The Hole in the Global Minimum Tax

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THE HOLE IN THE GLOBAL MINIMUM TAX

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ABSTRACT. The global minimum tax is often praised for its promise to restrain harmful tax competition. But the effects of the global minimum tax are more nuanced than is commonly understood. This Article shows that the global minimum tax raises a trade-off between two kinds of tax competition: competition for profit and competition for investment. It also provides suggestive evidence that the costs of intensifying competition for investment could be substantial. Specific reforms are proposed that could preserve the benefits of the global minimum tax while mitigating its harms.

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INTRODUCTION

Capital has never been more mobile, nor competition for it as fierce.[2] When Microsoft sites data centers and Apple scouts locations for building the next iPhone, countries scramble to win their business by slashing taxes.[3] The stakes are enormous: Amidst rampant tax competition, the average country's corporate tax rate has plummeted from 40 percent to 23 percent since 1980, depriving governments of hundreds of billions of dollars every year.[4] The burden falls hardest on the most vulnerable, as governments either cut social services or raise taxes on lower-wage workers.[5]

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[2] *See* Claudius Gräbner, Philipp Heimberg, Jakob Kapeller, and Florian Springholz, *Understanding Economic Openness: A Review of Existing Measures*, 157 REV. WORLD ECON. 87, 99 (2021) (showing pronounced increases in capital mobility from 1980 to the present).

[3] *See, e.g.*, Lars P. Feld & Jost H. Heckemeyer, *FDI and Taxation: A Meta-Study*, 25 J. ECON. SURVEYS 233, 263 (2011) (surveying 704 primary estimates of the tax-sensitivity of corporate investment, and finding a substantial effect); Ruud de Mooij & Sjef Ederveen, *Corporate Tax Elasticities: A Reader's Guide to Empirical Findings*, 24 OXF. REV. ECON. POL'Y 680, 695 (2008) (reporting a similar finding); Ruud de Mooij & Sjef Ederveen, *Taxation and Foreign Direct Investment: A Synthesis of Empirical Research*, 10 INT'L TAX & PUB. FIN 673, 690 (2003) (same); *see generally* Michael Keen & Kai A. Konrad, *Tax Competition and Coordination*, *in* 5 HANDBOOK OF PUBLIC ECONOMICS 257 (2013) (describing the economics of tax competition).

[4] Cristina Enache, *Corporate Tax Rates Around the World, 2022*, TAX FOUND. (Dec. 13, 2022), https://taxfoundation.org/data/all/global/corporate-tax-rates-by-country-2022/. Weighting statutory tax rates by country GDP only accentuates the decline: from 46.52 percent to 25.43 percent. *Id.* For estimates of the revenues lost to one species of tax competition, profit-shifting, see Thomas Tørsløv, Ludvig Wier, and Gabriel Zucman, *The Missing Profits of Nations*, 90 REV. ECON. STUD. 1499, 1518 tbl. 2 (2023) (estimating that between $349 billion and $740 billion of profit is shifted to tax havens annually); Petr Jansky & Mirslav Palansky, *Estimating the Scale of Profit Shifting and Tax Revenue Losses Related to Foreign Direct Investment*, 25 INT'L TAX & PUB. FIN. 1048, 1049 (2019) (estimating that profit-shifting eliminates at least $125 billion of global tax revenue annually); Kimberly Clausing, *The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond*, 69 NAT'L TAX J. 905 (2016) (estimating that the U.S. loses between $77 and $111 billion of corporate tax base to profit-shifting). The decline in statutory rates due to tax competition also contributes to substantial revenue losses. For example, when the United States cut its statutory corporate tax rate from 35 percent to 21 percent in 2017, it lost an estimated $130 billion of revenue per year. Andrew Lautz & Arianna Fano, *The 2025 Debate: The Corporate Tax Rate and Pass-Through Deduction*, BIPARTISAN POLICY CENTER (July 12, 2024), https://bipartisanpolicy.org/explainer/the-2025-tax-debate-the-corporate-tax-rate-and-pass-through-deduction/#:~:text=In%202025%2C%20federal%20lawmakers%20will,21%25%2C%20is%20permanent%20law.

[5] *See* Ernesto Crivelli, Ruud de Mooij & Michael Keen, *Base Erosion, Profit Shifting, and Developing Countries*, 72 FINANZARCHIV 268 (2016) (showing that governments of developing countries have cut social spending in response to profit-shifting). *See also* Clemens Fuest, Shafik Hebous & Nadine Riedel, *International Debt Shifting and Multinational Firms in Developing Economies*, 113 ECON. LETTERS 135

In 2021, world leaders announced a bold solution. Over 130 countries had agreed to impose a 15 percent minimum tax on the world's largest firms.[6] Treasury Secretary Janet Yellen heralded the deal as "once-in-a-generation," declaring that it would "end the race to the bottom."[7] From that point on, nations would not compete by offering "low corporate rates."[8] Benefits would accrue around the world.

In fact, this Article shows that the global minimum tax might have the opposite effect. It might not end the race to the bottom; it might make that race more intense. This Article explains why, assesses the costs, and proposes reforms.

Modern tax competition consists of two phenomena, related but distinct.[9] The first is profit-shifting, which occurs when firms invest in one country but book their profits—on paper—to another (typically a tax haven).[10] In 2014, when Apple paid just $50 in tax on every $1,000,000 of its European profits, it did so by shifting profit to countries offering rock-bottom rates.[11]

(2011) (same); Clemens Fuest, Shafik Hebous & Nadine Riedel, *International Profit Shifting and Multinational Firms in Developing Economies*, *in* CRITICAL ISSUES IN TAXATION AND DEVELOPMENT 145 (Clemens Fuest & George R. Zodrow eds., 2013) (same); Peter H. Egger, Sergey Nigai & Nora M. Strecker, *The Taxing Deed of Globalization*, 109 AM. ECON. REV. 353, 378 (2019) (showing that governments of more developed countries have shifted their tax burdens to lower-wage workers).

[6] *See* ORG. FOR ECON. COOP. AND DEV., TWO-PILLAR SOLUTION TO ADDRESS THE TAX CHALLENGES ARISING FROM THE DIGITALIZATION OF THE ECONOMY 6, 6–10 (2021) [hereinafter, OECD, OCTOBER 2021 BROCHURE], https://www.oecd.org/tax/beps/statement-on-a-two-pillar-solution-to-address-the-tax-challenges-arising-from-the-digitalisation-of-the-economy-october-2021.pdf (outlining the global minimum tax and stating that 136 nations had agreed to it).

[7] Press Release, U.S. Dep't of the Treasury, Statement from Secretary of the Treasury Janet L. Yellen on the OECD Inclusive Framework Announcement (Oct. 8, 2021), https://home.treasury.gov/news/press-releases/jy0394.

[8] *Id.*

[9] *See* Keen & Konrad, *supra* note 3, at 262–277 (distinguishing between profit-shifting and the race to the bottom).

[10] There is a large literature on profit-shifting. For descriptions of some methods of shifting profit, see, e.g., Julie Roin, *Inversions, Related Party Expenditures, and Source Taxation: Changing the Paradigm for the Taxation of Foreign and Foreign-Owned Businesses*, 2016 BYU L. REV. 1838, 1855–59 (2017); Edward D. Kleinbard, *Stateless Income*, 11 FLA. TAX REV. 699 (2011); Edward D. Kleinbard, *Through a Latte, Darkly: Starbucks's Stateless Income Planning*, 139 TAX NOTES 1515 (June 24, 2013). For empirical studies of the magnitude of profit-shifting, *see supra* note 4. For this definition of profit-shifting, see Dhammika Dharmapala, *Do Multinational Firms Use Tax Havens to the Detriment of Non-Haven Countries?*, *in* GLOBAL GOLIATHS: MULTINATIONAL CORPORATIONS IN THE 21ST CENTURY ECONOMY 437, 454-55 (C. Fritz Foley, David Wessel & James R. Hines eds., 2021) (defining profit-shifting as tax avoidance that is carried out without any change in "real" activities).

[11] *See* Edward Kleinbard, *Apple's Ireland Tax Avoidance Should Spur Major Reforms*, THE HILL (Sept. 6, 2014), https://thehill.com/blogs/pundits-blog/finance/294453-applesireland-tax-avoidance-should-spur-major-reforms (providing this statistic and explaining how Apple achieved the result).

The second problem is the race to the bottom, which occurs when countries compete for investment by cutting taxes.[12] In the short run, it is often in a country's best interest to attract investment with tax cuts.[13] Other countries, however, have an incentive to respond in kind; doing so retains the investment that otherwise would flee.[14] The result is a destructive equilibrium where no country gains investment but countries collectively lose revenue.[15]

The global minimum tax is a response to tax competition, and most scholars are optimistic about its effects.[16] These scholars believe that the global minimum tax will restrict profit-shifting, which they regard as a significant problem.[17] *Pace* Secretary Yellen, these scholars anticipate that the global minimum tax will have a limited effect on the race to the bottom, largely because it allows firms to exempt a substantial return on their investment in any country.[18] Nonetheless, they conclude that the net effect of

[12] There is a large literature on the race to the bottom. One strand of this literature describes the race to the bottom in theoretical models of tax competition. *See, e.g.*, Keen & Konrad, *supra* note 3, at 262–74; George R. Zodrow & Peter Mieszkowski, *Pigou, Tiebout, Property Taxation, and the Underprovision of Local Public Goods*, 19 J. URB. ECON. 356 (1986); John D. Wilson, *A Theory of Interregional Tax Competition*, 19 J. URB. ECON. 296 (1986). Another strand tests that race to the bottom empirically. *See* Devereux, Lockwood, and Redoano, *Do Countries Compete Over Corporate Tax Rates?* 92 J. PUB. ECON. 1210 (2008).

[13] *See* Keen & Konrad, *supra* note 3, at 262–74; Zodrow & Mieszkowski, *supra* note 12; Wilson, *supra* note 12.

[14] *Id.*

[15] *Id.*

[16] *See, e.g.*, Rebecca Kysar, *The Global Tax Deal and the New International Economic Governance*, 74 TAX L. REV. (forthcoming, 2025); David Kamin, *The Ambition and Limits of the Global Minimum Tax*, 108 TAX NOTES 319 (2022); Michael Devereux and John Vella, *The Impact of the Global Minimum Tax on Tax Competition*, 2023 WORLD TAX J. 323, 328; MONA BARAKE ET AL., EU TAX OBSERVATORY, MINIMIZING THE MINIMUM TAX? THE CRITICAL EFFECT OF SUBSTANCE CARVE-OUTS (July 2021), https://www.taxobservatory.eu//www-site/uploads/2021/07/EU-Tax-Observatory-Note-n.1-Substance-carve-outs-2.pdf; John Vella, Michael P. Devereux & Heydon Wardell-Burrus, Pillar 2's Impact on Tax Competition (Aug. 26, 2022), https://ssrn.com/abstract=4203395.

[17] *See supra* note 16.

[18] *See, e.g.*, Kamin *supra* note 16; Devereux & Vella, *supra* note 16; Vella, Devereux, and Wardell-Burrus, *supra* note 9; Lilian V. Faulhaber, *Pillar Two's Built-In Escape Hatch*, 76 NAT'L TAX J. 167 (2023); *see also* David Kamin & Rebecca Kysar, *The Perils of the New Industrial Policy*, FOREIGN AFFS. , May/June 2023, at 44 ("[The global minimum tax] does little to address a different kind of competition, in which governments seek to woo industry by subsidizing corporate investments in tangible capital—plants and equipment, for example—through direct grants, tax credits, and other forms of subsidies."). For the pertinent exemption, the "substance-based income exclusion" (SBIE), see ORG. FOR ECON. COOP. AND DEV. [OECD], TAX CHALLENGES ARISING FROM DIGITALISATION OF THE ECONOMY – GLOBAL ANTI-BASE EROSION MODEL RULES (PILLAR TWO), arts. 5.2.2, 5.3 (2021), https://doi.org/10.1787/782bac33-en [hereinafter GLOBE MODEL RULES].

the reform will be positive: The global minimum tax will constrain profit-shifting while leaving competition for investment, at worst, unaffected.[19]

This Article challenges the conventional wisdom, developing a more nuanced—and critical—view of the global minimum tax. My first main claim is that the global minimum tax raises a trade-off between competition for profit and competition for investment. Profit-shifting serves as a "safety valve" that relieves pressure on countries to compete for investment. That is to say, when firms can save taxes by shifting profit to tax havens, they have little reason to move their actual investments to low-tax countries, and countries have little hope of attracting investment with tax cuts. The global minimum tax closes this safety valve. By making profit-shifting more difficult, it pressures countries into competing for investment by cutting taxes. While this might seem like a positive development—after all, it aligns tax payments with real economic activity—a closer look reveals a darker side. Competition for investment can force governments to slash corporate taxes across the board, depriving them of money needed to finance public services.

I then analyze this trade-off, leading to the Article's second main claim. The net effect of the global minimum tax turns on a surprising factor: the ratio between excess profit and immobile profit. Excess profit, a term of art, refers to profit that is subject to the global minimum tax. Immobile profit is that which will not move in response to the tax differentials that emerge from tax competition. The ratio between them largely determines whether the benefits of restricting profit-shifting outweigh the costs of intensifying the race to the bottom. As excess profit increases, so do the benefits of restricting profit-shifting; as immobile profit increases, so do the costs of intensifying the race to the bottom. Suggestive evidence indicates that immobile profit exceeds excess profit. If true, this implies that the global minimum tax, at least in its current form, might do a substantial amount of harm.

This analysis yields several implications. Most immediately, it suggests specific reforms to the global minimum tax that cut across ideological lines. On one side, this Article bolsters the Democratic priority of expanding the scope of the global minimum tax to cover more corporate profit.[20] If such expansion proves infeasible, however, this

[19] Vella, Devereux, and Wardell-Burrus, *supra* note 16; Kamin, *supra* note 16.

