Firms can decouple the location of profits from the location of underlying economic activity more easily with intangible assets than with tangible assets. This is because intangible assets are highly mobile and nonrival, such that they can be used

<sup>2</sup>A territorial system of taxation is one in which a country taxes only the domestic income of resident firms, generally exempting most foreign source income earned by their subsidiaries abroad. Under such a system, profits are taxed primarily in the jurisdiction where they are generated, rather than in the parent company's home country. This contrasts with worldwide systems, which tax global income but often allow credits for foreign taxes paid.

<sup>3</sup>A firm's tax liability reflects both statutory tax rates and tax base provisions. While statutory rates are particularly relevant for profit-shifting incentives, they provide an incomplete measure of investment incentives because they abstract from features of tax systems such as depreciation allowances, investment tax credits, and loss-offset rules. Forward-looking effective tax rates account for these features and are therefore better suited to assessing investment incentives. Effective marginal tax rates affect decisions about the scale of investment by measuring the tax wedge on a marginal project, while effective average tax rates affect discrete investment choices by measuring the share of economic profits absorbed by taxation.

<sup>4</sup>While outside the scope of this chapter, debt shifting can generate tax-induced bias toward debt financing, potentially increasing financial stability risks and altering spillovers (see, for example, Fuest, Hebous, and Riedel 2011).

simultaneously across multiple locations (see Box 3.1). At the same time, policy changes—particularly the tightening of anti-avoidance rules—have altered firms' responses. When profit-shifting opportunities are curtailed, tangible investment decisions become more sensitive to tax differentials, suggesting MNCs' profit-bookings and economic activity decisions are becoming increasingly realigned (see Box 3.3).

Recent evidence based on decomposing effective tax rates of MNCs underscores this evolving interaction between tax policy and firms' behavior.<sup>5</sup> For a given MNC, changes in backward-looking effective tax rates—computed *ex post* from reported profits and taxes paid by MNCs—can be attributed to both tax policy shifts and profit-shifting responses. The former capture changes in statutory rates and tax base provisions, while the latter reflect reallocations of reported profits across jurisdictions with tax policies held constant. These patterns have been particularly evident in the United States following the TCJA, which led to a marked adjustment in effective tax burdens (Figure 3.5, panel 2). Estimates also suggest that profit shifting has weakened since 2017, exerting somewhat less downward pressure on MNCs' effective tax rates, consistent with the important tax initiatives described earlier, including those that strengthen efforts to curb profit shifting.

### General Equilibrium Effects

An important focus of this chapter is to go beyond the direct effects on investment and profit allocation and explore how corporate income tax cuts can influence macroeconomic outcomes through broader general equilibrium channels.

By raising after-tax returns, lower corporate income tax rates can stimulate private investment and expand productive capacity domestically.<sup>6</sup> The overall effect, however, depends on how the associated revenue loss is financed. Since tax revenues affect the allocation of resources between private and public spending, tax

cuts can increase private demand and investment while reducing the resources available for public expenditure in the short to medium term. However, in the long term, if revenue losses are offset through lower public investment, the resulting decline in public capital can weaken productivity and offset the output gains from higher private investment.

Corporate income tax cuts also affect activity beyond national borders. By encouraging both domestic and cross-border investment, lower tax rates can expand the global capital stock, facilitating technology diffusion and knowledge transfers that raise productivity across countries. The resulting gains may be particularly pronounced in economies with strong absorptive capacity or large productive sectors (Gross, Klein, and Makris 2022; Maebayashi and Morimoto 2024). The horizon of analysis is important when assessing the spillover effects of corporate income tax reforms. In the short term, tax cuts can generate positive demand spillovers through stronger imports and external demand. These effects depend on fiscal financing. Debt-financed tax cuts can raise global interest rates, partially offsetting the positive demand effects on trading partners—these demand-side and financial channel effects underpinning the macroeconomic response are explored here using the IMF Global Integrated Monetary and Fiscal model.<sup>7</sup> In addition, because firms can adjust their physical capital stock only gradually, these short-term dynamics may differ from the eventual long-term effects. Over the long term, the net impact on recipient countries depends on whether gains from stronger global capital accumulation and knowledge diffusion outweigh any adverse effects arising from the relocation of investment and tax bases to the tax-cutting economy—these effects are explored using a spatial model.

Taken together, the interaction of strategic tax competition—where MNCs choose to locate economic activity and profits—and general equilibrium effects implies that domestic corporate income tax policy changes have consequences well beyond national borders.

### Macroeconomic Spillovers from Corporate Income Tax Policies

This section assesses how domestic corporate income tax policies in major advanced economies impact

<sup>5</sup>See Online Annex 3.1 for methodological details of the decomposition, which follows Garcia-Bernardo, Janský, and Tørsløv (2022). All online annexes are available at [www.imf.org/en/Publications/WEO](http://www.imf.org/en/Publications/WEO).

<sup>6</sup>See Chapter 2 of the October 2026 *Fiscal Monitor*, which finds that reducing tax-induced distortions to marginal investment can encourage investment by lowering the cost of capital. The chapter emphasizes that these gains need not rely on broad rate cuts or lower public spending but can instead be achieved through revenue-neutral reforms that improve cost recovery while preserving the taxation of economic rents.

<sup>7</sup>Domestic corporate income tax changes can also propagate globally through adjustments in prices, for example, through the appreciation of real exchange rates.

economic outcomes abroad in the short term. It then illustrates the relevant propagation channels through a dynamic general equilibrium model.

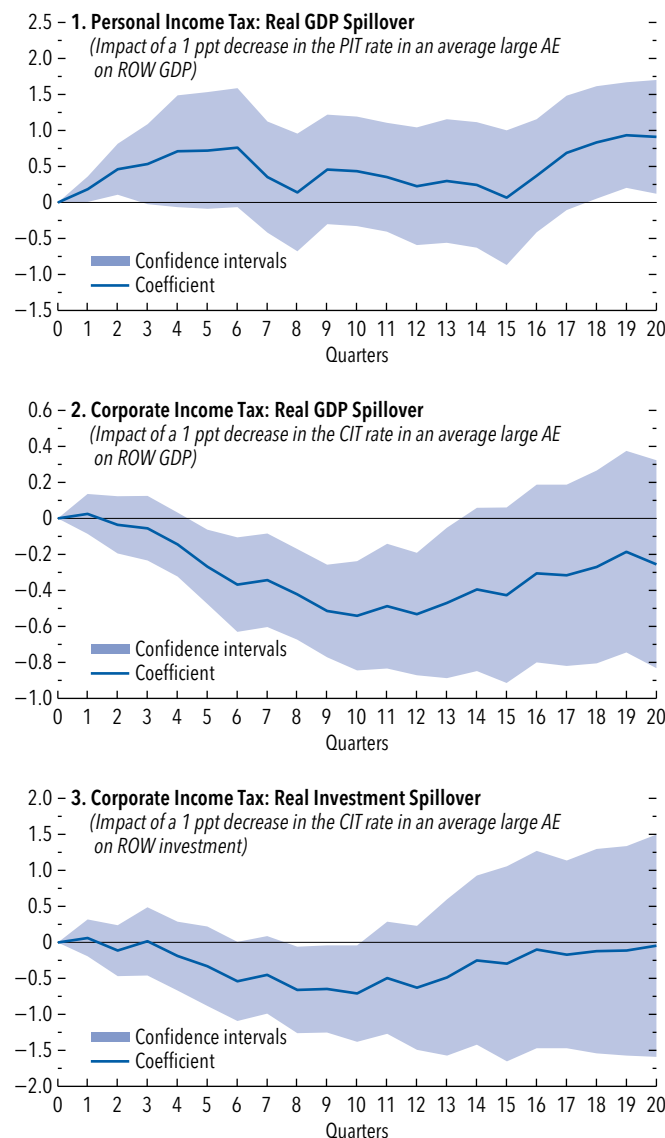
### Output Spillovers from Domestic Tax Cuts

The analysis starts by estimating how corporate income tax cuts in major economies affect output abroad.<sup>8</sup> The estimates use narrative-based tax shocks—policy changes that are less likely to reflect the normal business cycle. Corporate income tax cuts differ from personal income tax cuts because they operate through additional channels. Both types of tax cuts can boost domestic demand and imports, which helps trading partners. But corporate income tax changes in one economy can also pull investment and profits away from other economies or raise global financing costs. By contrast, personal income tax cuts tend to work more through higher labor supply and consumption, generating positive spillovers through trade with less upward pressure on global interest rates. The overall effect on the rest of the world is therefore an empirical question.

The evidence points to a clear contrast. Corporate income tax cuts in major economies are associated with lower output and investment abroad. Output in the rest of the world falls by as much as 0.5 percent two years after a corporate income tax cut. Personal income tax cuts, by contrast, tend to generate positive external effects, with output elsewhere rising by about 0.5 percent within a year and continuing to increase thereafter, although the response is not statistically significant (Figure 3.6, panels 1 and 2). This helps reconcile earlier evidence that tax spillovers are often small on average: Positive spillovers from personal income tax cuts may offset negative spillovers from corporate income tax cuts, even though the two work through different channels (Beetsma and others 2006; IMF 2016).

Corporate income tax cuts differ from personal income tax cuts because capital is more mobile than labor. When a major economy cuts its corporate

**Figure 3.6. Spillovers from Domestic Tax Cuts: Empirical Estimates**  
(Percent)



Sources: Cloyne 2013; Cloyne, Dimsdale, and Hürtgen 2025; Hayo and Uhl 2014; and IMF staff calculations.

Note: Panels show the cumulative associated impact on real GDP and real investment in the rest of the world of a 1 percentage point (ppt) decrease in the rate of average PIT or the average CIT rate for Germany, the United Kingdom, and the United States, instrumented by narrative shocks. Shaded areas denote 90 percent confidence intervals. AE = advanced economy; CIT = corporate income tax; PIT = personal income tax; ROW = rest of the world.

