EU TAX Observatory

GLOBAL TAX EVASION REPORT 2024

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FOREWORD BY JOSEPH STIGLITZ

In this world nothing is certain except death and taxes, Benjamin Franklin famously said. Billionaires may not yet have achieved immortality, but they have certainly become more agile at avoiding the taxman. Over the last decades, globalization has opened new evasion possibilities exploited by multinational companies and wealthy individuals around the world.

For too long this evasion has been accepted as an unavoidable part of human nature, an inevitable by-product of globalization.

But tax evasion, and, more broadly, tax avoidance, is not inevitable; it is the result of policy choices—or the failure to make policy choices that act to stop it. As a co-chair of ICRICT (the Independent Commission for the Reform of International Corporate Taxation), I represent a coalition of economists and high-level policymakers who firmly believe there are solutions to successfully tackle tax evasion and avoidance, and, more broadly, to create a fairer international tax system. And we believe it is crucial we do so. Obviously, the revenues that would be collected if we made a dent on evasion and avoidance are critical to societies, as countries around the world face the challenges of climate change, pandemics, and inequality, and as governments have to make essential investments in education, health, infrastructure and technology.

But more than that is at stake. If citizens don't believe that everyone is paying their fair share of taxes—and especially if they see the rich and rich corporations not paying their fair share—then they will begin to reject taxation. Why should they hand over their hard-earned money when the wealthy don't? This glaring tax disparity undermines the proper functioning of our democracy; it deepens inequality, weakens trust in our institutions, and erodes the social contract.

We hope we have contributed to important policy evolutions over the last decade, such as the endorsement by more than 140 countries and territories of a minimum tax on the profits of multinational companies in 2021.

This report notes some of the major advances in the attempt to curb tax evasion and avoidance, but are these policies up to the challenge? Do they work? And what else is needed?

This groundbreaking Global Tax Evasion Report provides revealing answers to these fundamental questions and includes important proposals that should be enacted.

It is the first time that researchers have put together comprehensive data to analyze the progress made in fighting international tax evasion and harmful tax competition. Drawing on unprecedented work carried out by more than 100 researchers, often partnering with tax administrations, it provides a rigorous, scientific, data-driven estimate of the magnitude and dynamics of international tax evasion over the decade.

But the report goes further. It proposes an ambitious and yet pragmatic agenda for the coming years to move towards a fairer international tax system. All policymakers should read it.

One key lesson is that progress can be made if the policy response is correctly tailored. The advent of the automatic exchange of bank information—which has curtailed bank secrecy globally—has led to a reduction of offshore tax evasion by a factor of three.

But the report also points out that other international efforts are falling short of their initial ambition. Real estate continues to provide ample opportunities for the rich to avoid and evade taxes.

Particularly disappointing have been the efforts undertaken under the OECD BEPS (Base Erosion and Profit Shifting) Initiative, which began with such high hopes of creating a fairer global system for taxing corporations. The report documents how, since that initiative was launched, the magnitude of the problem has soared and how the proposed 15% minimum corporate tax rate for multinational companies—at the onset, far too low—has been made largely toothless by a series of loopholes and "carveouts."

Worse, some key issues remain wholly unaddressed. The report shows that the tax systems in major countries are, at least at the top, regressive, with the very rich paying a small fraction of their income in taxes compared to those below. With effective tax rates equivalent to 0% to 0.5% of their wealth, billionaires are proportionally taxed far less than ordinary citizens.

Progress on tax cooperation now makes it possible to better understand and locate the wealth of billionaires. What we asked of corporations we now must ask of billionaires. It is time to establish a global minimum tax on the very rich, something this report calls for. This may seem impossible to attain, but so was undermining bank secrecy and introducing a minimum tax on corporations just a few years ago.

Tackling tax evasion and harmful tax competition are particularly essential in the current context. The coronavirus crisis exposed and exacerbated the global inequality crisis. The unfolding climate crisis will require unprecedented public efforts and investments. So many people struggle to make ends meet yet pay the taxes their governments ask of them. We need to make sure those at the top of the income ladder who certainly have the financial means don't wriggle out of them.

Judge Holmes famously said that taxes are the price we pay for a civilized society. They are a central aspect of our democracies and how we fund the common good. They are also a central mechanism through which we attempt to regulate inequality.

This report shows not only the inequities and failures of the current tax regime but explains how we might move to a better system. It is a landmark achievement.

EXECUTIVE SUMMARY

Over the last 10 years, governments have launched major initiatives to reduce international tax evasion. These efforts include the creation of a new form of international cooperation long deemed utopian – an automatic, multilateral exchange of bank information in force since 2017 and applied by more than 100 countries in 2023 – and a landmark international agreement on a global minimum tax for multinational corporations, endorsed by more than 140 countries and territories in 2021.

Yet despite the importance of these developments, little is known about the effects of these new policies. Is global tax evasion falling or rising? Are new issues emerging, and if so, what are they? These questions are of tremendous importance in a context of rising income and wealth inequality, high public debt in the post-Covid-19 context, and large government revenue needs for addressing climate change and for funding health care, education, and public infrastructure.

This report addresses these issues thanks to an unprecedented international research collaboration and major data improvements. Prepared by the staff of the EU Tax Observatory – a research laboratory created in 2021 with unique expertise on international tax issues – this report summarizes work conducted by more than 100 researchers all over the world, often in partnership with tax administrations. This work leverages the availability of new data on the activities of multinational companies (such as country-by-country reports) and the offshore wealth of households (from the automatic exchange of bank information) created by the policy initiatives of the last decade. This report is the first systematic attempt at taking stock of this informational big bang.

We should make it clear at the outset that we do not restrict this report to the study of tax evasion in a narrow sense of fraud. Nor do we cover all forms of evasion, far from it. Our focus is on the issues that have been the focus of international policymaking over the last decade, the challenges posed by globalization for the taxation of multinational companies and high-net-worth individuals. Some of the practices we cover are clearly illegal – such as failing to report income earned on offshore bank accounts. Others are in a legal grey zone between avoidance and evasion – such as shifting profit to shell companies with no economic substance. Others are clearly legal, such as moving abroad to benefit from special tax regimes designed to attract wealthy individuals. All, however, allow the economic actors who have most benefited from globalization to reduce their tax rates to even lower levels, reducing government revenue, and increasing inequality. What is at stake in all cases is the question of the social sustainability of globalization and of modern tax systems.

We uncover positive evolution worth celebrating, but also setbacks, and major issues that remain unaddressed.

- First, offshore tax evasion by wealthy individuals has shrunk. Thanks to the automatic exchange of bank information, **we estimate that offshore tax evasion has declined by a factor of about three over the last 10 years.** This success shows that rapid progress can be made against tax evasion if there is the political will to do so.

- Second, **the global minimum tax of 15% on multinationals, which raised high hopes in 2021, has been dramatically weakened.** Initially expected to increase global corporate tax revenues by close to 10%, a growing list of loopholes has reduced its expected revenues by a factor of 2 (and by a factor of 3 relative to a comprehensive minimum tax of 20%).

- Third, tax evasion – including grey-zone evasion at the border of legality – is increasingly happening domestically. **Global billionaires have effective tax rates equivalent to 0% to 0.5% of their wealth**, due to the frequent use of shell companies to avoid income taxation. To date no serious attempt has been

made to address this situation, which risks undermining the social acceptability of existing tax systems.

We make six proposals to address the issues identified in this report. A key proposal is to institute a global minimum tax on billionaires, equal to 2% of their wealth. We provide a first estimation of the revenue potential of this measure, showing that it would raise close to $250 billion (from less than 3,000 individuals) annually. A strengthened global minimum tax on multinational companies, free of loopholes, would raise an additional $250 billion per year. To give a sense of the magnitudes involved, recent studies estimate that developing countries need $500 billion annually in additional public revenue to address the challenges of climate change[1] – needs that could thus be fully addressed by the two main reforms we propose. All proposals, including potential objections, are thoroughly detailed in Chapter 5.

A key message of this report is that tax evasion is not a law of nature but a policy choice. As interconnected nations we can choose free-for-all policies that allow it to fester, or we can choose coordination to curb it. It is also possible to make major progress through unilateral action, should ambitious global agreements fail.

1 Six main new findings on the dynamic of global tax evasion and international tax competition

This report establishes six new findings about the dynamic of international tax evasion and tax competition. At the outset it is worth stressing that despite the data progress made over recent years, available data sources are still imperfect. Our conclusions are thus necessarily tentative and preliminary. There is a need for more and better public statistics on corporate profits, wealth, and the effective tax rates of the different socio-economic groups, including and especially at the very top of the distribution. Despite these limitations, six robust patterns already emerge.

Finding #1: the automatic information exchange, a real breakthrough

Thanks to the automatic exchange of bank information, offshore tax evasion has declined by a factor of about three in less than 10 years. Before 2013, households owned the equivalent of 10% of world GDP in financial wealth in tax havens globally, the bulk of which was undeclared to tax authorities and belonged to high-net-worth individuals. Today there is still the equivalent of 10% of world GDP in offshore household financial wealth, but in our central scenario only about 25% of it evades taxation. This reduction in non-compliance is a major success that shows that rapid progress can be made against tax evasion if there is the political will to do so (Figure 1).

[1]See *"Finance for climate action: Scaling up investment for climate and development"*, Report of the Independent High-Level Expert Group on Climate Finance, November 2022.

Figure 1

The success of the automatic exchange of bank information

Notes: This figure reports the evolution of global household offshore financial wealth (expressed as fraction of world GDP), and of untaxed offshore financial wealth in the central scenario detailed in chapter 1. In this scenario 27% of offshore financial wealth is untaxed in 2022, representing 3.2% of world GDP. Source: for global offshore financial wealth, Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", EU Tax Observatory working paper; for untaxed wealth: EU Tax Observatory computations; see chapter 1 for complete details.

Despite this progress, some offshore tax evasion remains, due to two main issues. First, it remains possible to own financial assets that escape being reported on, whether it's due to non-compliance by offshore financial institutions or to limitations in the design of the automatic exchange of bank information. Many offshore financial institutions duly comply with their requirements, but others may fall short, for fear of losing their customer base and facing no real threat from foreign tax authorities. Second, not all assets are covered by the automatic exchange of bank information. Recent research highlights how some individuals who used to hide financial assets in offshore banks have exploited these loopholes by shifting holdings to non-covered assets, most importantly real estate.

Finding #2: A large amount of profit shifting to tax havens, with no discernable effect of policies so far

A persistently large amount of profits is shifted to tax havens: $1 trillion in 2022. This is the equivalent of 35% of all the profits booked by multinational companies outside of their headquarter country. The corporate tax revenue losses caused by this shifting are significant, the equivalent of nearly 10% of corporate tax revenues collected globally. U.S. multinationals are responsible for about 40% of global profit shifting, and Continental European countries appear to be the most affected by this evasion.

Despite ambitious policy initiatives, profit shifting shows little sign of abating. In 2015, the OECD

launched the Base Erosion and Profit Shifting (BEPS) and in 2017, the United States introduced measures to reduce profit shifting by US multinational companies (while cutting its corporate tax rate from 35 to 21 percent and). Yet, 7 years after the start of the BEPS process and 5 years after the U.S. law, global profit shifting appears to have changed only marginally. The global loss of tax revenue due to this shifting appears to have stagnated at about 10% of corporate tax revenue collected (Figure 2). This is not to say that the policy initiatives of the last decade have had no effect: absent these policies, profit shifting may have been even higher today.

Figure 2

Profit shifting by multinational companies has exploded and remains high

Notes: This figure reports the evolution of the global tax revenue loss caused by corporate profit shifting to tax havens, expressed as a fraction of global corporate tax revenue collected. For reference we indicate the start of the Base Erosion and Profit Shifting process in 2015 and the Tax Cuts and Jobs Act in 2018. Source: Ludvig Wier and Gabriel Zucman (2023), "*Global Profit Shifting 1975-2020*", EU Tax Observatory working paper, updated to 2022 by the EU Tax Observatory; see chapter 2 for complete details.

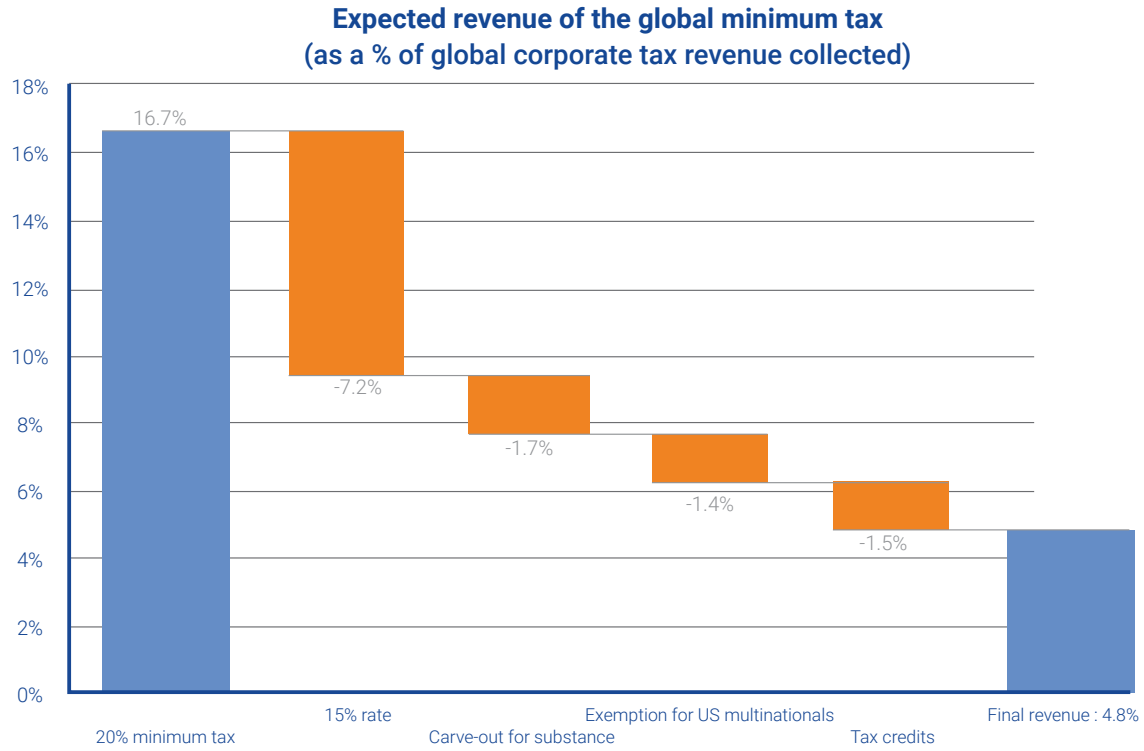
Finding #3: The global minimum tax has been dramatically weakened

In 2021, more than 140 countries and territories agreed to implement a pioneering minimum tax of 15% on multinational profits. This is a landmark development: it is the first time that an international agreement puts a floor to how low certain taxes on profits can go. Previously, policymakers attempted to regulate the definition of the tax base, to address inconsistencies in the definition of profits across countries, to improve the allocation of profits internationally – but there was no agreement about tax rates, the key aspect of tax policy.

But since the political agreement of 2021, the global minimum has been dramatically weakened by a growing list of loopholes. The global minimum tax, as things stand, would generate only a fraction of the tax revenue that could be expected from it based on the principles laid out in 2021: less than 5% of global corporate income tax revenue as opposed to 9% with a 15 percent rate and no loopholes and more than 16% with a 20 percent tax rate (Figure 3). Even more worrying, the global minimum tax still allows for a race-to-the-bottom with corporate taxes (and may reinforce it) because it allows firms to keep effective tax rates below 15% as long as they have sufficient real activity in low-tax countries. This exemption – a carve-out for economic substance – provides incentives for multinational companies to move production to very low-tax countries – and in turn incentives for tax havens to keep providing rates below 15%.

Figure 3

The weakening of the global minimum tax



Notes: This figure reports the estimated revenue (for the year 2023) of a 20% minimum tax on the profits of multinational companies with no exemptions, and the effects of various provisions incorporated in the Pillar Two minimum tax of the OECD Two-Pillar framework: (i) rate of 15% instead of 20%; (ii) carve-out for economic substance (allowing firms to exclude 8% of assets and 10% of payroll from the base of the minimum tax in the first year), (iii) exemption of the domestic profits of US multinationals from the minimum tax (due to the non-participation of the United States and the suspension of the backstop measures allowing other countries to collect the taxes uncollected by the United States until at least 2026), and (iv) preferential treatment of refundable tax credits (which are not counted as negative taxes). A 20% minimum tax without loopholes would generate the equivalent of 16.7% of global corporate tax revenues; after the reduction of the rate to 15%, and the carve-out, US, and tax credit loopholes, revenues are reduced to about 4.8%, i.e., cut by a factor of three. Sources: EU Tax Observatory computations; see chapter 2 and Online Appendix for complete details.

Finding #4: New forms of tax competition are emerging with adverse effects on government revenue and inequality

New forms of aggressive tax competition are emerging that severely affect government revenues. Over the last 15 years many countries have introduced preferential tax regimes to attract specific socio-economic groups perceived as particularly mobile. From a single-country perspective, this strategy can enhance tax collection and boost domestic activity. But globally these policies are negative sum: taxpayers attracted by one country reduce the tax base by the same amount in another, and global tax revenue collection falls. Because the special regimes are primarily targeted to wealthy individuals, they reduce the progressivity of tax systems, fueling inequality. The tax-savings per beneficiary are high as are the fiscal costs for governments (Table 1).

Table 1

The proliferation of special tax regimes in the European Union

	Number of regimes	Fiscal cost (€ million)	Number of beneficiaries	Average tax reduction per beneficiary (€)
Foreign source income	10	5,141	102,378	64,553
Domestic income	15	2,031	151,384	15,451
Pensions	5	295	9,237	32,616
All	**30**	**7,467**	**262,999**	**28,392**

Notes: This table reports summary statistics for the 30 preferential tax regimes studied in chapter 3. "Foreign-source income" regimes (offered by Greece, France, Ireland, Italy, Luxembourg, Malta, Portugal, Spain, Switzerland, and the UK) offer preferential taxation of worldwide income or of foreign income while applying standard taxation to income earned domestically. "Domestic income" regimes (offered by Austria, Belgium, Cyprus, Denmark, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Sweden) offer reduced rates when performing a specific economic activity in the host country; most of these regimes target high-income workers or specific professions such as scientists, artists, or athletes. "Pension" regimes (offered in Cyprus, Greece, Italy, Malta, and Portugal) target retirees: they offer lower taxation of foreign-source pension income, with the objective of attracting consumers with higher average purchasing power than the resident population. Sources: EU Tax Observatory computations, see chapter 3.

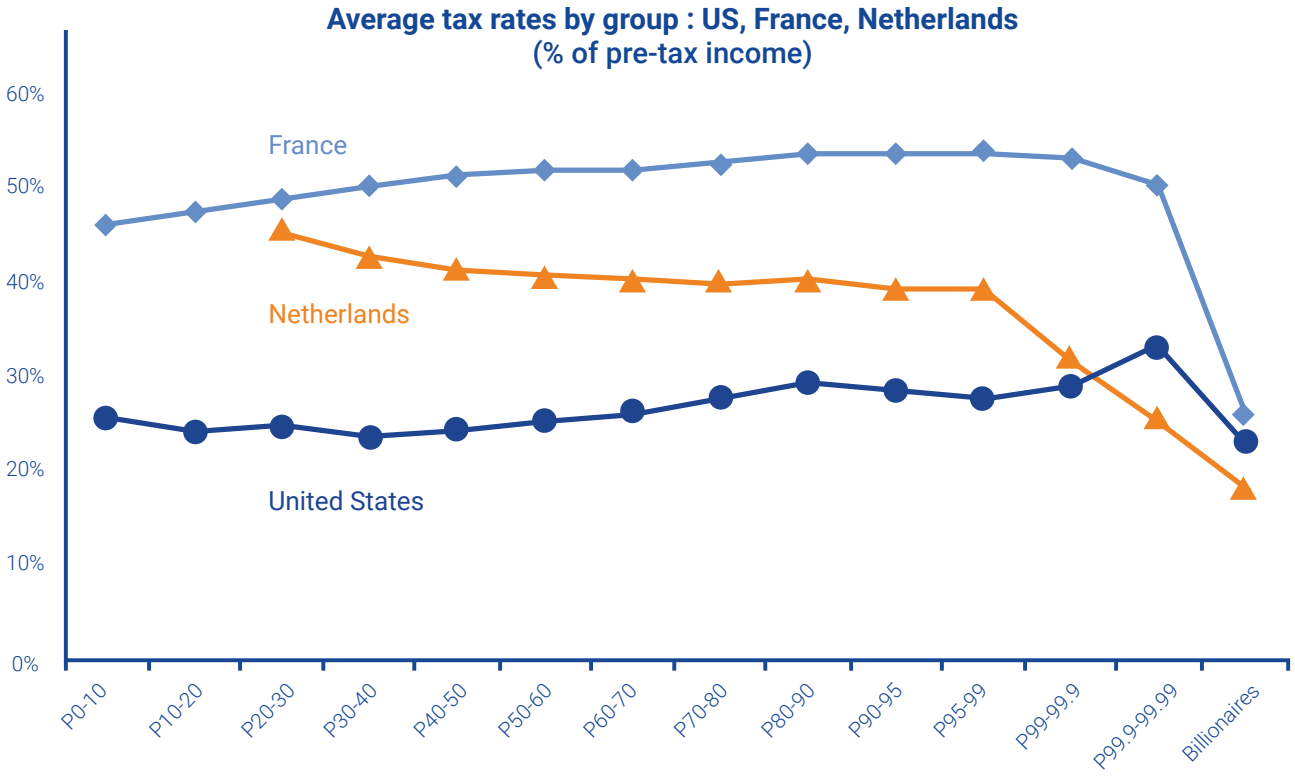
The ongoing subsidies race for green-energy producers may more than offset the revenue gains from the global minimum corporate tax. Triggered by the multiplication of Chinese state aids and the Inflation Reduction Act in the United States, governments around the world are increasingly offering subsidies to producers of green energy. This race is more desirable than standard tax competition (reducing the tax rate for all corporate profits) because it has a crucial positive-sum aspect: it has the potential to accelerate the transition to a zero-carbon global economy. But it also raises some of the same issues as standard tax competition. It depletes government revenues, and if not accompanied by egalitarian measures, it risks increasing inequality by boosting the after-tax profits of shareholders, who tend to be towards the top of the income distribution.

Finding #5: Global billionaires benefit from very low effective tax rates

Pioneering research in partnership with tax administrations shows that global billionaires have very low personal effective tax rates, of between 0% and 0.5% of their wealth. Personal taxes include all individual income taxes and wealth taxes when they exist. In a country like the United States the effective personal tax rate of billionaires appears closer to 0.5%, while in a country like France it is closer to 0%. When expressed as a fraction of income and considering all taxes paid at all levels of government beyond personal taxes (including corporate taxes, consumption taxes, payroll taxes, etc.), the effective tax rates of billionaires appear significantly lower than those of all other groups of the population (Figure 4).