[20] In each of its annual budgets, the Biden Administration proposed eliminating a carve-out for routine profit that exists under a U.S. companion to the global minimum tax, a tax called "GILTI." *See* U.S. DEP'T OF THE TREAS., GENERAL EXPLANATIONS OF THE ADMINISTRATION'S FISCAL YEAR 2025

Article supports two Republican-affiliated reforms: allowing firms to offset high taxes paid in some countries against low taxes paid in others, or reducing the minimum tax rate on profit that is currently covered.[21]

Other implications reach broader issues in tax policy and legal theory. This Article's analysis yields a richer understanding of taxing economic rent, a longstanding

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REVENUE PROPOSALS (2024), https://home.treasury.gov/system/files/131/General-Explanations-FY2025.pdf [https://perma.cc/MSW5-4FLN] [hereinafter FY 2025 GREENBOOK]; U.S. DEP'T OF THE TREAS., GENERAL EXPLANATIONS OF THE ADMINISTRATION'S FISCAL YEAR 2024 REVENUE PROPOSALS (2023), https://home.treasury.gov/system/files/131/General-Explanations-FY2024.pdf [https://perma.cc/D87C-VBFD] [hereinafter FY 2024 GREENBOOK]; U.S. DEP'T OF THE TREAS., GENERAL EXPLANATIONS OF THE ADMINISTRATION'S FISCAL YEAR 2023 REVENUE PROPOSALS (2022), https://home.treasury.gov/system/files/131/General-Explanations-FY2023.pdf [https://perma.cc/P3PV-NLHQ] [hereinafter FY 2023 GREENBOOK]; U.S. DEP'T OF THE TREAS., GENERAL EXPLANATIONS OF THE ADMINISTRATION'S FISCAL YEAR 2022 REVENUE PROPOSALS (2021), https://home.treasury.gov/system/files/131/General-Explanations-FY2022.pdf [https://perma.cc/TA7P-377W] [hereinafter FY 2022 GREENBOOK]. Many tax scholars who served in the Biden administration have called for leveling up either GILTI or the global minimum tax. *See, e.g.*, David Kamin et al., *The Games They Will Play: Tax Games, Roadblocks, and Glitches under the 2017 Tax Legislation*, 103 MINN. L. REV. 1439 (2019); *Early Impressions of the New Tax Law: Hearing Before the S. Comm. on Fin.*, 115th Cong. 73–84 (2019) (prepared statement of Rebecca M. Kysar, Professor of Law, Brooklyn Law School), https://www.congress.gov/115/chrg/CHRG-115shrg38066/CHRG-115shrg38066.pdf [https://perma.cc/YRT6-8YUP]; Kimberly Clausing, Opinion, *Forget Tariffs – Fixing 'America Last Tax Policy Would Help with Offshoring*, FIN. TIMES (Sept. 10, 2024), https://www.ft.com/content/4190482f-8aa2-405d-9b13-9ce452eba03f.

[21] GILTI, which was enacted by a Republican Congress and signed into law by a Republican president, calculates routine profit in a blended fashion. *See* I.R.C. § 951A(b)(2). The Biden Administration proposed reforming GILTI so that it takes a per-country approach. *See, e.g.*, FY 2022 GREENBOOK, *supra* note 20, at 12–15; Inflation Reduction Act of 2022 (Build Back Better Act), H.R. 5376, 117th Cong. § 138124(a) (as passed by the House, Nov. 19, 2021). Many tax scholars oppose allowing firms to "blend" their attributes across countries because doing so allows a greater degree of profit-shifting. *See, e.g.*, KIMBERLY A. CLAUSING & NATASHA SARIN, BROOKINGS INST., THE COMING FISCAL CLIFF: BLUEPRINT FOR TAX REFORM IN 2025, at 11 (Sept. 2023) (proposing a "stronger per-country GILTI"); Kimberly Clausing, *Fixing Five Flaws of the Tax Cuts and Jobs Act*, 11 COLUM. J. TAX L. 31, 57-58 (2020) (describing a blended approach as a "flaw" of GILTI); Kamin et al., *supra* note 20. *But see* Chris William Sanchirico, *Should a Global Minimum Tax Be Country-by-Country?*, 175 TAX NOTES 549 (2022) (advocating a blended approach). Sanchirico's grounds for supporting a blended approach are distinct from those provided in this Article. Sanchirico argues that a per-country global minimum tax incentivizes source countries to "soak up" the revenue that is raised under the minimum tax, leaving relatively little revenue for residence countries. *See id.* at 554.

On January 20, 2025, the Trump Administration released a memorandum stating that it intended to resist the application of certain provisions of the global minimum tax to U.S. firms. *See The Organization for Economic Co-Operation and Development (OECD) Global Tax Deal*, THE WHITE HOUSE (Jan. 20, 2025), https://www.whitehouse.gov/presidential-actions/2025/01/the-organization-for-economic-co-operation-and-development-oecd-global-tax-deal-global-tax-deal/. While this memorandum probably will have little effect on the stability of the global minimum tax, see Adam Kern, *Reports of Pillar Two's Death Are Greatly Exaggerated*, 151 TAX NOTES FED. ___ (forthcoming, 2025), it is an indicator of the Trump Administration's negative outlook on the agreement.

aspiration in tax policy. It also shows how two values that are often thought to travel together—productive desert and economic efficiency—can come apart.

This Article contributes to several literatures. Most immediately, it contributes to a growing debate about the global minimum tax.[22] The prevailing view, in the words of David Kamin, holds that the global minimum tax is a "significant and important step forward," even while it displays "limited" ambition.[23] The global minimum tax is seen as a step forward because it restricts profit shifting; it displays limited ambition because it largely permits countries to compete for investment through tax cuts. This view neglects the interaction between profit-shifting and competition for investment. Taking that interaction into account, I show here, yields different implications for the global minimum tax.

This Article also contributes to the broader literature on tax competition. Several economists have argued that profit-shifting can relieve pressure on countries to compete for investment.[24] A separate line of scholarship has analyzed how the global minimum tax will affect tax competition.[25] But these literatures have developed in isolation. This Article explains how the global minimum tax raises a trade-off between competition for profit and competition for investment, and it provides an analytic framework for analyzing that trade-off.

Before I proceed, a clarification is in order. This Article focuses on how well the global minimum tax achieves its core objectives: preventing profit-shifting and arresting the race to the bottom. While the reform may have other important effects—

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[22] See, e.g., Kysar, *supra* note 16; Wei Cui, *Strategic Incentives for Adopting the Global Minimum Tax*, 16 J. LEG. ANALYSIS 211 (2024); Faulhaber, *supra* note 18; Vella, Devereux, and Wardell-Burrus, *supra* note 16; Kamin, *supra* note 16; Reuven Avi-Yonah & Young R. Kim, *Tax Harmony: The Promise and Pitfalls of the Global Minimum Tax*, 43 MICH. J. INT'L L. 505 (2022); Sanchirico, *supra* note 21.

[23] Kamin, *supra* note 16, at 319.

[24] *See, e.g.*, Qing Hong & Michael Smart, *In Praise of Tax Havens: International Tax Planning and Foreign Direct Investment*, 54 EUR. ECON. REV. 82 (2010); Dhammika Dharmapala, *What Problems and Opportunities are Created by Tax Havens?*, 24 OXFORD REV. ECON. POL'Y 66 (2008); Michael Keen, *Preferential Regimes Can Make Tax Competition Less Harmful*, 54 NAT'L TAX J. 757 (2001). For a contrary view, see Joel Slemrod & John D. Wilson, *Tax Competition With Parasitic Tax Havens*, 93 J. PUB. ECON. 1261 (2009).

[25] *See, e.g.*, Kataryzna Bilicka, Michael Devereux, and Irem Güçeri, Tax Policy, Investment, and Profit-Shifting (unpublished manuscript, on file with author); Roberto Gómez-Cram & Marcel Olbert, *Measuring the Expected Effects of the Global Tax Reform,* 36 REV. FIN. STUD. 4965 (2023); Niels Johannesen, *The Global Minimum Tax*, 212 J. PUB. ECON. (2022).

for instance, on the global rate of savings or the distribution of resources across countries—I bracket those considerations to sharpen the analysis.[26]

The rest of this Article proceeds in four Parts. Part I introduces the prevailing academic view on the global minimum tax. Part II argues for the Article's first main claim: that the global minimum tax raises a trade-off between competition for profit and competition for investment. Part III presents the Article's second main claim: that the net effect of the global minimum tax depends on the ratio of excess profit to immobile profit. Part IV elicits implications.

I. OPTIMISM ABOUT THE GLOBAL MINIMUM TAX

This Part introduces the prevailing academic view on the effects of the global minimum tax. Section I.A describes two problems—profit-shifting and the race to the bottom—that motivated the global minimum tax and now serve as criteria for its evaluation. Section I.B introduces some key structural features of the global minimum tax. The stage having been set, Section I.C turns to scholars' assessments.

Most tax scholars are optimistic about the global minimum tax. These scholars think that the global minimum tax will restrict profit-shifting. While they concede that the global minimum tax will have a limited impact on the race to the bottom, they nonetheless conclude that the net effect of the reform is probably positive. Making

[26] The distortion of choices between present consumption and future savings is a central focus of the literature on capital taxation in closed economies. *See, e.g.*, LOUIS KAPLOW, THE THEORY OF TAXATION AND PUBLIC ECONOMICS 221-48 (2008); Daniel Shaviro, *Beyond the Pro-Consumption Tax Consensus*, 60 STAN. L. REV. 745 (2007); Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax Over an Ideal Income Tax*, 58 STAN. L. REV. 1413 (2006); Emmanuel Saez, *The Desirability of Commodity Taxation Under Non-Linear Income Taxation and Heterogeneous Tastes*, 83 J. PUB. ECON. 217 (2002); Kenneth L. Judd, *Redistributive Taxation in a Simple Perfect Foresight Model*, 28 J. PUB. ECON. 59 (1985); A.B. Atkinson & J.E. Stiglitz, *The Design of Tax Structure: Direct Versus Indirect Taxation*, 6 J. PUB. ECON. 55 (1976). For certain positions about how the international distribution of resources should bear on international tax policy, see, e.g., ALLISON CHRISTIANS & LAURENS VAN APELDOORN, TAX COOPERATION IN AN UNJUST WORLD (2022); TSILLY DAGAN, INTERNATIONAL TAX POLICY: BETWEEN COMPETITION AND COOPERATION 100–03 (2018); DANIEL SHAVIRO, FIXING U.S. INTERNATIONAL TAXATION 107–177 (2014); Adam Kern, *Progressive Taxation for the World*, 78 TAX L. REV. ___ (forthcoming, 2025); Michael Devereux & John Vella, *Issues of Fairness in Taxing Corporate Profit*, 2 LSE PUB. POL'Y REV. 1 (2022); Miranda Stewart, *Redistribution Between Rich and Poor Countries*, 72 BULL. INT'L TAX'N 297 (2018); Ilan Benshalom, *The New Poor at Our Gates: Global Justice Implications for International Trade and Tax Law*, 85 NYU L. REV. 1 (2010).

progress on one problem, while leaving a second problem at worst untouched, yields progress overall.

A. Two Problems in International Taxation

For decades, scholars and makers of international tax law have struggled with two problems. Each problem arises because capital can move, capital-holders like to pay less tax, and countries are willing to cut taxes in order to attract profit or investment. These facts establish an environment for tax competition.

This section describes two mechanisms of tax competition, profit-shifting and the race to the bottom. It then explains how a global minimum tax promises to restrict both kinds of competition.

1. Profit-Shifting

Profit-shifting occurs when a firm earns profit from investing in one country but attributes that profit, for tax purposes, to a different country.[27] Typically, this latter country is a tax haven.[28] The tax haven offers, to firms, a low tax rate. In exchange, it receives additional tax base.[29] If the growth in the tax haven's base is sufficiently large, cutting the rate applied to that base can increase the tax haven's revenue.[30]

Profit-shifting became notorious in the first two decades of the 21st century. In Britain, Starbucks stunned the public when it declared tax losses despite commanding nearly a third of the market and touting strong earnings to its investors.[31] Soon after, Tim Cook found himself before Congress, admitting that several Apple subsidiaries existed in a tax void, with no tax residence anywhere.[32] Meanwhile, Google perfected the art of tax engineering with its infamous "Double Irish Dutch Sandwich," an

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[27] *See* Dharmapala, *supra* note 10, at 454-55.

[28] *Id.*

[29] *See* Michael Keen & Kai A. Konrad, *The Theory of International Tax Competition and Coordination*, *in* 5 HANDBOOK OF PUBLIC ECONOMICS 257, 274-77 (2013) (describing the economics of profit-shifting).

[30] *See id.*

[31] Tom Bergin, *How Starbucks Avoids U.K. Taxes*, REUTERS (Oct. 15, 2012), https://www.reuters.com/article/us-britain-starbucks-tax/special-report-how-starbucks-avoids-uk-taxes-idUSBRE89E0EX20121015; *see also* Kleinbard, *Through a Latte, Darkly*, *supra* note 10, at 1518.

[32] *Offshore Profit Shifting and the U.S. Tax Code—Part 2 (Apple Inc.): Hearing Before the Permanent Subcomm. on Investigations of the S. Comm. on Homeland Sec. and Gov't Aff.*, 113th Cong. 45 (2013) (testimony of Tim Cook).

ingenious structure that routed profits through a maze of European entities, ultimately slashing Google's tax bill on billions of dollars to nearly zero.[33]

These examples are just the tip of the iceberg. Hundreds of billions of dollars of profit are shifted every year, by firms operating in a wide range of industries.[34] While technology companies like Apple garner the most attention, they are hardly unique, or even unusual. For example, recent research finds that oil companies are among the most active shifters of profit, with Saudi Aramco and Exxon Mobil ranking in the top five globally.[35]

Profit-shifting works by moving tax attributes between entities within the same firm.[36] Take Starbucks. Starbucks does not do business as a single entity; instead, it comprises a parent company and numerous subsidiaries, all ultimately owned, in large part, by a common set of shareholders.[37] Those shareholders care about the overall profit of Starbucks, but they do not care about the profit or loss of any particular subsidiary.[38] From their perspective, it does not matter whether $1 billion appears on the books of Starbucks Netherlands or Starbucks France.[39] This corporate structure facilitates profit-shifting: Starbucks can arrange its internal affairs to book profit in low-tax jurisdictions (such as Netherlands) while operating in high-tax jurisdictions (such as France).

There is a broad (albeit not universal) academic consensus that profit-shifting is problematic. This consensus rests on three independent concerns. First, profit-shifting likely deprives governments of an efficient revenue source.[40] Much shifted profit likely is economic rent; in other words, it reflects returns exceeding what owners require to

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[33] Kleinbard, *Stateless Income*, *supra* note 10, at 707–14.

[34] Estimates of the magnitude of profit-shifting vary widely, but most estimates put its scope in the hundreds of billions. *See* sources collected *supra* note 410.

[35] *See* Fotis Delis, Manthos D. Delis, Luc A. Laeven & Steven R. G. Ongena, *Global Evidence on Profit Shifting Within Firms and Across Time*, J. ACCT. & ECON. (forthcoming 2024), https://ssrn.com/abstract=4291888 (manuscript at 45 tbl.8, 49 tbl.12 panel B).

[36] Roin, *supra* note 10, at 1855–60.

[37] Kleinbard, *Through a Latte, Darkly*, *supra* note 10, at 1521–22.