<sup>8</sup>The analysis follows Mertens and Ravn (2014) to orthogonalize the personal income tax and corporate income tax shock series and focuses on three major economies: Germany, the United Kingdom, and the United States. Further details on the construction of the corporate income tax and personal income tax shocks and the methodology for doing so are provided in Online Annex 3.2. The results are largely driven by corporate income tax changes in the United States, with those from Germany and the United Kingdom showing effects that are qualitatively similar but not statistically significant.

income tax rate, MNCs may redirect investment toward that economy and away from others. Corporate income tax cuts also raise after-tax returns and can trigger a strong domestic investment response. The resulting increase in demand for capital can push up real interest rates, which are transmitted through

global financial markets and crowd out investment abroad when the implementing jurisdiction is large (Figure 3.6, panel 3).

### Global Transmission of Domestic Tax Cuts in the Short Term: Model-Based Illustration of Channels

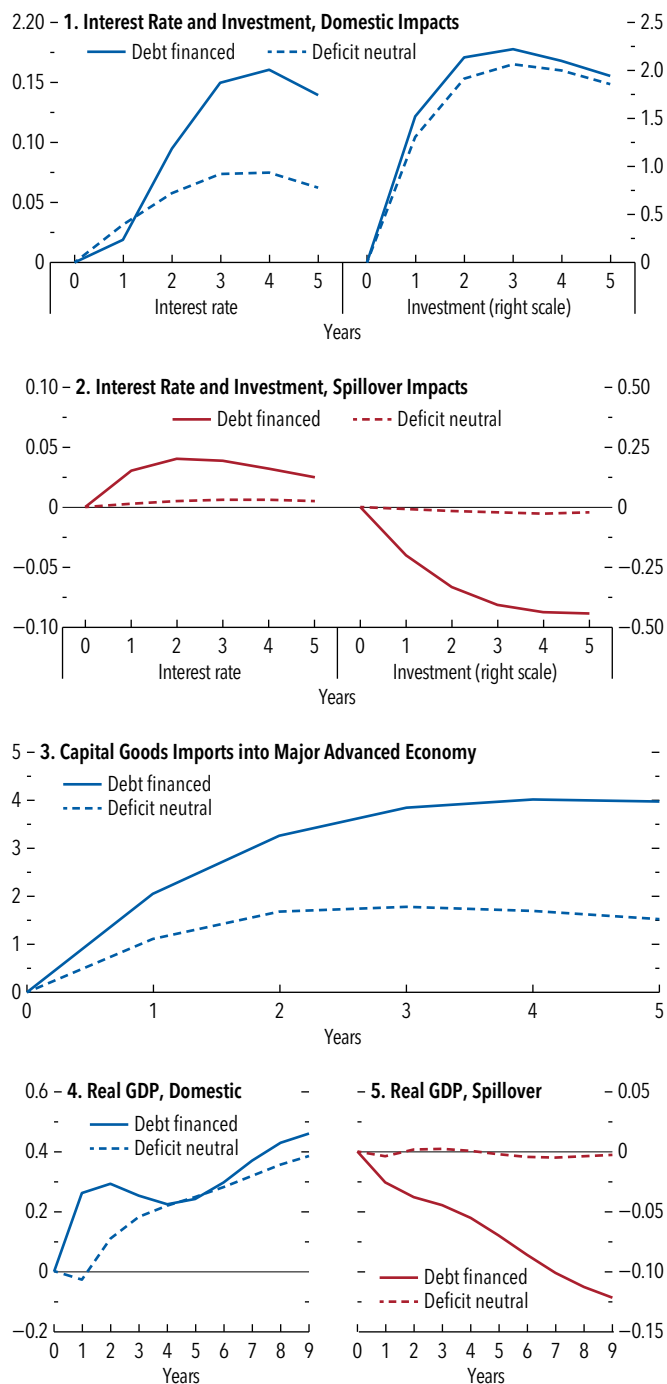
How do corporate income tax cuts propagate domestically and internationally? The IMF's Global Integrated Monetary and Fiscal model is used in this subsection to illustrate how corporate income tax cuts may affect domestic and foreign activity through trade, capital reallocation, and financial channels under alternative financing assumptions in the short term. Within the model, spillover effects are amplified when tax cuts are debt financed, because higher public borrowing raises global real interest rates, further crowding out investment abroad. By contrast, budget-neutral tax cuts generate more muted spillover effects.

#### Domestic Dynamics after a Tax Cut

A reduction in the corporate income tax rate—simulated as a 3 percentage point cut—raises the after-tax return to capital in the implementing jurisdiction.<sup>9</sup> Firms respond immediately by expanding capital, and the resulting pickup in investment spending lifts domestic demand and draws resources toward the location where the marginal product of capital has risen. However, productive capacity is unable to expand one-to-one—as new capital takes time to build and firms face adjustment costs—and demand rises faster than capacity, putting upward pressure on the real interest rate (Figure 3.7, panel 1).

These dynamics are amplified if the corporate income tax cut is debt financed, as increased public borrowing adds to upward pressure on real interest rates. If the tax cut is not offset by lower spending or higher taxes elsewhere, public borrowing rises. At the same time, firms want to invest more. With both the public and private sectors demanding more funds, real interest rates rise to bring saving and investment into balance.<sup>10</sup> The model simulations do not account for

**Figure 3.7. Domestic and Spillover Effects from Domestic Corporate Income Tax Cuts: Model Simulations**  
(Percent, deviation from baseline)



Source: IMF staff calculations.

Note: Responses to a 3 percentage point permanent fall in the corporate income tax rate of a major advanced economy. Effects abroad are GDP-weighted impacts outside of the large advanced economy that initiates the corporate income tax rate cut.

<sup>9</sup>See Online Annex 3.3 for further details on the model simulations. Deficit-neutral simulations reduce government transfers to offset the budgetary effects of the corporate income tax cut.

<sup>10</sup>This result hinges on the non-Ricardian nature of households in the Global Integrated Monetary and Fiscal model. If households were Ricardian, household saving would rise one-to-one in response to government dissaving.

the potential amplification channel of higher sovereign risk premiums when tax cuts are deficit financed in economies with already-elevated debt levels.

### *International Transmission: Investment Reallocation, Higher Global Rates, and Trade Spillovers*

With globally integrated financial markets, a domestic tax cut affects the rest of the world through more than one channel. As a result of higher after-tax returns, the tax-cutting jurisdiction attracts investment and capital goods, reallocating capital away from jurisdictions where tax policies are unchanged. In the short term, this reallocation can weigh on investment and output abroad, even as stronger import demand from the tax-cutting economy provides a partly offsetting trade channel. In the model, when the tax cut is debt financed, the rise in borrowing further increases the global demand for funds, putting upward pressure on the world real interest rate.

In such a scenario, as global rates rise, domestic and foreign firms face higher financing costs, which weaken investment everywhere, even in jurisdictions where tax policies are unchanged (Figure 3.7, panels 2 and 3). Consequently, investment abroad is crowded out, and output falls elsewhere (Figure 3.7, panel 5).

In the short term, spillovers are much smaller where rate cuts are deficit neutral—that is, financed by lower government spending or higher taxes. In that case, public borrowing rises less, capacity constraints are less binding, and interest rate hikes are suppressed both at home and abroad (Figure 3.7, panel 2).

## **Spillovers from Tax Competition and Base Shifting**

Having established how changes to domestic tax policies can induce cross-border spillovers, the next step is to examine the implications of strategic interactions between governments.

### **Strategic Tax Competition**

While the downward trend in corporate income tax rates is indicative of tax competition, it does not by itself confirm strategic behavior. Other confounding economic, political, and institutional factors, such as common intellectual trends or a shift toward a more business-friendly environment (in Heimberger 2021, for example) can all produce similar patterns.

Therefore, a canonical peer effects model is used to estimate governments' reaction functions to corporate income tax policies abroad. Domestic tax policy decisions respond to, and can move with, tax policy changes in peer countries, their exogenous characteristics, and unobserved common shocks.<sup>11</sup> At a basic level, countries are influenced by their geographic neighbors, a relationship that partly captures similarities in economic, institutional, and political characteristics.<sup>12</sup>

The results indicate clear strategic complementarity. A 1 percentage point reduction in the average peer country's statutory corporate income tax rate is associated with a 0.4 percentage point cut in the implementing jurisdiction's statutory tax rate (Figure 3.8, panel 1).<sup>13</sup> The results are strongest among countries that are comparable in size and level of development or that international investors view as close substitutes (Figure 3.8, panel 3). Estimates for effective tax rates also suggest strategic complementarity, implying that competition operates through base-narrowing policies as well, although with weaker responses than if statutory corporate income tax rates are changed.