Figure 4

The tax deficit of billionaires



Notes: This figure reports estimates of effective tax rates by pre-tax income groups and for billionaires in France, the Netherlands, and the United States. These estimates include all taxes paid at all levels of government and are expressed as a percent of pre-tax income. P0-10 denotes the 10% of adults at the bottom of the pre-tax income distribution, P10-20 the next decile, etc. Pre-tax income includes all national income (measured following standard national account definitions) before government taxes and transfers and after the operation of the pension system. National income excludes unrealized capital gains but includes the retained earnings of companies. Sources: see chapter 4.

A key reason why billionaires tend to have low effective tax rates is that in many (though not all) countries they can use personal wealth-holding companies to avoid the income tax. In these countries, using a holding company allows wealthy owners of publicly listed corporations that distribute dividends to avoid paying taxes on these dividends. These holding companies are in a grey zone between avoidance and evasion. To the extent that they are created with the purpose of avoiding the income tax, they can legitimately be seen as closer to evasion. Some countries like the United States do not tolerate this practice and automatically subject dividends earned through personal holding companies to the income tax.

Finding #6: A global minimum tax on billionaires would raise large sums

A minimum tax on billionaires equal to 2% of their wealth would address this evasion and generate nearly $250 billion from less than 3,000 individuals. To our knowledge, it is the first time that such a proposal is detailed and quantified – indeed it was difficult to do so before absent data on the amount of tax currently paid by billionaires. The number of taxpayers affected by our proposal is very small, and the tax rate for these taxpayers (2%) would still be very modest – for comparison, the wealth of global billionaires has grown at 7% a year annually on average since 1995 (net of inflation). Even so, the revenue potential is large, due to the concentration of wealth at the top of the distribution and the low current tax rates of billionaires (Table 2). Implementation issues are discussed in detail in chapter 5.

Table 2

Revenue potential of a minimum tax of 2% on the wealth of billionnaires in 2023 ($ billion)

Region	Number of billionaires	Total wealth ($B)	Personal tax currently paid ($B)	Revenue of 2% minimum wealth tax ($B)
Europe	499	2,418	6.0	42.3
North America	835	4,822	24.1	72.3
East Asia	838	3,446	8.6	60.3
South & South-East Asia	260	991	2.5	17.3
Latin America	105	419	1.0	7.3
Sub-Saharan Africa	11	52	0.1	0.9
Middle-East & North Africa	75	182	0.5	3.2
Russia & Central Asia	133	586	1.5	10.3
Total	**2,756**	**12,916**	**44**	**214**

Notes: The table reports estimates of the revenue potential of a minimum tax on world billionaires equal to 2% of their wealth. The minimum tax is computed as 2% of their wealth, minus the amount of personal tax (income tax and any wealth tax if it exists) they already pay. For instance, the 499 European billionaires are estimated to have $2,418 billion in wealth. A straight 2% wealth tax would generate 2% of $2,418 billion which is $48.4 billion. After subtracting the amount of personal tax they currently pay (estimated to be equal to around $6.0 billion), the revenue of the 2% minimum wealth tax is equal to $42.3 billion for European billionaires. Source: EU Tax Observatory computations. The wealth of billionaires is taken from the *World Inequality Report 2022,* table 7.3. We assume that billionaire wealth in 2023 is equal to billionaire wealth in 2021, hence revenue estimates should be seen as conservative.

2 Six recommendations to reconcile globalization with tax justice

This report makes six recommendations to address the issues identified above. The common theme of these recommendations is that they focus on reducing the tax deficit of multinational companies and wealthy individuals. The tax deficits are the difference between what these actors pay in taxes today and what they would pay if minimum taxes were well enforced. Reducing the tax deficits of multinationals and wealthy individuals can not only generate large amounts of government revenue, but also contribute to increasing the social sustainability of globalization. Our proposals are the following:

1. Reform the international agreement on minimum corporate taxation to implement a rate of 25% and remove the loopholes in it that foster tax competition.

2. Introduce a new global minimum tax for the world's billionaires equal to 2% of their wealth.

3. Institute mechanisms to tax wealthy people who have been long-term residents in a country and choose to move to a low-tax country.

4. Implement unilateral measures to collect some of the tax deficits of multinational companies and billionaires in case global agreements on these issues fail.

5. Move towards the creation of a Global Asset Registry to better fight tax evasion.

6. Strengthen the application of economic substance and anti-abuse rules.

Some of these policies build on existing international frameworks and are implementable in the short or medium term; other take a longer-horizon perspective. The global minimum corporate tax of 15%, despite its limitations, shows that international agreement on minimum tax rates – long deemed utopian – are possible. The same approach could quickly be applied to billionaires. We also consider options that are more ambitious and will likely require more time, as well as options that can be implemented by countries unilaterally but may require some evolution in international treaties.

International cooperation is always preferable, but truly global agreements should be the end point rather than the starting point. Given the interest that some economic actors have in preserving the status quo, insisting on unanimity from the get-go severely limits the realm of possibilities. Instead, recent history shows how unilateral action (or multilateral action by a leading group of countries) can pave the way for eventually nearly global agreements. Unilateral action, if it is well-founded economically, can accelerate rather than impede global cooperation. We provide a detailed discussion of the practicality and revenue potential of unilateral measures to tax high-net-worth individuals and multinationals. **Contrary to a widely held view, ambitious measures are possible even absent international coordination.**

INTRODUCTION

1 Objectives of the report

Globalization and modern technology have created new ways for individuals and firms to escape taxation. These issues have received considerable attention from the public and global policymakers. Over the last 10 years, governments acting cooperatively have launched major initiatives to address these challenges. These initiatives include the creation of a new form of international cooperation – an automatic, multilateral exchange of bank information, in force since 2017 – and an international agreement on a global minimum tax for multinational corporations, endorsed by more than 140 countries and territories in 2021.

Yet little is known about the trends in global tax evasion and the effects of the recently implemented policies. For the public, for journalists, for civil society, and even for policymakers themselves, it can be difficult to disentangle what amounts to real progress from mere cosmetic changes. All offshore financial institutions claim that the era of bank secrecy is over, but are they truthfully cooperating with foreign tax authorities? Policymakers claim that "the race-to-the-bottom over corporate tax rates is over" and that multinationals will soon pay everywhere at least 15% in tax, but are we sure that companies are not finding new ways to keep tax rates closer to 0? Is global tax evasion falling or rising? Are new issues emerging, and if so, what are they?

These questions are of tremendous importance in a context of rising income and wealth inequality, growing public debt in the post-Covid-19 context, and large government revenue needs for addressing climate change and for investing in health care, education, and public infrastructure.

The goal of this report is to address these questions by marshalling the available scientific evidence and making frontier knowledge accessible to all. Prepared by the staff of the EU Tax Observatory – a research laboratory created in 2021 with unique expertise on international tax issues – this report summarizes work conducted by more than 100 researchers all over the world, often in partnership with tax administrations. It is the first time that all this evidence is brought together with the goal of quantifying the dynamic of global tax evasion.

This report is made possible by the availability of new data and the growing cooperation between academic researchers and tax authorities. One upshot of the policy developments of the last decade has been the creation of new data sources, such as country-by-country reports of multinational companies and information on offshore bank accounts created by the automatic exchange of bank information. Collected by tax authorities, these data are sometimes made available to researchers under strict confidentiality and data protection rules. This has led to an outburst of research on international tax evasion over the last few years. But the results of this research are not accessible in an easily understandable format for the public at large. This report aims at filling this gap and at democratizing knowledge on these issues of fundamental democratic interest.

It is worth stressing at the outset that it is not possible to obtain definitive answers to all the questions raised above. Despite the progress made in recent years, the data remain imperfect, so any conclusions can only be tentative and provisory. There is a need for more and better public statistics on corporate profits, wealth, and the effective tax rates of the different socio-economic groups. Our results should be seen as provisory and will be updated as more public information becomes available, more research is conducted, and new knowledge emerges.

2 The EU Tax Observatory: towards an IPCC for taxation

This report is prepared by the EU Tax Observatory and relies in large part (though not exclusively) on research conducted by its staff and affiliated scholars. The EU Tax Observatory is a research laboratory hosted at the Paris School of Economics to conduct research on taxation with a focus on international tax issues. Its goal is to generate new knowledge on these questions, formulate proposals about how to improve policies in these areas, and contribute to a more informed democratic debate. Two years after its creation in 2021, the Observatory employs 18 full-time equivalent researchers and support staff, with expertise at the highest scientific level on corporate and individual taxation, profit shifting, tax evasion, money laundering, and related topics.

Co-funded by the European Union, the Observatory is global in scope. It is our belief that tax evasion, international cooperation (or the lack thereof), and their economic effects can only be properly studied from a truly global perspective. Because financial transparency or tax cooperation policies affect different countries differently (and different socio-economic groups within these countries), this global perspective is fundamental to assess the effect of such policies. Even if one is interested in only one country or one region, policies implemented in that country or region might be circumvented through the use structures located outside of it, making a global approach necessary. To analyze the economic consequences of international agreements and formulate proposal, it is vital to take the interest of the billions of inhabitants of the Global South into account and put them at the center of the analysis.

There is, fundamentally, a need for an IPCC of taxation: an international panel making frontier research accessible to all and modelling the effects of different possible policy paths. What would be the effects on the tax revenues of each country of various minimum tax rates on multinational companies and wealthy individuals? How would global tax evasion evolve under different regimes of financial transparency? What would happen to global inequality if new forms of international tax cooperation and harmonization were implemented? Rigorous answers to these questions, grounded in frontier science and taking a global perspective, are essential for the sustainability of globalization and for broad-based economic development.

It is with this goal in mind that we wrote this report, which goes beyond summarizing current knowledge but also details the potential effects of proposed international tax policies. To study the global minimum tax on multinational profits, the EU Tax Observatory has developed a pioneering model that plays an important role in this report. This model can be used to estimate the tax revenue gains that each country can expect from different forms of minimum profit taxation (such as different minimum tax rates, different priority rules for the collection of the minimum tax, different exemptions). This model rivals – and in some respect exceeds – those available within tax authorities or international organizations such as the OECD. In contrast to those models, ours is public and open-source. Anyone can inspect the methodology and propose improvements.

3 Our approach to studying global tax evasion

At the outset it is worth defining what we mean by tax evasion and to lay out our methodological approach to study it. Some of the practices analyzed in this report are clearly illegal, such as failing to properly declare income earned on offshore bank accounts. Many more are in a grey zone, not outright fraud but not clearly legal either. We use a broad definition of tax evasion that includes these grey-zone tax-saving practices, in line with the modern literature that emphasizes that these practices are at the

heart of the strategies of multinational companies and wealthy individuals. These include profit shifting to foreign shell companies, or the creation of personal wealth-holding structures to avoid individual income taxes.

A traditional argument is that the structures and transactions involved in grey-zone practices are all legal and should be called tax avoidance rather than evasion. The reality is more complex, however. The tax laws of many countries include general anti-abuse provisions, according to which transactions conducted with the sole purpose (or sometimes the primary purpose) of avoiding taxes are illegal. When firms create subsidiaries in territories such as Bermuda – where the corporate tax rate is zero and production quantitatively insignificant – and then shift profits into these structures, it is not unreasonable to believe that the sole purpose is to avoid taxes. These practices may not be prosecuted, either because of a lack information available to tax authorities, a lack of public resources, or a lack of political will. This does not make them obviously legal.

Our approach to studying tax evasion, however, is not a legal one but an economic one. We are interested in quantifying the consequences of tax evasion for government revenue, inequality, and the level of economic activity. More importantly, in the context of this report, we are interested in quantifying the progress made in achieving the goals that policymakers have set for themselves: curbing offshore tax evasion and profit shifting to tax havens.

The main characteristics of our approach are first its data-driven nature, and second its reliance on economic reasoning. Our focus is primarily on making the most systematic and consistent use of the data available, while carefully accounting for their limitations. When no data is available, we attempt to assess potential effects based on simple models that emphasize the role of economic incentives. This economic reasoning cannot replace a data-driven analysis. But it can help clarify the logic of proposed policies, and to pinpoint potential risks and limitations that may not otherwise be obvious.

4 Structure of the report

Our focus in this report is on multinational companies and wealthy individuals. We start in the first two chapters by considering their cross-border tax evasion strategies: household wealth concealment in tax havens (chapter 1), and profit shifting by multinational corporations (chapter 2). Thanks to dramatic progress in the fight against cross-border personal tax evasion, a growing fraction of the tax deficit of wealthy individuals now involves domestic evasion, especially of the "grey-zone" type. Chapter 4 describes the available evidence on the very low tax rates of global billionaires and the strategies they use to achieve it, including the avoidance of the income tax through personal wealth-holding companies.

It is worth emphasizing that multinational companies and wealthy individuals account for only a modest fraction of total government tax revenues and of global tax evasion. More than half of global tax revenues originate from consumption taxes and payroll taxes (flat tax rates on wage income), taxes which tend to be concentrated at the bottom, middle, and upper-middle end of the income distribution. But this is perhaps precisely what makes tax evasion by multinational companies and high-net-worth individuals so important. In modern economies where governments generate a large amount of tax revenue by taxing consumption and wages, tax evasion on the profits and capital of the most powerful economic actors risks fragilizing the social acceptability of taxation. Globalization itself is unlikely to be sustainable if it means lower taxes for its main winners, and higher taxes for the less mobile economic actors who have benefited relatively less from it.

This report also covers some issues that go beyond tax evasion but are related to this broader issue

of the sustainability of modern tax system and globalization. We discuss in chapter 3 the emergence of new forms of international tax competition: special tax regimes offered by some countries to wealthy individuals, and the new international race on subsidies for corporations. Like tax evasion, some of these developments contribute to reducing government revenues, imposing negative externalities onto other countries, and increasing inequality.

The last chapter offers recommendations to reconcile globalization and tax justice. Our focus in this chapter is on offering solutions to reduce the tax deficit of multinational companies and wealthy individuals. The tax deficit is the difference between what these actors currently pay in taxes and what they would pay if they were subject to well-enforced minimum taxes globally. We show how these deficits could be reduced through international agreements as well as by unilateral action. Contrary to a widely held view, there is a lot that countries can do unilaterally to better tax multinationals and high-net-worth individuals.

5 Contributing to a global democratic debate

It is not for experts to decide what the level of tax rates should be, and more generally how tax policy should be conducted. No-one possesses the answers to these questions, which can only be obtained through democratic deliberation and the vote. Our goal in this report is not to establish what the ideal policy should be. Rather, it is to show the multiplicity of possible paths, and to explain (some of) their concrete implications for governments revenues, inequality, and economic activity. Fundamentally, our objective is to contribute informing the democratic debate on taxation.

It is with this objective in mind that we developed the Atlas of the Offshore World, available online at https://atlas-offshore-world.org. Structured around four global maps, this new database provides statistical information on some of the key issues covered by this report: the evolution of effective tax rates on labor and capital, the scale and cost of multinational corporations' profit shifting to tax havens, the size of offshore financial assets owned by households, and the magnitude of cross-border real estate in a number of global cities. This database is a first attempt at bringing together all this information in a user-friendly manner, with country-level estimates that, we hope, will be of interest to citizens and policymakers from all over the world. Just like for all the other aspects of this report, we welcome any reactions and suggestions for improvement.

CHAPTER 1: TRENDS IN GLOBAL OFFSHORE TAX EVASION

The last few years have seen the emergence of a new major form of international cooperation: the automatic exchange of bank information. Since 2017-18, most offshore financial centers automatically send information about the accounts managed by their financial institutions to the tax authorities of the account holders' residence country. This is a radical departure from the situation of quasi-complete bank secrecy that prevailed before.

Before the automatic exchange of bank information, offshore tax evasion by wealthy individuals was a significant issue. A body of work revealed widespread tax evasion by individuals who used offshore banks to hide assets. This includes evidence from leaks (such as the leak from HSBC Switzerland and the Panama Papers) analyzed by researchers in collaboration with tax authorities in several countries; results from tax amnesties (such as voluntary disclosure programs in the United States, Norway, Sweden, Colombia, and Argentina) that revealed large amounts of previously hidden assets; and official investigations (for instance by the US Senate on the hidden assets of US taxpayers). Around 2007-08, available estimates suggest that about 90%-95% of offshore financial wealth went unreported to tax authorities, implying large tax revenue losses for governments. This evasion was concentrated at the top of the wealth distribution.

This form of evasion is much harder to engage in today than in the past and is clearly less common. Much of this is due to a different regulatory environment. More than 100 countries have agreed to automatically exchange financial account information under the Common Reporting Standard (CRS) of the OECD, and banks around the world must send account information about US citizens to the US tax authorities under the Foreign Account Tax Compliance Act (FATCA). Around $12.6 trillion in offshore wealth was reported to foreign tax authorities in 2022 in the context of the CRS,[2] dramatically limiting the scope for hiding accounts offshore. This automatic exchange of bank information, long deemed utopian by most observers, is a major achievement against tax evasion, which demonstrates that real progress can be made in a relatively short amount of time.

But there is also evidence, detailed in this chapter, that offshore tax evasion has not disappeared. There are two main issues. First, it remains possible to own financial assets that escape being reported on, whether it's due to non-compliance by offshore financial institutions or to limitations in the design of the CRS. Many offshore financial institutions duly comply with their requirements, but others may fall short, for fear of losing their customer base and facing no real threat from foreign tax authorities. Second, not all assets are covered by the Common Reporting Standard. Recent research highlights how some individuals who used to hide financial assets in offshore banks have exploited these loopholes by shifting holdings to non-covered assets, most importantly real estate.

Based on ongoing research collaborations with tax authorities, we tentatively estimate that about 25% of global offshore financial wealth remains untaxed. This is a major improvement relative to the earlier situation when most offshore wealth went untaxed. Yet, it also means that there is scope for

[2]See OECD Secretary-General Tax Report to G20 Leaders: India, September 2023, OECD, Paris, page 11. https://www.oecd.org/tax/oecd-secretary-general-tax-report-g20-leaders-india-september-2023.pdf.Currency converted using 2022 average exchange rate of 1 Euro = 1.052 USD.

additional progress. We discuss the uncertainty surrounding this estimate and provide a number of scenarios. We investigate the various mechanisms allowing this non-compliance to persist, including involuntary and voluntary non-compliance by banks, the creation of shell banks, the use of citizenship-by-investment, and other design limitations of the CRS.

This chapter also provides evidence that offshore real estate is on the rise. There are, of course, many legitimate reasons for owning real estate abroad. Sometimes, however, these properties can be used for money laundering, evading international sanctions, tax evasion, and for other non-legitimate reasons. We provide a detailed analysis in the case of Dubai, where cross-border ownership of real estate is large, and evidence shows that most of this wealth may evade taxes. The recent literature suggests that about 25% of the offshore wealth that was previously held in the form of financial assets may have been converted to real estate, thus eschewing the new reporting requirements.

Governments need to dramatically improve statistics on offshore wealth and the automatic exchange of bank information. There has been an explosion of research on offshore wealth in recent years, and of research on the effects of the automatic exchange of bank information in particular. The EU Tax Observatory is an active participant in this collective effort, and the current chapter summarizes this body of work. It must be stressed, however, that the conclusions are provisory and tentative. The automatic exchange of bank information is a recent development and data available for research are lagging. Governments and the OECD publish shockingly few statistics, hindering rigorous evaluation of the compliance with reporting requirements and of the effects of the information exchange. The full value of the automatic exchange of bank information will not become clear before there is massive improvement in public statistics on these issues.

1 The evolution of global offshore financial wealth

Household offshore financial wealth refers to financial assets held by individuals outside of their residence country. Financial assets include bank deposits and portfolios of securities (equities, bonds, and mutual fund shares). Of course, it is not illegal to hold financial assets abroad. The income earned on these offshore assets (such as interest, dividends, and capital gains) must simply be reported to domestic authorities, as countries typically tax the worldwide income of their residents, no matter where this income is earned. The wealth itself must be reported in the countries that have a wealth tax. In addition, some countries require the owners of these assets to report offshore holdings on specific forms (for instance in the United States on Foreign Bank Account Reports for holdings above $10,000), even if no income is earned or no wealth tax exists.

For a long time, it was straightforward to evade taxes on offshore income and wealth without being detected. This is because until 2017 most offshore financial institutions did not communicate information to foreign tax authorities, except on an ad-hoc basis when information was requested for specific taxpayers who had aroused suspicion.[3] A large body of economic research shows that whenever there is no automatic third-party reporting of information to tax authorities, tax evasion tends to be widespread.[4] This was particularly

[3]See, e.g., Niels Johannesen and Gabriel Zucman, (2014) "The End of Bank Secrecy? An Evaluation of the G20 Tax Haven Crackdown", *American Economic Journal: Economic Policy* 6(1), 65–91.

[4]See, e.g., Henrik J. Kleven, Martin B. Knudsen, Claus T. Kreiner, Søren Pedersen, and Emmanuel Saez (2011), "Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark", *Econometrica*, 79(3), p. 651 – 692.

true for taxes on offshore capital income and wealth, as the industry had developed since the 1920s (first in Switzerland, then in some other financial centers) to facilitate wealth concealment by non-resident individuals.[5]

Offshore banks provide a variety of services to their customers, so that even when tax evasion occurs, it is not necessarily the only or even primary motive for having offshore accounts. These banks may offer investment services that are not available in the customers' home country or are only available at a higher cost (such as brokerage services, wealth management, or access to certain investment funds); they may allow customers to circumvent certain regulations (such as foreign exchange controls); they may help people dissimulate assets from spouses (e.g., in the context of a divorce), from business partners (e.g., in the context of bankruptcy), from regulators (e.g., in the context of the illicit financing of a political campaign); they may allow individuals to avoid international sanctions; they may be used to launder the proceeds from illegal activity. When offshore accounts are used for these more questionable purposes, they are typically combined with opaque ownership structures involving shell companies, foundations, trusts, and nominees located in different countries, including territories with a poor track-record of cooperation with foreign authorities.

1.1. $12 Trillion in Financial Wealth Held Offshore in 2022

For a long time, it was difficult to estimate the amount of wealth owned offshore by households, let alone to know who owned that wealth and the motives behind these holdings. This situation started to change in the early 2010s, thanks to an increase in data availability and new research in this area. Gabriel Zucman developed a methodology to estimate the global amount of household offshore wealth, exploiting official statistics published by the Swiss central bank, the Bank for International Settlements, and systematic anomalies in the international investment positions of countries.[6]

The basic idea behind the methodology is simple. When individuals own portfolios of financial securities – stocks, bonds, mutual fund shares – offshore, these holdings cause anomalies in global investment statistics. Take the case of a French resident individual who owns US equities on a Swiss account. The French statistical authorities typically do not observe these holdings, because their data are based on surveys of French financial institutions and companies. As a result, no asset would be recorded in France. US statisticians would duly record a liability vis-à-vis the rest of the world: they observe that some US equities are owned in custody in a Swiss bank. Finally Swiss statisticians would record neither any asset nor any liability for Switzerland – and rightly so, as these assets belong to a French resident. As a result, more liabilities are recorded globally than assets, as if Earth was owned in part by another planet. This mismatch has been long noted by the International Monetary Fund and researchers working in this area. By exploiting it, one can estimate the size of portfolio wealth held offshore.