[38] *Id.*

[39] *Id.*

[40] Harry Grubert & Rosanne Altshuler, *Fixing the System: An Analysis of Alternative Proposals for the Reform of International Tax*, 66 NAT'L TAX J. 671 (2013); Daniel Shaviro, *The New Non-Territorial U.S. Tax System, Part 2*, 160 TAX NOTES 171 (2018); Martin A. Sullivan, *Fixing GILTI: Bye-Bye to QBAI* , 163 TAX NOTES 801 (2019); Dana L. Trier, *International Tax Reform in a Second Best World: The GILTI Rules*, 97 TAXES 39 (2019).

deploy their factors of production.[41] When such economic rent is "location-specific"—when it can only be earned in one location—it can be taxed without distorting behavior and is thus a relatively efficient tax base.[42] Second, profit-shifting tends to aggravate economic inequality: When governments lose revenue to profit-shifting, they typically make up the shortfall through budget cuts or new taxes that burden less affluent people.[43] Third, profit-shifting violates widespread moral intuitions, according to which firms should pay tax to countries from which they derive substantial economic benefits.[44]

2. The Race to the Bottom

Profit-shifting occurs when countries compete for profit. A distinct problem—the race to the bottom—involves competition for investment.

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[41] *See supra* note 40. For this definition of "economic rent," see HAL VARIAN, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH 442 (Jack Repcheck et al. eds., 9th ed. 2014); *see also* BARBARA H. FRIED, THE PROGRESSIVE ASSAULT ON LAISSEZ-FAIRE 74 (1998); Robert H. Wessel, *A Note on Economic Rent*, 57 AM. ECON. REV. 1221, 1224 (1967). For further details, and in particular for a discussion of the different categories of economic rent, see Joseph Bankman, Mitchell A. Kane & Alan O. Sykes, *Collecting the Rent: The Global Battle to Capture MNE Profits*, 72 TAX L. REV. 197, 200–02 (2019).

[42] *See* Mitchell A. Kane & Adam Kern, *The Use and Abuse of Location-Specific Rent*, 76 TAX L. REV. 277, 281 (2023); Wei Cui, *The Digital Services Tax: A Conceptual Defense*, 73 TAX L. REV. 69 (2019); Michael P. Devereux, *Business Taxation in a Globalized World*, 24 OXFORD REV. ECON. POL'Y 625, 627 (2008) (suggesting that, in international taxation, the only non-distortionary tax would be one which attaches to location-specific rent); Michael P. Devereux et al., *Corporate Income Tax Reforms and International Tax Competition*, 17 ECON. POL'Y 449, 478 (2002) ("There may be location-specific rents in a particular country – that is, economic rent over and above that which could be earned elsewhere. In principle, such location-specific rents could be taxed without distorting the location of firms and capital.").

[43] Tørsløv, Wier, and Zucman, *supra* note 10; Alex Cobham & Petr Janský, *Global Distribution of Revenue losses from Corporate Tax Avoidance*, 30 J. INT'L DEV. 206-32 (2018). "Less affluent," that is, relative to those who would be burdened by taxes on corporate income. *See* Peter H. Eggar, Sergey Nigai & Nora M. Strecker, *The Taxing Deed of Globalization*, 109 AM. ECON. REV. 353 (2019).

[44] *See, e.g.*, ORG. ECON. COOP. & DEV., TAX CHALLENGES ARISING FROM DIGITALISATION – REPORT ON PILLAR ONE BLUEPRINT 3 (2020) ("[W]eaknesses in the current rules create opportunities for base erosion and profit shifting, requiring bold moves by policy makers . . . to ensure that profits are taxed where economic activities take place and value is created."); Peter Dietsch & Thomas Rixen, *Tax Competition and Global Background Justice*, 22 J. POL. PHIL. 150, 157-58 (2014) (comparing profit-shifting to gaining admission to a high-end gym by flashing a membership associated with a no-frills club). For a critique of this line of thought, see Adam Kern, *Illusions of Justice in International Taxation*, 48 PHIL. & PUB. AFF. 151 (2020).

Countries have powerful incentives to attract investment.[45] Additional capital typically raises labor productivity and wages.[46] It also provides a potential tax base.[47] Seeking these benefits, countries compete with one another for investment.[48]

In this competition, countries can find it rational to cut taxes.[49] While firms consider many factors when they decide where to invest—ranging from labor supply to infrastructure and legal institutions—tax burdens sometimes prove decisive.[50] Thus, cutting taxes can attract additional investment or maintain investment that otherwise would move abroad.[51] When the marginal investment is sufficiently large, it is worthwhile to "buy" it by cutting taxes.[52]

A race to the bottom occurs when two or more countries attempt to attract the same investment by cutting taxes.[53] This dynamic is a "race" because each country has an incentive to be the first to cut its taxes, as well as an incentive to match (and, indeed, outdo) other countries' cuts.[54]

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[45] *See supra* note 12.

[46] *See* Dharmapala, *supra* note 24, at 672 n. 26 (2008) ("given the complementarity of capital and labor, [wages] are obviously higher when more capital is employed domestically.").

[47] There is a large literature on when, and whether, it is possible to tax the return on foreign investment. One classic result is that "small" countries cannot actually tax the return to foreign capital: While they might indeed collect revenue from such taxes, the actual burden of such taxes will fall on immobile domestic factors (such as labor). *See* Assaf Razin & Efraim Sadka, *International Tax Competition and Gains from Tax Harmonization*, 37 ECON. LETTERS 69 (1991); Wilson, *supra* note 12; George R. Zodrow & Peter Mieszkowski, *The Incidence of the Property Tax: The Benefit View vs. the New View*, *in* LOCAL PROVISION OF PUBLIC SERVICES 109 (George R. Zodrow ed., 1983); Reuven S. Avi-Yonah, *Globalization, Tax Competition, and the Fiscal Crisis of the Welfare State*, 113 HARV. L. REV. 1573, 1612 (2000). More recent scholarship softens that result, suggesting several conditions under which countries can tax foreign capital. *See* Margaret K. McKeehan & George R. Zodrow, *Balancing Act: Weighing the Factors Affecting the Taxation of Capital Income in a Small Open Economy*, 24 INT'L TAX & PUB. FIN. 1 (2017).

[48] *See, e.g.*, Zodrow & Mieszkowski, *supra* note 12, at 356-57; Wilson, *supra* note 12, at 297.

[49] *Id.*

[50] *See* Bo Bernhard Nielsen, Chrsitian Geisler Asmussen & Cecile Dohlmann Weatherall, *The Location of Foreign Direct Investments: Empirical Evidence and Methodological Challenges*, 52 J. WORLD BUS. 62 (2017) (reviewing factors that affect the location of investment); Ruud A. De Mooij & Sjef Ederveen, *Taxation and Foreign Direct Investment: A Synthesis of Empirical Research*, 10 INT'L TAX & PUB. FIN. 673 (2003) (reviewing the empirical literature and finding that the tax rates influence choices about the location of investment).

[51] *Id.*

[52] *See supra* note 13.

[53] *Id.*

[54] *Id.*

This dynamic can be illustrated with a simple example.[55] Consider two countries, *A* and *B*, competing for a single firm. The firm has $2,000 of capital, which will yield $100 of profit when invested.[56] Each country must choose between a 50 percent or 0 percent tax rate. When tax rates are equal, the firm splits its investment evenly between the two countries. But when tax rates differ, the firm moves all investment to the lower-tax country.

Each country cares about investment and tax revenue. To operationalize this, assume that each country seeks a payoff that is the sum of (a) the profit (after tax) that the firm generates from investment in the country's territory plus (b) the country's tax revenue, multiplied by 1.2.[57] Post-tax profit serves as a measure for the value of additional investment: higher profits signal that capital has a great impact on local productivity. The weight given to tax revenue (1.2) captures two assumptions: that transferring a marginal dollar from the private sector to the public sector is beneficial, but that countries should not sacrifice an unlimited amount of investment to raise an arbitrarily small amount of revenue.[58]

This example can be analyzed as a simple strategic game where each country's payoff depends on both countries' choices. Table 1 shows the payoffs to each country under each possible combination of tax rates:

Table 1: Example of Race to the Bottom

		B	
A		50%	0%
	50%	$110, $110	$0, $200
	0%	$200, $0	$100, $100

[55] For a similar example, see Dharmapala, *supra* note 24, at 671-73.

[56] This reflects an assumed 5 percent rate of return.

[57] This assumption implies that the "marginal value of public funds" (MVPF) is 1.2 The MVPF is a ratio equal to the marginal social welfare impact of $1 of tax revenue to $1 held in the private sector. Nathaniel Hendren, *The Policy Elasticity*, 30 TAX POL'Y & ECON. 51, 53 (2016). A MVPF that is greater than 1 reflects my assumption that competitive equilibrium tax rate (of 0 percent) is suboptimally low. *See*, *e.g.*, Keen & Konrad, *supra* note 29; John Douglas Wilson & David E. Wildasin, *Capital Tax Competition: Bane or Boon*, 88 J. PUB. ECON. 1065, 1070 (2004). I assume a constant MVPF for sake of simplicity.

[58] Any finite weight greater than 1 would also capture these assumptions; the value of 1.2 is chosen for concreteness.

Each country faces strategic pressure to cut taxes. Consider *A*'s incentives. When *B* sets a 50 percent rate, *A* can improve its payoff from $110 to $200 by cutting its rate to 0 percent. Meanwhile, when *B* sets a 0 percent rate, *A* does better by matching that 0 percent rate (yielding a payoff of $100) than maintaining a 50 percent rate (payoff of $0). Country *B* has identical incentives, making the 0 percent rate a dominant strategy for both jurisdictions. This is the grim logic of the race to the bottom.

There is evidence that countries have raced to the bottom since at least the 1980s. In 1980, the average worldwide statutory corporate tax rate was 40.11 percent; in 2022, it was 23.37 percent.[59] Empirical evidence suggests that the race to the bottom has contributed to this decline. For example, Michael Devereux, Ben Lockwood, and Michela Redoano find that more open countries—those that impose fewer restrictions on outbound investment—cut their corporate taxes to a greater extent than less open ones.[60] This correlation is consistent with a race to the bottom and is hard to explain by appealing to other causal factors. If, for example, national leaders grew more friendly towards business after 1980, we should expect to see similar tax cuts across open and closed countries.[61]

The welfare implications of the race to the bottom are contested. One view, associated with Geoffrey Brennan and James Buchanan, holds that this variety of tax competition beneficially constrains governments' tendency towards excessive capital taxation.[62] The dominant perspective, however, sees the race to the bottom as leading to inefficiently low levels of taxes and public spending.[63] This inefficiency can be understood through a simple thought experiment: Compare a world of many countries to one united under a single government.[64] In the many-country world, reducing any country's capital tax rate reduces the capital available to other countries, imposing a negative externality on them. The fiscal union eliminates this externality, implying a more efficient pattern of taxes and public spending.

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[59] Enache, *supra* note 4.

[60] Devereux, Lockwood, and Redoano, *supra* note 12, at 1231 (2008). For a skeptical view of this study—and the empirical evidence supporting the existence of a race to the bottom in general—see Wei Cui, The Mirage of Mobile Capital (unpublished manuscript) (on file with author).

[61] *Id.* at 1213.

[62] GEOFFREY BRENNAN & JAMES M. BUCHANAN, THE POWER TO TAX (1980).

[63] Zodrow & Mieskowski, *supra* note 12, at 356; Wilson, *supra* note 12, at 297. Wilson and Wildasin describe this as the "standard model." *See* Wilson & Wildasin, *supra* note 57, at 1066.

[64] Keen & Konrad, *supra* note 3, at 287; Wilson & Wildasin, *supra* note 57, 1069-1070.

3. A Global Minimum Tax as a Solution

The previous two subsections described two forms of tax competition, competition for profit and competition for investment. Conceptually, minimum taxes promise to constrain both kinds of tax competition, and a global minimum tax promises to do so with particular efficacy.

Minimum taxes place a lower bound on a person's effective tax rate.[65] When a taxpayer's effective tax rate under the regular tax regime falls below that minimum, the minimum tax imposes additional liability to "top up" the taxpayer's effective tax rate.[66]

Consider a simple example. Suppose that a firm earns $100 and is subject to a 15 percent minimum tax. If the firm's regular tax liability is $20 (a 20 percent effective tax rate), the minimum tax has no effect. But if the firm's regular tax liability is only $10 (a 10 percent effective tax rate), the minimum tax collects an additional $5 payment to top up the effective tax rate to 15 percent.

By setting a floor on effective tax rates, minimum taxes curtail incentives to shift profit and race to the bottom.[67] If a country imposes a minimum tax on its resident firms' worldwide profits, those firms gain little advantage from shifting profits to countries with tax rates below the minimum, for the minimum tax will recapture much of the erstwhile tax savings.[68] For a similar reason, firms cannot reduce their effective tax rates below the minimum by relocating their investments.[69] Thus, foreign countries cannot attract additional investment by cutting taxes below the minimum rate, and

[65] David Gamage and Ari Glogower, *The Policy and Politics of Alternative Minimum Taxes*, 77 NAT'L TAX J. (2024); Daniel Shaviro, *What Are Minimum Taxes, and Why Might One Favor of Disfavor Them?*, 40 VA. TAX REV. 395, 402-07 (2021); James R. Hines, Jr., & Kyle D. Logue, *Understanding the AMT, and Its Unadopted Sibling, the AMxT*, 6 J. LEG. ANALYSIS 367, 374 (2014).

[66] Indeed, the charter that establishes the global minimum tax, the GloBE Model Rules, describe this additional tax as "top up tax." *See* GLOBE MODEL RULES, *supra* note 18, at art. 5.2.

[67] *See* Keen & Konrad, *supra* note 3, at 288-93; *see also* Harry Grubert & Rosanne Altshuler, *Fixing the System: An Analysis of Alternative Proposals for the Reform of International Tax*, 66 NAT'L TAX J. 671 (2013); Daniel Shaviro, *The New Non-Territorial U.S. Tax System*, *Part 2*, 160 TAX NOTES 171 (2018); Martin A. Sullivan, *Fixing GILTI: Bye-Bye to QBAI*, 163 TAX NOTES 801 (2019); Dana L. Trier, *International Tax Reform in a Second Best World: The GILTI Rules*, 97 TAXES 39 (2019).

[68] They might still have some incentive to shift profit because there might be a difference between the regular tax rate and the minimum tax rate.

[69] *See* Keen & Konrad, *supra* note 3, at 288–292.

the home country need not set taxes below the minimum rate to remain competitive.[70] The race to the bottom stops at the minimum rate.[71]

Of course, any minimum tax enacted by a single country has an obvious shortcoming: Firms can avoid it by exiting that country's jurisdiction.[72] For example, if the United States imposes a minimum tax on the profits of firms whose parent companies are chartered in the United States, firms can avoid this minimum tax by "inverting" themselves: being acquired by a company that is chartered overseas.[73] Alternatively, if the United States imposes a minimum tax on all corporations that are headquartered in the United States, a firm can avoid the tax by placing its headquarters in Canada.[74]

A global minimum tax blocks this escape route. As more countries jointly impose the minimum tax, it becomes more costly for firms to avoid the tax. It is one thing to place one's headquarters outside of the United States; it is another to place one's headquarters outside of any country in a coalition that accounts for 95 percent of global GDP.[75] Thus, a global minimum tax is, potentially, a particularly robust solution to profit-shifting and the race to the bottom.