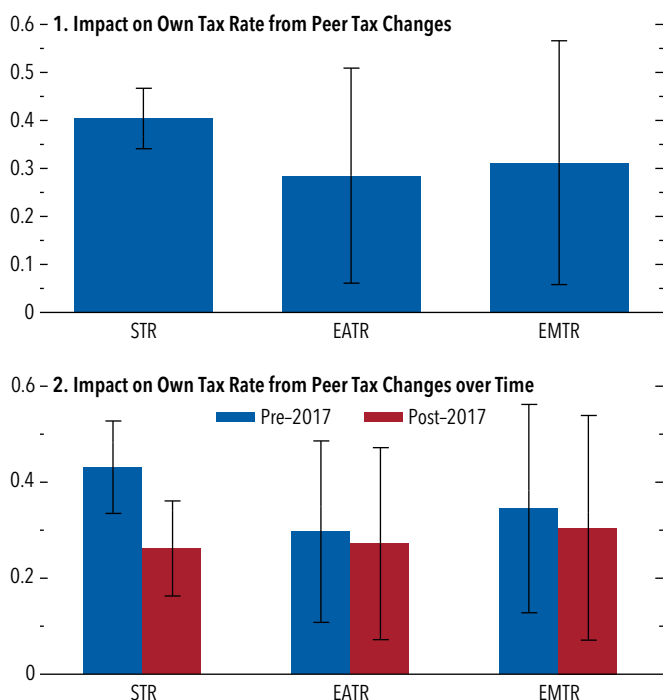
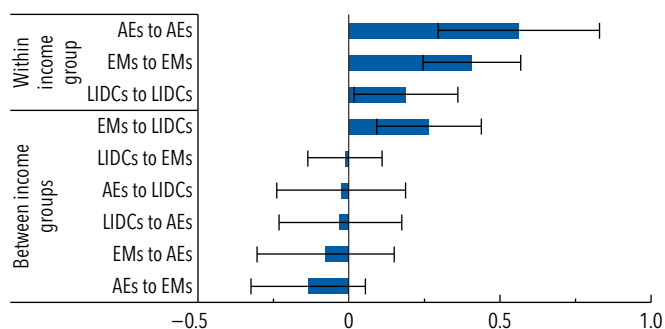
The intensity of strategic tax competition has eased following the period of significant reform efforts to address tax avoidance during 2013–17, primarily in statutory rates (Figure 3.8, panel 2).<sup>14</sup> While the reduction in tax competition is not statistically significant for effective tax rates, the use of other tax

<sup>11</sup>Online Annex 3.4 discusses the identification of strategic tax competition, which is complicated by the inherent simultaneity and endogeneity in tax policy decisions, when a country's own policies and those implemented by peers are influenced by common unobservables in the peer group. In addition, the choice of weights used to define the peer group can also induce further sources of endogeneity. To mitigate this, the identification strategy employed here exploits changes to the political system of peers (such as time since election and share of opposition in parliament) while controlling for own-country political changes. The identifying assumption is thus that political shocks to peers determine their tax policy choices—for instance, the desire to change tax rates at the start of a new government's term—but do not directly affect other countries' tax policy (Manski 1993; Bramoullé, Djebbari, and Fortin 2009).

<sup>12</sup>To identify which country peers can be more influential, peer weights are also constructed based on similarity in receiving foreign direct investment (FDI) inflows, obtained from a gravity model of international capital flows (Naitram 2022).

<sup>13</sup>The average effect is slightly lower than that in other studies, which could reflect, among other things, the inclusion of recent years in the sample, when international tax reforms aimed at limiting base erosion and reducing harmful tax competition gained momentum.

<sup>14</sup>Other cutoff dates were tested, and changes were found to be more significant around 2017.

**Figure 3.8. Spillovers from Tax Competition***(Percentage point change in response to a 1 percentage point tax cut by peers)***3. Impact on Own Tax Rate from Peer Tax Changes by Country Groups**

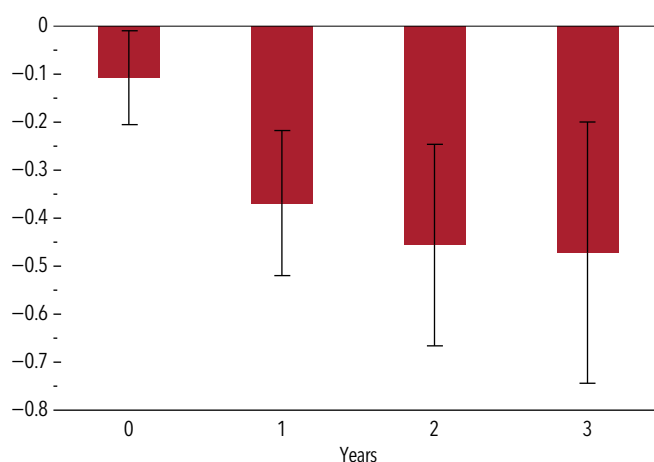
Sources: International Tax Institutions Database; and IMF staff calculations.

Note: Whiskers are Driscoll-Kraay standard errors, robust to heteroscedasticity, serial correlation, and spatial correlation. AEs = advanced economies; EATR = effective average tax rate; EMTR = effective marginal tax rate; EMs = emerging markets; LIDCs = low-income developing countries; STR = statutory tax rate.

provisions—such as profit-based incentives to promote innovation—has continued to increase in recent years, suggesting that the nature of tax competition has changed.

**Base Shifting amid Tax Competition**

The impacts of tax competition on base shifting at the macroeconomic level are explored in this

**Figure 3.9. Base Spillovers: FDI Sensitivity to Tax Differentials***(Cumulative impact of a 1 percentage point increase in the bilateral tax differential on host country-level FDI flows, percent of GDP)*

Sources: International Tax Institutions Database; and IMF staff calculations.

Note: FDI = foreign direct investment.

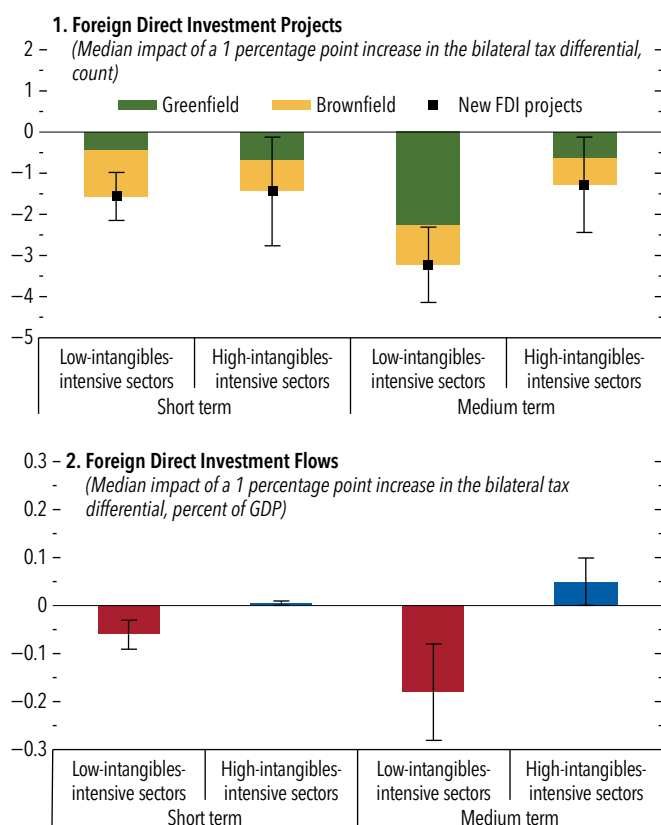
subsection by assessing how corporate income tax rate differentials between host and source countries can alter the allocation of FDI flows across countries.<sup>15</sup>

The results suggest that wider tax differentials reduce FDI inflows: A 1 percentage point increase in the corporate income tax rate relative to rates in other countries is associated with a cumulative decline in FDI inflows of about 0.5 percent of GDP over three years (Figure 3.9). The magnitude is consistent with evidence on the sensitivity of investment to corporate income tax rates and confirms that base shifting is a significant outward spillover channel.

Data at the country-industry level are used to disentangle FDI responses that could arise from changes both at the extensive margin (the number of new FDI projects) and at the intensive margin (the level of investment). Furthermore, the role of intangibles can be examined by assessing differences in the intensity of their use among sectors. Firms in high-intangibles-intensive sectors—for example, information and communications technology (ICT) services—have greater scope to combine real investment decisions with profit-shifting strategies. Therefore, when the

<sup>15</sup>Potential endogeneity—as tax policy often reacts to economic conditions and to attract FDI—is addressed by using the exogenous variation derived from the political cycles of peer countries, controlling for the strategic tax competition interactions estimated in the previous section with the control function approach.

**Figure 3.10. Response of Sectoral Foreign Direct Investment to Changes in Tax Differentials**

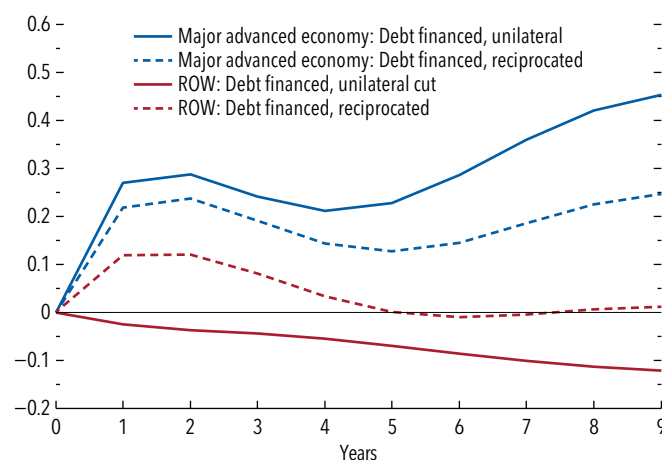


Sources: Multinational Revenue, Employment, and Investment Database; and IMF staff calculations.

Note: High-intangibles-intensive sectors include information and communications technology, legal services, and management services. In panel 1, the dependent variable is the total number of new FDI projects in the host country. In panel 2, the dependent variable is the cumulative change in the ratio of assets to initial GDP. Estimates exclude domestic investment projects. Whiskers denote 90 percent confidence intervals. FDI = foreign direct investment.

effective average tax rate in one country increases to 1 percentage point above those of neighboring countries, the country has 1.5 fewer new greenfield projects than its neighbors in the short term. Over the medium term, the elasticity can be as high as 4 for firms in low-intangibles-intensive sectors, which may have more limited profit-shifting opportunities (Figure 3.10, panel 1). The results also suggest that the adjustment to tax differentials is more prominent for greenfield investments, where firms have more discretion over location choices than in the acquisition of existing firms (Hebous, Ruf, and Weichenrieder 2011). Estimates at the intensive margin are qualitatively consistent with results at the extensive margin (Figure 3.10, panel 2).

**Figure 3.11. Output Effects from Tax Competition**  
(Deviation from baseline, percent)



Source: IMF staff calculations.

Note: A major advanced economy reduces the corporate income tax rate by 3 percentage points, and ROW responds with a 1.2 percentage point cut. Unilateral cut refers to only the major advanced economy reducing its corporate income tax rate; in the reciprocated case, ROW responds. ROW = rest of the world.