In this report and in the Atlas of the Offshore World, we build on this methodology to update the estimates first developed by Zucman for the period 2001-2008 annually all the way to 2022.[7] According to our results, $12 trillion — the equivalent of 12% of world GDP — was held offshore by households at the end of 2022. This number includes financial assets only and does not include real assets such as art, gold, yachts, or real estate. It includes both properly reported assets and unreported assets. Below we discuss the evidence on the fraction of offshore assets that is unreported for tax purposes.

[5]For a history of this industry, see, e.g., Gabriel Zucman (2015), *The Hidden Wealth of Nations: The Scourge of Tax Havens*, University of Chicago Press, chapter 1.

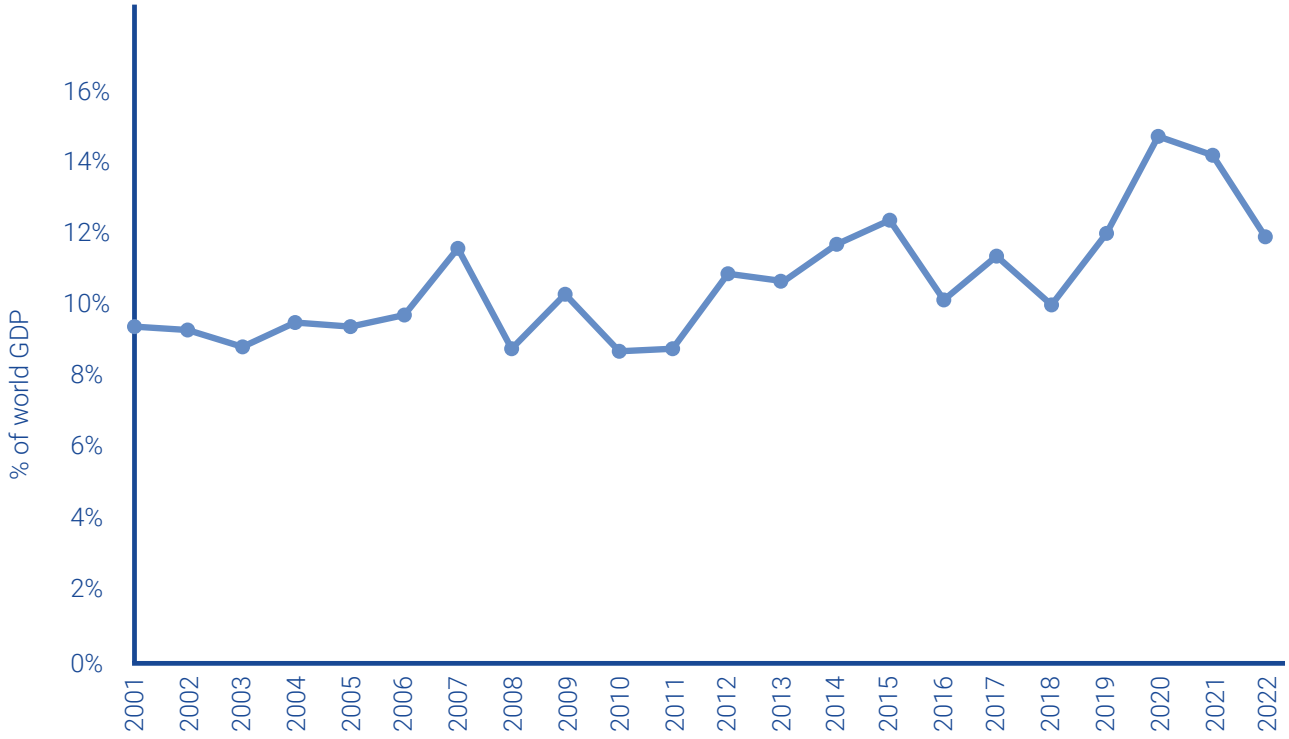
[6]Gabriel Zucman (2013) "The missing wealth of nations: Are Europe and the US net debtors or net creditors?" *The Quarterly journal of economics* 128(3), 1321–1364; Gabriel Zucman (2015), *The Hidden Wealth of Nations: The Scourge of Tax Havens*, op. cit.

[7]For a description of the updated process, see Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", EU Tax Observatory working paper.

Offshore financial wealth appears to have evolved at roughly the same pace as global GDP over the last 20 years. It has hovered around the equivalent of 10% of world GDP between 2001 and 2022, as shown in Figure 1.1. Year-to-year variation primarily reflects fluctuations in asset prices: in years of strong stock market growth (such as 2020 and 2021), wealth in general – and offshore wealth in particular – tend to grow faster than GDP, and vice versa during episodes of stock market declines. However, no clear trend appears over the medium run. The increasing transparency and exchange of information does not seem to have had dramatic effects on the amount of household wealth held offshore, indicating that tax evasion cannot be the primary motive for holding financial assets offshore today.

Figure 1.1

Global household offshore financial wealth, 2001 – 2022
(% of world GDP)



Notes: This figure reports the evolution of global household offshore financial wealth, expressed as a ratio of world GDP. Offshore financial wealth includes the portfolios of securities (equities, bonds, and mutual fund shares) held by households in banks outside their country of residency, plus associated bank deposits. Source: Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", EU Tax Observatory working paper. Data available on the *Atlas of the Offshore World*, https://atlas-offshore-world.org.

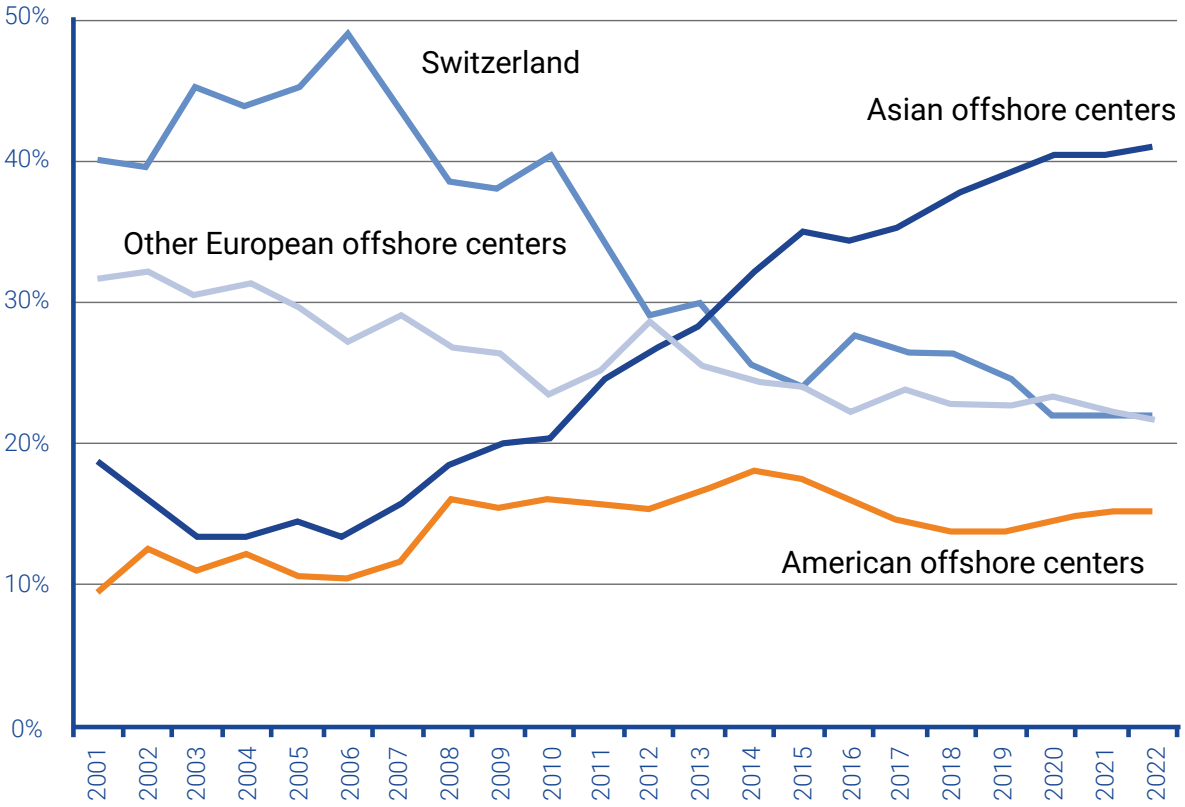
1.2. Changes in the origin and destination of offshore wealth since 2001

In contrast to the size of global offshore wealth, both the location and origin of offshore wealth have changed over the last two decades. Figure 1.2. reports the evolution of the location of offshore wealth. The frontier between the different offshore centers can be fuzzy – for example, wealth that is managed by bankers in Zurich might be recorded in a subsidiary in Singapore – so the results should not be over-interpreted. However, a number of interesting findings emerge. First, a growing fraction of global offshore wealth appears to be managed in Asian offshore financial centers, the most notable being Singapore and Hong Kong. Second, a smaller fraction is managed in Switzerland, historically the epicenter of offshore wealth management. Prior to the financial crisis of 2008–09, almost half of global offshore wealth was managed in Switzerland. Today this share is down to about 20%.

Figure 1.2

Where is the world's offshore household wealth located?

(% of total offshore wealth)



Notes: This figure plots the evolution of the share of global household offshore financial wealth managed in the different offshore centers (as a % of total offshore wealth) over the period 2001 – 2022. "Other European offshore centers" include Cyprus, Guernsey, Jersey, Isle of Man, Luxembourg, Belgium, and the United Kingdom; Asian offshore centers are defined as Hong Kong, Singapore, Macao, Malaysia, Bahrain, as well as (due to data limitations making it impossible to isolate those havens in BIS statistics) the Bahamas, Bermuda, and the Netherlands Antilles; American offshore centers are defined as the Cayman Islands, Panama, and the United States. Source: Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", EU Tax Observatory working paper. Data available on the *Atlas of the Offshore World*, https://atlas-offshore-world.org.

How can we know who owns this wealth? Our ability to identify the country of residency of the owners of offshore assets has improved since a number of offshore financial centers – including Switzerland, Luxembourg, and the Channel Islands – have started disclosing bilateral data on the amount of bank deposits that foreigners own in their banks. These data have been collected for several decades by the Bank for International Settlements (BIS), but until 2016 the BIS only disclosed statistics aggregated at the country level (such as the total amount of foreign-owned bank deposits in Luxembourg) rather than at the bilateral level (such as the amount of bank deposits owned by German residents in Luxembourg). In 2016, several offshore centers authorized the BIS to disseminate bilateral data. These series are retrospective and go back in most cases to the early 2000s. Annette Alstadsæter, Niels Johannesen, and Gabriel Zucman developed a methodology that uses these data to allocate the global amount of offshore financial wealth (as estimated using the approach described above) to the country of their owners[8]. In this report and in the Atlas of the Offshore World, we build on this methodology to update the estimates annually to 2022.[9]

[8]See Annette Alstadsæter, Niels Johannesen, and Gabriel Zucman (2018), "Who Owns the Wealth in Tax Havens? Macro Evidence and Implications for Global Inequality", *Journal of Public Economics*, 2018, 162: 89-100.

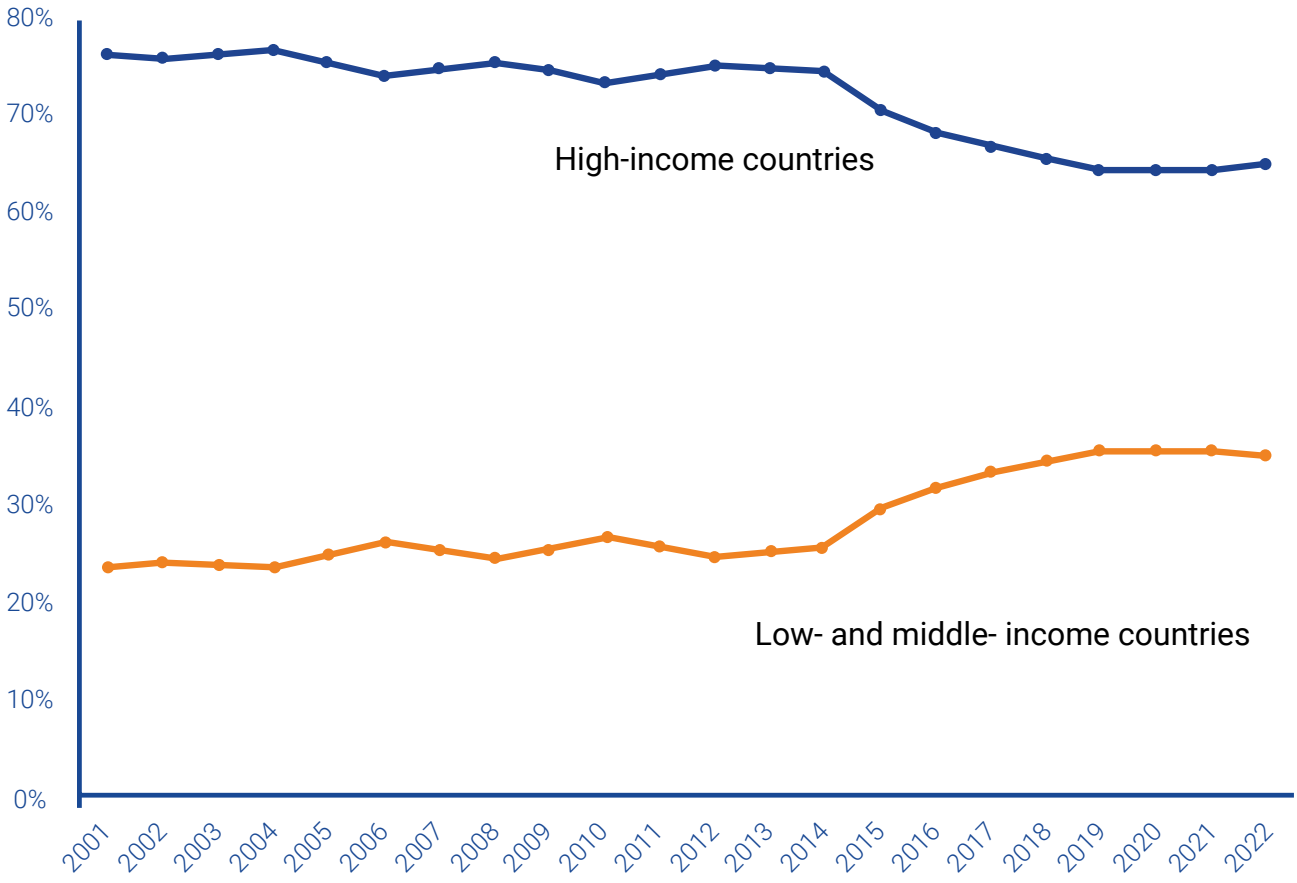
[9]For a description of the updating process, see Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", op. cit.

The results suggest that the residence country of the clients of offshore financial institutions is evolving. Historically the bulk of offshore wealth belonged to residents of high-income countries – reflecting the fact that these countries accounted for the bulk of world wealth. Today, as the wealth of emerging economies grows fast, so too is their share of global offshore wealth (Figure 1.3).

Identifying the residence country of the owners of offshore assets still faces data limitations and requires assumptions. The main issue is that offshore assets are often held indirectly through intermediate structures such as shell companies, trusts, holdings; often themselves located in other offshore financial centers (such as in Panama or the British Virgin Islands). As a result, a large fraction of the wealth managed by offshore banks is assigned to the territories where these intermediate structures are incorporated – not to the countries where the beneficial owners of the assets live.[10]

Figure 1.3

Offshore wealth owned by high-income vs. middle- and lower-income countries
(% of total offshore wealth)



Notes: This figure plots the evolution of the share of global household financial wealth owned by residents of high-income countries vs. residents of low- and middle-income countries over the period 2001 – 2022. Countries are grouped following the World Bank classification as of 2022. Source: Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", EU Tax Observatory working paper. Data available on the Atlas of the Offshore World, https://atlas-offshore-world.org.

[10]See, e.g., Matthew Collin (2021), "What lies beneath: evidence from leaked account data on how elites use offshore banking", Brookings Global Working Paper Series.

The use of shell companies increased after 2005, when in the context of a law known as the Saving Tax Directive, the European Union introduced a tax on interest income earned by E.U. residents in tax havens that exempted the accounts held through shell companies (a loophole that has been fixed by subsequent policies).[11] To address this issue, following the literature, we assume that the distribution of indirectly-held assets is the same as the distribution of directly-held assets. Available evidence suggests that this assumption is reasonable; for instance, the resulting country distribution correlates strongly with the distribution of offshore assets seen in datasets where beneficial owners are observable, such as the Panama Papers[12]. But this issue nonetheless introduces a margin of error.

A body of evidence also shows that ownership of offshore financial wealth is concentrated towards the top of the wealth distribution[13]. This includes evidence from leaks analyzed by researchers in collaboration with tax authorities in several countries (such as the leak from HSBC Switzerland and the Panama Papers), as well as results from tax amnesties whereby tax evaders voluntarily disclosed previously hidden assets. For example, a collaboration between researchers and tax administrations in Scandinavia made it possible to combine leaked data from the Swiss subsidiary of HSBC with administrative Danish, Swedish, and Norwegian data on wealth and tax information, as well as results from tax amnesties in these countries[14]. Offshore financial wealth appeared highly concentrated at the top of the wealth distribution, with about half of it belonging to the top 0.01 % richest Scandinavian households. Similarly steep gradients in offshore wealth ownership (measured either along the income distribution or along the wealth distribution) have recently been documented in other countries, including the United States,[15] Colombia,[16] the Netherlands,[17] Argentina,[18] and Switzerland,[19] using data from leaks, tax amnesties, and from the automatic exchange of bank information.

2 The impact of the automatic exchange of information

2.1. The automatic exchange of bank information: a landmark

For a long time, the bulk of offshore financial wealth was hidden from tax authorities. A body of evidence suggests that around 90% of the wealth held offshore was not properly declared by the

[11]See, e.g., Clara Martínez-Toledano and Nina Roussille (2023) "Tax Evasion and the «Swiss Cheese» Regulation", working paper.

[12]Annette Alstadsæter, Niels Johannesen, and Gabriel Zucman (2018), "Who Owns the Wealth in Tax Havens? Macro Evidence and Implications for Global Inequality", op. cit., Figure 7.

[13]For a recent overview, see Andreas Økland (2023) "Tax havens, personal tax evasion and inequality," prepared for the *Research Handbook on Tax Havens*, Edward Elgar Publishing, forthcoming.

[14]See Annette Alstadsæter, Niels Johannesen, and Gabriel Zucman (2019), "Tax Evasion and Inequality," *American Economic Review*, 2019, 109(6): 2073-2103.

[15]For evidence using amnesty data, see Guyton, John, Patrick Langetieg, Daniel Reck, Max Risch, and Gabriel Zucman (2021), "Tax Evasion at the Top of the Income Distribution: Theory and Evidence", NBER working paper No. 28542; for evidence using FATCA data see Niels Johannesen, Daniel Reck, Max Risch, Joel Slemrod, John Guyton, and Langetieg, Patrick (2023), "The Offshore World According to FATCA: New Evidence on the Foreign Wealth of U.S. Households", NBER Working Paper No. 31055.

[16]Juliana Londoño-Vélez, and Javier Ávila-Mahecha (2021), "Enforcing wealth taxes in the developing world: Quasi-experimental evidence from Colombia", *American Economic Review: Insights,* 3(2): 131–48.

[17]Wouter Leenders, Arjan Lejour, Simon Rabaté, and Maarten van't Riet (2023), "Offshore tax evasion and wealth inequality: Evidence from a tax amnesty in the Netherlands", *Journal of Public Economics*, 217, p. 104785.

[18]Juliana Londoño- Vélez, and Dario Tortarolo (2022), "Revealing 21% of GDP in Hidden Assets: Evidence from Argentina's Tax Amnesties", EU Tax Observatory Working Paper No. 6.

[19]Enea Baselgia (2023), "The Compliance Effects of the Automatic Exchange of Information: Evidence from the Swiss Tax Amnesty", EU Tax Observatory Working Paper No. 19.

account holders before the 2010s. This evidence includes two US Senate reports, finding that 85 to 95 percent of US-owned accounts at UBS and Credit Suisse were undeclared in 2007–2008[20]; research using tabulated Swiss administrative data, estimating that more than 90 percent of the wealth held by Europeans in Switzerland was undeclared before 2010;[21] and research linking leaked data (for the year 2006-2007) to administrative income and wealth tax returns.[22] Since then, bank secrecy has been curtailed through increased information exchange between countries.

The automatic exchange of bank information has been a watershed policy development. The United States started the process by enacting the Foreign Account Tax Compliance Act (FATCA) in 2010 which was implemented in 2014. A broadly similar system – the Common Reporting Standard, or CRS – was then implemented among more than 100 countries and territories starting in 2017. FATCA requires that all banks worldwide report on the account holdings of US citizens everywhere under the threat of penalties. Under the CRS, financial institutions must report to their respective tax administrations on all accounts held by foreigners, and this information is then shared with tax administrations in the account holders' home countries.

Fifteen years ago, few people believed that such a global automatic exchange of bank information could ever exist. As of October 2022, more than 110 jurisdictions applied it, including key offshore financial centers. More than 4,900 bilateral agreements had been signed, under which tax administrations automatically exchange financial information. This revolutionary development shows that new forms of international cooperation, long deemed utopian, can emerge in a relatively short period of time.

A growing body of evidence suggests that both FATCA[23] and the CRS[24] have contributed to reducing offshore tax evasion. A key question is by how much – and relatedly, how much offshore tax evasion might remain today.

In principle this is a relatively open question. It is well understood that domestically, third-party reporting of information (by employers, pension institutions, banks, etc.) to tax authorities reduces non-compliance to very low rates. This is because authorities can audit the firms that are responsible for this reporting and sanction them in case of non-compliance. When the context involves cross-border reporting, however, the effectiveness of third-party reporting is less clear. The possibilities to monitor foreign organizations are limited, as are possibilities for sanctions. Concretely, German authorities can easily audit German corporations and German banks, but they cannot easily audit banks in Singapore to ensure that these institutions duly comply with their reporting requirements.

In practice the authorities of offshore financial centers are responsible for making sure that the financial institutions under their supervision duly comply with the automatic exchange of bank information.