B. Key Features of the Global Minimum Tax

The actual global minimum tax—the compact to which many countries assented in 2021—imposes a 15 percent minimum tax on much of the profit earned by many of the world's largest firms.[76] The global minimum tax, however, is much more complex than the simple example described above. Most significantly for our purposes, the

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[70] *Id.*

[71] *Id.*

[72] *See* Daniel Shaviro, *The Rising Tax-Electivity of U.S. Corporate Residence*, 64 TAX L. REV. 377 (2011) (describing tax-planning opportunities available to firms that expatriate).

[73] The label "inversion" comes from the transaction's usual form. Typically, a firm's foreign subsidiary exchanges its shares for those of the American parent company. Before the exchange, individual investors owned shares in the American parent company, which in turn owned shares in the foreign subsidiary. After the exchange, individual investors own the foreign company, which in turn owns the American company. Thus, the subsidiary becomes the parent; the corporate structure is "inverted." *See* Mihir A. Desai & James R. Hines, Jr., *Expectations and Expatriations*, 55 NAT'L TAX J. 409, 410 (2002).

[74] *See* Peter Egger, Doina Radulescu & Nora Strecker, *Effective Labor Taxation and the International Location of Headquarters*, 20 INT'L TAX & PUB. FIN. 631 (2013); Johannes Voget, *Relocation of Headquarters and International Taxation*, 95 J. PUB. ECON. 1067 (2011); Vanessa Strauss-Kahn & Xavier Vives, *Why and Where Do Headquarters Move?*, 39 REG. SCI. & URB. ECON. 168 (2009).

[75] Kysar, *supra* note 16 (manuscript at 36).

[76] *See* OECD, GLOBE MODEL RULES, *supra* note 18, arts. 5.2 (imposing a minimum tax), 10.1 (defining the minimum tax rate as 15 percent).

global minimum tax distinguishes between two different kinds of profit: routine profit and excess profit.[77]

Routine profit is a deemed (that is, hypothetical) return on investment.[78] The global minimum tax presumes that firms earn a 5 percent return on most physical assets (such as property, plant, and equipment) and payroll costs.[79] This deemed return—routine profit—is excluded from the global minimum tax under what is called the "substance-based income exclusion" (SBIE).[80] The SBIE entails that firms can pay any rate of tax, even 0 percent, on routine profit.[81]

Excess profit comprises whatever profit remains after routine profit is excluded.[82] Unlike routine profit, excess profit is subject to the 15 percent minimum tax rate.[83] If a firm pays tax on its excess profit in any country at an effective rate of less than 15 percent, a sequence of countries will impose additional "top-up tax" to reach the 15 percent minimum rate.[84] For example, if a firm pays tax on its excess profit at a rate of 5 percent in a low-tax jurisdiction, it will pay 10 percent of top-up tax.

A simple example will help illustrate this distinction between routine and excess profit. Consider a firm that earns $8 million of profit by operating a factory in Country *A*. The factory employs $80 million of physical assets and a $20 million payroll, for a total of $100 million. Under the global minimum tax, the first $5 million of the firm's profit—representing a deemed 5 percent return on the firm's $100 million investment—is classified as routine profit. The remaining $3 million is classified as excess profit. If country *A* taxes all profit at a rate of 0 percent, the firm will pay no tax on the $5 million of routine profit but must pay top-up tax at a rate of 15 percent on the remaining $3 million of excess profit.

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[77] *Id.* at arts. 5.2-5.3.

[78] *Id.* at 5.3. For the label of "routine profit," see Org. for Econ. Coop. and Dev. [OECD], *Tax Challenges Arising from Digitalisation of the Economy – Consolidated Commentary to the Global Anti-Base Erosion Model Rules* ch. 2, ¶ 2 (2023), https://doi.org/10.1787/b849f926-en (labeling this deemed return a "routine return"); *id.* at ch. 5, ¶ 26 (same).

[79] *See* OECD, GLOBE MODEL RULES, *supra* note 18, art. 5.3.4. Under a transition rule, the deemed return begins at a higher rate—8 percent for physical assets and 10 percent for payroll in 2023—and gradually declines to 5 percent by 2033. *Id.* art. 9.2.

[80] *See* OECD, GLOBE MODEL RULES, *supra* note 18, art. 5.3.

[81] *Id.*

[82] *Id.* art 5.2.2.

[83] *Id.* art. 5.2.

[84] A very complex set of rules defines this sequence. *See id.* art 2. For a concise explanation of these rules, see Cui, *supra* note 22, at 214–16.

C. Scholars' Expectations for the Global Minimum Tax

Most tax scholars are optimistic about the global minimum tax.[85] They believe that the global minimum tax will constrain profit-shifting, which they regard as a significant problem.[86] These scholars acknowledge that the SBIE, which excludes routine profit from the minimum tax, largely permits countries to compete for investment.[87] Yet they conclude that the net effect of the global minimum tax will be positive: restricting profit-shifting while leaving the race to the bottom (at worst) unaffected would be an improvement on the status quo.[88]

To appreciate this view, we will need to understand why the global minimum tax treats competition for profit and competition for investment differently. The global minimum tax does so through its distinction between routine and excess profit. Shifted profit typically is classified as excess and is therefore subject to the global minimum tax.[89] By contrast, profit derived from investment in a low-tax jurisdiction often is classified as routine profit and is therefore exempt from the global minimum tax.[90]

For an illustration, compare two examples. The first is:

> PROFIT-SHIFTING: Firm *X* has a factory in country *A*. The factory employs $80 million of physical assets and a $20 million payroll, for a total of $100 million. It generates $5 million of profit. *X* shifts that profit to *B*, where *X* has no physical presence. *B* taxes *X*'s profit at a rate of 0 percent.

Here, the global minimum tax imposes 15 percent of top-up tax on *X*'s shifted profit. Because *X* has no physical assets or employees in *B*, it cannot claim any routine profit

[85] *See supra* note 16.
[86] *Id.*
[87] *Id.*
[88] *Id.*
[89] *See* Kamin, *supra* note 16, at 322 ("What should be left [as excess profit] are very large returns from the largest companies or profit shifted into a country from activity occurring elsewhere"); Vella, Devereux, and Wardell-Burrus, *supra* note 18, at 24 ("Excess Profit arises in a particular country . . . if profit generated by real activity in another country is shifted to it . . . .").
[90] *Id.*

there.[91] Its entire $5 million of profit is classified as excess and is therefore subject to the minimum tax.

The second example is:

> RACE TO THE BOTTOM: The facts are identical to those in PROFIT-SHIFTING, except that *X* moves its factory to *B*.

Now the global minimum tax does not affect *X*. The firm's $100 million investment in *B* generates $5 million of routine profit in *B*.[92] *B* can tax this profit at any rate, even 0 percent, and *X* will pay no top-up tax.[93]

These examples illustrate a general point: The categories of shifted profit and excess profit largely overlap.[94] To be sure, the correspondence between shifted profit and excess profit is not perfect. Shifted profit may qualify as routine when firms make physical investments in tax havens—like the Dublin offices of Apple, Amazon, and Microsoft—that generate returns below the deemed 5 percent rate.[95] Conversely, some non-shifted profit may be classified as excess when investments yield returns at a rate above 5 percent.[96]

Nonetheless, shifted profit and excess profit remain closely linked. It is costly to invest real resources in a tax haven for the sole purpose of changing how shifted profit

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[91] *See* OECD, GLOBE MODEL RULES, *supra* note 18, at arts. 5.3.2., 5.3.3., 5.3.5 (defining the substance-based carveout in such a way that renders it zero when there are no physical assets or employees in a country).

[92] *See id* (defining the substance-based carveout in such a way that generates $5 million of routine profit on a $100 million investment of the kind described in example).

[93] *See id.* at art 5.3 (exempting routine profit from the global minimum tax).

[94] *See supra* note 89.

[95] *See* Linda Daly, *Dublin Office Deals Rise but Apple's Quest Goes On*, THE TIMES (UK) (Aug. 11, 2024), https://www.thetimes.com/world/ireland-world/article/dublin-office-deals-rise-but-apples-quest-goes-on-hrl52xgf7 [https://perma.cc/BK6J-752S]; *Meet the Team: Behind-the-Scenes at Amazon in Ireland*, AMAZON EU (Oct. 2, 2020), https://www.aboutamazon.eu/news/working-at-amazon/meet-the-team-behind-the-scenes-at-amazon-in-ireland [https://perma.cc/J2ZF-4YCS]; Welcome to Microsoft Ireland, MICROSOFT, https://www.microsoft.com/en-ie/aboutireland [https://perma.cc/8XDT-FQXQ].

[96] *See* Kamin, *supra* note 16, at 322 (stating that excess profit includes "very large returns"); Devereux, and Wardell-Burrus, *supra* note 18, at 24 ("Excess Profit arises in a particular country . . . if the real activities in that country generate a profit that is higher than the formulaic return allowed under the SBIE.").

is classified under the global minimum tax.[97] Moreover, even in the "best" case scenario—where the investment in a tax haven yields no profit itself—each $1 of investment only reclassifies $0.05 of shifted profit. Meanwhile, since 1950, the mean rate of return on corporate equity has been approximately 8 percent.[98] That rate of return implies that the majority of non-shifted profit is routine profit.

Putting these points together, most tax scholars believe that the global minimum tax will constrain competition for profit but permit competition for investment.[99] This leads them to cautious optimism about the net effect of the global minimum tax because they believe that it will make progress on one significant problem.[100] Thus, Michael Devereux, John Vella, and Heydon Wardell-Burrus claim that the global minimum tax "should have a significant impact on tax competition, albeit not as significant as some may have hoped."[101] Similarly, while David Kamin concedes that the global minimum displays "limited" ambition, he also asserts that it takes "a significant and important step forward."[102]

II. A TRADE-OFF BETWEEN COMPETITION FOR PROFIT AND INVESTMENT

Scholars' optimism about the global minimum tax rests on a crucial assumption: that restricting competition for profit will not intensify competition for investment. This Part challenges that assumption. The global minimum tax, I argue, raises a trade-off: By restricting profit-shifting, it likely intensifies the race to the bottom.

The intuition behind this trade-off can be stated as follows. Shifting profit is cheaper than moving investment. Thus, when profit-shifting is feasible and effective, firms have little reason to move their investments to low-tax countries, and countries gain little investment by cutting taxes. The global minimum tax alters this equilibrium

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[97] *See* Martin Sullivan, *The Not-So-Obvious Effects of Pillar 2 on Tangible Capital Investment*, 182 TAX NOTES FED. 15 (2024) (describing the limited effectiveness of moving real activities for purpose of reclassifying shifted profit as routine).

[98] Òscar Jordà, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick & Alan M. Taylor, *The Rate of Return on Everything, 1870-2015**, 134 Q.J. ECON. 1225, 1241, tbl.II (2019) (reporting a mean rate of return of 8.3 percent).

[99] *See supra* note 16.

[100] *Id.*

[101] John Vella, Michael P. Devereux & Heydon Wardell-Burrus, Pillar 2's Impact on Tax Competition (Aug. 26, 2022), https://ssrn.com/abstract=4203395.

[102] Kamin, *supra* note 16, at 319.

by restricting profit-shifting but permitting competition for investment. It strengthens firms' incentives to relocate to low-tax countries and countries' incentives to compete for that investment with low taxes.

The rest of this Part develops that intuition in four steps. Section II.A establishes two premises, each drawn from the existing economic literature on tax competition, about the surprising virtues of tax havens and profit-shifting. Section II.B demonstrates how those premises imply that the global minimum tax may intensify the race to the bottom among countries that adopt it. Section II.C extends the analysis to competition between adopting and non-adopting countries. Section II.D examines empirical evidence supporting my theoretical claims.

A. The Functions of Tax Havens

Tax havens perform two functions that benefit other countries.[103] First, they arrest the race to the bottom by providing firms with a cheaper alternative to relocating investment to low-tax countries.[104] Second, tax havens enable other countries to differentiate between more and less mobile firms, allowing them to maintain higher tax rates on less mobile economic activity.[105]

These two functions work in tandem.[106] When profit-shifting is feasible and effective, it is a cheaper alternative to relocating investment.[107] The availability of this alternative reduces firms' incentives to move their investment in search of tax savings.[108] At the same time, because profit-shifting has its own costs, only relatively mobile firms will take advantage of it.[109] This implicitly separates more mobile from less mobile firms, allowing countries to maintain higher tax rates on firms that are less likely to shift their profits or relocate.[110]

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[103] *See supra* note 24.
[104] *Id.*
[105] *Id.*
[106] *Id.*
[107] *See* Joel Slemrod, *A General Model of the Behavioral Response to Taxation*, 8 INT'L TAX & PUB. FIN. 119 (2001) (describing a "hierarchy" of behavioral responses to taxation, in which profit-shifting is preferred to relocating investment); *see also* Alessandro Ferrari, Sébastien Laffitte, Mathieu Parenti, and Farid Toubal, *Profit-Shifting Friction and the Geography of Multinational Activity* (unpublished manuscript, on file with author), at 4 (finding that profit-shifting is three times as tax-sensitive as investment).
[108] *See supra* note 24.
[109] *Id.*
[110] *Id.*

Put together, these points yield a surprising result: tax havens can help other countries raise *more* revenue than they otherwise would. By providing a "safety valve" for mobile firms, tax havens reduce pressure on countries to slash their tax rates across the board. In essence, they convert what would be a uniform low-rate equilibrium into a separated one, with low effective rates for relatively mobile capital and high rates for relatively immobile capital.

An example will illustrate how tax havens perform these functions.[111] Consider a world with three countries (*A*, *B*, and a tax haven) and four firms. Two firms, a_1 and b_1, are immobile: their costs of shifting profit and relocating investment are so high that they will keep their investments and profits in their home countries (*A* and *B*, respectively) even when offered large tax savings. For sake of illustration, suppose that moving is so costly for these firms that they will remain at home even when presented with the lowest rate that a foreign country is willing to enact. The other two firms, a_2 and b_2, are mobile: While they prefer to remain in their home countries, they will move their investments or their profits in response to low tax rates that foreign countries are willing to enact.[112] Table 2 summarizes the characteristics of the four firms.

Table 2: Mobile and Immobile Firms by Home Country

	Immobile	Mobile
A	a_1	a_2
B	b_1	b_2

Each firm begins with $1600 of capital, which yields $100 of profit.[113] Mobile firms have two options: They can either spend $20 to move their investments to the foreign non-haven country, or they can spend $1 to shift their profits to the tax haven. Each firm maximizes its profit, net of taxes and transaction costs.

[111] For a similar example, see Dharmapala, *supra* note 46, at 671-73.

[112] Firms' locational preferences can be interpreted along the following lines. They might prefer to invest in a specific location because they possess assets that earn especially high returns in that location. Alternatively, they might prefer to invest in a specific location because they have already made an investment and relocating incurs transition costs. They might prefer not to shift their profits because profit-shifting incurs transaction costs (such as hiring lawyers).