## How Does Tax Competition Alter Transmission Abroad?

Model-based simulations using the IMF's Global Integrated Monetary and Fiscal model can once again be used to show how cross-border spillovers from corporate income tax policies change in the presence of tax competition. Using the estimated response elasticity obtained earlier for tax competition, the rest of the world is assumed to lower the effective corporate income tax rate by 1.2 percentage points in response to the 3 percentage point cut by the major economy. When all tax cuts are debt financed, and because of the additional boost to demand in the reciprocating economies, real interest rates increase in all countries. This reduces the increase in GDP in the major rate-cutting economy, relative to the earlier unilateral case (Figure 3.11, solid versus dashed blue line).

Notably, because interest rates are higher in all economies than in the unreciprocated case, the increase in GDP in the economy initiating the corporate income tax cut is smaller than in the unilateral case. Effectively, tax competition leads to a crowding out of the investment response in all economies. For the rest of the world, the output effect reflects two offsetting forces. On one hand, the original tax cut generates negative spillovers by drawing investment toward the initiating economy (solid red line). On the other hand, these

effects are offset by the rest of the world's tax cuts in response (dashed red line). Tax competition therefore alters both the distribution and magnitude of gains. It reduces the investment and output benefits accruing to the original tax-cutting economy and leaves all economies facing higher interest rates.

## Response of Multinational Corporations along Different Margins

Base shifting by MNCs encompasses responses to the international tax landscape along multiple decision margins—including the location and scale of investment or the shifting of profits to lower-tax jurisdictions.<sup>16</sup> The intensiveness of production in intangibles within countries and industries could also determine how different firms decide to allocate investment across the various margins.

### Profit-Shifting Activity

Firm-level evidence shows that reported profits respond strongly to cross-country tax differentials. Following Beer and Loeprick (2015) and Beer, de Mooij, and Liu (2020), the chapter relates affiliates' pretax profitability to the tax rates they face relative to the rates faced by others in the same MNC group.<sup>17</sup> The analysis also accounts for responses along the extensive margin, including cases in which affiliates in high-tax jurisdictions report zero or negative profits.

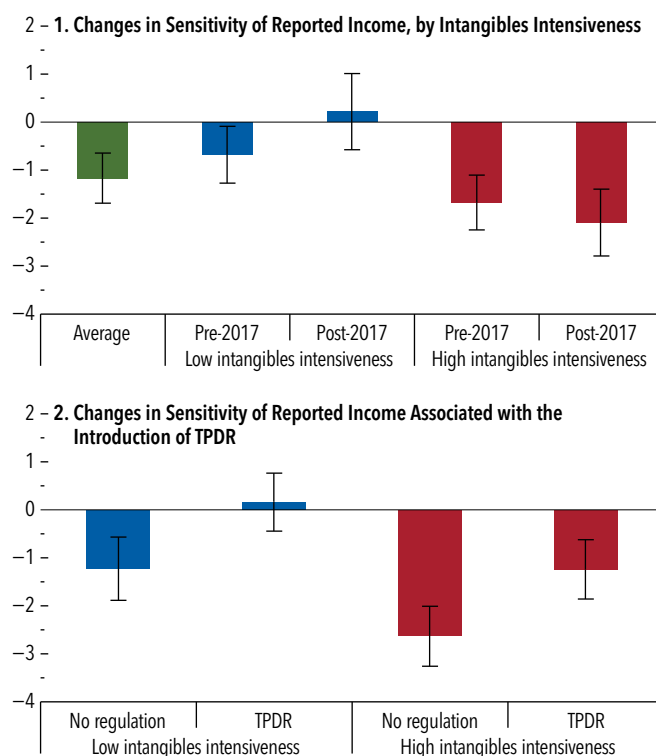
The results suggest that a 1 percentage point increase in a country's statutory rate relative to other locations where an MNC operates is associated with a decline in profits booked in that country of roughly 1 percent to 1½ percent (Figure 3.12, panel 1). However, this average effect masks substantial heterogeneity linked to intangibles intensiveness: The sensitivity of reported profits to tax differentials is 2.5 times higher for high-intangibles-intensive firms before 2017. Over time the sensitivity has fallen only for low-intangibles-intensive firms, with no evidence of any change for high-intangibles-intensive firms. One possible explanation is that the ongoing rise of intangible assets

<sup>16</sup>Statutory rates primarily affect profit-shifting incentives, whereas forward-looking effective tax rates combine rates and base provisions to capture investment incentives. Effective marginal tax rates affect the scale of investment, while effective average tax rates influence discrete location and project choices. For highly profitable projects, effective average tax rates converge toward statutory tax rates.

<sup>17</sup>See Online Annex 3.5 for methodological details.

**Figure 3.12. Sensitivity of Reported Income to Tax Differentials**

(Percent change in reported profits after a 1 percentage point increase relative to MNC affiliates in other locations)



Sources: Orbis; and IMF staff calculations.

Note: Sample corresponds to foreign affiliates of multinational corporations over the 2010–20 period, with headquarters in over 40 countries and subsidiaries in over 100 countries. Profits measure is based on earnings before interest and taxes. The increase in tax differential is measured relative to the asset-weighted average of corporate income tax rates within the multinational corporation group. An affiliate is defined as “high-intangibles intensive” when the ratio of intangible fixed assets to total fixed assets of its global ultimate owner exceeds 50 percent on average. Whiskers denote 90 percent confidence intervals. MNC = multinational corporation; TPDR = transfer pricing documentation requirements.

continues to facilitate profit shifting, partly offsetting the decline in tax competition.<sup>18</sup>

Anti-avoidance measures can also matter. The responsiveness of reported profits to tax differentials is lower for MNCs headquartered in countries that have adopted transfer pricing documentation requirements, consistent with the idea that administrative capacity and documentation requirements raise the cost of transfer pricing strategies (Figure 3.12, panel 2). Therefore, anti-avoidance measures can dampen

<sup>18</sup>At the global level, evidence of the evolution of profit shifting is mixed (see, for example, Wier and Zucman 2022 and Delis and others 2025).

profit-shifting incentives, although the effectiveness of such measures varies across firms and is closely tied to production structures and the mobility of the underlying tax base.

### Real Investment Decisions

If policy changes increasingly constrain profit-shifting opportunities, MNCs may adjust along other margins, notably the location and scale of investment. The analysis therefore now turns to firms' real investment decisions, distinguishing between the extensive margin—where firms choose to locate new investment—and the intensive margin: how much they invest once a location has been selected.<sup>19</sup>

#### Where to Locate Tangible Investment: The Extensive Margin

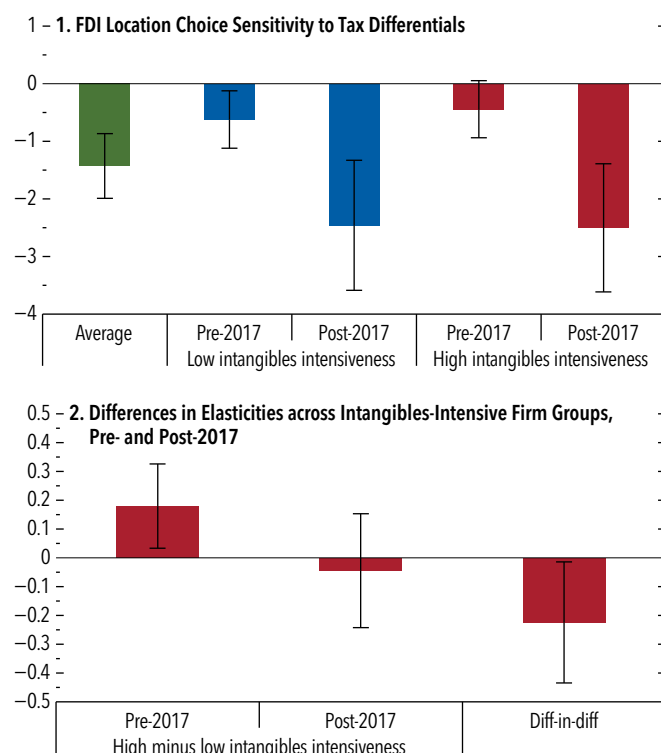
To study the choice of where firms locate new investment, the chapter uses project-level greenfield FDI data and estimates how the probability of choosing a particular host country for new investment responds to effective average tax rate differentials between the home country and potential host countries.<sup>20</sup> The estimates imply that the choice of location for FDI has become more sensitive to tax differentials since 2017. The average tax elasticity is approximately  $-1.4$ , such that a 10 percent increase in a country's tax rate reduces the likelihood of its being chosen as a destination for FDI by about 14 percent. The increase in sensitivity following 2017—from about  $\frac{1}{2}$  before 2017 to about 2 thereafter—is consistent with firms' paying closer attention to tax differentials when making real investment decisions because anticipated anti-avoidance measures make *ex post* profit shifting more difficult (Figure 3.13, panel 1).

<sup>19</sup>See Online Annexes 3.6 and 3.7 for the empirical specification related to estimating firms' extensive and intensive margins and cross-country tax differentials.

<sup>20</sup>In this exercise, the primary objective is to estimate the average responsiveness of investment to tax differentials and how it has changed over time and in the presence of anti-avoidance measures. The role of intangibles intensiveness is therefore assessed through changes in tax sensitivity rather than through a full sample split, which is found to yield less pronounced heterogeneity than for location decisions. The analysis employs a conditional multinomial logit regression framework based on project-level data on greenfield FDI (see Online Annex 3.6). MNCs are assumed to maximize expected profits, driven by local economic fundamentals (GDP, openness, population) and the effective average tax rate differential. This differential is interacted with a post-Tax Cuts and Jobs Act dummy and firm-level intangibles intensiveness to capture heterogeneity in profit-shifting capacity.

**Figure 3.13. Sensitivity of Investment Location to Tax Differentials**

(Percent change in probability of new projects related to a 1 percentage point tax differential)



Sources: Orbis Crossborder Investment; and IMF staff calculations.