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[20]US Senate (2008), *Tax Haven Banks and US Tax Compliance*, Washington, DC: US Senate; US Senate (2014), *Offshore Tax Evasion: The Effort to Collect Unpaid Taxes on Billions in Hidden Offshore Accounts*, Washington, DC: US Senate.

[21]Clara Martínez-Toledano and Nina Rousille (2022), op. cit.; Niels Johannesen and Gabriel Zucman, (2014) "The End of Bank Secrecy? An Evaluation of the G20 Tax Haven Crackdown", *American Economic Journal: Economic Policy* 6(1), 65–91.

[22]Annette Alstadsæter, Niels Johannesen, and Gabriel Zucman (2019), "Tax Evasion and Inequality", op. cit.

[23]See Lisa De Simone and Bridget Stomberg (2023), "Has FATCA succeeded in reducing tax evasion through foreign accounts?" Oxford Review of Economic Policy 39(3), 550–564; Niels Johannesen, Daniel Reck, Max Risch, Joel Slemrod, John Guyton, and Langetieg, Patrick (2023), "The Offshore World According to FATCA: New Evidence on the Foreign Wealth of U.S. Households", op. cit.

[24]See Lukas Menkhoff, and Jakob Miethe (2019), "Tax evasion in new disguise? Examining tax havens' international bank deposits." Journal of Public Economics 176, 53-78; Sebastian Beer, Maria D. Coleho, and Sebastian Leduc (2019), "Hidden treasures: The impact of automatic exchange of information on cross-border tax evasion," IMF Working Paper 19/286; Elisa Casi, C. Spengel, and B. M. Stage (2020), "Cross-border tax evasion after the common reporting standard: Game over?" Journal of Public Economics 190, 104240; Pierce O'Reilly, Kevin P. Ramirez, and Michael A. Stemmer (2021), "Exchange of Information and Bank Deposits in International Financial Centres", Hacienda Pública Española/Review of Public Economics 239-4, 27-69; Annette Alstadsæter, Elisa Casi, Jakob Miethe, and Barbara Stage (2023), "Lost in Information: National Implementation of Global Tax Agreements." Skatteforsk - Centre for Tax Research Working Paper No. 10.

But because the incentives for these regulators are weak (there is no tax revenue gain at stake for them), this monitoring may also be weak. Non-compliance penalties for financial institutions failing to implement the CRS (and for account holders failing to disclose assets) vary considerably between countries, ranging from $762 to $2.5 billion, and not all countries impose criminal prosecution.[25] If penalties are limited, offshore banks may have particularly limited incentives to investigate the more opaque structures, for which due compliance costs are high, making it possible for sophisticated evasion through such opaque structures to persist.

In what follows we attempt to quantify the size of offshore non-compliance by providing a reconciliation of the available evidence to date. We stress that the evidence remains limited; the results should thus be seen as merely tentative and provisory. For this reason, we provide a number of scenarios to give a sense of the uncertainty involved.

2.2. What fraction of offshore wealth remains non-compliant?

Our starting point is that according to the OECD, $12 trillion in offshore wealth was reported through the Common Reporting Standard in 2021. Strikingly, this number is equal to the amount of offshore financial wealth we estimate was held by residents of CRS-participating countries at the end of 2021. As reported in the Atlas of the Offshore World, global household offshore financial wealth amounted to $13.7 trillion at the end of 2021, of which $1.7 trillion was owned by US residents who are not covered by the CRS. Hence about $12 trillion of wealth was owned by residents of CRS-participating countries.

This coincidence is a bit of a miracle. The methodology and data underlying each estimate are indeed completely different: on one hand the Zucman methodology described above (combined with BIS statistics on the ownership of bank deposits in offshore financial centers); on the other hand, direct information communicated by the world's offshore financial institutions to foreign tax authorities.

From this similarity one may be tempted to conclude that 100% of the offshore wealth of CRS-participating countries is covered by the CRS and that offshore tax evasion has disappeared. Two main issues make the reality a bit more complicated. First, OECD numbers on the wealth covered by the CRS are too big: they include assets that are not household offshore wealth. Second and vice versa, there is evidence that not all the household wealth that should be captured by the CRS is properly captured by this system.

To quantify these two points, we rely on an ongoing research collaboration with the Danish tax administration. In the context of this partnership, researchers were able to access the CRS micro-data received by Denmark, matched to population-wide individual and firm administrative micro-data, including income tax returns, administrative data on wealth, and individual cross-border bank transfer data.[26] This is, to date, the most detailed investigation of CRS micro-data ever conducted. Although the research is still in progress and the results should be seen as provisory and subject to revision, a number of patterns already emerge.

First, the systematic matching of CRS returns to administrative data shows that the CRS has a very wide net – probably too wide. The total value of the offshore wealth of Danish residents reported to Danish authorities through the CRS amounted to the equivalent of about 15% of Danish GDP

[25]See Petr Janský, Miroslav Palanský, and Dariusz Wójcik (2023), "Shallow and Uneven Progress towards Global Financial Transparency: Evidence from the Financial Secrecy Index", Geoforum 141(103728); Elisa Casi, Christoph Spengel, and Barbara M. Stage (2020), "Cross-border tax evasion after the common reporting standard: Game over?" op. cit.

[26]Hjalte F. Boas, Niels Johannesen, Claus T. Kreiner, Lauge Larsen, and Gabriel Zucman (2023), "Taxing Capital in a Globalized World: The Effects of Automatic Information Exchange", EU Tax Observatory working paper.

in 2018. Out of this, 4% to 5% of GDP belonged to households, either directly or through personal wealth-holding companies. The equivalent of nearly 5% of GDP belonged to firms other than wealth-holding companies, including Danish publicly listed corporations, investments funds, banks, insurance companies, etc. The rest, for the most part, could not be matched with a high enough degree of certainty to any specific Danish owner.

The offshore wealth of firms (other than personal wealth-holding companies) is not household offshore wealth in our definition. It does not create anomalies in international investment statistics (because listed companies, investment funds, etc. directly report on their offshore assets to Danish statistical authorities: these assets are not "missing" from Denmark's international investment position). This wealth is also typically not conducive of personal tax evasion. It is not even clear that it is reportable according to CRS regulations (e.g., accounts of listed companies are not supposed to be reported). Because the CRS is still in its infancy, some foreign banks may report accounts that are out of scope. Whatever the reason, the Danish case suggests that if one is interested in the amount of household offshore wealth, one needs to discount CRS-reported account values by at least 30%. Of course, Denmark is only one country, and in other countries this excess-reporting may be larger or smaller than 30%.

Second and vice-versa, there is evidence of imperfect compliance with the CRS. The clearest evidence comes from comparing bank transfer data and CRS data, two fully independent data sources. The researchers were able to track the cross-border bank transfers made by Danish households from a personal bank account in Denmark to a foreign bank account personally owned by these households. Consider Danish resident households who make a transfer to (or from) a given foreign account in years t and t + 1. These individuals clearly own a foreign bank account at the end of year t, which should generate a CRS report. Yet in about 30% of the cases, no CRS report was sent by the foreign country in year t. The compliance of offshore financial institutions that have Danish customers is imperfect.

Some of that non-compliance may be voluntary, perhaps due to the lack of incentives to truthfully cooperate. Some of that non-compliance may not be voluntary – the automatic exchange of bank information is a complex system which is still in its infancy. Foreign banks may not have the correct address of the account holders on file, for example. It is notable, however, that this non-compliance is not restricted to "small accounts". Once weighted by the value of the foreign accounts (imputed, when it is not observed, based on the value of the observed transfers, and the income and wealth of the individuals involved), there is still up to 30% of identified foreign wealth that appears to go unreported by foreign financial institutions.[27]

Based on these findings, we propose three estimates for the fraction of household offshore assets that go unrecorded today. In all scenarios, following the evidence from Denmark, we assume that 30% of global offshore wealth supposed to be captured by the CRS is not properly reported to the relevant tax authority. In the low-end scenario, we then assume that 50% of this non-reported wealth evades taxes, corresponding to the average non-compliance rate found for income not subject to third-party reporting (essentially self-employment income) in the economics literature on tax evasion. This would imply rates of non-compliance for offshore income broadly in line with average non-compliance across all forms of income.

In our central scenario, we assume that non-compliance on unreported foreign wealth is 90%, which is the level of non-compliance on offshore assets that used to prevail pre-CRS. This implies that 27% of offshore wealth goes untaxed: the offshore wealth that is reported through the CRS – 70% of global

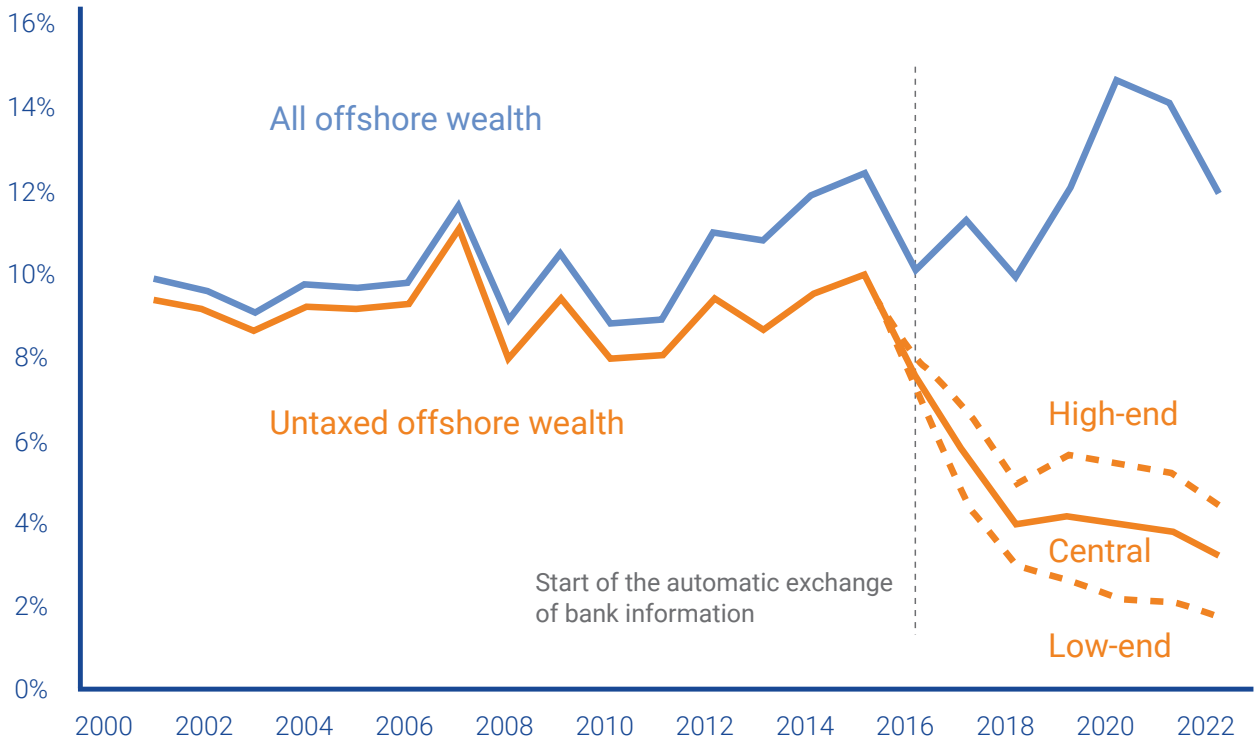
[27]One caveat is that this percentage can be sensitive to the procedure used to impute values for unreported offshore accounts. The 30% number we retain should be seen as provisional and subject to revision.»

household offshore wealth – is assumed to be fully taxed, but only 10% of the remaining 30% is assumed to be taxed. Importantly, in this central scenario we still assume (as in our low-end scenario) that all the offshore wealth that is reported through the CRS is fully compliant (0% evasion).

In fact, evidence from Denmark shows that not all wealth reported through the CRS is compliant. Some people fail to report the associated income flows.[28] This evasion is possible because CRS information is not used in a systematic manner to pre-populate income tax returns (in contrast to, e.g., wage and pension income). Therefore, in our high-end scenario, we assume that a portion of CRS-reported wealth is also non-compliant, but with a low non-compliance rate of 10%. In this scenario we also assume that all non-CRS reported wealth is non-compliant.

Figure 1.4. shows the results of these various scenarios. In all cases it is clear that offshore tax evasion has declined dramatically relative to the pre-automatic-exchange-of-bank-information era. It also appears that some non-compliance remains, although additional research is needed to further quantify its size.

Figure 1.4
Unreported offshore household financial wealth - 3 scenarios
(% of world GDP)



Notes: This figure reports the evolution of global household offshore wealth (expressed as fraction of world GDP), and three scenarios about the evolution of untaxed offshore wealth. In the low-end scenario, 15% of offshore wealth is untaxed in 2022, representing 1.8% of world GDP; in the central scenario 27% of offshore wealth is untaxed, representing 3.2% of world GDP; and in the high-end scenario 37% of offshore wealth is untaxed, representing 4.4% of world GDP. See text for the construction of the central, high-end and low-end scenario. Source: for global offshore wealth, Souleymane Faye, Sarah Godar, and Gabriel Zucman (2023), "Global Offshore Wealth 2001 – 2022", EU Tax Observatory working paper; for untaxed wealth: EU Tax Observatory computations.

[28]For complete details see Hjalte F. Boas, Niels Johannesen, Claus T. Kreiner, Lauge Larsen, and Gabriel Zucman (2023), "Taxing Capital in a Globalized World: The Effects of Automatic Information Exchange", op. cit.

Ongoing research focusing on specific offshore institutions using leaked data also suggests that the CRS may not capture as much wealth as intended. For example, research using data leaked from a bank in the Isle of Man suggests that up to 38% of the wealth held at this institution may not have ultimately been reported through the CRS, either due do voluntary or non-voluntary compliance, or due to design limitations of these systems (legal exemptions, exclusions, etc.).[29] This 38% number, however, is an upper bound, and wealth that escapes reporting is likely smaller than that. Additional research is needed in more countries.

2.3. Limits of the Common Reporting Standard

What could explain the less than full coverage of the CRS and the persistence of some offshore evasion? The literature notes several holes in the automatic exchange of bank information and provides indication of circumvention and non-compliance.

1) Non-compliance by banks: Banks may fail to disclose the beneficial owners of accounts they manage despite their legal obligation under the CRS. Whistleblowers revealed that Credit Suisse continued to help clients hold over $300 million in unreported offshore accounts secret, even after the bank's plea deal with the U.S. Department of Justice to disclose all accounts held by American citizens from 2014 onwards. The continued non-disclosure was done for example by not properly documenting U.S. citizenship of account holders with dual citizenship or by wiring undeclared funds to other banks without notifying the Department of Justice.[30]

2) Use of shell banks. Third-party reporting can be circumvented by using shell banks, i.e., private closely-held financial institutions. By turning companies into shell banks, asset owners can transform the third-party reporting obligation into a self-reporting obligation. In the United States, a legal case involving Robert Brockman alleges that this person managed to conceal $2.7 billion from the U.S. government, circumventing FATCA with the use of shell banks.[31]

3) Citizen-by-investment programs: Under the CRS, information is exchanged with the countries of residence of the account holders. Residence- or citizenship-by-investment programs may be used to circumvent these requirements. This is problematic if the country offering the residence or citizenship has chosen to send, but not to receive, information under the CRS. Recent research provides evidence suggesting wealthy tax evaders avoid international tax transparency measures by making use of citizenship-by-investment programs.[32]

4) Reporting thresholds. Under the CRS, jurisdictions are allowed to implement a $250,000 reporting threshold below which financial institutions are not required to report pre-existing accounts, should they elect to do so. Further, the reporting threshold for beneficial ownership may be set at 25%. Account

[29] Jeanne Bomare and Matthew Collin (2023), "When Bankers become Informants: Behavioral Responses to Automatic Exchange of Information", work in progress. The 38% upper bound is driven by the observation that much of the wealth held offshore is held by what the CRS classifies as "Investment Entities," for whom their managing entities (or the entities themselves) are largely responsible for their own reporting, rather than the bank.

[30] U.S. Senate Finance Committee (2023), "Credit Suisse's role in U.S. tax evasion schemes, A Democratic Staff Investigation", March 29, 2023.

[31] See Noel Noked and Zachary Marcone (2023), "Closing the 'Shell Bank' Loophole," Virginia Journal of International Law 64(1); Elisa Casi-Eberhard, Mohammed Mardan and Rohit Reddy Muddasani, "So close and yet so far: The ability of mandatory disclosure rules to crack down on offshore tax evasion". WIDER Working Paper 2022/116.

[32] See Andreas Knobel, and Frederik Heitmüller (2018), "Citizenship and Residency by Investment Schemes: Potential to Avoid the Common Reporting Standard for Automatic Exchange of Information", available at SSRN: https://ssrn.com/abstract=3144444; Dominika Langenmayr, and Lennard Zyska (2023): "Escaping the exchange of information: Tax evasion via citizenship-by-investment", Journal of Public Economics, Volume 221.

holders may fall below the threshold if they dilute interest between several related individuals. The leak of documents known as the Rotenberg files shows an example of Russian oligarchs doing so.[32] If accounts are emptied before the end of the year, banks will report zero deposits to the tax authorities as the reference date is 31st of December.[33]

5) Potential loopholes in reporting requirements. In the CRS, banks are only required to report on active non-financial entities – companies or trusts that earn most of their income through trading activities – when they are domiciled in a CRS-reportable jurisdiction. Accounts owned by active firms registered in the same jurisdiction as the bank itself are thus normally exempt from reporting. The decision to classify a firm as active versus passive is at the discretion of bank staff, based on the best information they have at hand. This leaves room for active businesses in CRS countries to open subsidiaries in tax havens to avoid reporting, or for passive businesses to pose as active businesses.

6) The United States does not participate in the CRS. The United States is, of course, a major financial center. A tax amnesty in Argentina provides insight into the importance of the United States as a destination for offshore wealth. In 2016 Argentinians self-declared offshore assets equivalent to 21% of Argentina's GDP; 30% of disclosed foreign stocks and 45% of disclosed foreign bank deposits were held in the United States.[35]Although these assets are supposed to be covered by FATCA, FATCA is to some extent less strict than the CRS (because of less strict rules regarding the identification of beneficial owners), leaving scope for potential non-compliance. Recent research suggests that some tax-haven deposits moved to the United States following the CRS.[36] Much more research is needed, however, to quantify the size of offshore non-compliance that may take place through US financial institutions.

7) Lack of administrative capacity. The effectiveness of the CRS depends on the quality of data exchanged and the ability of tax authorities to process the large amounts of data received. It is crucial that what is reported has the correct and mergeable spelling of account holder names, correct format for national specific ID, and avoid double or incomplete observations. The average automatic matching rate of information received increased from 63% in 2019 to 70% in 2021. When adding the work done to match observations manually, the total average matching rate was 81% in 2021.[37] However, this masks substantial heterogeneity. The CRS matching rate is 90% in Norway, where the tax administration is highly digitized and the e-filing rate among taxpayers is close to 99% in 2022.[38]

8) Challenges with including developing countries in the CRS. The extensive legal, data protection, and digital requirements can hinder developing countries with limited resources from participating in the CRS. The principle of reciprocity is a further barrier for countries with limited administrative capacities.

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[33]See https://www.occrp.org/en/rotenberg-files/

[34]See Sebastian Beer, Maria D. Coleho, and Sebastian Leduc (2019), "Hidden treasures: The impact of automatic exchange of information on cross-border tax evasion", op. cit; Noam Noked (2018), "FATCA, CRS, and the Wrong Choice of Who to Regulate" Florida Tax Review 22(1), 77-119.

[35]See Juliana Londoño-Vélez, and Dario Tortarolo (2022), "Revealing 21% of GDP in Hidden Assets: Evidence from Argentina's Tax Amnesties", op cit.

[36]See Casi, E., C. Spengel, and B. M. Stage (2020). "Cross-border tax evasion after the common reporting standard: Game over?", op. cit.

[37]See OECD Global Forum annual Report (2022): Raising the Bar on Tax Transparency. https://www.oecd.org/tax/transparency/documents/global-forum-annual-report-2022.pdf

[38]See Annette Alstadsæter, Elisa Casi, Jakob Miethe, and Barbara Stage (2023): "Lost in Information: National Implementation of Global Tax Agreements", op. cit

3 The growing importance of offshore real estate

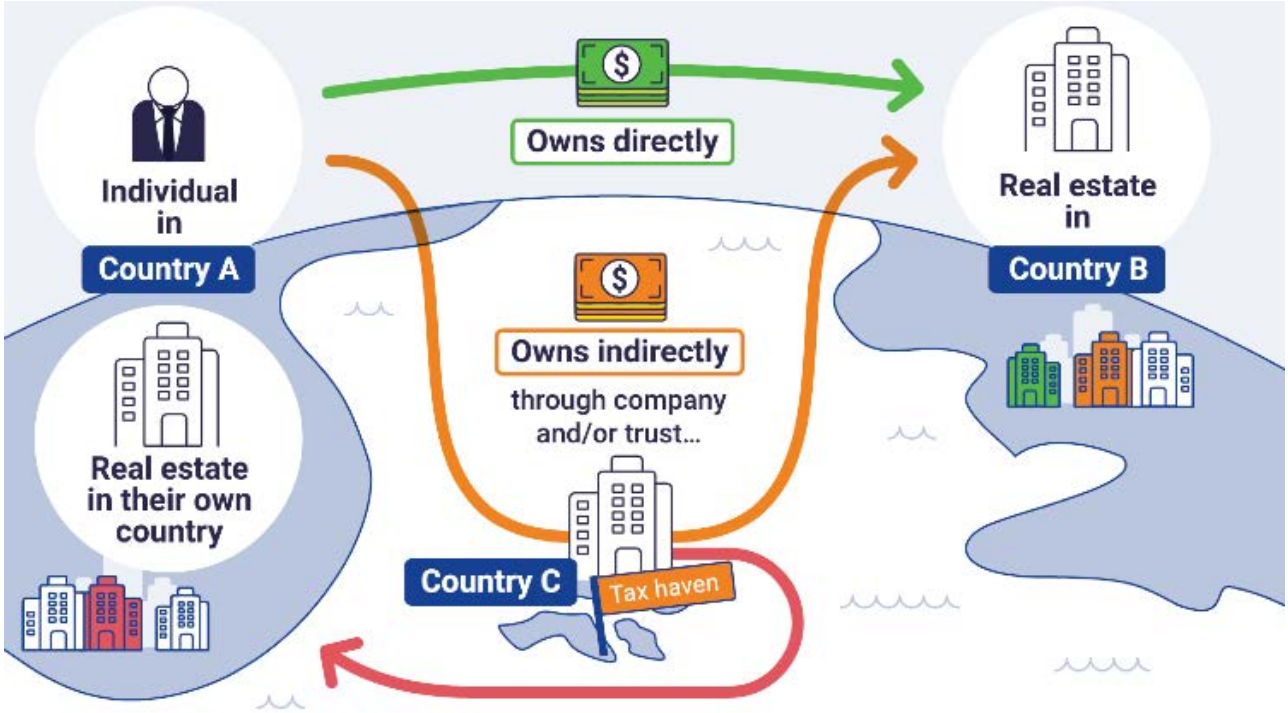
In addition to imperfect compliance, the second main limitation of the current system of automatic information exchange involves the shift towards assets not covered by this system. The CRS and FATCA only cover financial assets, giving tax evaders incentives to invest in real assets, such as real estate and works of art held in "freeports."