[113] This reflects an assumed 6.25 percent rate of return. The rate of return will become relevant in Section II.B, when a global minimum tax is introduced that excludes "routine profit," defined as profit up to a 5 percent deemed rate of return. A 6.25 percent rate of return implies that 80 percent of firms' profit is routine and 20 percent is excess when no profit is shifted.

Non-haven countries choose tax rates so as to strike a balance between raising revenue and attracting investment. To simplify the analysis, we assume that each country must choose between a high (50 percent) or low (0 percent) tax rate on profit booked to it. Each non-haven country (*A* and *B*) cares about investment and tax revenue. As in Part I, this objective is operationalized with the following assumption: each government maximizes a weighted sum of (a) the profit (after tax) that the firms generate from investment in the country's territory plus (b) the country's tax revenue, multiplied by 1.2. Similarly, as before, profit serves as a proxy for the productivity of capital invested in a country, and public funds are valued more than private profit.[114] The tax haven always chooses the low tax rate.

To understand how the tax haven affects the behavior of other countries and firms, first consider the equilibrium without the tax haven. In this baseline scenario, *A* and *B* race to the bottom. A mobile firm saves $50 ($50 - $0) by securing the low tax rate rather than the high tax rate, which exceeds its $20 cost of relocating. Thus, each country can attract additional investment by cutting its tax to the low rate. Since each country values this investment more than the $100 of foregone revenue, cutting taxes is individually rational for *A* and *B*.[115] Once one country cuts its tax, however, the other must follow to prevent capital flight. In the resulting equilibrium, each country sets the low tax rate. Both countries are worse-off than they would have been if they could have coordinated on establishing the high tax rate.

Table 3 presents this baseline scenario as a game in normal form. Each cell shows the payoffs to *A* (first) and *B* (second) under one combination of tax rates. The table shows that setting a low rate strictly dominates setting a high rate for both countries.

Table 3: Payoffs Without Tax Haven

		B	
A		50%	0%
	50%	$220, $220	$110, $280
	0%	$280, $110	$200, $200

[114] *See supra* note 57.

[115] Each country sacrifices $100 of revenue by cutting its tax to the low rate because its tax applies to mobile as well as immobile firms. Reducing one's tax to the low rate loses $50 of revenue from one's mobile domiciliary and $50 from one's immobile domiciliary.

Introducing the tax haven disrupts this race to the bottom at its first step. Mobile firms now have a cheaper way to access low tax rates: shifting profit (at a cost of $1) rather than relocating investment (at a cost of $20). This eliminates countries' abilities to attract investment through a tax cut. Since cutting taxes would sacrifice revenue from immobile firms without attracting additional investment, it is individually rational for non-haven countries to set a high tax rate.

Table 4 shows this transformed strategic landscape. The tax haven changes each country's dominant strategy from the low tax rate to the high tax rate.

Table 4: Payoffs With Tax Haven

		B	
A		50%	0%
	50%	$209, 209	$209, $200
	0%	$200, $209	$200, $200

In effect, the tax haven creates a screening mechanism that sorts mobile from immobile firms. Mobile firms self-select into the low tax rate by shifting their profits to the tax haven, while immobile firms remain subject to the tax rates set by their home country. This separation allows non-havens to maintain a high tax rate on an immobile base.

Introducing the tax haven benefits the non-haven countries. By arresting the race to the bottom and sorting mobile from immobile firms, the tax haven increases each other country's payoff from $200 to $209.

***

To summarize, while tax havens do indeed impose well-documented costs on other countries, they also perform two valuable functions. They serve as a "safety valve" for competitive pressures and sort mobile from immobile firms. By doing so, they enable other countries to maintain relatively high tax rates on immobile economic activity while accommodating mobile firms' demands for low tax rates.

B. Competition Within the Enacting Coalition

By design, the global minimum tax closes this safety valve.[116] It prevents profit-shifting while permitting countries to compete for investment by cutting taxes.[117] In doing so, the global minimum tax might intensify the race to the bottom among countries that adopt it. This section explains why, analyzing a variation on the example introduced in Section II.A.

1. Facts of Example

Consider three countries—*A*, *B*, and a tax haven—competing for the investments and profits of four firms. Two firms are immobile, keeping their investments and profits in place regardless of tax rates. The other two firms are mobile, meaning that they will move their investments or profits in response to sufficiently large tax differentials. For analytical clarity, we assume that each firm's most-preferred location is its domicile, though this assumption does not affect our core results.

In this scenario, countries enact a global minimum tax that classifies profits as either routine or excess. Routine profit corresponds to a deemed 5 percent return on investment in a jurisdiction; any remaining profit is excess. The minimum tax does not constrain how routine profit is taxed. But it does top up each firm's effective tax rate on excess profit to a high rate (50 percent), regardless of where that profit is booked. All revenue raised by the global minimum tax is collected by the firm's domicile.[118]

This scenario preserves prior assumptions about firms' capital, profit, and rates of return. Each firm has $1600 of capital, which yields $100 of profit when invested. These assumptions reflect a 6.25 percent rate of return. At this rate of return, each firm earns $80 of routine profit and $20 of excess profit when no profit is shifted.[119] Additionally, any shifted profit is classified as excess.

Non-havens impose distinct taxes on routine and excess profit, choosing either a high tax rate (50 percent) or a low tax rate (0 percent) for each category of profit. As before, non-havens maximize a weighted sum of profit generated from investment in

[116] *See supra* note 18.

[117] *Id.*

[118] Because the example involves two symmetric countries, our analysis would be unchanged if revenue were split equally by *A* and *B* as well.

[119] Under the hypothesized global minimum tax, routine profit corresponds to a deemed 5 percent rate of return. $1600 * 0.05 = \$80$. The remainder, $\$100 - \$80 = \$20$, is excess.

their territory and tax revenue, where revenue carries 1.2 times the weight of profit. The tax haven always selects the low tax rate.

2. Excess Profit

Excess profit is stationary and is taxed the high rate. This occurs for two reasons.

First, firms have no incentive to shift excess profit or move the investment that generates it. Because the minimum tax applies to excess profit, firms cannot reduce their tax burden on it by moving it or its underlying investment. Thus, any relocation would incur costs without conferring benefits.

Second, knowing that excess profit is—effectively—immobile, non-haven countries tax it at the high rate. Cutting the tax on excess profit sacrifices revenue without attracting any additional investment. Thus, the dominant strategy is to tax excess profit at the high rate.

3. Routine Profit and Firm Behavior

With respect to routine profit, firms choose between two dominant strategies: keep the underlying investment at home or move it abroad. Shifting routine profit is never optimal.

Here is why: The minimum tax erases any benefit from shifting routine profit. If a firm shifts profit into the tax haven, it is reclassified as excess profit, subject to the minimum tax, and taxed at the high rate. Since shifting routine profit incurs some transaction costs and saves no tax, firms never choose this strategy.

Instead, firms compare two options. The first is to keep their investment at home; the second is to move it abroad. The choice between these two strategies depends on the tax rate differentials (if any) between the non-haven countries.

Investing at home is the dominant strategy when the foreign non-haven's tax rate equals or exceeds the home country's tax rate. Under those conditions, a firm cannot save any tax by moving. So it is best for the firm to avoid paying any transaction costs.

Moving investment is the dominant strategy when the foreign non-haven selects a lower tax rate than the home country. When the foreign non-haven taxes routine profit at the low rate and the firm's domicile imposes tax at the high rate, relocating

investment yields net savings of $20 ($40 of tax savings minus relocation costs of $20). Table 5 presents this analysis of firms' behavior.

Table 5: Mobile Firms' Payoffs from Routine Profit

	Foreign Tax = 0%; Home Tax = 50%	Foreign Tax = 50% Home Tax = 50%	Foreign Tax = 50% Home Tax = 0%	Foreign Tax = 0% Home Tax = 0%
Shift Profit	$39	$39	$39	$39
Move Abroad	**$60**	$20	$20	$60
Remain at Home	$40	**$40**	**$80**	**$80**

Notes: Bold indicates best response. The darkly shaded region of the table indicates where the foreign tax rate is less than the home tax rate. The lightly shaded region indicates where the foreign tax rate equals or exceeds the home tax rate.

4. Routine Profit and Countries' Taxes

Firms' behavior creates powerful incentives for tax competition. These incentives operate through two mechanisms:

1. The Offensive Mechanism. Each country can attract additional investment by setting a tax rate below that of its competitor. When *A* undercuts *B*'s tax rate on routine profit, the mobile firm domiciled in *B* (b_2) will move investment to *A*. (And a_2 will move if *B* undercuts *A*.)
2. The Defensive Mechanism. Each country can recover lost investment by matching its competitor's low rate. If *B* matches *A*'s low tax rate, b_2 becomes indifferent to tax and returns to its preferred location, *B*. (As will a_2 if *A* matches *B*'s low rate.)

These two pressures set up a race to the bottom for investment.

Each country's dominant strategy is to tax routine profit at the low rate. It is always optimal for each country to either undercut or match the low tax rate of its competitor. Table 6 demonstrates this result by showing each country's payoffs under alternative profiles of tax rates on routine profit.

Table 6: A Race to the Bottom over Routine Profit

		B	
A		50%	0%
	50%	$220, $220	$132, $264
	0%	$264, $132	$204, $204

5. Comparison of Global Minimum Tax to Territorial Regime

As we have seen, the global minimum tax fundamentally changes equilibrium behavior. When the minimum tax does not exist (Section II.A), mobile firms shift their profits to the tax haven while immobile firms are taxed at the high rate. Under the global minimum tax (Section II.B), mobile firms cease their profit-shifting, and non-havens tax excess profit—earned by mobile and immobile firms alike—at the high rate. But they also reduce their taxes on routine profit, whether mobile or immobile, to the low rate.

The global minimum tax therefore raises the following trade-off. On the one hand, the global minimum tax enables countries to raise more revenue from excess profit, and it also curtails wasteful tax planning. On the other hand, the global minimum tax also forces countries to sacrifice revenue from immobile profit.

Under our example's parameters, the global minimum tax does more harm than good. Each non-haven's welfare falls from $209 to $204, and global welfare falls from $418 to $408.

C. Competition Between Enacting and Non-Enacting Countries

Section II.B analyzed how a global minimum tax that distinguishes between routine and excess profit shapes interactions between countries that adopt it. This analysis, while illuminating, is incomplete. Because no minimum tax—including the actual global minimum tax—has achieved universal adoption, we should examine how a global minimum tax affects competition between adopting and non-adopting countries as well.[120]

[120] Over 50 of the 195 countries recognized by the United Nations have not assented to the global minimum tax, and many of those countries that did assent to the global minimum tax have not yet fully

This section shows that a global minimum tax creates an unstable dynamic. It incentivizes adopting and non-adopting countries to oscillate between tax rates on routine profit, leading to rates that are, in expectation, lower than they would be absent the minimum tax.

1. Facts of Example

Consider a variation on our earlier example. As before, *A*, *B*, and the tax haven vie for the investments and profits of four firms. Now, however, *A* alone imposes a minimum tax that distinguishes between routine and excess profit on firms domiciled within it. To simplify computation, assume that each firm's cost of shifting profit is $3, and assume that each country ascribes 2.2 times as much value to each dollar of tax revenue as it does to each dollar of private profit.

2. No Pure Strategy Equilibrium

Our analysis thus far has focused on pure strategy equilibria. A pure strategy equilibrium exists when every player follows a fixed strategy (for example, *always play rock* in rock-paper-scissors) and cannot benefit by unilaterally deviating from that strategy.[121]

Some games do not have a pure strategy equilibrium.[122] Take rock-paper-scissors for an example. No pure strategy is optimal: a player who always chooses rock will lose to paper, switching to scissors invites rock, and choosing paper prompts scissors. The cycle continues indefinitely.

Under a unilateral minimum tax, the competition between *A* and *B* for routine profit similarly lacks a pure strategy equilibrium. To see this, consider the payoff matrix displayed in Table 7, and consider what will happen if both countries play pure strategies.

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implemented it. *See* PricewaterhouseCoopers (PWC), *Pillar Two Developments by Country* (last accessed Oct. 30, 2024), https://www.pwc.com/gx/en/services/tax/pillar-two-readiness/country-tracker.html. Wei Cui raises powerful doubts that the global minimum tax will achieve full implementation. *See* Cui, *supra* note 22.

[121] DREW FUDENBERG & JEAN TIROLE, GAME THEORY 12 (1998).

[122] *Id.* at 16-18.

Table 7: Competition Under Unilateral Minimum Tax

		B	
A		50%	0%
	50%	$320, $257	$192, $269
	0%	$224, $257	$224, $209

One country can profitably deviate from any pure strategy profile:

- Option 1: Both countries tax routine profit at high rate. If both countries tax routine profit at the high rate, *B* can increase its payoff from $257 to $269 by cutting its tax and attracting additional investment.
- Option 2: *A* taxes routine profit at the high rate; *B* taxes routine profit at the low rate. If *A* maintains a high tax rate while *B* cuts to the low rate, *A* can improve its payoff from $192 to $224 by matching *B*'s rate and recapturing lost investment.

This pattern initially resembles a classic race to the bottom, with high tax rates giving way to successive cuts. But the dynamic does not stabilize at low tax rates.

- Option 3: Both countries tax routine profit at the low tax rate. When both countries tax routine profit at the low rate, *B* benefits by *raising* its tax. This tax increase raises additional revenue from b_1 (*B*'s immobile domiciliary) without risking flight from b_2 (*B*'s mobile domiciliary), because b_2 can secure a low tax rate by shifting its routine profit into the tax haven.
- Option 4: *B* taxes routine profit at the high rate; *A* taxes routine profit at the low rate. If *B* taxes routine profit at the high rate while *A* taxes it at the low rate, *A* benefits from raising its tax. This raises additional revenue without triggering capital flight because the low tax rate is not available anywhere.

A pure strategy equilibrium does not exist because *A* and *B* are asymmetric in one important respect. *A* has a minimum tax; *B* does not. Perhaps counterintuitively, *A* 's minimum tax forces it to worry about losing investment when *B* chooses the low tax rate. *B*, lacking a minimum tax, can raise its tax on routine profit without fear because its mobile firm can shift profit to the tax haven rather than relocating to *A*.

3. Mixed Strategy Equilibrium

While lacking a pure strategy equilibrium, the competition between the enacting country (*A*) and the non-enacting country (*B*) does have a mixed strategy equilibrium. In this equilibrium, the non-haven countries randomize between the high and low rate according to fixed probabilities, and neither country can improve its payoff by changing its probability distribution over rates.

The game's mixed strategy equilibrium is asymmetric. *A* taxes routine profit at high rate most (but not all) of the time and *B* taxes routine profit at the low rate most (but not all) of the time. Specifically, let the probability that *A* enacts the high tax be p, and let the probability that *B* enacts the high tax be q. Then p is 0.8 and q is 0.25, implying that *B* enacts the low tax with probability 0.75.[123]

These asymmetric probabilities reflect each country's incentives. *A* selects the high tax rate more frequently than *B* because *A* has a minimum tax and *B* does not. Because *A* has a minimum tax, it faces steep costs from cutting its tax rate: When *B* selects the high rate, *A*'s cut sacrifices revenue without attracting additional investment, because *B*'s mobile domiciliary can secure the low tax rate through profit-shifting. By contrast, because *B* lacks a minimum tax, it risks little from cutting taxes: Even when *A* selects the high rate, *B*'s mobile firm will escape *B*'s high tax by shifting profit into the haven. These asymmetric payoffs lead *A* to maintain the high tax rate more frequently than *B*.