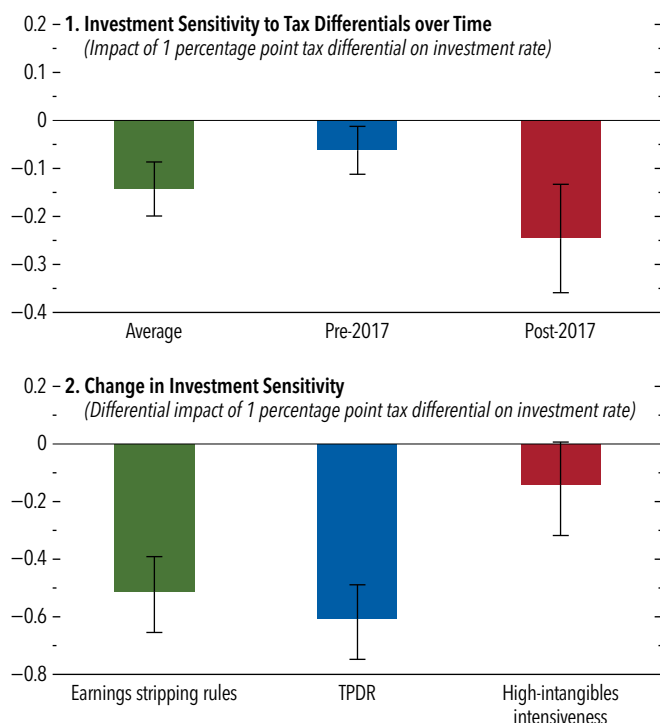
Note: The results are obtained from a conditional multinomial logit model with 25 potential choices of location for a greenfield investment (G20 economies, five low-tax jurisdictions, and a residual group). The variable of interest is the effective average tax rate differential. An affiliate is defined as "high-intangibles intensive" when the ratio of intangible fixed assets to total fixed assets of its global ultimate owner exceeds 50 percent on average. Whiskers denote 90 percent confidence intervals, based on standard errors clustered at the firm level. Diff-in-diff = difference-in-differences.

The shift is especially revealing when firms are split according to their intangibles intensiveness. Before 2017, firms with a higher share of intangible assets were less sensitive to effective average tax rate differentials, likely because they had more scope to shift profits after investing. After 2017, both high- and low-intangibles-intensive firms became more tax-sensitive, and the gap between them largely disappeared (Figure 3.13, panel 2). This convergence suggests that anti-avoidance measures made location choice more uniform by reducing the advantage of being able to shift profits later.

#### How Much to Invest: The Intensive Margin

Next, to analyze how much MNCs choose to invest in a particular location—the intensive margin—this

**Figure 3.14. Sensitivity of Investment Scale to Tax Differentials and Anti-Avoidance Efforts**  
(Percentage point)



Sources: Orbis; and IMF staff calculations.

Note: Sample corresponds to foreign affiliates of multinational corporations over the 2010–20 period, with headquarters in over 40 countries and subsidiaries in over 100 countries. The dependent variable is the investment rate. The main explanatory variable is tax differential in sector-specific effective marginal tax rate (EMTR) in the destination country relative to the asset-weighted group average EMTR across all subsidiaries of the multinational corporation group. An affiliate is defined as “high-intangibles intensive” when the ratio of intangible fixed assets to total fixed assets of its global ultimate owner exceeds 50 percent on average. Whiskers denote 90 percent confidence intervals. TPDR = transfer pricing documentation requirements.

subsection estimates the relationship between firms’ investment rate across existing affiliates and the sector-specific effective marginal tax rate differential between home and host countries. Findings indicate that a 1 percentage point increase in the effective marginal tax rate differential reduces the investment rate in that country by about 0.17 percentage point (Figure 3.14, panel 1).<sup>21</sup> The sensitivity roughly doubles after 2017, suggesting that as profit-shifting

<sup>21</sup>While estimated in an international context, this finding indicates that, for economies with existing affiliates of a particular MNC, a lower effective marginal tax rate relative to other jurisdictions is associated with new investment. This aligns with the results of Chapter 2 of the October 2026 *Fiscal Monitor*, which concludes that eliminating tax-induced increases in the cost of capital can support marginal investment.

opportunities diminished, MNCs responded by (re)allocating tangible capital. The increase is larger for MNCs headquartered in countries that introduced anti-avoidance measures, especially transfer pricing documentation requirements and earnings stripping rules (Figure 3.14, panel 2).

### *Profits and Investment Realignment?*

The broader implication of these findings is that policies aimed at curbing profit shifting may not only strengthen the link between profits and real investment but may also make real investment more responsive to tax differentials. Therefore, tax competition does not vanish; it changes form.

## **Tax Competition and Anti-avoidance: Long-Term Implications for Emerging Market and Developing Economy Revenue and Growth**

Domestic tax reforms—in particular, reducing corporate income tax rates and strengthening anti-avoidance efforts—have both revenue and investment-location effects, which may entail trade-offs even in the long term. For instance, a tax cut reduces domestic revenues mechanically, if the tax rate does not fall enough to attract profits from abroad or boost domestic activity. In contrast, anti-avoidance measures—which raise the costs for firms to shift profits out of the country—can limit policy trade-offs and increase the taxable base without undermining revenues.

At the same time, lower corporate income taxation can incentivize MNCs to move investment and profits to rate-cutting jurisdictions, potentially generating spillovers to activity in other economies. However, corporate income tax cuts also raise after-tax returns, thus boosting global investment by MNCs, especially those that rely heavily on nonrival intangible capital, which can be used simultaneously by all entities within the MNC group. As a result, the net spillover effect depends on the interaction between investment reallocation and expansion.

A spatial general equilibrium model of multinational production and intangible capital is used to assess how these channels shape the long-term impacts of tax competition, building on Dyrda, Hong, and Steinberg (2024).<sup>22</sup> The model includes six regions: a major

<sup>22</sup>See Online Annex 3.8 for details on the model, calibrated parameters, and robustness.

advanced economy, other advanced economies, a major emerging market economy, other G20 emerging market economies, “productive” low-tax jurisdictions, and “unproductive” low-tax jurisdictions.<sup>23</sup> Firms choose where to export, where to invest, how much intangible capital to accumulate, and whether to shift profits by locating mispriced intangible assets in low-tax jurisdictions. In the model, a corporate income tax cut in a particular jurisdiction affects output through four main channels. First, it narrows the tax differential between high- and low-tax jurisdictions, reducing incentives to “waste” resources on profit shifting and freeing resources for productive uses, such as R&D (*efficiency gains*). Second, it attracts both FDI and profits from MNCs headquartered in other jurisdictions and can encourage domestic MNCs to reshore production (*base shifting*).<sup>24</sup> Third, by raising after-tax returns, it can stimulate intangible investment that supports output wherever the MNC group operates (*knowledge transfers*).<sup>25</sup> Finally, a key channel is the shortfall in government revenues generated by the tax cut; in the model, a share of corporate income tax revenues finances productive public capital, such that reductions in revenues slow the accumulation of public capital, lowering productivity and output over the long term (*lower public capital*), notably where infrastructure and social spending needs are large or the initial corporate income tax rate is very low.<sup>26</sup>

### Tax Competition

The simulation discussed in this subsection considers tax competition at the global level: sequential reductions in statutory corporate income tax rates across all regions, with advanced economies moving first. A major advanced economy cuts its corporate income tax rate by 3 percentage points, and other

advanced economies cut their rates by 1.2 percentage points in response. Emerging market economies—a major emerging market economy and other emerging market economies—lower their corporate income tax rates by 1.2 percentage points.

The direct corporate income tax revenue effects are both sizable and consistent with recent empirical literature (blue bars in Figure 3.15, panel 1).<sup>27</sup> The effects are broadly proportional to the magnitude of the cut. In the major advanced economy, the overall effect on corporate income tax revenues (black squares in Figure 3.15, panel 1) entails a decline of just over 9 percent, which when applied to a corporate income tax base of about 1½ percent of GDP implies a fiscal cost of roughly 0.1 percent to 0.2 percent of GDP. In other advanced economies, where the rate reduction is smaller (1.2 percentage points from a 25 percent baseline) and corporate income tax revenues represent a somewhat larger share of GDP, collections fall by about 4 percent. The losses reflect both the mechanical effect of lower rates and a partial offset from weaker profit-shifting incentives, given the narrower gap between statutory rates. Corporate income tax revenues in emerging market economies also decline by about 4 percent.

Profits booked in low-tax jurisdictions decline by over 20 percent for the major advanced economy and by about 10 percent for other advanced economies, reflecting the narrower tax differentials relative to low-tax jurisdictions, notably for the former (blue bars in Figure 3.15, panel 2). When other emerging market economies engage in tax competition, they also narrow the gap between their corporate income tax rates and those in low-tax jurisdictions, leading to a decline in shifted profits of less than 10 percent (red bars in Figure 3.15, panel 2).

The output effects reflect the interaction of several offsetting forces. The *direct (domestic) effect* of lower tax rates is ambiguous. On one hand, the tax cut reduces government revenues considerably, which is assumed to constrain productive public investment. As a result, the long-term stock of public capital falls, lowering productivity and potential output. These adverse effects can be particularly pronounced when initial corporate income tax rates are already low or when infrastructure and social spending needs are

<sup>23</sup>The model is calibrated to match bilateral trade flows, FDI positions, MNC size in each region, and regional estimates of profits shifted to low-tax jurisdictions.