Real estate is a particularly serious blind spot in international information exchange. Just like financial assets, there are many legitimate reasons for holding real estate abroad, but there are also concerns that offshore real estate, in some cases, may be used for money laundering, tax evasion, escaping international sanctions, or other financial crimes.[39] The attractiveness of real estate as an asset class lies in its relatively stable value over time, the possibility to manipulate prices, and possibilities for anonymous ownership in countries with weak property registers.

In the Atlas of the Offshore World and in this report, we define offshore real estate as real estate that is owned by individuals or entities abroad. The more complex ownership structures, such as indirect ownership through corporations or trusts, the more challenging it is to identify who the ultimate owner is. Properties that may appear to be owned by foreigners may in fact be beneficially owned by residents, as illustrated in Figure 1.5 – those are included in our measure of offshore real estate. Recent evidence shows that UK residents constitute the ultimate owners of at least 15% of residential properties in a subsample of properties owned through offshore companies, showcasing the role of cross-country ownership structures as hinders for transparency in real ownership structures.[40]

Offshore ownership of real estate is large, but the full global extent is still unknown. New evidence documents

Figure 1.5
What is offshore real estate?



Notes: This figure defines "offshore real estate" as it is used in the Atlas of the Offshore World, https://atlas-offshore-world.org.

[39]See Matthew Collin, Florian M. Hollenbach, and David Szakonyi (2022): "The impact of beneficial ownership transparency on illicit purchases of U.S. property", Brookings Working Paper No. 170.

[40]See Niels Johannesen, Jakob Miethe, and Daniel Weishaar (2022), "Homes Incorporated: Offshore Ownership of Real Estate in the U.K", CESifo Working Paper No. 10159.

that in total close to $500 billion are owned by foreigners in six cities and areas worldwide (London, Paris, Singapore, Dubai, Cote d'Azur, and Oslo – which are those for which data is available at the moment).[41] This is equivalent to more than 10% of total real estate in these areas. The Atlas of the Offshore World provides a first attempt at systematically collecting evidence on the size and ownership of offshore real estate, with the goal of ultimately providing a global estimate. Recent research sheds light on substantial inflows of foreign real estate investments in major cities in the UK[42], France[43], Norway[44], or in offshore financial centers like Dubai.[45] Evidence from the UK documents a substantial offshore ownership share that constitutes 1.25% for residential properties and increases to 15% when zooming in on top-end properties.[46]

Recent work finds evidence of portfolio rebalancing after the introduction of the CRS, away from financial assets (covered by the CRS) towards real estate (not covered). In England and Wales, there is an apparent response to the introduction of automatic exchange of financial asset ownership, through an increase in real estate ownership from tax havens post-CRS. Back-of-the-enveloped calculations suggest that around a quarter of financial assets re-directed from tax havens post-CRS may have been re-invested in real estate.[47] At the same time, increased transparency, or threat of such, seems to affect investment patterns in real estate. An announced crackdown on ownership obfuscation following the 2022 Russian invasion of Ukraine led to reduced inflow of tax haven owners into the UK Property market.[48]

A recent study uses unique leaked property data covering the full Dubai property market (more than 800,000 properties) to shed light on offshore real estate and the potential tax evasion involved.[49] Dubai is one of seven emirates in the United Arab Emirates (UAE) and a popular tourist and investor destination, with a property market boom, stable consumption prices and government, and no public ownership registers.[50] Foreign owned real-estate in Dubai is large in 2020, amounting $136 billion, which constitutes 27% of the value of total Dubai real estate. To give an order of magnitude, this is twice the amount estimated as foreign ownership in London through tax haven corporations (the main through which offshore real estate is owned in London). The Dubai data are unique in the sense that they give a detailed insight into the residency country (or nationality) of the foreign owners. One result is that Dubai is particularly attractive for neighboring countries. The geographical gravity effect is particularly clear when considering the value of offshore real estate in Dubai relative to the home country GDP, as displayed in Figure 1.6, where the darker blue represents higher ownership of Dubai real estate ownership relative to the GDP of the owners' home countries.

[41]Annette Alstadsæter, Matt Collin, Karan Mishra, Bluebery Planterose, Gabriel Zucman, and Andreas Økland (2023), "Towards an Atlas of Offshore Real Estate: Estimates for Selected Areas and Cities", working paper.

[42]See Jeanne Bomare and Ségal Le Guern Herry (2022), "Avoiding Transparency through Offshore Real Estate: Evidence from the UK" Sciences Po working paper; Niels Johannesen, Jakob Miethe, and Daniel Weishaar (2022), "Homes Incorporated: Offshore Ownership of Real Estate in the U.K.", op. cit; Matthew Collin, Florian M. Hollenbach, and David Szakonyi (2023), "The end of Londongrad? The impact of beneficial ownership transparency on offshore investment in UK property." WIDER Working Paper 11/2023.

[43] Morel, Roxane and Julien Uri (2021): The increase in non-residents' real estate investments is driven by expatriates. Bulletin de la Banque de France 237/6.

[44]Annette Alstadsæter and Andreas Økland (2022), "Increasing Cross-Border Ownership of Real Estate: Evidence from Norway," EU Tax Observatory working paper No. 8.

[45]See Annette Alstadsæter, Bluebery Planterose, Gabriel Zucman, and Andreas Økland (2022), "Who Owns Offshore Real Estate? Evidence from Dubai". EU Tax Observatory working paper No. 1.

[46]See Niels Johannesen, Jakob Miethe, and Daniel Weishaar (2022) "Homes Incorporated: Offshore Ownership of Real Estate in the U.K.", op. cit.

[47]See Jeanne Bomare and Ségal Le Guern Herry (2022), "Avoiding Transparency through Offshore Real Estate: Evidence from the UK", op. cit.

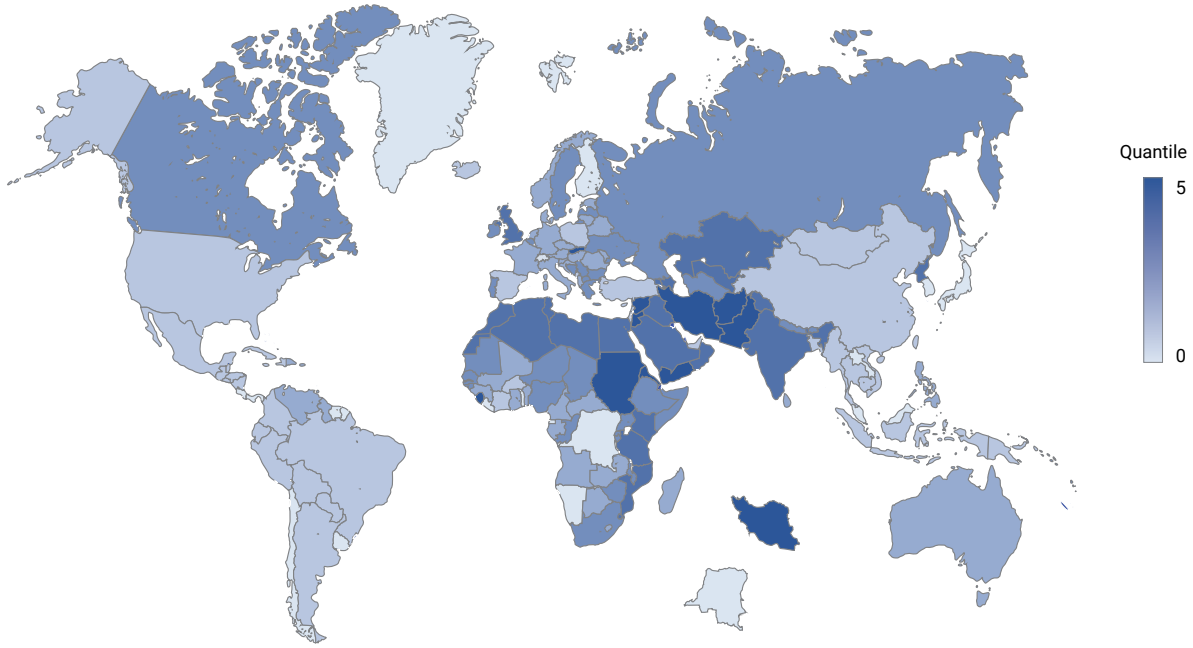
[48]See Matthew Collin, Florian M. Hollenbach, and David Szakonyi (2023), "The end of Londongrad? The impact of beneficial ownership transparency on offshore investment in UK property", op. cit.

[49]See Alstadsæter, Annette, Bluebery Planterose, Gabriel Zucman, and Andreas Økland (2022): Who Owns Offshore Real Estate? Evidence from Dubai. EU Tax Observatory working paper No. 1.

[50]There is a large foreign labor force in Dubai and a vibrant rental market, enabling a steady cash flow from any residential investments. UAE does hardly grant foreigners citizenship, but it is possible to acquire visa/residency by investing a given amount. UAE is part of the CRS and would by many standards thus not be characterized as a tax haven, but it is also a popular hub for foreign property investors, and the secrecy of ownership can be appealing. UAE also lacks formal extradition agreement with many countries, making it a safe haven for those wanting to avoid home country law enforcement.

Figure 1.6

Dubai real estate wealth/ GDP



Notes: This map ranks countries by the the value of properties held in Dubai relative to the investing country's GDP. The value 5 cover the top 10 countries, which includes countries that own properties in Dubai worth 2.6 percent to 10.3 percent of GDP. Values 1 to 4 are quartiles of the 149 non-zero values. The top quartile (excluding the top 10 countries) ranges from 0.3 percent to 2.3 percent of GDP, quartile 3 ranges from 0.1 percent to 0.3 percent of GDP, quartile 2 ranges from 0.03 percent to 0.1 percent of GDP, and quartile 1 ranges from 0 to 0.03 percent GDP. The value 0 indicate zero ownership or that the country is a tax haven or has a citizen-by-investment scheme. Source: Annette Alstadsæter, Bluebery Planterose, Gabriel Zucman, and Andreas Økland (2022), "Who Owns Offshore Real Estate? Evidence from Dubai", EU Tax Observatory working paper #1; data available on the Atlas of the Offshore World, https://atlas-offshore-world.org.

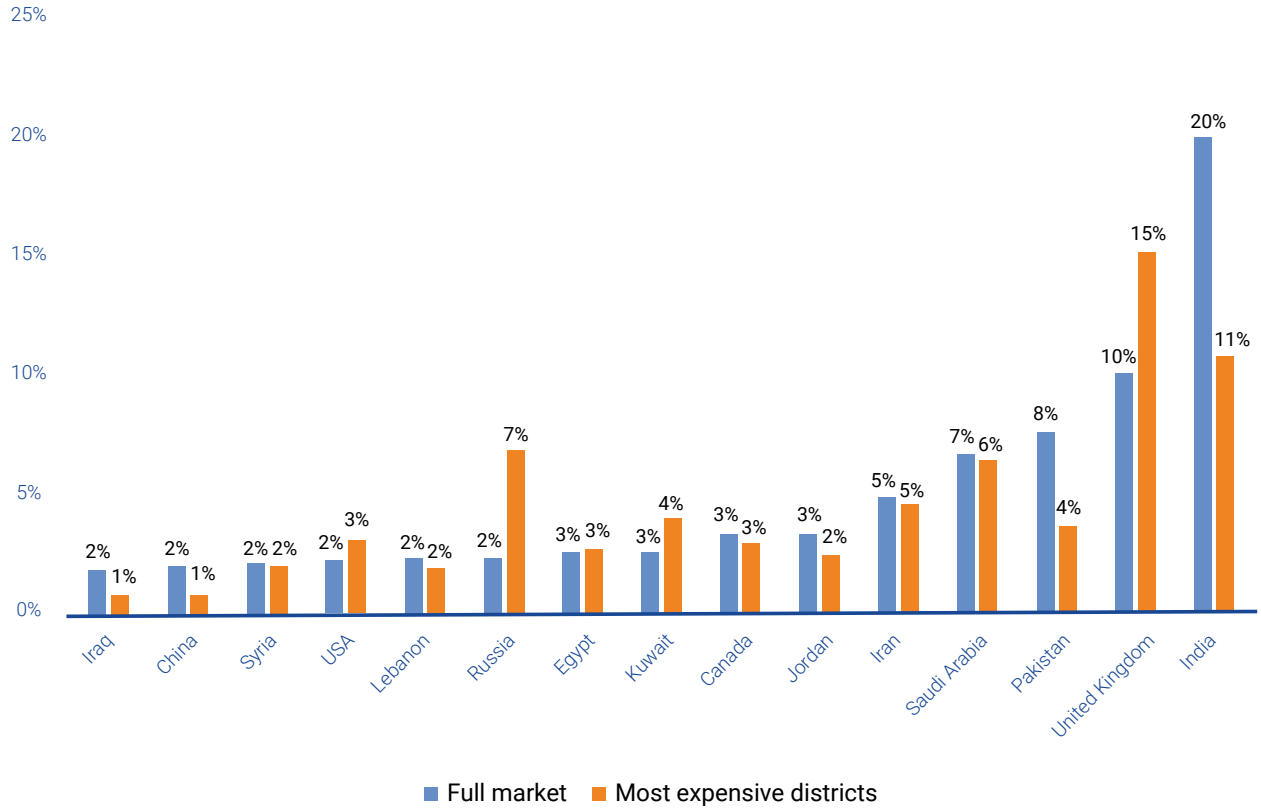
As shown in Figure 1.7, the largest group of owners when considering the full Dubai property market are Indian nationals, which own about 20% of the value of foreign-owned properties in Dubai. This is perhaps not very surprising given that Indians also constitute a dominant share of foreign workers: 41% of immigrants in Dubai are Indians. Next comes the UK, with 10% of the total. Other large investing countries include Pakistan, Gulf-countries, Iran, Canada, Russia, and the United States. In addition to proximity, historical ties seem to matter a great deal.

Russian and UK owners are more prominent in the more expensive neighborhoods of Dubai. When zooming in on the more expensive real estate areas in Dubai, and as shown by the orange bars in Figure 1.7, Indian ownership declines and the Russian and UK ownership increases.

Figure 1.7

Who owns real estate in Dubai?

(Share of foreign-owned real estate by the main investing countries, 2020)



Notes: This figure reports the ownership share of offshore real estate in Dubai by the top 20 investing countries in the most affluent areas of Dubai vs. in Dubai overall. Source: Annette Alstadsæter, Bluebery Planterose, Gabriel Zucman, and Andreas Økland (2022), "Who Owns Offshore Real Estate? Evidence from Dubai", EU Tax Observatory working paper #1.

Do these offshore holdings evade taxation? It is typically legal to own foreign assets, including real estate abroad. The tax law of most countries simply requires people to report these holdings and to pay taxes if income is earned from these assets, or if there is a wealth tax. Annette Alstadsæter and co-authors looked at the case of Norway, a country that has a wealth tax. They were able to match Norwegian taxpayers who own real estate in Dubai to their wealth tax returns, so they could check whether they had properly reported their Dubai holdings. The patterns are revealing. There are 371 Norwegian nationals in the data who own real estate in Dubai, of whom 227 are tax residents in Norway. The researchers found that only 66 (about a quarter) duly reported their Dubai properties on their wealth tax returns. In other words, in about three-quarters of the cases, tax evasion was involved.

To be sure, as one can see from the list of countries with the largest holdings in Dubai, there are obviously many non-tax reasons for owning properties there (and for owning cross-border real estate more generally). But this form of wealth may also increasingly be used to hide wealth and escape taxation – think of Dubai properties as the new Swiss bank accounts. The most direct way to address this concern would be for countries to exchange information on the ownership of real estate, just like they do for financial assets. This would work best if combined with improved reporting on the ownership of shell companies, which are often used as nominal owners for luxury real estate. We discuss options along those lines in chapter 5.

CHAPTER 2: TRENDS IN GLOBAL CORPORATE PROFIT SHIFTING

A new body of evidence shows that multinational companies shift a large amount of profits to tax havens. Until recently, quantifying the scale of this profit shifting was difficult due to the opacity surrounding the activities of multinational companies. Firms were generally not required to disclose their profits on a country-by-country basis – not even to tax authorities, let alone to the public. In recent years, new data sources have allowed researchers to shed light on profit shifting to havens. These sources include public statistics known as foreign affiliates statistics, and new data disclosed by companies to tax authorities (and sometimes publicly) known as country-by-country reports.

These data show that about 35% of foreign profits were shifted to tax havens in 2022. Foreign profits are the profits made by multinational companies outside of their headquarter country – they include, for instance, the profits booked by Apple outside of the United States, by BMW outside of Germany, and by Toyota outside of Japan. In 2022, according to the best available estimates, profits shifted to tax havens totalled $1 trillion globally. The corporate tax revenue losses caused by this shifting are significant, the equivalent of nearly 10% of corporate tax revenues collected globally.

Despite ambitious policy initiatives, profit shifting shows little sign of abating. In 2015, the OECD launched the Base Erosion and Profit Shifting (BEPS) process to curb tax avoidance possibilities stemming from mismatches between different countries' tax systems. In 2017, the United States introduced measures to reduce profit shifting by US multinational companies (while cutting its corporate tax rate from 35 to 21 percent and). Yet, 7 years after the start of the BEPS process and 5 years after the Tax Cuts and Jobs Act in the United States, global profit shifting appears to have changed only marginally. The fraction of foreign profits shifted to tax havens has remained constant over this period, around 35%. This is not to say that the policy initiatives of the last decade have had no effect: absent these policies, profit shifting may have been even higher today.

In 2021, more than 140 countries and territories agreed to implement a minimum tax of 15% on multinational profits. This is a landmark development: it is the first time that an international agreement puts a floor to how low certain taxes on profits can go. The original BEPS process tried to regulate the definition of the tax base, to address inconsistencies in the definition of profits across countries, to improve the allocation of profits internationally – but it was silent about tax rates, the key aspect of tax policy. The 15% global minimum tax – known as Pillar 2 of the OECD Two-Pillar solution to profit shifting – is a departure from this earlier approach. It is a milestone in the regulation of globalization.

The global minimum tax will reduce profit shifting to very-low tax territories where little production occurs. For decades, multinational companies have been able to book profits in places such as Bermuda, the Cayman Islands, or the British Virgin Islands, where the corporate tax rate is zero. This profit shifting can be described as tax evasion because it violates economic substance rules: the structures created in these havens – where there is no or negligible production – were generally only or primarily created with the purpose of avoiding taxation. The global minimum tax, if it ends up being implemented broadly, will reduce this evasion.

But the global minimum tax is also wholly insufficient because it preserves – and in fact strengthens – international tax competition. Sometimes presented as a way to "stop the race-to-the-bottom with corporate tax rates," the global minimum tax will allow firms to keep effective tax rates below 15% as long as they have sufficient real activity in low-tax countries. For example, if a company has sufficient capital in Ireland, employs

sufficiently many workers there, and Ireland offers effective tax rates of 6%, then the firm may remain taxed at 6% in Ireland. In principle, any rate will be possible. This exemption – a carve-out for economic substance – provides incentives for multinational companies to move production to very low-tax countries.

This carve-out for substance is part of a growing list of loopholes that have been gradually added to the agreement since 2021, dramatically weakening it. The end result of these loopholes is that the global minimum tax, as things stand, would generate, at least in the short term, about only a fraction of the tax revenue that could be expected from it based on the principles laid out in 2021: less than 5% of global corporate income tax revenue as opposed to 9% with a comprehensive 15% minimum tax rate (and 16% with a 20% minimum tax rate).. These loopholes, which were not discussed broadly or transparently, illustrate the pitfalls of the current approach to regulating international taxation, characterized by a lack of democratic deliberation and the outsized influence of the economic actors who benefit the most from low tax rates on capital.

1 $1 trillion in profits booked in tax havens

1.1. The level of profit shifting to tax havens

Profit shifting to tax havens is the process through which multinational companies book profits in relatively low-tax countries, above and beyond what can be explained by their real activity in these countries.

How do multinational companies do this?[51] They can first manipulate intra-group export and import prices – what are known as transfer prices. For instance, a subsidiary located in a high-tax country can purchase services (for instance management advice or financial services) to a related party in a low-tax country at an artificially high price. This shifts income away from the high-tax to the low-tax country. Second, multinationals can use intra-group lending and borrowing, with affiliates in high-tax countries borrowing money from related parties in low-tax countries. Last, companies can strategically locate intangible assets – such as trademarks, intellectual property, and logos – in tax havens, and charge subsidiaries in high-tax countries for the right to use these assets. The corresponding royalty payments reduce income in high-tax countries and increase it in tax havens.

Absent direct data on the amount of profit booked in tax havens, until recently researchers had to use indirect methods to estimate the scale of profit shifting. But over the last 15 years, many countries have been compiling new economic data known as foreign affiliates statistics that capture the activities of multinational companies. These statistics are based on confidential, quasi-exhaustive census-type surveys of multinational firms. Although the firm-level data are typically kept confidential, tabulations of these surveys are made publicly available by national statistical agencies, the OECD, and Eurostat. The strength of these data is that firms report directly to the statistical authorities on the amount of profit they book in tax havens. Thomas Tørsløv, Ludvig Wier, and Gabriel Zucman developed a methodology that combines these data with balance of payments statistics to estimate the size of profit shifting and its revenue costs for governments around the world.[52]

Their methodology relies on a simple idea. When multinational companies shift profits to tax havens, this inflates the recorded profitability of subsidiaries incorporated in tax havens. This excess profitability can then be used to infer how much profit is shifted into each haven. More precisely, by combining

[51]For a more detailed exposition, see, e.g., Gabriel Zucman (2014), "Taxing Across Borders: Tracking Personal Wealth and Corporate Profits", *Journal of Economic Perspectives*, 28(4), p. 121-148.

[52]Thomas Tørslov, Ludvig Wier, and Gabriel Zucman (2023), "The Missing Profits of Nations", *Review of Economic Studies*, 90(3), p. 1499-1534.

foreign affiliates statistics with national accounts data, Tørsløv, Wier and Zucman compute the recorded profitability of foreign firms in each tax haven and compare it the profitability of local firms in these havens.