4. Comparison of Minimum Tax to the Territorial Regime

The minimum tax produces lower expected tax rates on routine profit than the territorial regime. Under the territorial regime (Section II.A), both non-havens

[123] In a mixed strategy equilibrium, each player must be indifferent between the pure strategies that they are randomizing over. Thus, *A*'s best response can be determined by considering *B*'s payoffs, and vice versa. *A*'s best response is calculated as follows:

$$257p + (1-p)257 = 269p + (1-p)209$$
$$257 = 60p + 209$$
$$48 = 60p$$
$$4/5 = p$$

Meanwhile, *B*'s best response is:

$$320q + (1-q)192 = 224q + (1-q)224$$
$$320q + 192 - 192\,q = 224$$
$$128q = 32$$
$$q = 1/4$$

consistently tax routine profit at the high rate.[124] Under the minimum tax, by contrast, each country periodically cuts its tax on routine profit.[125]

Thus, comparing the minimum tax to the territorial regime tax raises the same fundamental trade-off that was identified in Section II.B. On the one hand, the minimum tax increases revenue from excess profit and curtails wasteful tax planning. On the other hand, the minimum tax forces countries to sacrifice revenue from immobile profit.

To evaluate welfare effects, we can compare payoffs across global tax regimes after standardizing key parameters. Let us standardize the cost of profit-shifting at $3 and the value of each dollar of tax revenue at 2.2 times that of each dollar of investment. Under this standardizing assumption, the global minimum tax reduces welfare: *A*'s expected payoff falls from $257 under the territorial regime to $224 under the global minimum tax, while *B*'s expected payoff remains constant at $257.[126]

D. Empirical Evidence

This Part has developed a theoretical argument for one central claim: The global minimum tax raises a trade-off between competition for profit and competition for investment. Does empirical evidence support this claim?

The full effects of the global minimum tax will not be observed for many years. The agreement is only three years old, and implementing legislation is still working its way through congresses and parliaments around the world.[127] Even after the minimum tax takes effect, analyzing its impact empirically will take time. This time lag only

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[124] *See supra* Section II.A. Of course, the territorial regime doesn't distinguish between routine and excess profit. Both non-havens tax all profit at the high rate, including whatever profit would be classified as routine under the minimum tax.

[125] *See supra* Section II.A.3.

[126] *A*'s expected payoff under the minimum tax can be calculated as follows:

$$(4/5)(1/4)(320) + (4/5)(3/4)(192) + (1/5)(1/4)(224) + (1/5)(3/4)(224)$$
$$= 64 + 115.2 + 11.2 + 33.6$$
$$= 224$$

B 's expected payoff under the minimum tax can be calculated as follows:

$$(4/5)(1/4)(257) + (4/5)(3/4)(269) + (1/5)(1/4)(257) + (1/5)(3/4)(209)$$
$$= 51.4 + 161.4 + 12.85 + 31.35$$
$$= 257$$

[127] *See* OECD, OCTOBER 2021 BROCHURE, *supra* note 6 (describing the agreement, which occurred in 2021); PWC, *supra* note 120 (describing the current state of implementation).

underscores the importance of theoretical work, which enables us to make credible predictions in the meantime.

Even now, however, a significant empirical literature supports my argument's core assumptions and its conclusions about the global minimum tax. Empirical evidence suggests that tax havens arrest the race to the bottom and screen mobile from immobile firms. Together, these findings imply that the global minimum tax will intensify the race to the bottom.

1. Evidence that Tax Havens Arrest the Race to the Bottom

Suggestive evidence directly supports the proposition that tax havens slow the race to the bottom.[128] If tax havens did *not* slow the race to the bottom, we should expect to see an association between increased profit-shifting and decreased corporate tax revenue in non-havens. Profit-shifting would, mechanically, eat away some tax revenue, and it would not return other tax revenue by enabling non-havens to tax immobile firms. As Dhammika Dharmapala observes, however, the share of tax revenue that the United States derived from the corporate tax did *not* decline when U.S. firms became more active in tax havens between 1994 and 2006.[129] This suggests that profit-shifting did help the United States to raise tax revenue in some way, perhaps by enabling the United States to tax immobile U.S. firms.

Stronger evidence comes from studies showing that the location of investment becomes more tax-sensitive when profit-shifting is constrained—a finding that implies that tax havens slow the race to the bottom. Multiple empirical studies confirm this relationship. De Mooij and Liu find that the location of investment became more tax-sensitive when 27 countries cracked down on transfer-pricing abuse.[130] Buettner, Overesch, and Wamser find similar effects following the adoption of "thin-capitalization rules," which restrict shifting profit by means of debt.[131] But perhaps the most stunning empirical finding to date comes from a study done by Juan Carlos Suárez Serrato.[132] Suárez Serrato studied the effect of the repeal of Section 936 of the

[128] Dharmapala, *supra* note 46, at 674.

[129] *Id.*

[130] Ruud de Mooij & Li Liu, *At a Cost: The Real Effects of Transfer Pricing Regulations*, 68 IMF ECON. REV. 268 (2020).

[131] Thiess Buettner, Michael Overesch & Georg Wamser, *Anti Profit-Shifting Rules and Foreign Direct Investment*, 25 INT'L TAX & PUB. POL'Y 553, 570 (2018).

[132] Juan Carlos Suárez Serrato, Unintended Consequences of Eliminating Tax Havens (Nat'l Bureau of Econ. Rsch. Working Paper No. 24850, 2019).

Internal Revenue Code, which (when in force) permitted U.S. firms to shift profits into Puerto Rico. When Section 936 was repealed, firms that had previously relied on it increased their share of foreign investment by 12 percent and reduced their U.S. employment by 6.7 percent.[133] After these firms left the United States, local labor markets remained scarred for 15 years.[134]

2. Evidence that Tax Havens Screen Mobile from Immobile Firms

Experience also suggests that tax havens help other countries differentiate between more and less mobile firms. Direct attempts at differentiation have proven unsustainable: easily exploitable and quickly abandoned. For example, until 2008, China offered a lower tax rate to foreign-owned firms than it did to domestic-owned firms.[135] Foreign ownership can be construed as a proxy for mobility; domestic ownership, for immobility. Chinese investors circumvented this system through "round-tripping"—that is, forming shell companies abroad and using those entities as conduits for investment in China.[136] Legally, this investment was coded as foreign—and taxed at the preferential rate—even though it originated in China.[137] Partly in response to this problem, China abandoned its preferential rate on foreign investment in 2008.[138]

To be sure, countries have shown themselves able to favor relatively mobile firms in specific contexts. The U.S. CHIPS Act—which provides subsidies to manufacturing semiconductors in the United States—is, plausibly, one example.[139] But there is a difference between targeted and comprehensive policies. Subsidies like those in the CHIPS Act pursue specific strategic objectives within a narrow set of industries over a limited time horizon. Attempts to differentiate between mobile and immobile firms in

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[133] Suárez Serrato, *supra* note 132, m.s. at 1.

[134] *Id.* at 1.

[135] The foreign-owned rate was 15 percent and the domestic-owned rate was 33 percent. In 2008, China eliminated its tax preference for foreign-owned firms and enacted a uniform corporate tax rate of 25 percent. *See* Alfons J. Weichenrieder & Fangying Xu, *Are Tax Havens Good? Implications of the Crackdown on Secrecy*, 127 J. ECON. 147, 149 (2019).

[136] *Id.* at 153.

[137] *Id.*

[138] *Id.*

[139] CHIPS and Science Act of 2022, Pub. L. No. 117-167, 136 Stat. 1372 (2022).

a more general way, such as China's preferential rate for foreign-owned firms, have proved to be more problematic.

3. Evidence for Aggravation of the Race to the Bottom

For the global minimum tax to set off a race to the bottom, two conditions must both be satisfied.[140] First, it must be the case that one country, on net, benefits from cutting taxes so as to gain additional investment.[141] Second, it must be the case that another country, on net, benefits from matching the first country's low tax rate so as to regain investment that otherwise would be lost.[142]

These two conditions need not be satisfied under all possible states of the world. Nonetheless, they are satisfied whenever it is true that tax havens arrest the race to the bottom. Thus, the evidence that tax havens slow the race to the bottom implies that the global minimum tax will aggravate the race to the bottom.

III. WILL THE GLOBAL MINIMUM TAX DO MORE HARM THAN GOOD?

Part II showed that the global minimum tax raises a trade-off between competition for profit and competition for investment. It restricts profit-shifting (which is good) but likely intensifies the race to the bottom (which is bad). Which of these two effects dominates?

This Part develops an analytical framework for answering that question. To assess the magnitude of these cross-cutting effects, we need to compare two quantities. The first is the global share of excess profit (as defined under the global minimum tax).[143] The second is the global share of immobile profit. Immobile profit is that which will not move, whether through profit-shifting or relocation of underlying investment, in response to the tax differentials that emerge from tax competition. The net effect of the global minimum tax largely turns on the relative size of these two tax bases.

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[140] *See supra* Section II.B-II.C.
[141] *Id.*
[142] *Id*
[143] This quantity includes all profit that is converted to excess by means of profit-shifting.

A. The Importance of Excess Profit and Immobile Profit

The global share of excess profit and the global share of immobile profit each influence the magnitude of one effect of the global minimum tax. The global share of excess profit influences what is gained by restricting profit-shifting. The global share of immobile profit influences what is lost by aggravating the race to the bottom.

Consider excess profit first. The global minimum tax tops up each firm's effective tax rate on excess profit to 15 percent.[144] Before the global minimum tax, much of this profit was shifted into tax havens, where it was taxed at rates approaching zero.[145] If the global minimum tax is effective, this profit will be taxed at a rate of no less than 15 percent.[146] That increases global tax revenue. Thus, the benefit of the global minimum tax grows with the quantity of excess profit.

The relationship between immobile profit and the race to the bottom is more subtle. The key point is that the harm of the race to the bottom depends on the quantity of immobile profit.[147] As Part II explained, a race to the bottom begins when countries compete for the investment of mobile firms.[148] But countries cannot discriminate between immobile and mobile firms: Mobility is hard to identify directly, and proxies for it have proved exploitable.[149] Thus, when countries cut taxes in a race for the investment of mobile firms, they must cut taxes on *immobile* firms as well. Relative to the status quo—in which the global minimum tax did not exist and mobile firms achieved low tax rates through profit-shifting—cutting taxes for mobile firms does not sacrifice revenue. But cutting taxes for immobile firms does. The resulting revenue loss grows with the quantity of immobile profit.

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[144] *See* OECD, GLOBE MODEL RULES, *supra* note 18, at arts. 5.2 (defining top up tax as the tax needed to raise a firm's effective rate to the minimum rate); 10.1.1 (defining "minimum rate" as fifteen percent).

[145] *See* Kamin, *supra* note 16, at 322 ("What should be left [as excess profit] are very large returns from the largest companies or profit shifted into a country from activity occurring elsewhere"); Vella, Devereux, and Wardell-Burrus, *supra* note 18, at 24 ("Excess Profit arises in a particular country . . . if profit generated by real activity in another country is shifted to it . . . .").

[146] *See* OECD, GLOBE MODEL RULES, *supra* note 18, at arts. 5.2 (defining top up tax as the tax needed to raise a firm's effective rate to the minimum rate); 10.1.1 (defining "minimum rate" as fifteen percent).

[147] *See supra* Section II.B.

[148] *See supra* Section II.B.-II.C.

[149] *See supra* Section II.D.2.

An example will illustrate this point. Consider a country, *A*, that initially taxes corporate income at a relatively high tax rate (of, let say, 25 percent). At this point in time, *A* is able to attract investment from mobile firms, despite its high tax rate, because those firms are able to shift their profit to tax havens, where it is taxed at a low rate (say 5 percent). *A* then joins a coalition of countries that enacts the global minimum tax, which imposes a minimum tax rate of 15 percent on excess profit. Because the global minimum tax curtails profit-shifting, *A* cannot retain the investment of mobile firms without cutting taxes on them. In itself, cutting the tax rate on mobile firms does not sacrifice revenue, because mobile firms previously achieved a low tax rate by shifting profit. But because *A* cannot discriminate between mobile and immobile firms, *A* must also cut the tax rate on *immobile* firms. Reducing the tax rate on immobile firms *does* lose revenue because—incapable of shifting profit—those firms paid tax at a high rate under the territorial regime. The revenue lost from this across-the-board cut grows with the quantity of immobile profit.

To further develop the intuition for why the ratio between excess and immobile profit matters, consider a simplified setting—like that of Part II—in which each country must choose between two tax rates (high and low) and the high rate equals that imposed by the global minimum tax. The effective tax rates applied to different kinds of profit are depicted in Tables 8 and 9.[150]

Table 8: Equilibrium Tax Rates Under Territorial Regime

	Excess	Routine
Mobile	**Low**	Low
Immobile	High	**High**

Table 9: Equilibrium Tax Rates Under Global Minimum Tax

	Excess	Routine
Mobile	**High**	Low
Immobile	High	**Low**

[150] For supporting analysis, *see supra* Section II.B.

There are only two differences between the tax rates under these regimes. Under the territorial regime, mobile excess profit is taxed at the low rate and immobile routine profit is taxed at the high rate; under the global minimum tax, the reverse is true.

Thus, in this simplified setting, the revenue effect of the global minimum tax turns on the relative magnitudes of mobile excess (ME) profit and immobile routine (IR) profit. As the share of excess profit—*E*—grows, ME grows and IR shrinks. Conversely, as the share of immobile profit—*I*—grows, ME shrinks and IR grows. Accordingly, when $\frac{E}{I} > 1$, the global minimum tax increases global tax revenue. And when $\frac{E}{I} < 1$, the global minimum tax decreases global tax revenue.

B. A More General Analysis

While this simplified setting provides intuition, it relies on several assumptions that do not fully hold in the real world. These assumptions can be relaxed to capture additional complexity.

- **Wasteful Tax Planning**. Tax revenue alone does not determine global welfare. Enacting the global minimum tax also discourages firms from shifting profit, thereby sparing resources that otherwise would be wasted in tax planning.[151] This adds to the benefit of the global minimum tax.

- **Different Tax Rate Differentials**. The tax rates that emerge from competition for shifted profit (under the territorial regime) and competition for investment (under the global minimum tax) might differ. Since investment is, in general, more difficult to move than profit, it is plausible that the tax rate resulting from competition for investment is higher than that which results from competition for shifted profit.[152] If so, this would reduce the harm of the global minimum tax.