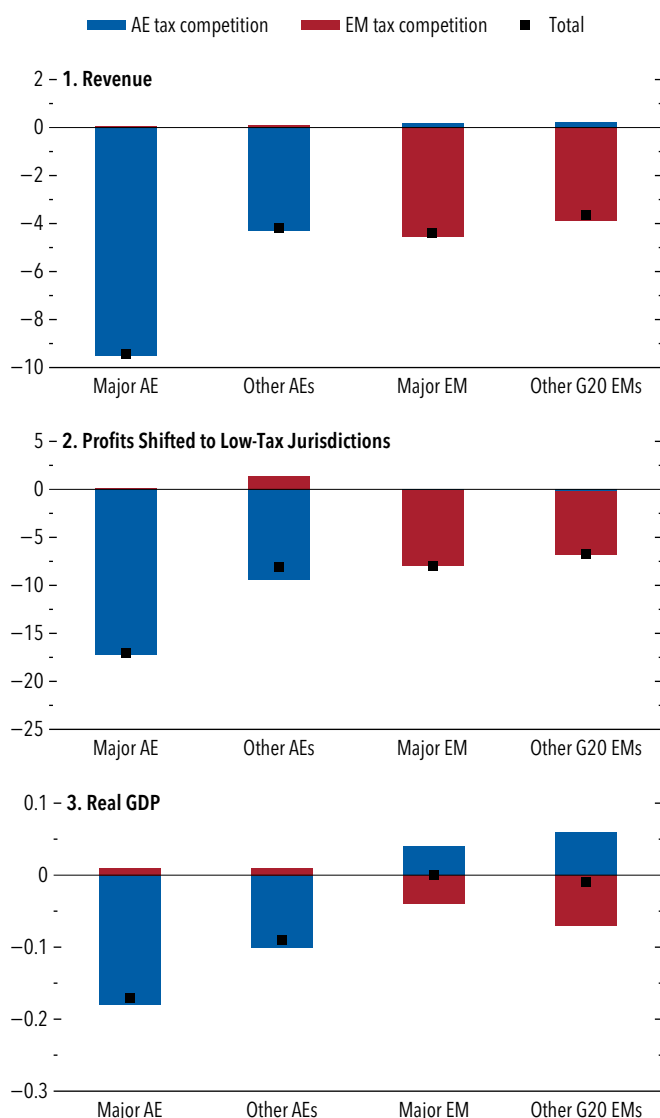
<sup>24</sup>Increased activity in the tax-cutting jurisdiction raises labor demand and wages in that jurisdiction. For jurisdictions not cutting taxes, however, the corporate income tax base can be eroded, even if their statutory rates do not change.

<sup>25</sup>This type of knowledge transfer does not entail spillovers to firms outside the MNC, given the excludability of intangibles. For this spillover channel, the analysis therefore presents a lower bound.

<sup>26</sup>The long-term simulations impose budget neutrality. Alternative assumptions regarding fiscal adjustment—such as reductions in current spending—could yield different domestic output responses in the long term, with the magnitudes dependent on the productivity and incidence of the category of spending subject to reduction.

<sup>27</sup>These effects are consistent with recent empirical literature, including Auerbach (2018), Barro and Furman (2018), Chodorow-Reich, Zidar, and Zwick (2024), Clausing (2024), and Gale, Hoopes, and Pomerleau (2024).

**Figure 3.15. Macroeconomic Effects of Tax Competition**  
(Percent change, deviation from baseline)



Source: IMF staff calculations.

Note: "AE tax competition" assumes a reduction in a major AE's corporate income tax rate of 3 percentage points and a reduction in the corporate income tax rate of "Other AEs" of 1.2 percentage points. "EM tax competition" assumes a reduction in the corporate income tax rates of emerging market economies by 1.2 percentage points. AE = advanced economy; EM = emerging market economy; G20 = Group of Twenty.

substantial.<sup>28</sup> On the other hand, lower taxes stimulate R&D and intangible investment. While MNCs have weaker incentives to invest in intangibles as a means to shift profits—driven by a reduction in the profit-shifting premium—the effects are more

<sup>28</sup>See Online Annex 3.8 for sensitivity analyses exploring alternative initial corporate income tax rates and a model without public investment needs.

than offset in general equilibrium. Higher after-tax returns on domestically taxed profits raise intangible investment, and firms that previously shifted profits reallocate resources from tax planning to productive activities. The *spillover effect*—which captures the output effects from tax cuts elsewhere—is similarly mixed. Positive spillovers arise from the cross-border diffusion of intangible capital and innovation because of its nonrival nature. However, these gains can be offset by erosion of the tax base, through investment shifting.

Net output effects are negative across the major economies (black squares in Figure 3.15, panel 3), amounting to 0.2 percent in the major advanced economy and about 0.1 percent in other advanced economies.<sup>29</sup> Among emerging market economies, the overall output effect is negligible, but economies that do not engage in tax competition stand to benefit from net positive spillovers from R&D and knowledge transfers (blue bars in Figure 3.15, panel 3). If only advanced economies engage in tax competition—while emerging market economies do not—the output effect for emerging markets is positive but modest, amounting to 1 basis point (red bars in Figure 3.15, panel 3).<sup>30</sup>

### Anti-Avoidance Measures

Emerging market economies that strengthen anti-avoidance measures to minimize profit shifting to low-tax jurisdictions can expand their tax bases even if their statutory rates are unchanged.<sup>31</sup> For emerging

<sup>29</sup>The larger effect in the major advanced economy reflects the larger reduction in its corporate income tax rate. If, in contrast, all advanced economies cut tax rates by 3 percentage points, the associated output effects are nonetheless similar. See Online Annex 3.8.

<sup>30</sup>This result is consistent with the steady state of the IMF's Global Integrated Monetary and Fiscal model, in which the initial increase in interest rates following a debt-financed tax cut has dissipated and stronger productive capacity boosts long-term output in all economies.

<sup>31</sup>Many emerging market economies have strengthened their anti-avoidance measures since the early 2010s. For example, controlled foreign corporation rules were introduced by Chile in 2016 and Colombia in 2017; Brazil, Mexico, South Africa, and Türkiye already had such rules in place. Regarding transfer pricing documentation requirements, examples of emerging market economies that have recently legislated such measures include South Africa in 2016 and Saudi Arabia in 2019. Argentina, Brazil, and India have had them in place since the early 2000s. Examples of economies where earnings stripping rules have been adopted include South Africa in 2015, Argentina in 2018, Vietnam in 2018, Malaysia in 2019, and Mexico in 2020. In sub-Saharan Africa, some commodity exporters that rely on foreign companies operating their mining operations—for example, Guinea, Mali, and Tanzania—have recently strengthened their anti-avoidance frameworks (Albertin and others 2021).

market economies with significant revenue needs, lower corporate income tax receipts would constrain public investment in infrastructure, education, institutions, and administrative capacity. Such constraints could weaken productivity, offsetting output gains that derive from lower tax distortions.

For advanced economies that engage in strategic corporate income tax rate cutting, revenues fall as in the global tax competition simulation (black squares in Figure 3.16, panel 1). However, for emerging market economies, revenues increase by about 0.3 percentage point, because their corporate income tax rates remain unchanged and their tax bases are better protected. Profits shifted to low-tax jurisdictions fall by an estimated 10 percent for emerging market economies, an outcome similar to that in the previous simulation (yellow bars in Figure 3.16).

The net output effects for emerging market economies are modest but positive—at about 0.04 percent—driven largely by knowledge transfers within MNC groups and small but positive effects of stronger enforcement, both of which preserve fiscal capacity for public investment (black squares in Figure 3.16, panel 3). These forces can more than offset the adverse investment-shifting spillover effects generated by the tax-cutting countries.

## Conclusion

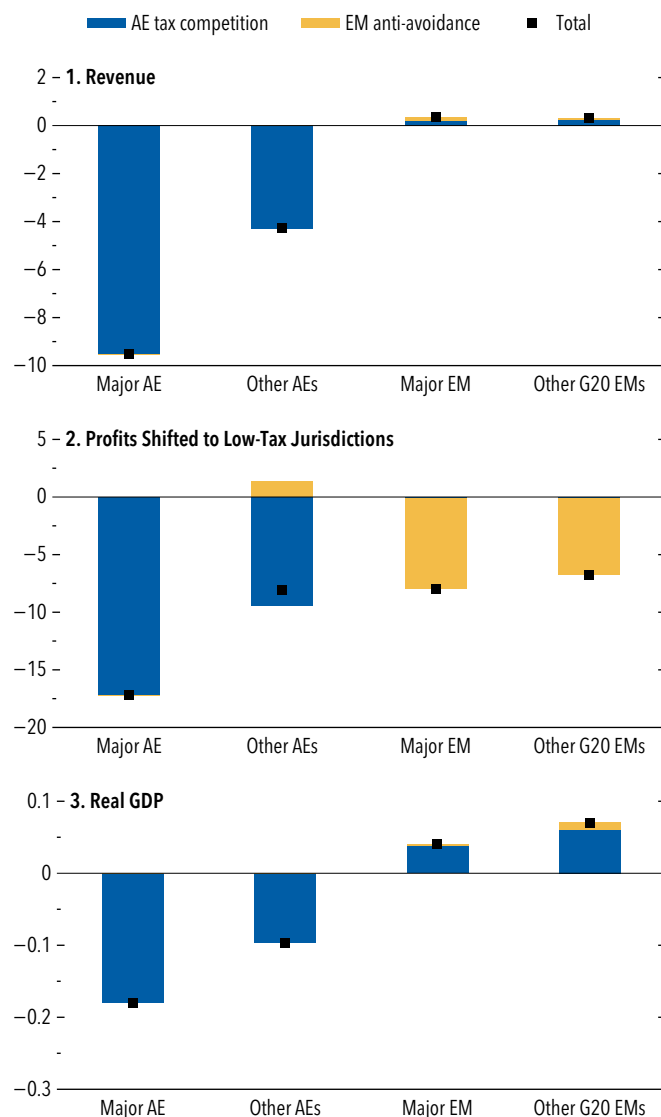
The international tax landscape has changed significantly over the past decade, reflecting the growing importance of intangible assets and major domestic and international tax reforms to curb profit shifting. The chapter takes stock of how these forces have reshaped tax competition and finds that, while they have altered how governments and MNCs respond to corporate income taxation, they have not eliminated strategic interactions or cross-border spillovers. Two broad conclusions emerge:

Strategic tax competition remains strongest among economies at similar stages of development, although tax competition appears to have moderated in regard to headline corporate income tax rates following major reforms in the 2010s.