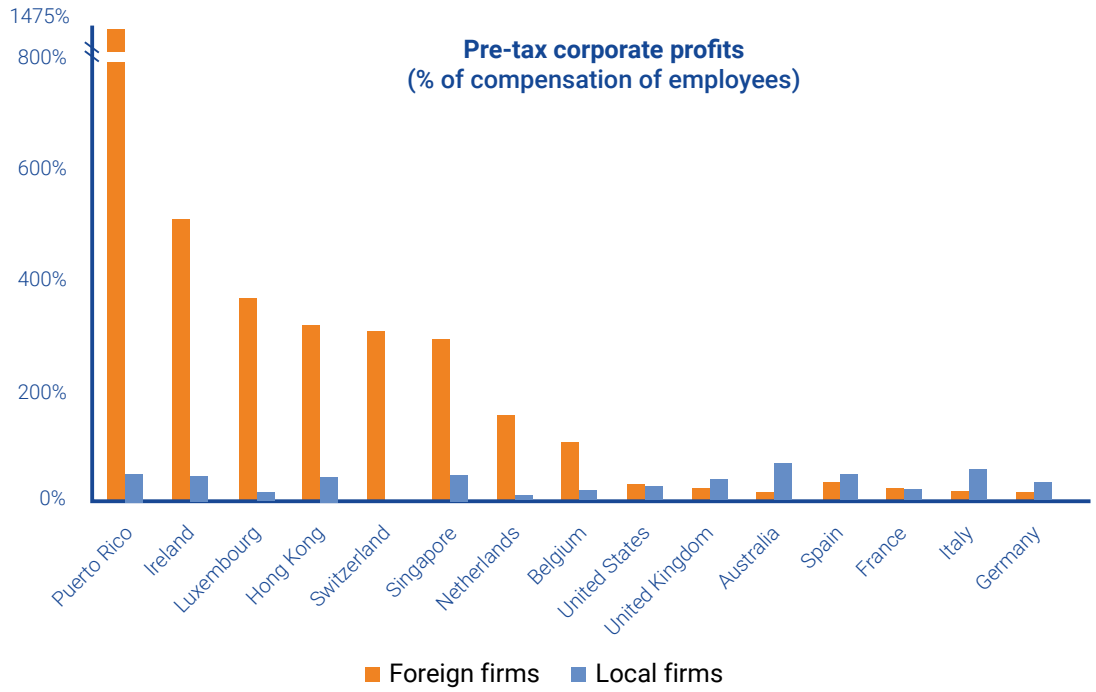
Figure 2.1 shows the result of this profitability comparison in 2019 (thus abstracting from the effects of the Covid-19 pandemic). Profitability is measured as the ratio of recorded pre-tax profits to wages paid; the literature has found similar results (in specific countries) using other measures such as the ratio of profits to assets.[53]

The results are spectacular. In tax havens, foreign firms are an order of magnitude more profitable than local firms. In Puerto Rico for example – which is distinct from the United States for tax purposes – for any dollar of wage paid, foreign firms (essentially US multinationals) record on average nearly $15 in profit. In Ireland, for any euro of wage paid, foreign firms record nearly €6 in profits on average. By contrast, for local firms in these havens (meaning firms that are not part of a foreign multinational group), the ratio of profits to wages is dramatically lower, around 0.5.

In tax havens (on the left-hand side of the graph), the profit-to-wage ratio is vastly superior in foreign firms than in local firms. By contrast in relatively high-tax countries (on the right-hand side of the graph), foreign profits are less profitable than local firms. This lower profitability in part also reflects the consequences of profit shifting: the profits that are recorded in tax havens are shifted out of high-tax places, depressing the recorded profitability of foreign firms in these countries. To take a concrete example, Microsoft may appear relatively unprofitable in Germany because it is abnormally profitable in Ireland.

Figure 2.1

The excess profitability of foreign firms in tax havens



Notes: This figure shows the ratio of pre-tax profits to compensation of employees for local firms and foreign firms in eight large tax havens and seven large non-haven high-income countries in 2019. In tax havens, foreign firms are much more profitable than local firms, and vice-versa in high-tax countries. Sources: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper.

[53]See Katarzyna Bilicka (2019), "Comparing UK Tax Returns of Foreign Multinationals to Matched Domestic Firms", *American Economic Review*, 109(8), p. 2921-2953.

The amount of profit shifted into each haven can then be estimated by equating the profitability of foreign firms to the profitability of local firm within each haven. To be sure, this simple methodology is not perfect: even absent profit shifting, one may expect some differences in profitability between foreign and local firms within tax havens (e.g., if foreign and local firms operate in different sectors, differ in size, etc.). But this methodology also has a number of advantages.

First, it is transparent: it is easy to assess how changing assumptions (e.g., allowing foreign haven firms to be structurally more or less profitable than local haven firms even absent profit shifting) affects the results. Tørsløv, Wier and Zucman provide a systematic analysis and quantification along those lines.[54] Second, it is quite robust. The profitability differential is little changed when controlling for sector, or when relaxing the key assumptions made for benchmark estimates (for instance the assumption that the profitability of local haven firms is not affected by profit shifting). This is not very surprising, given the enormous profitability difference between foreign and local firms in tax havens (Figure 2.1). Third, the results obtained from this methodology are consistent with other approaches that rely on other data. In particular, they imply a revenue cost for global profit shifting in line with the one estimated by the OECD, using different data sources and methodologies (see below our discussion of the revenue potential of the global minimum tax).

In the Atlas of the Offshore World, we present annual estimates of global profit shifting using the Tørsløv, Wier, and Zucman methodology applied to more recent years.[55] Because some of the raw input data needed to produce these estimates are only available with a lag of 2 years, it is not possible to have fully comprehensive and granular estimates of profit shifting after 2020 at the time of publication. However, one can obtain reasonably reliable projections for the size of global profit shifting through to the end of 2022 using high-frequency data for US multinational companies. Because US multinationals account for about 40% of global profit shifting, and because US data are published on a quarterly basis, these data are highly informative about the contemporary trends in global profit shifting. In this report, we use this projection method to estimate the dynamic of global profit shifting up to 2022.[56]

Table 2.1 reports our estimate of the amount of profits shifted to tax havens in 2022 globally, and puts this estimate in the context of the global economy of 2022. Global corporate profits amounted to about $16 trillion (i.e., about 19% of global income). Out of this $16 trillion, about $2.8 trillion were foreign profits, meaning profits made by multinational companies outside of their headquarter country – this number include the profits booked by Apple outside of the United States, BMW outside of Germany, Toyota outside of Japan, etc. Out of these $2.8 trillion, about $1 trillion was shifted to tax havens, i.e., booked by multinational companies in low-tax countries above and beyond what can be explained by their presence in these havens.

[54]See Thomas Tørslov, Ludvig Wier, and Gabriel Zucman (2023), "The Missing Profits of Nations", op. cit, section 5.2.

[55]The update process and the main results are detailed in Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper. The original Tørsløv, Wier and Zucman estimates for 2015; in the Atlas of the Offshore World we report annual estimates covering the 2015–2020 period.

[56]Specifically, we assume that profit shifting by non-US multinationals has remained constant as a fraction of their foreign profits between 2020 and 2022 (with a fraction of foreign profits shifted equal to 31%), and project the evolution of profit shifting by US multinationals using the evolution of the geography of direct investment equity income earned by the United States as recorded in the US balance of payments; see Online Appendix.

Table 2.1
Global output, profits and profit shifting, 2022

	Billions of current US$	% of corporate profits
Global gross output (GDP)	101,002	
Depreciation	16,160	
Global net output (= global income)	84,842	
Corporate profits	16,120	100%
Foreign profits	2,828	18%
Of which: shifted to tax havens	996	6%
Local profits	13,292	82%
Corporate income taxes paid	2,763	17%

Notes: This table reports our estimates of global income, global profits, and global profits shifted to tax havens in 2022. Foreign profits include all the profits made by companies outside of their headquarter country; profits of local corporations equal all corporate profits minus foreign profits. Tax havens are the countries and territories listed as such in Tørsløv, Wier, Zucman (2023), op. cit. Source: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper.

There are several ways to assess the magnitude of this flow of shifted profits. The most direct way is to compare this $1 trillion flow to the $2.8 trillion in profits booked by firms outside of their headquarter country. By that metric, profit shifting is large: 35% of foreign profits were shifted to tax havens in 2022. One can also compare the $1 trillion to the total amount of profits made by all firms globally (including all purely domestic companies, with no subsidiary abroad – retailers, doctors' and lawyers' practices when these individuals operate as corporations, domestic manufacturers, etc.). By that metric, profit shifting is smaller, the equivalent of 6% of global profits. Both percentages are relevant. The fact that 35% of foreign profits are shifted to tax havens shows that multinational companies make extensive use of tax havens. The fact that 6% of global profits are shifted to tax havens highlights that most companies are not multinational companies, and as such have limited ability to move earnings to low-tax places. From a government revenue perspective, the taxation of these companies matters a great deal.

1.2. The geography of global profit shifting

Having quantified the scale of global profit shifting, we now turn to mapping where these shifted profits end up. As Figure 2.2 shows, profit shifting involves 13 main havens across Europe, the Americas, and Asia. Precisely attributing profits to specific countries is challenging, however, given the complexity of multinationals' tax avoidance strategies. These strategies often involve multiple havens across different jurisdictions, along with inconsistencies in how countries define and tax profits.[57] As such, the country-level estimates should be interpreted with care, particularly the 2020 data which reflects the atypical Covid-19 pandemic year.

Nonetheless, some key patterns emerge. First, the largest profit shifting destinations appear to be Ireland and the Netherlands, with over $140 billion shifted to each in recent years. In 2019, these two countries each accounted for approximately 15% of the total amount of profits shifted globally. Second, while there is some year-to-year fluctuation, the relative importance of the main havens has remained fairly persistent over time. The variation can reflect changes in profit shifting strategies and

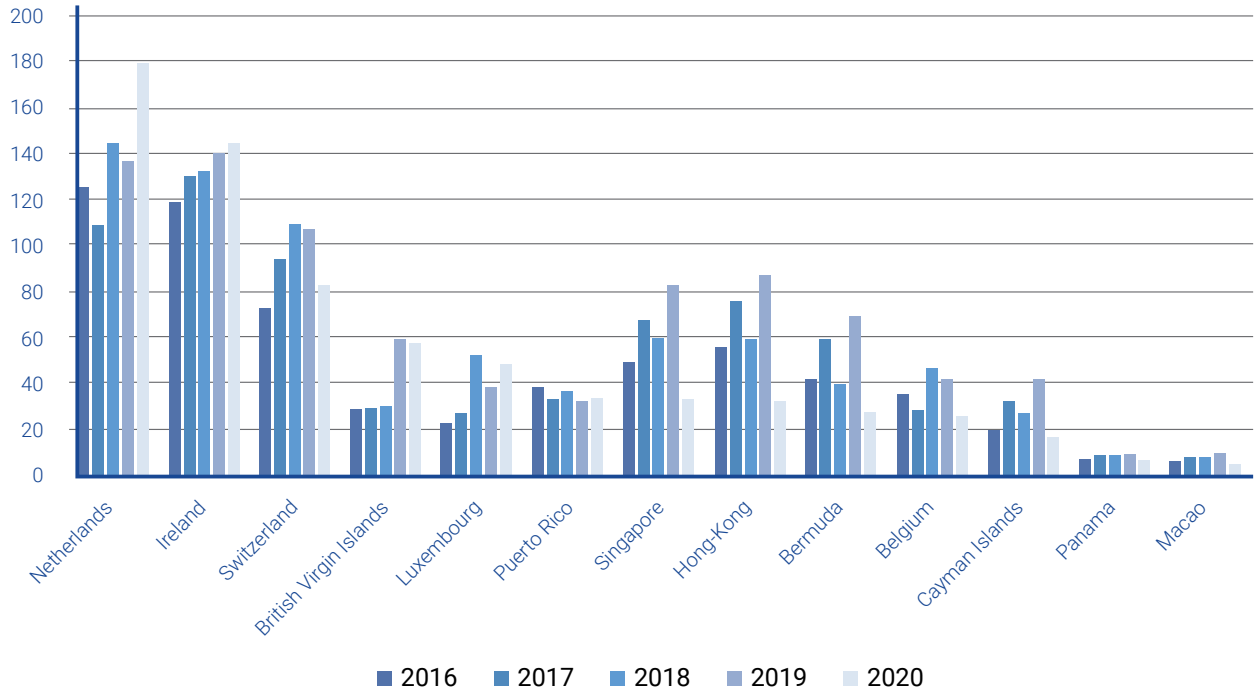
[57]On the complexity of multinationals' tax-avoiding strategies, see Manon François and Vincent Vicard (2023), "Tax Avoidance and the Complexity of Multinational Enterprises", EU Tax Observatory working paper #15.

one-off transactions affecting specific havens. Finally, the geography of profit shifting spans three key regions: Europe (Ireland, the Netherlands, Switzerland, Luxembourg, Belgium), the Americas (Puerto Rico, Panama, the British Virgin Islands, the Cayman Islands, Bermuda), and Asia (Singapore, Hong Kong, Macao).

Figure 2.2

Main profit shifting destinations, 2016 – 2020

(billions of current US$)



Notes: This figure reports the amount of profit shifted into the main tax havens annually over the 2016 – 2020 period. The amounts of shifted profits are expressed in billions of current US$. Source: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper. Data available on the Atlas of the Offshore World, https://atlas-offshore-world.org.

Which firms shift profits to tax havens? The recent literature emphasizes that US multinationals shift a particularly large fraction of their foreign profits relative to companies headquartered in other countries. According to our estimates US multinationals have shifted nearly half of their foreign profits in tax havens in recent years, as opposed to about 30% for non-US multinationals (leading to the global average of 35%).[58]

There are several possible explanations for this imbalance. First, there are sectoral differences: US multinationals operate more in certain industries, such as in digital industries, where profit shifting may be easier due to the outsized role of intangible capital (algorithms, patents, etc.). Second, US policymakers may have been historically more lenient in tolerating profit shifting by US multinational companies, perhaps because of the view that this shifting would ultimately enhance US tax collection. In contrast to most other countries, until 2018 the United States had a worldwide corporate income

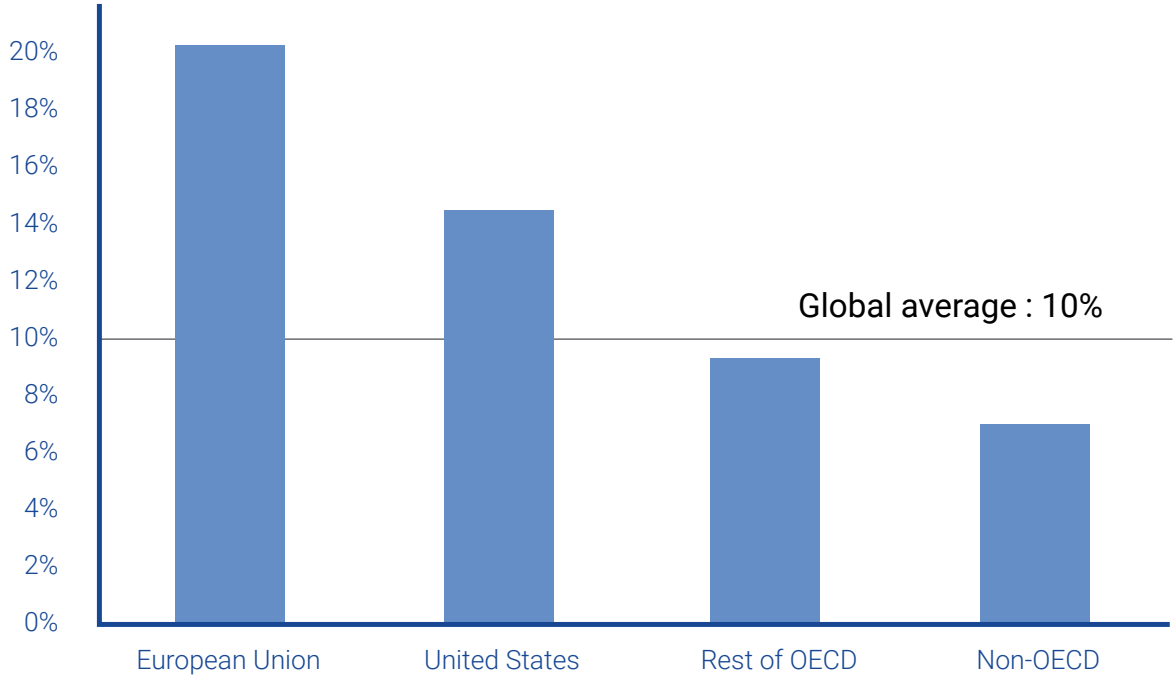
[58]Recent research using US administrative tax data suggests that even these estimates for US multinationals should be seen as conservative; see Navodhya Samarakoon (2022), "The Effect of the Closure of the Double Irish Arrangement on the Location of U.S. Multinational Companies' Profits", working paper.

tax system whereby the foreign profits of US multinationals were taxed in the United States upon repatriation, with tax credits to offset any tax paid abroad. Shifting profits away from foreign high-tax countries to foreign low-tax countries meant that more profits could possibly be ultimately taxed in the United States upon repatriation.[59]

Whatever the reason, curbing profit shifting by US multinational companies is key to reducing the global tax revenue caused by profit shifting. Unfortunately, as we shall see below, US multinationals are for the moment very imperfectly covered by the global minimum tax. Since the enactment of the Tax Cuts and Jobs Act at the end of 2017, they are subject to a minimum tax in the United States, but this tax is less strict than the global minimum tax.

The global revenue cost of global profit shifting is large. Figure 2.3 shows that the revenue loss adds up to about 10% of corporate tax revenue collected globally. The cost is particularly large for European Union countries. In a nutshell, a key qualitative pattern emerges from modern research. Multinationals from all countries shift profits from all over the world, but US multinationals appear to be shifting comparatively more profits, while high-tax EU countries appear to suffer comparatively large losses. This does not mean that profit shifting is not an issue for developing countries – the revenue loss faced by these countries is particularly costly in terms of welfare given the high governments revenue needs of low- and middle-income economies for spending on education, health, and infrastructure.

Figure 2.3
The cost of corporate profit shifting (2022)
(% of corporate tax revenue collected)



Notes: This figure reports estimates of corporate tax revenue losses caused by profit shifting to tax havens, expressed as a fraction of corporate tax revenue collected. Corporate tax revenue losses are obtained by applying the statutory corporate tax rate of each country to the amount of profit estimated to be shifted out of that country, using the methodology of Thomas Tørslov, Ludvig Wier, and Gabriel Zucman (2023), "The Missing Profits of Nations", Review of Economic Studies, 90(3), p. 1499-1534. Source: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper, updated to 2022 by the EU Tax Observatory. Data available on the Atlas of the Offshore World, https://atlas-offshore-world.org

[59]The classic reference in support of this view is James R. Hines and Eric M. Rice (1994) "Fiscal Paradise: Foreign Tax Havens and American Business", Quarterly Journal of Economics, 109(1), p. 149–182. For an assessment of this argument using more recent data, see, e.g., Thomas Wright and Gabriel Zucman (2018), "The Exorbitant Tax Privilege", NBER working paper #24983. With the benefit of hindsight, the main problem with this view is that in practice the bulk of haven profits were never repatriated and hence never subject to taxation in the United States.

1.3. New country-by-country data confirm the importance of tax havens

In recent years, another new data source has appeared with the potential to revolutionize our understanding of multinational companies and of their tax-saving strategies. Mandated as part of the OECD Base Erosion and Profit Shifting project, country-by-country reporting requires large multinational companies to provide tax authorities with comprehensive information on their global operations, including revenue, profits, taxes paid, and other key economic indicators, on a country-by-country basis. The EU Tax Observatory has been leading the use of these data for research purposes and to guide policymaking. It offers a dedicated data explorer to visualise aggregated country-by-country data,[60] as well as harmonized firm-level reports for companies that voluntarily publish their country-by-country reports.[61]

The creation of country-by-country reporting has opened new avenues for quantifying corporate tax avoidance[62]. This data source plays a crucial role in various efforts to estimate the effects of the 15% minimum tax agreed on by more than 140 countries and territories in 2021, as we describe below. At this stage the main limitation of these data is that they are published with a long lag. As of the summer of 2023, the data disseminated by the OECD ended in 2018. Moreover, prior to 2020, some of the profits of multinational companies were double-counted due to insufficiently clear statistical guidance on how to record intra-company dividends.

Once corrected and harmonized to remove double-counting, country-by-country data generally paint a similar picture as foreign affiliates statistics[63]. Globally, about 35% of foreign profits appear shifted to tax havens. The amount of profit booked by US multinationals in tax havens appears particularly large (of the order of 50%), consistent with the patterns described above. As in foreign affiliates statistics, a number of territories emerge as having abnormally high profitability, here measured as reported profits per employee. In the British Virgin Islands, multinationals report $18 million in profit per employee (Figure 2.4, panel A). Unsurprisingly, these jurisdictions are also those that tend to offer zero or nearly zero effective corporate tax rates (Figure 2.4, panel B).

Improvements of country-by-country statistics are necessary and should be a priority for policymakers in this area. Several measures can be considered. First, the data need to be published in a timelier manner. Second, greater international coordination is necessary to harmonize reporting requirements across jurisdictions. This would ensure consistency and comparability of the data, enabling more robust cross-country analyses. Third, efforts should be made to enhance the granularity of the data, providing more detailed information on multinationals activities and transactions. This would enable a deeper understanding of profit shifting practices.