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[151] *See* Dhammika Dharmapala, *Base Erosion and Profit Shifting: A Simple Conceptual Framework*, 4 CESIFO DICE REPORT: JOURNAL FOR INSTITUTIONAL COMPARISONS 8, 12 (2014) ("[R]eal resources expended in tax planning and compliance . . . represent a source of deadweight costs that perhaps should be understood primarily as a misallocation of talent – for example, where someone who could have been another Mozart or could have found a cure for cancer instead toils away producing transfer pricing documentation.").

[152] *See* Slemrod, *supra* note 107 (describing a "hierarchy" of behavioral responses to taxation, in which profit-shifting is preferred to relocating investment); Ferrari, Laffitte, Parenti, and Toubal, *supra* note 107, at 4 (finding that profit-shifting is three times as tax-sensitive as investment).

- **Variable Welfare Weights**. The social value of revenue raised from excess profit might differ from the social value of revenue raised from routine profit.[153] While that might be true for many reasons, it is particularly plausible that excess profit is an especially efficient tax base because much excess profit is economic rent.[154] If the social value of revenue raised from excess profit is greater than that derived from routine profit, the benefit of the global minimum tax is increased.

Incorporating these considerations, a more general condition for whether the global minimum tax is net-beneficial can be written as:

$$E \cdot [(\lambda_E \cdot (t_H - t_{Lp})) + c] > I \cdot (\lambda_R \cdot (t_H - t_{Li}))$$

Where λ_E is the social value of raising revenue from excess profit; λ_R is the same for routine profit; t_{Lp} is the average tax rate applied to shifted profit without the global minimum tax, t_{Li} is the average tax rate applied to routine profit under the global minimum tax; and c is the unit cost of shifting profit.

This expression subsumes the special case—discussed above—where tax differentials and the social value of revenue are equal across categories of profit, and the unit cost of shifting profit is zero. In that special case, the global minimum is net-beneficial when $E > I$ or, equivalently, $\frac{E}{I} > 1$.

C. Estimating the Excess-Immobile Ratio

To evaluate the global minimum tax, we should try to estimate the excess-immobile ratio. Neither it nor its constituent parts has been rigorously estimated yet.[155]

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[153] In the economic literature, the "social value of revenue" is discussed under the heading of the "marginal value of public funds." For discussion, see, e.g., Hendren, *supra* note 57; Emmanuel Saez, Joel Slemrod, and Seth Giertz, *The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review*, 50 J. ECON. LIT. 3 (2012); Joel Slemrod & Shlomo Yitzhaki, *Integrating Expenditure and Tax Decisions: The Marginal Cost of Funds and the Marginal Benefit of Projects*, 54 NAT'L TAX J. 189 (2001); Joram Mayshar, *On Measures of Excess Burden and Their Application*, 43 J. PUB. ECON. 263 (1990).

[154] *See supra* note 40. For further discussion, *see infra* Part IV.B.

[155] Some work estimates the share of profit that is *economic rent*—that is, a return to a factor of production that exceeds the minimum amount the owner would require to place the factor into production. *See, e.g.,* Edward Fox, *Does Capital Bear the U.S. Corporate Tax After All?* 17 J. EMPIRICAL LEGAL. STUD. 71 (2020); Roger Gordon et al., *Do We Now Collect Any Revenue from Taxing Capital Income?* 88 J. PUB. ECON. 981 (2004). While economic rent is sometimes called "excess profits," economic rent is not identical to excess profit as defined under the global minimum tax. Lilian V. Faulhaber, *Lost in Translation: Excess Returns and the Search for Substantial Activities*, 25 FLA. TAX REV.

Nonetheless, existing evidence suggests that the excess-immobile ratio is less than one, perhaps substantially so.

We can produce a rough estimate of the excess-immobile ratio by looking at U.S. data. Since 2017, the United States has imposed a minimum tax, named GILTI, that has a similar structure to the global minimum tax.[156] Like the global minimum tax, GILTI exempts a deemed return on physical investment and applies a minimum tax rate to the remaining excess profit.[157]

The IRS collects data on both excess profit and corporate taxable income.[158] Much of U.S. corporations' reported taxable income plausibly is immobile, in the relevant sense: this income was reported to the United States, despite ample opportunities for saving tax by moving profit or investment to lower-tax jurisdictions. In 2018, U.S. corporations earned $342 billion of excess profit and $592 billion of taxable income, implying an excess-immobile ratio of 0.58.[159]

Of course, it would be premature to infer from this estimate that the global minimum tax will do more harm than good. In the first instance, this estimate relies on data from just one country, and it extrapolates from that data with assumptions that, while plausible, are disputable. Moreover, even if this estimate of the excess-immobile ratio were perfectly accurate—which it almost certainly is not—it would not entail that the global minimum tax will do more harm than good. As noted in Section III.B, the threshold of $\frac{E}{I} = 1$ is merely a first pass at understanding the welfare implications of the global minimum tax. For several reasons, the global minimum tax probably is net-beneficial even if the excess-immobile ratio is less than one. Nonetheless, if the excess-immobile ratio is substantially less than 1, the negative effects of the global minimum tax are likely to be significant: perhaps of similar magnitude to its positive effects.

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545 (2023); *infra* Section IV.C. Thus, even if share of global profit that is economic rent is large, E might be small.

[156] I.R.C. § 951A.

[157] *See* I.R.C. §§ 951A(b)(2) (exempting a kind of routine profit, labelled the "net deemed tangible return," or NDTR); -(d) (defining the base on which the deemed return is calculated, labeled "qualified business asset investment," or QBAI).

[158] *See* Internal Revenue Service, *SOI Tax States – Statistics of Income* (Apr. 10, 2024), https://www.irs.gov/statistics/soi-tax-stats-statistics-of-income.

[159] For the former figure, see IRS Statistics of Income, Form 8992, Table 1; for the latter figure, see IRS Statistics of Income, Table 5.2, Year 2018.

IV. IMPLICATIONS

Parts II and III analyzed how the global minimum tax affects tax competition. By restricting profit-shifting while permitting competition for investment, the global minimum tax strengthens incentives for firms to invest in low-tax jurisdictions and for countries to attract investment by cutting taxes. Moreover, it is plausible that a potential negative effect of the global minimum tax—aggravating the race to the bottom—is of similar magnitude to the positive effects of the minimum tax.

This Part elicits three implications. It begins by proposing reforms to the global minimum tax design (IV.A). It then turns to two issues of broader concern: the taxation of economic rent (IV.B) and the relationship between moral desert and economic efficiency (IV.C).

A. The Design of the Global Minimum Tax

There are three main ways to reform the global minimum tax so as to limit its effect on the race to the bottom.[160] The first response is to *level up*. Leveling up means raising the minimum tax rate on routine profit above 0 percent. The second response is to *loosen* the global minimum tax. Loosening the global minimum means revising the definition of routine profit, so that each firm calculates its routine profit on what is called a "blended" rather than a "per-country" basis. I call this approach "loosening" because it, in effect, permits some profit-shifting. A final response is to *level down*. Leveling down means lowering the minimum tax rate on excess profit, perhaps even to zero.

1. Leveling Up

To level up is to raise the minimum tax rate on routine profit. That could be accomplished in two different ways. Most starkly, the carve-out for routine profit—

[160] I set aside a fourth possible response, which might be called "tailoring." Tailoring a minimum tax means adjusting each firm's incremental liability so that each firm finds it cheaper to pay the tax than to move. In effect, more mobile firms—firms that can move their operations more cheaply—would get a lower minimum rate.

Tailoring is a targeted response to the problem of aggravating the race to the bottom. In practice, however, tailoring is unlikely to be feasible. It is hard for a government to observe the specific cost that each firm would pay to locate its routine operations in a low-tax jurisdiction. And it is also unclear how to design a mechanism that would persuade each firm to reveal that cost. Without this information, a minimum tax must be based (at best) on generalizations about the mobility of firms.

the substance-based income exclusion (SBIE)—could be eliminated.[161] Kimberly Clausing—formerly the lead economist in the Treasury Department's Office of Tax Policy, now a professor at the UCLA School of Law—has called for this reform.[162] If the SBIE is eliminated, the global minimum tax would have a single schedule of rates, applicable to all profit. Alternatively, and more modestly, routine profit could be subject to a minimum tax at a preferential rate.[163] For example, if the minimum tax rate applied to excess profit continues to be 15 percent, the minimum tax rate applied to routine profit could be 5 percent.

Leveling up restrains the race to the bottom in two ways. First, it makes a race to the bottom less likely to occur. Leveling up shrinks the set of firms that are willing to move investment to pay less tax. As the minimum tax rate applied to routine profit increases, the potential tax saved by relocation declines. Thus, a greater quantity of firms will find that tax saved by relocation does not exceed the cost of relocation. That reduces the quantity of investment gained by any country that cuts its taxes, as well as the amount of investment lost by any country that fails to match another's cuts. Second, even if a race to the bottom occurs, leveling up contains its damage. A minimum tax rate places a floor on any race to the bottom. If the minimum rate is 5 percent, countries might still compete down to a 5 percent tax on routine profit, but 5 percent is higher than 0 percent.

Moreover, it's worth noting what might be obvious: A leveled up minimum tax restricts profit-shifting. As we've seen, since it carves out routine profit, the global minimum tax raises a trade-off between competition for profit and competition for investment. A fully leveled-up minimum tax would avoid this trade-off.

2. Loosening

A second possibility is to *loosen* the minimum tax. Loosening a minimum tax means measuring routine profit on a "blended" rather than a "per-country" basis.[164]

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[161] For proposals to eliminate the SBIE, see Kimberly Clausing, Opinion, *Forget Tariffs – Fixing 'America Last Tax Policy Would Help with Offshoring*, FIN. TIMES (Sept. 9, 2024), https://www.ft.com/content/4190482f-8aa2-405d-9b13-9ce452eba03f [https://perma.cc/8JU6-9DJ4]; BARAKE ET AL., *supra* note 16.

[162] Clausing, *supra* note 161.

[163] Let t_{min-e} be the minimum tax rate applicable to excess profit and let t_{min-r} be the minimum tax rate applicable to routine profit. Then $t_{min-e} > t_{min-r} > 0$.

[164] For this distinction, see *supra* note 21.

The distinction between these approaches is crucial. Under the current per-country approach, each firm's routine profit is calculated separately for each country.[165] Physical assets and payroll costs in country *A* generate a 5 percent deemed return that can only offset profits in *A*—not profits booked to country *B*. By contrast, under a blended approach (as used in GILTI), the firm's worldwide physical assets and payroll costs generate a 5 percent deemed return that can offset profits wherever they are booked.[166]

The following example illustrates the difference between a per-country and blended approach. Consider a firm, *X*, that has two foreign subsidiaries:

- Subsidiary in country *A*: $100 total in physical assets and payroll costs, but no profit.
- Subsidiary in country *B*: $5 in profit, but no physical assets or payroll costs.

Under a per-country approach, *none* of *X's* profit is routine. The *A* subsidiary has $100 in physical assets and payroll costs, but they generate no excludable routine profit because the *A* subsidiary has no profits to exclude. Meanwhile, the *B* subsidiary's $5 profit cannot be classified as routine because the *B* subsidiary has no assets or payroll costs that generate deemed returns.

By contrast, under a blended approach, *all* of X's profit is routine. X's total assets and payroll costs of $100 generate a deemed 5 percent return ($5) that can offset profits anywhere in the corporate group. This exactly matches—and thus entirely excludes—the $5 profit in *B*.

Per-country minimum taxes constrain profit-shifting more effectively than blended minimum taxes.[167] When profit is shifted under a per-country regime, it becomes disconnected from the physical assets and payroll costs that could qualify it as routine profit, automatically converting it to excess profit subject to the minimum tax.[168] Under a blended approach, however, shifted profits can still qualify as routine if the

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[165] *See* GLOBE MODEL RULES, *supra* note 18, art. 5.3.3 ("The Net GloBE Income *for the jurisdiction* shall be reduced by the Substance-based Income Exclusion *for the jurisdiction* to determine the Excess Profit for purposes of computing the Top-up Tax under Article 5.2.") (emphasis added).

[166] *See* I.R.C. § 951A(b)(2) ("The term 'net deemed tangible income return' means, with respect to any United States shareholder for any taxable year, the excess of . . . 10 percent of the *aggregate* of such shareholder's pro rata share of the qualified business asset investment of each controlled foreign corporation . . . . ") (emphasis added).

[167] *See supra* note 21.

[168] *Id.*

firm has sufficient worldwide assets and payroll costs.[169] Many tax scholars therefore advocate per-country calculation as the stricter anti-avoidance measure.[170]

Yet my analysis reveals an unintended consequence of the per-country approach: It may intensify the race to the bottom. The global minimum tax gives countries stronger incentives to race to the bottom *precisely because* it takes a per-country approach. To see this, consider an alternative design that measures routine profit on a blended basis. In this counterfactual, routine profit would remain routine even when it is shifted into a tax haven. Thus, firms could still achieve low tax rates on routine profit through profit-shifting. Because profit-shifting would remain viable, firms would have weaker incentives to move their investments to low-tax jurisdictions. Countries, in turn, would gain less from competing for investment through tax cuts. A blended approach thus helps contain the race to the bottom precisely because it leaves some room for profit-shifting

Loosening the global minimum tax through a blended approach therefore presents policymakers with a trade-off. While this reform would permit more profit-shifting, it would also reduce pressure on countries to compete for investment.

3. Leveling Down

A final option is to level down. Leveling down is the mirror-image of leveling up. It involves reducing—or eliminating—the minimum tax rate applied to excess profit.

In a sense, leveling down is a more sweeping version of loosening. Like loosening, leveling down arrests the race to the bottom by making profit-shifting more lucrative. As the minimum tax rate on excess profit falls, the tax saved by shifting profit grows. Thus, for a greater range of low tax rates offered by foreign countries, any given firm will be willing to invest in a high-tax country and shift the resulting profits to a tax haven. At the same time, leveling down encourages firms to engage in wasteful tax planning and gives up revenue that would have been raised from excess profit.[171]

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[169] *Id.*

[170] *Compare* Kamin et al., *supra* note 20, at 1490-93 (criticizing GILTI's blended approach as "problematic"); CLAUSING & SARIN, *supra* note 21, at 11 (proposing a "stronger per-country GILTI"); Clausing, *supra* note 21, at 57-58 (describing a blended approach as a "flaw" of GILTI) *with* Sanchirico, *supra* note 21 (advocating a blended approach).

[171] This includes profit that is excess in the country where it is earned, as well as profit that is converted to excess upon being shifted to a haven.

Thus, leveling down raises a trade-off. On the one hand, like loosening, it alleviates the race to the bottom. On the other hand, leveling down does not place a floor on the tax rate applied to excess profit (including shifted profit).

4. Taking Stock

Each of these three options—leveling up, loosening, and leveling down—alleviates the race to the bottom. Which of them is the best response?