The channels through which tax differentials affect MNCs are evolving. Anti-avoidance reforms have reduced the sensitivity of profit shifting to tax differentials, while increasing the tax sensitivity of real investment decisions. As a result, profits and real economic activity are potentially becoming more closely aligned.

**Figure 3.16. Macroeconomic Effects of Tax Competition and Enhanced Enforcement**

(Percent change, deviation from baseline)



Source: IMF staff calculations.

Note: "AE tax competition" assumes a reduction in a major AE's corporate income tax rate of 3 percentage points and a reduction in the corporate income tax rate of "Other AEs" of 1.2 percentage points. "EM anti-avoidance" assumes profit-shifting costs increase by approximately 10 percent. AE = advanced economy; EM = emerging market economy; G20 = Group of Twenty.

With the locus of tax competition potentially shifting from profits to real investment and productive activity, the chapter also highlights how policy trade-offs have become increasingly important. Lower corporate income taxation can support investment in productive capacity, but it can also reduce revenues, reshape the location of economic activity elsewhere, and influence the tax policies of other governments.

Model-based simulations highlight that spillovers from corporate income tax cuts reflect a balance among investment gains, fiscal effects, and policy responses in other countries. Debt-financed tax cuts in large economies can produce negative spillovers in the short term through crowding out of investment, particularly if tax competition induces similar tax cuts elsewhere. In the long term, tax cuts can generate positive spillovers through cross-border knowledge transfers, but domestic outcomes may weaken if public investment is curtailed or if other economies respond with tax rate cuts of their own. Conversely, stronger anti-avoidance

measures can help reduce profit shifting, preserve revenues lost through profit shifting, and hence support output, particularly in emerging market and developing economies.

Overall, the chapter suggests that the consequences of corporate income taxation cannot be understood solely through their domestic effects. The evolving balance among tax competition, investment incentives, profit shifting, anti-avoidance efforts, and potentially greater competition for real investment will remain a key determinant of economic and fiscal outcomes across economies.

### Box 3.1. The Interplay between Tax Incentives and International Tax Rules

Tax incentives are an important instrument of international tax competition, influencing where multinational corporations (MNCs) place real investment and report profits. They grant preferential treatment to specific taxpayers or activities to promote targeted policy objectives. Although one country may use tax incentives to attract tax base from elsewhere, such measures may prompt other countries to offer more generous incentives in response, which can lead to substantial revenue losses and only limited gains in global investment. Poorly targeted incentives can be especially costly for countries with narrow tax bases and high development spending needs (Schneider and others 2025). Recognizing both the benefits and risks of tax incentives, the Platform for Collaboration on Tax (2025) outlines six guiding principles for the use of such incentives:

- **Justification.** An incentive may be justified only if net social benefits can reasonably be expected, for reasons that are publicly articulated. It must produce broad social gains that exceed costs, including forgone revenue and market distortions.
- **Design.** Ensure effective targeting of the source of social benefits, while minimizing distortions and fiscal costs, including through cost-based incentives, which are generally more effective and efficient at increasing investment than profit-based incentives (IMF and others 2015).
- **Legislation.** Embed the corresponding provisions into law in a transparent and robust manner, including by minimizing discretion and with the necessary governance safeguards.
- **Implementation.** Ensure (voluntary) compliance and effective monitoring of outcomes.
- **Evaluation.** Regularly assess whether the benefits generated by the measure offset the cost; publish tax expenditures periodically.
- **International considerations.** Recognize interactions with international initiatives and spillovers through strategic tax competition.

Changes in international tax rules and tax incentives have reshaped tax competition over time:

- *Ring-fencing constrained* (2000s). In 1998, the Organisation for Economic Co-operation and Development's harmful-tax-practices initiative identified ring-fencing—whereby mobile,

foreign-facing income is subject to favorable tax treatment, while insulating the domestic base by excluding resident taxpayers from accessing the same benefits—as potentially harmful. Restricting ring-fencing can, however, prompt countries to shift toward lower economy-wide corporate income tax rates, extending competition from a narrow mobile base to the broader corporate income tax base (Keen 2001).

- *Substance required* (2010s). Action 5 of the Base Erosion and Profit Shifting (BEPS) Action Plan requires preferential regimes, including patent boxes, to be linked to substantial activity (Box 3.2). Although this requirement constrains regimes that attract primarily paper profits, it may have also shifted competition toward real activity (Hebous 2021). The consequences could be broader: Competition for paper profits mainly affects where taxable profits are reported, whereas competition tied to substance can also affect the location of investment and production.
- *Incentives reshaped* (early 2020s). The global minimum tax can trigger top-up taxes if the effective tax rate of an MNC group in that jurisdiction falls below 15 percent, reducing the effectiveness of incentives. But the rules do not treat all incentives equally: The global minimum tax makes rate cuts and tax holidays less effective, so countries may increasingly compete for investment using cost-based incentives that are less exposed to top-up taxes, such as qualifying refundable tax credits. The “substance-based income exclusion” linked to payroll and tangible assets further strengthens the link to real activity by reducing the top-up tax base.
- *Substance-based incentives strengthened* (mid-2020s). The January 2026 Side-by-Side Package introduced a more favorable treatment of substance-based incentives through the Substance-Based Tax Incentive Safe Harbour, further shifting tax competition from paper profits toward real economic activity (Box 3.2).

Overall, changes in international rules have reshaped tax competition toward incentives linked to economic substance, creating a trade-off. While these developments may improve the targeting of tax incentives and curb profit shifting through shell or “mailbox” companies, they may intensify competition for real investment, employment, and production.

The author of this box is Shafik Hebous.

### Box 3.2. Key Developments in International Corporate Income Taxation

|                | Approaches to International Taxation                                                                                                                                                                                                                                                              | Explanation and Selected Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prior to 2010s | <i>Primary focus on reducing international double taxation.</i>                                                                                                                                                                                                                                   | Almost 3,000 bilateral double tax treaties were in force as of 2010—based on Organisation for Economic Co-operation and Development (OECD) and United Nations (UN) model conventions that established international concepts and norms <sup>1</sup> to minimize double taxation of cross-border trade and facilitate investment. Over time, the system facilitated corporate income tax avoidance—including base erosion and profit shifting (BEPS) from higher-tax jurisdictions—as digitalization increased the importance of intangible assets. BEPS issues affected both advanced economies and emerging market and developing economies, with the latter more susceptible given greater reliance on corporate income tax revenue and more limited administrative capacity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Early 2010s    | <i>Development of tax integrity and anti-avoidance rules that focus on addressing weaknesses in established international concepts and norms to limit profit shifting and safeguard domestic tax bases from harmful tax practices related to mobile investments, including intangible assets.</i> | <p>At the request of the Group of Twenty (G20), the OECD produced a report on BEPS in February 2013. This was followed by the BEPS Action Plan in July 2013, which set out 15 Actions to be taken forward by the OECD, with final reports for each Action published in October 2015. Four of these Actions (5, 6, 13, and 14) were categorized as “minimum standards,” whose implementation by all relevant jurisdictions was needed to avoid negative spillovers. These standards focus on:</p> <ul style="list-style-type: none"> <li>• Countering harmful tax practices (Action 5), requiring economic substance before benefiting from preferential tax regimes.</li> <li>• Preventing tax treaty abuse (Action 6).</li> <li>• Country-by-country (CbC) reporting (Action 13).</li> <li>• Tax dispute resolution (Action 14).</li> </ul> <p>The remaining BEPS actions (nonminimum standards) focused on, for example:</p> <ul style="list-style-type: none"> <li>• Controlled foreign corporation (CFC) regimes—<i>benefiting capital exporters</i>—to combat deferral of foreign-accumulated low-taxed passive income (Action 3).</li> <li>• Interest limitation rules (ILRs)—<i>benefiting capital importers</i>—to combat the use of debt arrangements to minimize tax liabilities of multinational corporations (Action 4).</li> <li>• Improving transfer pricing through the arm’s length principle—<i>benefiting higher-tax jurisdictions</i>—to achieve better alignment of profit allocation with value creation (Actions 8–10).</li> </ul> <p>In June 2016, the OECD/G20 Inclusive Framework (IF) on BEPS was formed and, as of 2026, consists of 148 members. Its role is to review and monitor the implementation of the 15 BEPS Actions and provide an equal footing for advanced economies and emerging market and developing economies in shaping standards on BEPS-related issues.</p> |
| Mid-2010s      | <i>Beginning of implementation of BEPS actions by OECD/G20 Inclusive Framework members to strengthen the international tax system.</i>                                                                                                                                                            | <p>From 2025 to 2026, progress implementing the four BEPS minimum standards is as follows:</p> <ul style="list-style-type: none"> <li>• Action 5: The OECD Forum on Harmful Tax Practices has reviewed almost 350 preferential regimes.</li> <li>• Action 6: More than 95 percent of tax treaties entered into by IF members are expected to comply with the minimum standard.</li> <li>• Action 13: 120 IF members have adopted CbC legislation.</li> <li>• Action 14: More than 500 tax treaties have been modified to include Mutual Agreement Procedure provisions.</li> </ul> <p>Progress implementing BEPS nonminimum standards is as follows:</p> <ul style="list-style-type: none"> <li>• Action 3: 57 jurisdictions have adopted CFC rules.</li> <li>• Action 4: 89 IF members have adopted ILRs.</li> <li>• Actions 8–10: 117 IF members have incorporated the arm’s length principle into law; 102 use the OECD’s Transfer Pricing Guidelines; and 38 (47) have been working to adopt or have adopted the approach for hard-to-value intangibles (low-value-adding intragroup services).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

The author of this box is Cory Hillier.

<sup>1</sup> Existing international concepts and norms include taxing residents on worldwide income (residence principle), although some countries adopt territorial tax systems, taxing only domestic-source income. Nonresidents are taxed on their domestic source income (source principle), subject to a foreign firm’s establishing a sufficient physical presence (permanent establishment) before it can be taxed on its business profits derived from the local market. Further, residence country taxation of foreign income is typically deferred until repatriation, unless controlled foreign corporation (CFC)—or minimum tax—rules apply to combat deferral.