1.4. Company-level country-by-country reports: unlocking granular insights

Although firm-level country-by-country reports are generally not publicly available, there are two main exceptions. First, in the European Union, banks have been required to publish their country-by-country reports since 2014. Second, some companies in other sectors voluntarily publish country-by-country

[60]https://www.taxobservatory.eu/repository/the-cbcr-explorer

[61]https://taxobservatory.shinyapps.io/company_cbcr_data/

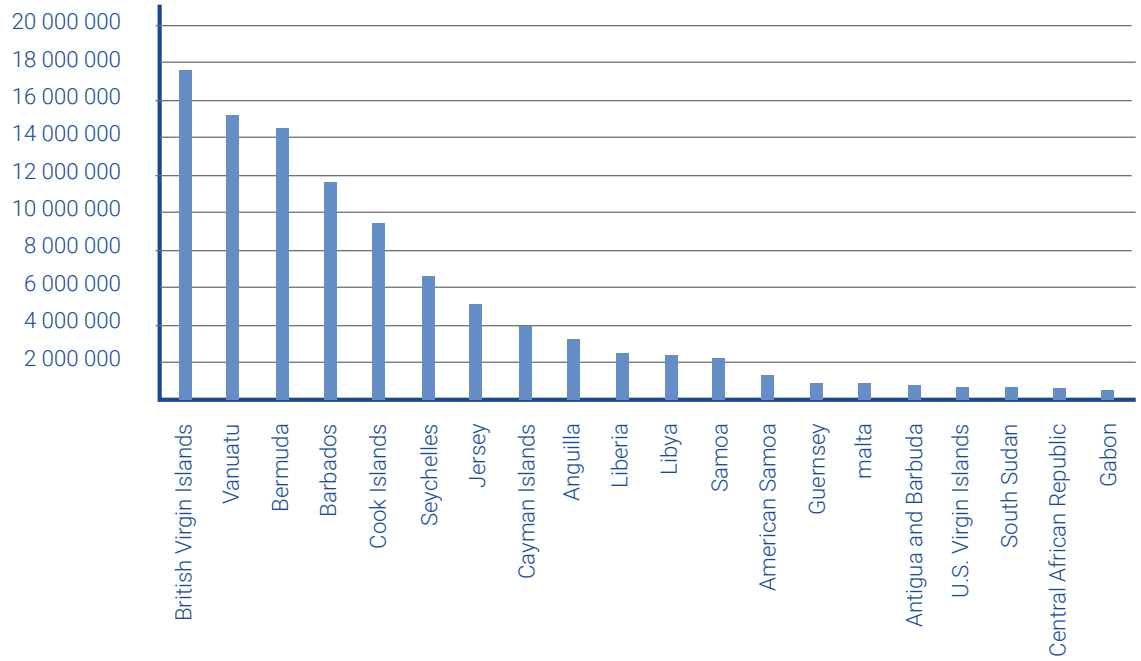
[62]See for instance Javier Garcia-Bernardo and Petr Janský (2022), "Profit Shifting of Multinational Corporations Worldwide". arXiv. https://doi.org/10.48550/arXiv.2201.08444; Javier Garcia-Bernardo, Petr Janskỳ, and Thomas Tørsløv (2021), "Multinational Corporations and Tax Havens: Evidence from Country-by-Country Reporting", International Tax and Public Finance 28, p. 1519–61.

[63]For a reconciliation of country-by-country data with other data sources in the case of the United States, see Javier Garcia-Bernardo, Petr Janský, and Gabriel Zucman (2022), "Did the Tax Cuts and Jobs Act Reduce Profit Shifting by US Multinational Companies?", NBER working paper #30086.

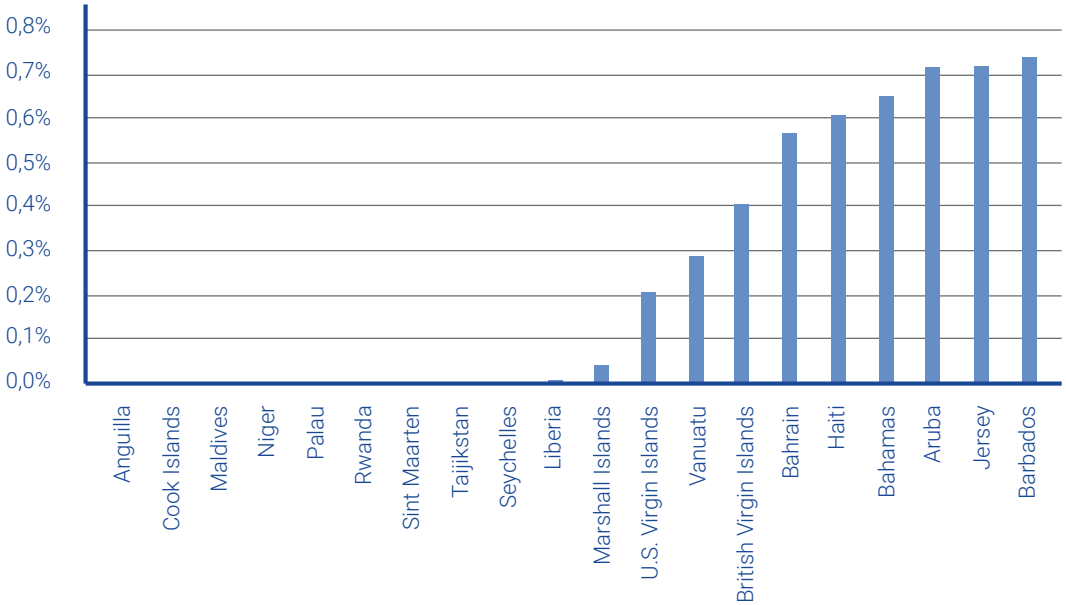
Figure 2.4

Profit shifting to very low-tax countries, evidence from country-by-country data

Panel A: 20 juridisdictions where affiliates of multinational companies have the highest ratio of recorded profits per employee ($)



Panel B: 20 jurisdictions where affiliates of multinationals companies have the lowest effective tax rate



Notes: The top panel shows the 20 jurisdictions where affiliates of multinational companies report the higher ratio of pre-tax income per employee. The bottom panel shows the 20 jurisdictions where affiliates of multinational companies have the lower effective tax rate, computed as corporate income tax paid divided by pre-tax income. These computations are done in the aggregate country-by-country statistics published by the OECD, and are for the year 2018 (the latest available year as of the summer of 2023). Source: EU Tax Observatory computations, based on OECD country-by-country data.

reports. Upcoming regulations on public reporting such as the European Union's 2021/2101 directive will expand the availability of public country-by-country reports.

To facilitate the analysis of public firm-level country-by-country data, the EU Tax Observatory maintains a public database compiling and standardizing reports from over 100 multinationals into a unified dataset.[64] For each of these firms, the database contains country-level information on variables like revenues, profit, taxes, and employees. The data appears generally reliable. For most companies, the total amount of revenues, taxes paid and accrued, number of employees and tangible assets closely match the values recorded in the firms' consolidated accounts. Variable definitions are also largely consistent between the two sources.

This new database offers valuable insights. Most firms that report are so far European, especially in extractive sectors. Because the publication of country-by-country reports remains voluntary outside the banking sector, the sample of firms choosing to publish their reports cannot be seen as representative. Firms shifting more profits tax havens may be less inclined to share data, making it difficult to infer global profit shifting dynamics from voluntary country-by-country reports. However, company participation is expanding quickly across regions and firm size.

To illustrate the usefulness of public country-by-country data, consider the case of European banks. Figure 2.5 shows the fraction of their foreign profits that European banks book in tax havens. From 2014 to 2020 this figure was stable, at around 30%. Data for 2021 and 2022 suggest a decline in the share of profits booked in tax havens. More data (covering more firms, from more countries) are necessary to assess whether this evolution reflects a sustained trend and is representative of broader patterns in other sectors of the economy. This illustrates how mandating the publication of country-by-country reports for all multinational companies could enable dramatic progress in the analysis of profit shifting, a matter of tremendous interest globally.[65]

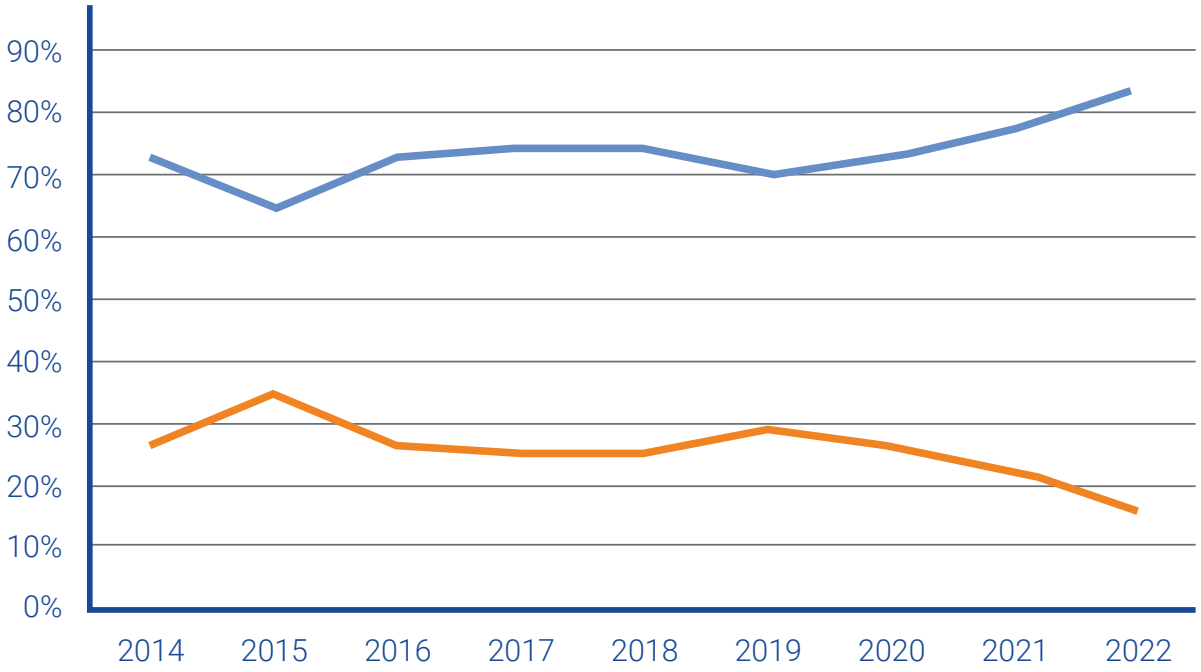
[64]Giulia Aliprandi, Kane Borders, Francisco Gabriel, and Gerrit von Zedlitz (2022), "Public Country-by-Country Reports: A New Database", EU Tax Observatory note. For an assessment of the quality of the data and a comparison to companies' audited consolidated accounts, see Giulia Aliprandi and Gerrit von Zedlitz (2023), "Benchmarking Country by Country Reports", EU Tax Observatory working paper.

[65]For a collection of analysis of the effect of public and private country-by-country reporting, see **https://tax.kenaninstitute.unc.edu/county-by-county-translational-research/**

Figure 2.5

Where do European banks book their profit?

(% of foreign profits booked in tax havens vs. non-haven countries)



Notes: The figure plots the amount of profits booked by European banks in tax havens (and non-haven countries), as a ratio of their foreign profits (i.e., profits booked outside of their headquarter country). Tax havens are the countries and territories listed as such in Tørsløv, Wier, Zucman (2023), op. cit. Source: Giulia Aliprandi, Mona Barake, and Paul-Emmanuel Chouc (2021), "Have European Banks Left Tax Havens? Evidence from Country-by-Country Data", Report of the EU Tax Observatory #2, updated to 2022.

2 The dynamic of global profit shifting

Over the last 10 years, ambitious initiatives have been launched to curb profit shifting. In 2015, the OECD launched the Base Erosion and Profit Shifting (BEPS) process to curb tax avoidance possibilities stemming from mismatches between different countries' tax systems. In the end of 2017, the United States introduced a series of measures to reduce profit shifting by US multinational companies (along with a large cut in its corporate income tax rate from 35 to 21 per cent). An active body of work attempts to quantify the effects of these policies. It should be stressed at the outset that estimating the causal effects of these initiatives is difficult, since it is hard to know how profit shifting would have evolved if these policies had not been implemented. Our approach in this report is more modest: we focus on describing the trends in global profit shifting to assess whether there is any visible effect of BEPS or of the US tax reform.

2.1. Limited effect of reforms aimed at curbing profit shifting so far

In 2022 – seven years into the implementation of the BEPS process and four years after the Tax Cuts and Jobs Act – there was little discernible decline in profit shifting globally, or in profit shifting by US multinationals relative to 2015. These policies may have had some effect, but if they had one, it has so far been insufficient

to lead to a reduction in the global amount of profit shifted offshore.

Table 2.2 details the evolution of profit shifting annually since 2015. The fraction of foreign profits shifted to tax havens globally has remained constant at about 35% since 2015. For US multinationals, this fraction has remained close to 50%, while for non-US multinationals this fraction has remained close to 30%. The amount of profit shifted to tax havens appears to have grown at roughly the same pace as the amount of profits booked by multinational companies outside of their headquarter countries (which itself is growing faster than global income and global corporate profits, due to the continued rise of multinational companies).

Table 2.2

Profit shifting estimates, 2015 – 2022: US vs. non-US multinationals

	2015	2016	2017	2018	2019	2020	2021	2022
All multinationals								
Foreign profits	1,703	1,863	2,158	2,381	2,400	1,919	2,939	2,828
Profits shifted to tax havens	616	659	753	807	905	718	1,031	996
as a % of foreign profits	**36%**	**35%**	**35%**	**34%**	**38%**	**37%**	**35%**	**35%**
US multinationals								
Foreign profits	572	585	677	723	729	622	773	799
as a % of foreign profits of all multinationals	34%	31%	31%	30%	30%	32%	26%	28%
Profits shifted to tax havens	261	303	322	358	342	316	361	369
as a % of profits shifted by all multinationals	42%	46%	43%	44%	38%	44%	35%	37%
as a % of foreign profits of US multinationals	**46%**	**52%**	**48%**	**50%**	**47%**	**51%**	**47%**	**46%**
Non-US multinationals								
Foreign profits	1,131	1,278	1,481	1,658	1,670	1,297	2,166	2,029
Profits shifted to tax havens	355	356	431	448	564	401	670	628
as a % of foreign profits of non-US multinationals	**31%**	**28%**	**29%**	**27%**	**34%**	**31%**	**31%**	**31%**

Notes: This table reports estimates of the amount of profit shifted by US and non-US multinationals to tax havens annually over the period 2015-2022. Estimates for 2015-2020 are obtained by applying the methodology of Thomas Tørslov, Ludvig Wier, and Gabriel Zucman (2023), "The Missing Profits of Nations", Review of Economic Studies, 90(3), p. 1499-1534. Estimates for 2021 and 2022 are obtained by projecting profit shifting by US multinationals using US balance of payments data, and assuming that profit shifting by non-US multinationals has remained constant as a fraction of their foreign profits between 2020 and 2022 (with a fraction of foreign profits shifted equal to 31%). Source: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper, and our computation for 2021 and 2022.

This is not to say that BEPS and the Tax Cuts and Jobs Act reforms have had no effect at all. The literature documents a number of evolutions. First there is evidence that some US multinationals have repatriated some of their intellectual property to the United States.[66] Available evidence shows that, consistent with incentives introduced in the law, US corporations book a larger share of their profits in the United States since 2018. This change, however, is relatively small. A forensic analysis of listed corporations reveals six cases of large companies (Alphabet, Microsoft, Facebook, Cisco, Qualcomm, Nike) with a decrease in the share of foreign earnings of over 20 percentage points that appears clearly related to changes in profit shifting, more precisely to repatriation of intellectual property to the United States.

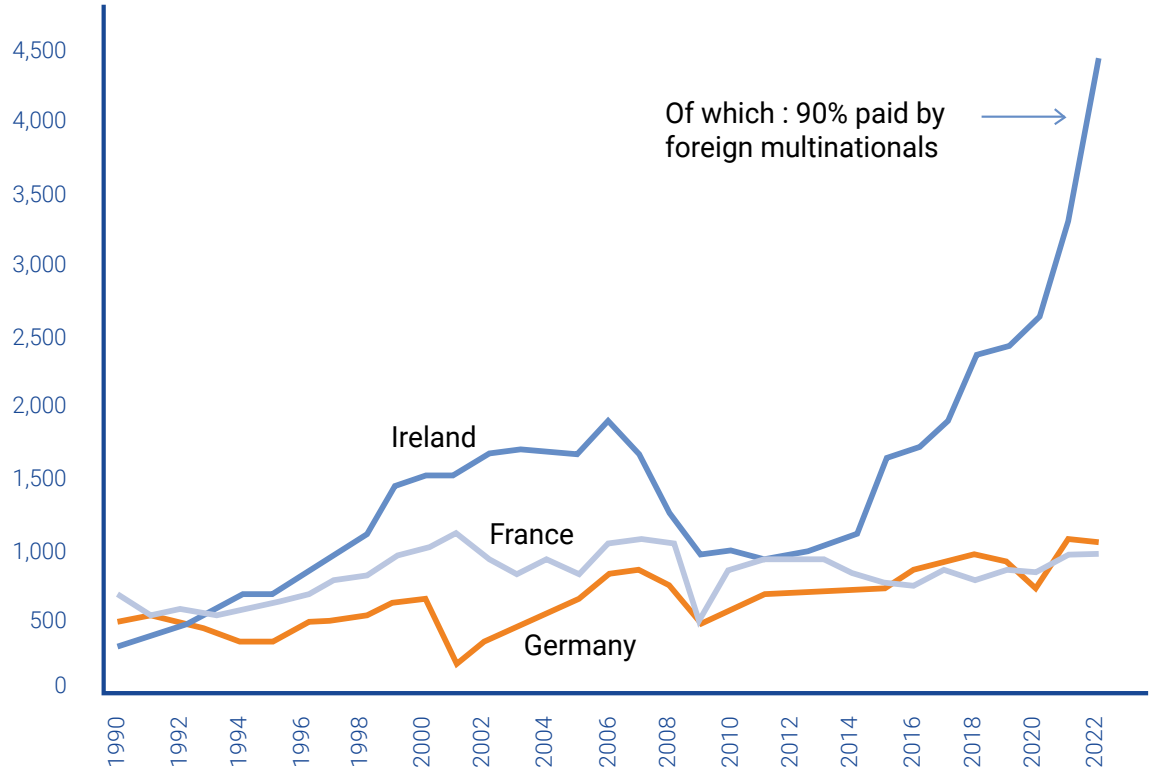
More generally, evidence suggests that some intangible assets that were previously held in zero-tax countries are moving to low-tax countries, or countries that offer generous "patent box" regimes (i.e., low rates for royalties derived from licencing intellectual property). A case in point is Ireland, where the statutory corporate

[66] Javier Garcia-Bernardo, Petr Janský, and Gabriel Zucman (2022), "Did the Tax Cuts and Jobs Act Reduce Profit Shifting by US Multinational Companies?", NBER working paper #30086.

tax rate is 12.5%, and the tax rate for royalties is 6.25% since the introduction of a patent box regime in 2015.

Figure 2.6 shows that the corporate tax revenues of Ireland have exploded since 2015. In 2022, despite its low rates, Ireland collected the equivalent of €4,500 in corporate income tax revenue per inhabitant, nearly five times as much as France or Germany that have much higher corporate tax rates (and nearly five times as much as in 2014, adjusted for inflation). Some of this growth may reflect the relocation of real activities to Ireland, i.e., standard tax competition for capital. But a large fraction probably reflects the rise of profit shifting to Ireland, in particular due to the relocation of intangible assets following BEPS, the Tax Cuts and Jobs Act, and the introduction of the 6.25% tax rate. Whatever the reason, this increase illustrates how absent tax coordination and minimum taxation, tax havens can generate high amounts of tax revenues by choosing very low tax rates[67].

Figure 2.6
Corporate income tax revenue per capita (€ 2022)



Notes: This figure shows the evolution of corporate income tax revenues per capita (i.e., corporate tax revenue divided by the number of inhabitants) in Ireland, France, and Germany. Corporate tax revenues are adjusted for inflation and expressed in euros of 2022. The figure shows that in 2022, Ireland collected the equivalent of nearly €4,500 in corporate tax revenue per inhabitant (€22.6 billion for a resident population of close to 5.1 million inhabitants), a ratio nearly 5 times as large as in France and Germany. Sources: EU Tax Observatory computations based on OECD statistics and Irish Revenue data (https://www.revenue.ie/en/corporate/documents/research/ct-analysis-2022.pdf).

2.2. A long-run perspective on global profit shifting

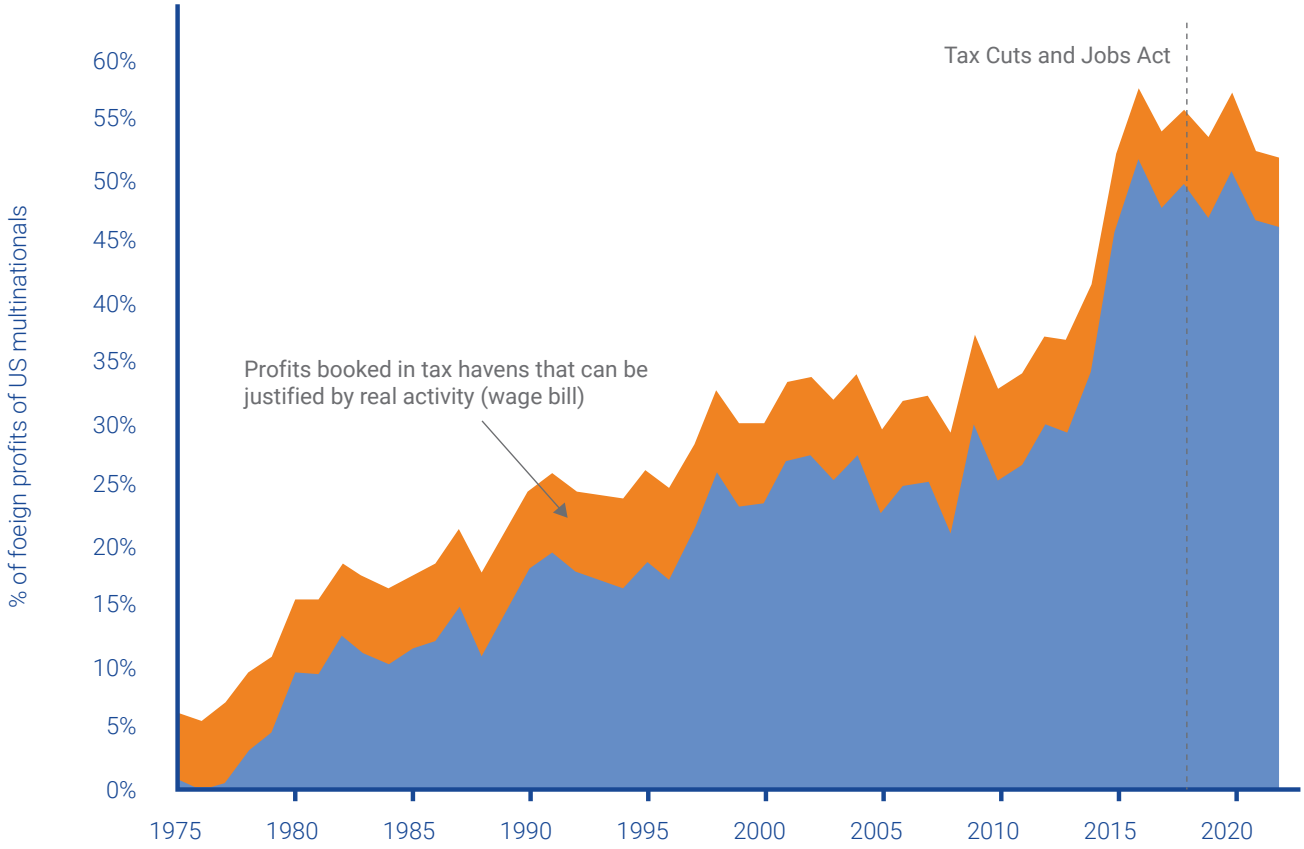
To put the recent evolution of global profit shifting into perspective, it is worth taking a long-run perspective on this phenomenon. Because the data to capture global profit shifting before 2015 are limited, it is not possible to provide granular estimates before that year. However, for US multinationals, excellent foreign

[67]For an analysis of the trend in Irish corporate tax revenue and the contribution of the different factors listed above, see Department of Finance of Ireland (2023), «Corporatation Tax: Tax Strategy Group – 23/04», July 2023.

affiliates statistics exist back to the 1970s. Because US multinationals play an outsized role in global profit shifting, this one data source alone makes it possible to approximate global trends quite reliably back in time.