Leveling up probably is ideal. As noted earlier, leveling up does not raise a trade-off between profit-shifting and the race to the bottom. Instead, to the extent that it has costs, they come from sources that are common to all minimum taxes on corporate profit. For example, if it is leveled up, the global minimum tax will subject capital income to a higher effective rate of tax, which will probably decrease the rate of savings.[172] But the same is true of any reform to the global minimum tax that increases the effective tax rate on corporate profit.

The most significant concern about leveling up is not a matter of policy; it is a matter of politics. When the global minimum tax was being negotiated, many countries balked at the initial plans for the minimum tax, which did not carve out routine profit.[173] The exclusion of routine profit (the SBIE) was crucial for winning their assent.[174]

If leveling up proves politically infeasible, loosening offers the most promising alternative. Loosening only reduces the minimum tax rate imposed on shifted profit.[175] Leveling down, by contrast, reduces the minimum tax rate on all excess profit, whether it is created by profit-shifting or simply by large profit margins.[176] Thus, loosening—and not leveling down—constrains the race to the bottom for investments that yield large profit margins.

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[172] *See supra* note 26 (describing the effect of capital taxation on the rate of savings).

[173] Kamin, *supra* note 16, at 325 ("Perhaps one day, governments around the world will come to the view that the cost of [races to the bottom] is no longer worth bearing and would be willing to give up flexibility to stop it. But that isn't the world we have now."); Devereux & Vella, *supra* note 16, at 326–30 (describing the politics of the SBIE).

[174] *Id.*

[175] *See supra* Section IV.B.2.

[176] *See supra* Section IV.B.3.

B. The Taxation of Economic Rent

This section develops a broader implication of my analysis, concerning the taxation of economic rent. Economic rent is a return that exceeds what is necessary to induce productive activity.[177] Many leading tax scholars, including Roseanne Altshuler, Harry Grubert, and Daniel Shaviro, believe that excess profit is a reasonable proxy for economic rent.[178] They also believe that minimum taxes on excess profit are good tools for taxing economic rent.[179] My analysis challenges both propositions. More generally, it shows that efforts to tax economic rent through imperfect proxies can backfire.

Taxing economic rent is enticing in theory but difficult in practice. In theory, economic rent is a nearly ideal tax base.[180] By definition, economic rent can be taxed without distorting behavior: If you are willing to invest in a coffee chain for an expected return of $8, but you expect it to yield $10, a tax of up to $2 will not dissuade you from making this investment.[181] Additionally, the burden of taxing economic rent earned by multinational enterprises tends to fall upon their shareholders, people who are relatively well-off.[182] Thus, as Michael Devereux observes, "the efficient tax also happens to be progressive."[183]

In practice, however, it is difficult to design a tax on economic rent. It is hard to distinguish economic rent from the normal return to capital. It is also hard to distinguish true rents from "quasi-rents"—i.e., returns to a factor of production that exceed what is necessary to induce the factor's deployment *ex post*, but which are necessary *ex ante*.[184] And it is hard to distinguish economic rents that are "location-specific"—which can only be earned in one place—from those that are not.[185] For these

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[177] *See* VARIAN, *supra* note 41, at 442 (providing this definition of economic rent); FRIED, *supra* note 41, at 74 (same); Wessel, *supra* note 41, at 1224 (same); Bankman, Kane, and Sykes, *supra* note 41, at 200–02 (same).

[178] *See supra* note 40 (providing these views).

[179] *See id.*

[180] *See* Kane & Kern, *supra* note 42, at 277.

[181] *Id.* at 281.

[182] *See* Michael Devereux, *How Should Business Profit Be Taxed?* 40 FISCAL STUD. 591, 593 (2019); *see also* Joseph E. Stiglitz, *The Origins of Inequality, and Policies to Contain It*, 68 NAT'L TAX J. 425, 432-34 (2015) (arguing that rents explain a significant portion of the increase in inequality within the United States between 1980 and 2015).

[183] Devereux, *supra* note 182, at 593.

[184] *See* Bankman, Kane, and Sykes, *supra* note 41, at 200–05 (distinguishing between "true" rent and quasi-rent); Kane & Kern, *supra* note 42, at 304–08 (same).

[185] Kane & Kern, *supra* note 42, at 282 ("If the efficiency of taxing [location-specific rent] is an essential feature of [location-specific rent], [location-specific rent] is often difficult to measure.").

reasons, efforts to tax economic rent in the real world tend to rely on proxies.[186] They tax observable things that are correlated with economic rent.

Many tax scholars believe that excess profit is a good proxy for economic rent.[187] Excess profit is whatever profit remains once routine profit is excluded, and routine profit is a deemed return on investment. Thus, if routine profit approximates the normal return to capital, excess profit should approximate economic rent.[188] For this reason, many tax scholars believe that minimum taxes on excess profit are good, real-world tools for taxing economic rent.

My argument challenges this consensus on two grounds. First, it shows that excess profit and economic rent systematically diverge. Under a per-country minimum tax, the normal return to capital becomes excess profit whenever it is shifted into a tax haven.[189] But it remains the normal return to capital, not economic rent. Thus, a significant amount of excess profit is not economic rent.

The literature has overlooked this systematic divergence between excess profit and economic rent. Tax scholars understand that excess profit might include some of the normal return to capital if the deemed return that defines routine profit is set too low.[190] For example, if routine profit is a deemed 2 percent return, while the normal return is actually 4 percent, half of the normal return will be misclassified as excess profit. But my analysis identifies a more fundamental problem: Even when the deemed return matches or exceeds the normal return, profit-shifting implies that some of the normal return will be classified as excess profit.

My analysis yields a second, counterintuitive point: Increasing quantities of economic rent may actually weaken rather than strengthen the case for the global minimum tax. If some rents are immobile—say, some firms extract natural resources

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[186] *Id* at 319–22 (describing some proxies for economic rent).

[187] *See supra* note 40 (reporting these views).

[188] *See* Trier, *supra* note 67, at 44 ("To the extent of normal returns from investment in hard assets, the GILTI rules [exempt them] . . . . At the same time, the GILTI rules reflect the objective of Congress to identify and tax returns from highly mobile intangible property. Thus, inframarginal returns from foreign business activities . . . continue to be subject to a significant level of U.S. taxation . . . ."); Grubert & Altshuler, *supra* note 40, at 673–74 ("[Because] no tax burden will fall on companies that earn just a normal return abroad . . . "the minimum tax with expensing is basically a tax on large excess returns in low-tax jurisdictions. . . .").

[189] *See supra* Section I.C.

[190] *See* Shaviro, *supra* note 40 (arguing that GILTI's "net deemed tangible return" sets the deemed rate of return too high); Sullivan, *supra* note 40 (same).

but cannot easily shift their profits—an increase in the quantity of economic rent can also increase the global share of immobile profit. Thus, as the quantity of economic rent increases, the excess-immobile ratio might *decrease*.[191] In these circumstances, more economic rent would make the global minimum tax more harmful, not less.

C. Moral Desert and Economic Efficiency

Finally, this Article illustrates how two purported values—moral desert and economic efficiency—can diverge.

Many people believe that rewards should be proportional to contributions.[192] Consider two workers: Alfred earns $40,000 per year by working 40 hours per week; Betsy earns $30,000 per year by working only 30 hours per week, whiling away her additional free time surfing and lounging on the beach. A common intuition holds that Alfred has some moral claim to keep the extra $10,000 per year that he earns for working extra hard.[193] And that is so, many think, not simply because Alfred's work is burdensome, or because Alfred has a property right in his labor; rather, Alfred deserves more because he produces more.[194] On this view, productivity is a source of desert.[195]

Productive desert is often thought to align with economic efficiency.[196] After all, a social planner pursuing efficiency will tend to reward high productivity to incentivize productive behavior.[197] This alignment seems so natural that these two aims—

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[191] This is possible even if all rents are excess profit. In that case, increasing the quantity of rent will cause the excess-immobile ratio to converge to 1, which might be smaller than the value of that ratio under smaller level of rents.

[192] For this formulation, see SERENA OLSARETTI, LIBERTY, DESERT, AND THE MARKET 10 (2009).

[193] *See, e.g.*, Michael Otsuka, *Equality, Ambition, and Insurance*, 78 PROC. ARISTOTELIAN SOC' SUPP. VOL. 151, 152 (2004) (contrasting someone who "freely chooses to spend his days surfing and living off whatever food he can gather at his leisure" with another who "freely chooses to spend his days cutting down his trees in order to construct a magnificent house and garden" and finding the inequality between the two to be unobjectionable); Ronald Dworkin, *What Is Equality? Part II: Equality of Resources*, 10 PHIL & PUB. AFF. 283, 304-05 (1981) (making a similar claim about a similar example); Miriam Cohen Christofidis, *Talent, Slavery, and Envy in Dworkin's Equality of Resources*, 16 UTILITAS 267, 269 (2004) (same).

[194] *Id.*

[195] *Id.*

[196] *See, e.g.*, Alexander W. Cappelen & Bertil Tungodden, *Rewarding Effort*, 39 ECON. THEORY 425, 425-26 (2009) ("Economists often justify rewarding effort by appealing to incentive considerations. However, the incentive argument is not the only reason for why one might want to reward effort, in addition there is a fairness argument. . . . [A]s long as individuals are free to choose their effort, they should be held responsible for this choice.").

[197] *See* Thomas Piketty & Emmanuel Saez, *Optimal Labor Income Taxation*, *in* 5 HANDBOOK OF PUBLIC ECONOMICS 391, 400 (2013) ("Social welfare is larger when resources are more equally

rewarding desert and promoting efficiency—are often treated as mutually reinforcing.[198]

International tax scholarship reflects this presumed alignment. Many scholars argue that a country's right to tax a business's profit should correspond to its contribution to that profit.[199] Some scholars ground this claim in productive desert: countries that contribute more (by providing roads, bridges, courts, and so on) deserve greater tax revenue.[200] Others invoke efficiency: allowing countries to capture returns on public investments incentivizes optimal provision of public goods.[201]

While measuring the precise extent to which each country contributes to business profit is notoriously difficult, many tax scholars view tax havens as a clear case.[202] When profit is shifted to a tax haven without accompanying investment, the haven appears to make no contribution to generating that profit.[203] This apparent lack of contribution

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distributed, but redistributive taxes and transfers can negatively affect incentives to work and earn income in the first place. This creates the classical trade-off between equity and efficiency which is at the core of the optimal labor income tax problem.").

[198] *See* Cappelen & Tungodden, *supra* note 196.

[199] *See, e.g.*, GISJBERG W.J. BRUINS, LUIGI EINAUDI, EDWIN R.A. SELIGMAN, AND JOSIAH STAMP, REPORT ON DOUBLE TAXATION SUBMITTED TO THE LEAGUE OF NATIONS FINANCE COMMITTEE (1923); Wolfgang Schön, *One Answer to How and Why to Tax the Digitalized Economy*, 47 INTERTAX 1003 (2019); Wei Cui, *The Digital Services Tax: A Conceptual Defense*, 73 TAX L. REV. 69 (2019); David Elkins, *The Myth of Corporate Tax Residence*, 9 COLUMBIA J. TAX L. 1, 19–20 (2019); Stephen Shay, J. Clifton Fleming, and Robert J. Peroni, *What's Source Got to Do With It?* 56 TAX L. REV. 81, 90–92 (2002); Michael J. Graetz, *Taxing International Income: Inadequate Principles, Outdated Concepts, and Unsatisfactory Policies*, 54 TAX L. REV. 261, 298 (2001); Laurence Lokken, *The Sources of Income from International Uses and Dispositions of Intellectual Property*, 36 TAX L. REV. 223, 240–42 (1981); Richard & Peggy Musgrave, *Inter-Nation Equity*, *in* MODERN FISCAL ISSUES 63 (1972) (R. M. Bird & J.G. Head eds.); T.S. Adams, *Federal Taxes Upon Income and Excess Profits*, 8 AM. ECON. REV. 18, 20 (1918). This idea sometimes travels under the label of the "benefit theory."

[200] *See* BRUINS ET AL., *supra* note 199; Schön, *supra* note 199; Cui, *supra* note 199; Elkins, *supra* note 199; Fleming, Peroni, and Shay, *supra* note 199; Lokken, *supra* note 199; Musgrave & Musgrave, *supra* note 199.

[201] This is one possible interpretation of Graetz, *supra* note 199, at 298, and Adams, *supra* note 199, at 20.

[202] For statements of this difficulty, see, e.g., MICHAEL P. DEVEREUX, ALAN J. AUERBACH, MICHAEL KEEN, PAUL OOSTERHUIS, WOLFGANG SCHÖN, AND JOHN VELLA, TAXING PROFIT IN A GLOBAL ECONOMY 38–39 (2021); Johanna Stark, *Tax Justice Beyond National Borders*, 42 OXFORD J. LEG. STUD. 133 (2022); Adam Rosenzweig, *Defining a Country's "Fair Share" of Taxes*, 42 FLA. STATE UNIV. L. REV. 373, 373–76 (2015); Reuven S. Avi-Yonah, *International Tax as International Law*, 57 TAX L. REV. 483, 490 (2004). For the purportedly clear case of tax havens, see Daniel Shaviro, *Mobile Intellectual Property and the Shift in Internatinal Tax Policy from Determining the Source of Income to Taxing Location-Specific Rents*, 2020 SINGAPORE J. LEG. STUD. 681, 685 ("[V]alue creation has the distinct, if limited, advantage of providing a 'negative source rule.' . . . [I]t can be invoked to rebut claims that profits arose in tax havens.").

[203] *See* Shaviro, *supra* note 202, at 685.

has led scholars to conclude that preventing havens from attracting shifted profits serves both equity and efficiency.

My argument shows that this intuitive line of thought is mistaken. It neglects an important function that tax havens perform. Tax havens help to arrest the race to the bottom among non-havens.[204] By doing so, they enable non-havens to collect revenue more efficiently—and so improve global productivity.[205]

The more general lesson is this: Productive desert and economic efficiency sometimes diverge in counterintuitive ways. This divergence may be particularly pronounced when moral intuitions condemn certain actions. For such actions, moral intuitions are a poor substitute for economic analysis, and vice versa.

V. CONCLUSION

The global minimum tax is an ambitious effort to regulate international tax competition. Most tax scholars are optimistic about its effects. They believe that the global minimum tax will meaningfully restrict profit-shifting while leaving competition for investment, at worst, unaffected.

This Article has presented a more complex and critical analysis. The global minimum tax does not simply make partial progress on two separate problems. Instead, it raises a trade-off between them. By restricting profit-shifting while permitting competition for investment, the global minimum tax strengthens firms' incentives to invest in low-tax jurisdictions and countries' incentives to attract investment through tax cuts.

To set the optimal policy path, we need to conduct further research. We need to estimate the relative magnitude of excess profit and immobile profit. We also need to better understand which reforms are politically feasible within the complex landscape of international tax cooperation. This Article has developed a framework within which those efforts can be made. And it has raised new questions that must be answered as we try to construct a brighter economic future.

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[204] *See supra* Section II.A.
[205] *Id.*