## Box 3.2 (continued)

| Approaches to International Taxation |                                                                                                                                                                                                                                                                                                                 | Explanation and Selected Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mid-to-Late 2010s                    | <i>Unilateral approaches to resolve gaps in international taxation given concerns that international norms remained susceptible to base erosion and profit (and substance) shifting, as substantial residual profits—commonly associated with intangible assets—remained subject to low levels of taxation.</i> | <p>Increased adoption of unilateral reforms to tax a greater portion of offshore residual profits. Examples include:</p> <ul style="list-style-type: none"> <li>• The United Kingdom (2015)<sup>2</sup> and Australia (2017) introduced <i>diverted profits taxes</i> to better align with anti-avoidance instruments given deterrent effects.</li> <li>• In 2016, the European Union adopted its own <i>Anti-Tax Avoidance Directive</i> (ATAD), with mandatory measures to achieve a minimum level of EU-wide (harmonized) anti-avoidance legislation that go beyond the four BEPS minimum standards.<sup>3</sup> ATAD comprises five core anti-abuse rules: (1) interest limitation rule (discussed earlier); (2) CFC rule (discussed earlier); (3) exit taxation rule—to combat avoidance of corporate income tax when relocating assets; (4) hybrid mismatch rules—to prevent exploiting national mismatches to avoid taxation; and (5) general anti-abuse rule—to counter tax avoidance when other rules do not apply.</li> <li>• The US (2017) <i>Tax Cuts and Jobs Act</i> (TCJA) introduced three notable international tax provisions: (1) the Global Intangible Low-Taxed Income (GILTI), a residence-based minimum tax on outbound investment from the United States designed to minimize the relocation of intangible assets to low-tax jurisdictions; (2) the Base Erosion Anti-Abuse Tax (BEAT), a residence-based minimum tax on inbound investment designed to protect the US corporate income tax base; and (3) Foreign-Derived Intangible Income (FDII), which gives preferential tax treatment to some export-related activities and encourages the (re)location of intangible assets to the United States.<sup>4</sup> The TCJA also entailed a transition to a territorial system (including that through FDII) but with worldwide elements (GILTI) and base protection measures (BEAT).</li> <li>• During 2016–20, several European countries and a few emerging market and developing economies introduced <i>digital services taxes</i> (DSTs), taxing the gross revenues of certain digital activities, to increase revenues derived from domestic markets, regardless of physical presence.</li> </ul> |
| 2020s to now                         | <i>International tax cooperation seeking to reconcile domestic agendas, with greater emphasis on reform of established international concepts and norms to combat tax competition and address the low taxation of excess profits.</i>                                                                           | <p>In 2021, the IF reached agreement on a two-pillar approach:</p> <ul style="list-style-type: none"> <li>• <i>Pillar One (agreement subsequently stalled)</i>—aimed at addressing the challenges of increasingly digitalized economies. A portion of the profits of large multinational corporations (MNCs) would have been allocated to market jurisdictions (based on sales). The pillar included an agreement to repeal DSTs and disallow the allocation of profits to countries that retain or introduce DSTs.</li> <li>• <i>Pillar Two (implementation is ongoing)</i>—designed to ensure an effective global minimum tax (GMT) rate of 15 percent on the excess profits of large MNCs, allowing countries to levy top-up taxes on profits that are taxed at a rate below that minimum. More than 50 countries have implemented one or more of the GMT rules.</li> </ul> <p>In 2025, the United States adopted H.R. 1—commonly referred to as the <i>One Big Beautiful Bill Act</i>—which modified key elements of the TCJA. Among other changes, it increased the effective tax rates on net CFC tested income (formerly GILTI) and foreign-derived deduction eligible income (formerly FDII), bringing them closer to the global minimum tax rate while expanding the availability of foreign tax credits.<sup>5</sup> In 2026, a <i>side-by-side agreement</i> was reached by 147 IF members, exempting US MNCs from most GMT rules—given TCJA commonalities—and treating substance-based tax incentives more favorably.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

<sup>2</sup>The UK repealed its diverted profits tax in 2026 and replaced it with a corporation tax charge on unassessed transfer pricing profits.

<sup>3</sup>Council Directive (EU) 2016/1164, as amended by Council Directive (EU) 2017/952.

<sup>4</sup>The 2017 Tax Cuts and Jobs Act reform was designed to combat US MNCs' deferral of US tax on their foreign earnings, leading to the initial BEPS project. This reform also coincided with a large domestic corporate income tax rate cut (from 35 percent to 21 percent).

<sup>5</sup>Before 2025, the Inflation Reduction Act (2022) introduced the US corporate alternative minimum tax—another important base protection measure.

### Box 3.3. The Geography of Innovation Income

The tax treatment of intellectual property has become a key determinant of where income derived from research and development (R&D) and innovation-related activities (“innovation income”) is reported. A new data set on cross-border patent ownership changes from 1995 to 2020 reveals that patents transferred to low-tax jurisdictions rose sharply during the 2000s, even though these destinations account for a small share of global production and innovation activity (Figure 3.3.1, panel 1). This suggests a growing separation between legal ownership and the location of underlying innovative activity.

Because the owner of a patent generally records the associated stream of royalty income, reallocating patent ownership can shift taxable income without moving the underlying research, production, or sales activity. Therefore, much as with patent transfers, the share of global royalty income reported in low-tax jurisdictions has increased since the 2000s (Figure 3.3.1, panel 2).

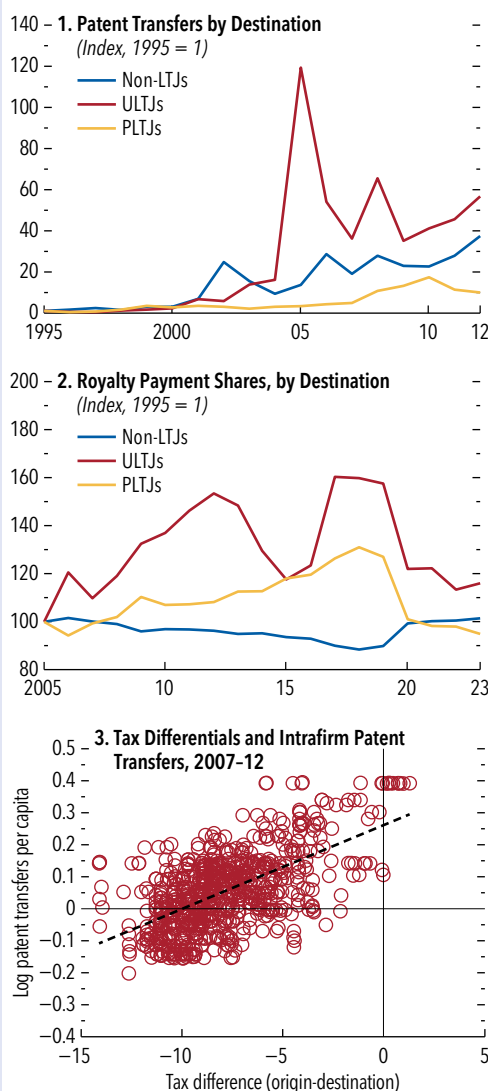
Evidence from a gravity model of cross-border patent ownership transfers suggests that larger tax differentials are associated with more patent transfers from higher-tax to lower-tax jurisdictions, especially within multinational corporations (MNCs) (LaBelle, Martin, and Santacreu 2026). This relationship has changed over time, however, with the highest sensitivity estimated during 2007–12. Over this period, a 1 percentage point tax differential is associated with 8.5 percent more patent transfers to lower-tax jurisdictions, and the estimate increases to 14.8 percent for intrafirm transfers (Figure 3.3.1, panel 3).

After 2013, the relationship between bilateral patent transfers and tax differentials is no longer statistically significant. This attenuation coincides with major international tax reforms aimed at limiting profit shifting (Box 3.2), although it may also reflect a shift toward less transparent arrangements—including cost-sharing arrangements, multistep ownership structures, and intellectual property–related service contracts—that are more difficult to observe in patent transaction data. Model-based counterfactuals also highlight the importance of tax differentials. If tax differentials narrow, the incentives to reallocate patent ownership for tax purposes weaken, leaving the domestic royalty tax base relatively intact.

These results suggest, therefore, that tax planning through patent ownership changes is evident, but the implications for R&D and innovation are more nuanced. Tax rates primarily affect where innovation

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**Figure 3.3.1. Patent Transfers and Royalty Shares**



Sources: LaBelle, Martin, and Santacreu 2026; and IMF staff calculations.

Note: Economies are grouped into unproductive LTJs (ULTJs), productive LTJs (PLTJs), and non-LTJs, following Tørsløv, Wier, and Zucman (2023). PLTJs in the royalty-income analysis comprise Belgium, Ireland, Luxembourg, Singapore, Switzerland, and The Netherlands. ULTJs include offshore financial centers such as Bermuda and the Cayman Islands. Non-LTJs are the remaining economies in the sample. For panel 3, each point summarizes bilateral intrafirm patent transfers for an origin-destination pair during 2007–12, plotted against the tax differential between the two economies. Positive values on the horizontal axis indicate that the destination has a lower tax rate than the origin economy. The upward-sloping fitted line shows that intrafirm patent transfers are larger when the destination offers a greater tax advantage. LTJs = low-tax jurisdictions.

**Box 3.3 (continued)**

income is reported rather than where innovation is created. Santacreu (2026) shows how differences in corporate income taxation shape cross-border royalty payments and technology flows. Reducing profit shifting can raise the effective tax burden on mobile intangible income, thus discouraging R&D investments. However, income booked in low-tax jurisdic-

tions is not necessarily reinvested where it is reported nor in further innovation. Stronger base protection can thus help realign MNCs' profit and innovation activity location choices, but the net effect on innovation will depend on whether MNCs use shifted profits to finance productive R&D or simply to reduce their tax liabilities.

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