Figure 2.7 reports the evolution of the amount of profits booked by US multinationals in tax havens (expressed as a fraction of their foreign profits) back to 1975. Today, as we have seen, US multinationals book more than half of their foreign profits in tax havens. The bulk of these profits cannot be explained by real activity in these havens (here proxied by wages paid to workers in these havens) and thus are likely to primarily reflect profit shifting. Profit shifting by US multinationals has increased from nearly 0 in the late 1970s to close to 50% since the mid-2010s. In recent years, as we have seen, profit shifting by US multinationals appears to have been roughly stable, although there is some year-to-year variation. Some evidence, in particular, indicate that for US multinationals profit shifting may be on a downward trend since 2020. It is too soon, however, to determine if this trend reflects a real economic phenomenon that may continue in the years to come.

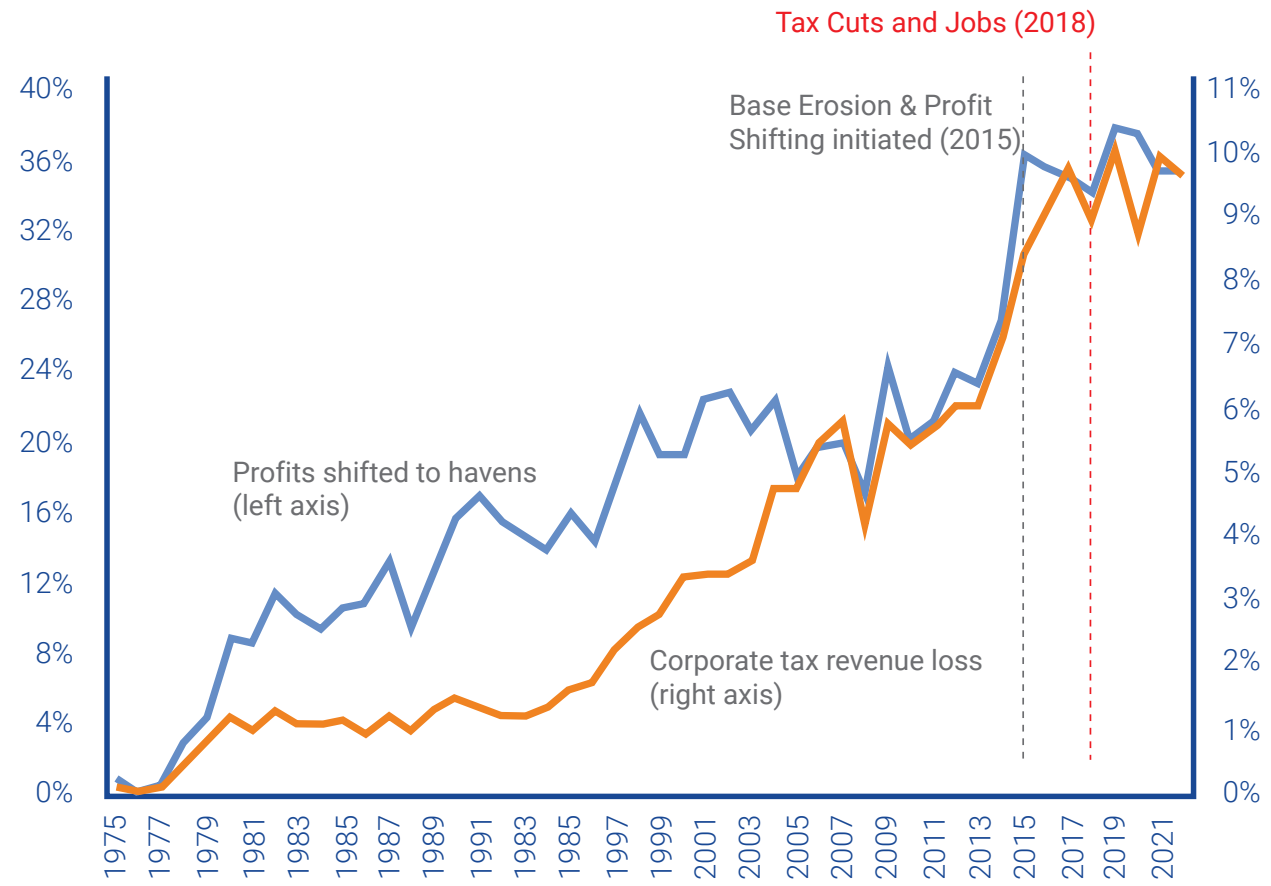
Figure 2.7
Profit shifting by US multinationals, 1975 – 2022



Notes: This figure reports the evolution of the share of US multinationals' foreign profits (i.e., profits booked outside of the United States) booked in tax havens. The orange portion of the chart shows the fraction of these haven profits that can be explained by real activity in these tax havens, while the blue part can be interpreted as profit shifting. The figure shows that US multinationals have been shifting about 50% of their foreign profits in recent years, as opposed to nearly 0% in the late 1970s. For reference we indicate the enactment of the Tax Cuts and Jobs Act effective in 2018. Sources: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper.

Based on the evolution seen for US multinationals (which account for close to half of global profit shifting today), it is possible to estimate bounds for the evolution of global profit shifting back to 1975 by making assumptions on the evolution of profit shifting by non-US multinationals.[68] Figure 2.8 presents the central estimates obtained using this methodology. The results suggest a dramatic increase in profit shifting since the 1970s, with the global tax revenue loss rising from essentially 0 to close to 10 percent of global corporate tax revenue recently. The rise was particularly fast in the first half of the 2010s, perhaps linked to the growing digitization of the economy.

Figure 2.8
Global profit shifting and associated tax revenue loss, 1975-2022



Notes: This figure reports the evolution of the fraction of foreign profits shifted to tax havens globally (left-axis) and the tax revenue loss caused by this shifting, as a fraction of collected tax revenue (right-axis). For reference we indicate the start of the Base Erosion and Profit Shifting process in 2015 and the Tax Cuts and Jobs Act in 2018. Estimate for 2021 and 2022 are projected based on data covering US multinationals only (see text) and as such are preliminary and subject to revision; they are marked with a dashed line. Source: Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", EU Tax Observatory working paper, updated to 2022 by the EU Tax Observatory.

After the start of the Base Erosion and Profit Shifting process in 2015, the amount of profit shifted to tax havens appears to have grown at roughly the same pace as global foreign profits. This marks a departure from the trend observed in the first half of the 2010s, when profits booked in havens grew faster than foreign profits. It is possible that this change in trend may be due to BEPS and other reforms such as the Tax Cuts and Jobs Act. The fact that profit shifting remains at a historically high level shows that there remains ample scope for additional initiatives to significantly reduce it.

[68]See Ludvig Wier and Gabriel Zucman (2023), "Global Profit Shifting 1975-2020", op. cit.

3 What can we expect from the global minimum tax?

3.1. The Pillar-Two proposal: principles and revenue estimates

In October 2021, close to 140 countries and territories endorsed the principle of a global minimum tax of 15% on the profits of multinational companies, what is known as Pillar Two of the OECD Two-Pillar solution to profit shifting. This is a landmark agreement: it is the first time there is an international agreement setting a floor to how low certain tax rates on profits can go.

An important feature of Pillar 2 – at least as it was originally agreed – is that it contains self-enforcement mechanisms. Two safety nets are included to ensure multinationals pay at least 15% of profits in tax, even if some countries choose not to apply the agreement. First, should a jurisdiction refuse to set up a domestic minimum effective tax of 15%, the country where the corporation is headquartered can tax the difference between the effective tax rate paid in the jurisdiction and 15% (a mechanism called "Income Inclusion Rule"). Second, should headquarter countries refuse to apply this rule, the countries joining the agreement can tax some of the untaxed profits themselves through a mechanism called the "Under Tax Payment Rule." In essence, this mechanism allows them to collect the taxes that non-participating countries would choose not to collect. As we shall see below, this mechanism has unfortunately been largely suspended for the time being.

How big of a change will Pillar Two make? To assess the potential of the global minimum tax, we simulate the revenues that would have been generated by this tax had it been applied by all countries in 2023. This estimation relies on a rich model that combines available foreign affiliates statistics, country-by-country data, and other data sources in a consistent manner.[69] In practice, not all countries that signed the 2021 declaration have enacted the minimum tax. European Union countries will start implementing Pillar Two in 2024, along with a number of countries such as the United Kingdom. But critically, the United States has not ratified it and may fail to do so in the foreseeable future given congressional opposition to the agreement. To assess the potential of the global minimum tax, we start by considering the revenue potential in case of a complete implementation, before turning to the real world of imperfect implementation in the next section.

According to our estimates, had it been applied by all countries in 2023, the global minimum tax of 15% would have collected $220 billion in revenue globally. This is the equivalent to nearly 8% of global corporate tax revenues expected to be collected in 2023. This estimate is close to the one obtained by the OECD, albeit towards to the low-end of the scale.[70] The fact that our estimates are close to those obtained by the OECD, despite numerous methodological differences, suggests the order of magnitude is likely to be accurate.

Which countries would benefit from the minimum tax? Country-level estimates should be taken with care because it is hard to know which countries will collect the additional tax revenues. According to the Pillar 2 model rules, there are three levels of priority to collect the minimum tax. First, host countries (meaning countries where affiliates of multinational companies are located) are encouraged to increase their tax rate to 15% on the profits of these affiliates – what in the OECD technical language is known as the Qualified Domestic Top-up Tax (QDMTT). Second, as we have seen, should host

[69]See Mona Baraké, Paul-Emmanuel Chouc, Theresa Neef, and Gabriel Zucman (2022) "Revenue Effects of the Global Minimum Tax Under Pillar Two", Intertax 50 (Issue 10), p. 689–710; see also the Online Appendix.

[70]The OECD estimates an annual global revenue gain between $175 billion and $261 billion in 2018 (equivalent to between 7.4% and 11.1% of 2018 global corporate tax revenue) with a central estimate of $220 billion (9.4% of global corporate tax revenue). See OECD (2023), "Economic Impact Assessment of the Two-Pillar Solution: Revenue Estimate for Pillar One and Pillar Two", presentation available online at https://www.oecd.org/tax/beps/economic-impact-assessment-presentation-january-2023.pdf

countries fail to do so, headquarter countries can collect the tax through the Income Inclusion Rule (IIR). Third, should both host and headquarter countries fail to implement the minimum tax, other countries implementing Pillar 2 can collect some of the uncollected taxes, in proportion tthe assets and employees they have – the rules known as the under-taxed payment rule (UTPR), which function as a backstop in case the QMDTT and the IRR are not applied. Regional and country-level revenue effects of a 15% global minimum tax in these different scenarios are presented in the Online Appendix.

3.2. The weakening of the global minimum tax

Despite its important achievements, Pillar 2 has key limitations. Some of these limitations – the relatively low tax rate – were apparent ever since the 2021 agreement. But many loopholes have also been gradually introduced during the technical negotiations that ensued: the inclusion of carve-out for substance in the agreement, the generous treatment of tax credits, and the relaxation of the backstop measures.

First, the tax rate (15%) is relatively low in a historical and international perspective. Most countries attempt to tax profits at rates higher than 15%. There is no clear reason why multinational companies should be allowed to pay less than middle- or small-size domestic companies. In the post-Covid economies, there are pressing revenue needs stemming from high levels of public debts, necessary investments in health care, education, and the fight against climate change. The relatively low rate leaves ample scope for tax competition. Even though there is evidence that the pace of international tax competition on tax rates is attenuating,[71] at least ten countries cut their corporate income rates in 2022, following their endorsement of the global minimum tax.[72]

Second, the minimum tax includes a major loophole: carve-outs for substance. Specifically, a certain amount of profit – equal to 8% of the value of tangible assets plus 10% of payroll in the first year – can be excluded from the base of the minimum tax in the first year of the agreement. The rates of this carveout decrease regularly over time until they reach 5% of tangible assets and 5% of payroll after 10 years of implementation.

The carve-outs allow firms that have real economic activity in a low-tax country to keep paying less than 15% in that country. As a result, they give firms incentives to move production to countries with tax rates below 15%. This risks exacerbating the race-to-the-bottom with corporate income tax rates. The carve-outs in the Pillar-2 rules follow a similar exemption introduced in the US minimum tax known as GILTI (for Global Intangible Low-Tax Income) created by the Tax Cuts and Jobs Act of 2017, carve-outs that were criticized in the United States.[73]

The carve-outs embody the idea that tax competition, if it is real (firms moving production to low-tax countries), is legitimate or at least should not be regulated via international agreements. The only thing that is not legitimate, according to the view that underpins this loophole, is artificial profit shifting – the relocation of paper profits to tax havens. If companies choose to move production to low-tax countries, there should be no limit to how low their tax rates may go, according to the view that underpins the carve-outs. Any rate, even 0%, is acceptable.

[71] See OECD (2023), *Tax Policy Reforms* 2023.

[72] These countries are: Seychelles, Sierra Leone, Zambia, Bangladesh, Myanmar, Tajikistan, France, Greece, Monaco, and French Polynesia; see Cristina Enache (2023), "Corporate Tax Rates around the World, 2022", Tax Foundation.

[73] See, e.g., Testimony of Kimberly A. Clausing, Deputy Assistant Secretary, Tax Analysis, Before the Senate Committee on Finance, March 25, 2021.

The problem with this view, as detailed in chapter 5, is that international tax competition – especially when it involves tax rates of less than 15% – is a very negative form of international competition that tends to fuel inequality. Although some individual countries can benefit from it, from a global perspective it is negative sum. Movements of production from one country to another do not increase global production or the global capital stock, at least in the short run. The main beneficiaries of this process tend to be the owners of multinational companies, who tend to be at the top of the wealth distribution.

The third loophole in the global minimum tax is that tax credits – such as credits for research and development, credits given to certain industries, investment tax credits, etc. – can be used to reduce the effective tax rate below 15%. This is because for the purpose of computing the effective tax rate of a company (and assess whether it is higher or lower than 15%), tax credits are not counted as a reduction in taxes paid in the Pillar-2 rules. Concretely, a company that pays 20% of its profits in taxes but at the same time receives a tax credit equal to 10% of its profits has, according to the Pillar 2 rules, a 20% tax rate: it will have no extra tax to pay.[74] In reality, the effective tax rate of this company is 10%. For a multinational that makes 100 in pre-tax income, whether a government takes 10 in tax or whether it takes 20 in tax and sends back a check of 10 is immaterial: in both cases the multinational has 90 in net-of-tax income that it can distribute to shareholders or reinvest.

This loophole gives tax havens incentives to offer tax credits to multinational firms. By structuring their tax policy slightly differently than in the past – offering generous tax credits as opposed to generous statutory tax rates – the governments of tax havens will be able to keep providing multinationals with very low effective tax rates while avoiding the global minimum tax. This loophole risks fuelling international tax competition on tax credits, a mere variant over the international tax competition on statutory tax rates observed since the 1980s. As we shall see in chapter 3, this new form of tax competition for tax credits has already started.

Technically only "refundable" tax credits are eligible for this loophole – meaning tax credits that can be larger than the amount of tax owed by a firm, as opposed to "non-refundable tax credits" which are capped at the amount of tax paid. In practice any tax credit can be structured as a "refundable credit" and thus deemed compliant with the Pillar 2 rules. In July 2023 the OECD extended the number of Pillar-2 compliant tax credits by including "transferable" tax credits such as those created by the Inflation Reduction Act in the United States, as detailed in chapter 3.

Fourth, the key backstop mechanism of Pillar 2 – the under-tax payment rule allowing participating countries to collect the minimum taxes that non-participating choose not to collect – is partially suspended.

These rules are delayed (for now until 2026) for the domestic profits of multinationals incorporated in countries where the statutory corporate income tax rate is higher than 20%. This "temporary safe harbour" was tailored for the United States, which has not ratified Pillar 2 and where the statutory corporate tax rate is 21%. Concretely, other countries will not be allowed to collect the domestic tax deficit of US multinational companies until at least 2026.

We use our model to quantify the costs of these various provisions. The carve-out for substance reduces tax revenue by nearly 20% in the first year of implementation (and about 10% in the long run, assuming firms do not move activity to low-tax places – a conservative assumption) relative to a 15% minimum tax without carve-outs. The non-participation of the United States and the partial suspension of the backstop measures designed to ensure all multinationals are subject to the minimum tax further reduces revenues by about 15%. Finally, the cost of tax credits is harder to quantify but further reduce revenues by about 15%

[74]Technically, the tax credit is counted as income and included at the denominator of the effective tax rate computation for Pillar-2 purposes. In the above example, a firm that pays 20 in tax, makes 100 in profit, and receives a tax credit of 10, will be considered to have an effective tax rate of 20 / (100 + 10) = 18.2%, and not of (20 – 10) / 100 = 10%. This firm will not be subject to the minimum tax.

in our central scenario.

The end result of these loopholes is that the global minimum tax, as things stand, would generate, at least in the short term, about only a fraction of the tax revenue that could be expected from it based on the principles laid out in 2021: less than 5% of global corporate income tax revenue as opposed to 9% with a comprehensive minimum rate of 15% (and 16% with a comprehensive minimum rate of 20%). The global minimum tax has been dramatically weakened.

CHAPTER 3: NEW FORMS OF INTERNATIONAL TAX COMPETITION

From the 1980s to the 2010s, countries primarily competed on tax rates. They slashed their statutory corporate income taxes and reduced top marginal individual income tax rates. As a result of this process – sometimes referred to as a "global race-to-the-bottom" – the global average corporate income tax rate fell from nearly 50% in the early 1980s to about 25% in the early 2010s. Many countries reduced the taxation of top labor incomes and introduced flat tax rates on dividend and interest income, typically below the rate applied to top wages.

Today, perhaps because the scope for further competition on rates is limited, countries are increasingly competing differently. A growing number of economies are offering special tax regimes to wealthy individuals and subsidies to corporations. These new policies exploit voids and weaknesses in the current regulation of globalization: the non-regulation of harmful individual income tax practices, and the limits of World Trade Organization rules. Claiming the tax advantages offered by these policies is not illegal; in this respect claiming these advantages fundamentally differs from "tax evasion." But like with tax evasion, the end economic outcome is a reduction in governments revenues, the imposition of negative externalities onto other countries, often fueling inequality. This chapter focuses on two key trends.

First, over the last 15 years a growing number of countries have introduced preferential tax regimes to attract high-income or high-wealth individuals. These regimes target specific professions or income groups perceived as particularly mobile. From a single-country perspective, this strategy can enhance tax collection and boost domestic activity. But globally these policies are negative sum: taxpayers attracted by one country reduce the tax base by the same amount in another, and global tax revenue collection falls. They create horizontal inequities within countries: individuals with the same income end up paying different amount of taxes. Most importantly, because the special regimes are primarily targeted to wealthy individuals, they reduce the progressivity of tax systems, fueling inequality. We provide an up-to-date panorama of the prevailing regimes in Europe, quantify their cost, and propose a ranking of their relative harmfulness.

Second, a subsidies race for green-energy producers has started in 2022, triggered by the Inflation Reduction Act in the United States. In response to this law, the European Union has committed significant amounts of funding to subsidize producers of green energy. The global subsidies race is more desirable than standard tax competition (reducing the tax rate for all corporate profits) because it has a crucial positive-sum aspect: it has the potential to accelerate the transition to a zero-carbon global economy, benefitting us all. But it also raises some of the same issues as standard tax competition. If not accompanied by egalitarian measures, it risks increasing inequality by boosting the after-tax profits of shareholders, who tend to be towards the top of the income distribution. Worryingly, the global minimum corporate tax agreement does not address this new form of tax competition, and in fact legitimizes it.

1 The rise of preferential tax regimes for high-income individuals

1.1. The dynamics of preferential income tax regimes in Europe

In the European Union, the decline of top statutory personal income tax rates has stopped since the financial crisis of 2008–2009. But governments have introduced a growing number of preferential tax regimes targeting foreign individuals. Since 1995, the number of preferential personal income tax regimes has increased from 5 to 28 in the European Union and the United Kingdom. These regimes offer tax exemptions or reductions to incoming residents while preserving the general income tax schedule applied to domestic taxpayers. Most of the regimes have explicit or implicit income thresholds above which they apply. They thus tend to undermine the progressivity of EU income tax systems. In addition, they weaken overall tax collection, because the adopting governments voluntarily forego tax revenues and because they inflict negative spillover effects to other countries.

We provide up-to-date estimates of the numbers of beneficiaries and of the revenue cost for three types of regimes available in the European Union, in Switzerland and the United Kingdom:

1. **Foreign source or worldwide income regimes:** They offer preferential taxation of worldwide income or of foreign income while applying standard taxation to income earned domestically. This type exists in Greece, France, Ireland, Italy, Luxembourg, Malta, Portugal, Spain, Switzerland[75], and the UK.

2. **Regimes which apply to income earned while performing a specific economic activity in the host country:** These regimes offer tax reductions on the income earned domestically. Most of them target high-income workers or specific professions such as scientists, artists, or athletes. This type exists in Austria, Belgium, Cyprus, Denmark, Finland, France, Ireland, Italy, Luxembourg, the Netherlands, Sweden.

3. **Regimes targeting retirees:** They offer lower taxation of foreign source pension income. One objective is to attract consumers with higher purchasing power than the average population. This type exists in Cyprus, Greece, Italy, Malta, and Portugal.

This analysis builds on and updates the report of the EU Tax Observatory titled "New Forms of Tax Competition: An Empirical Investigation" published in 2021[76]. Data on the number of beneficiaries and the corresponding fiscal cost of each regime was collected from direct request to administrations, public reports, annexes to finance laws, and other sources. Most governments publish the numbers of beneficiaries or have provided them to us on request. When no information on costs was provided, we estimate costs by making assumptions on the average income of beneficiaries or by drawing on information reported in the media. More detailed information about our data sources and method can be found in the Appendix.

The update of the estimated fiscal cost associated with each preferential tax regimes includes new numbers provided by national administrations at our request. We obtained updated figures for Austria, Belgium, Denmark, France, Ireland (special assignee relief program), the Netherlands, Portugal, and Sweden. In addition, we obtained official figures for Luxembourg, the Italian inbound workers regime and the Greek high-net-worth individual and pension regimes for the first time. We also now include the Swiss expenditure-based taxation regime – a foreign-source income regime for high-net-worth individuals which

[75]Note that in the Swiss case beneficiaries are not allowed to earn any labour income in Switzerland.

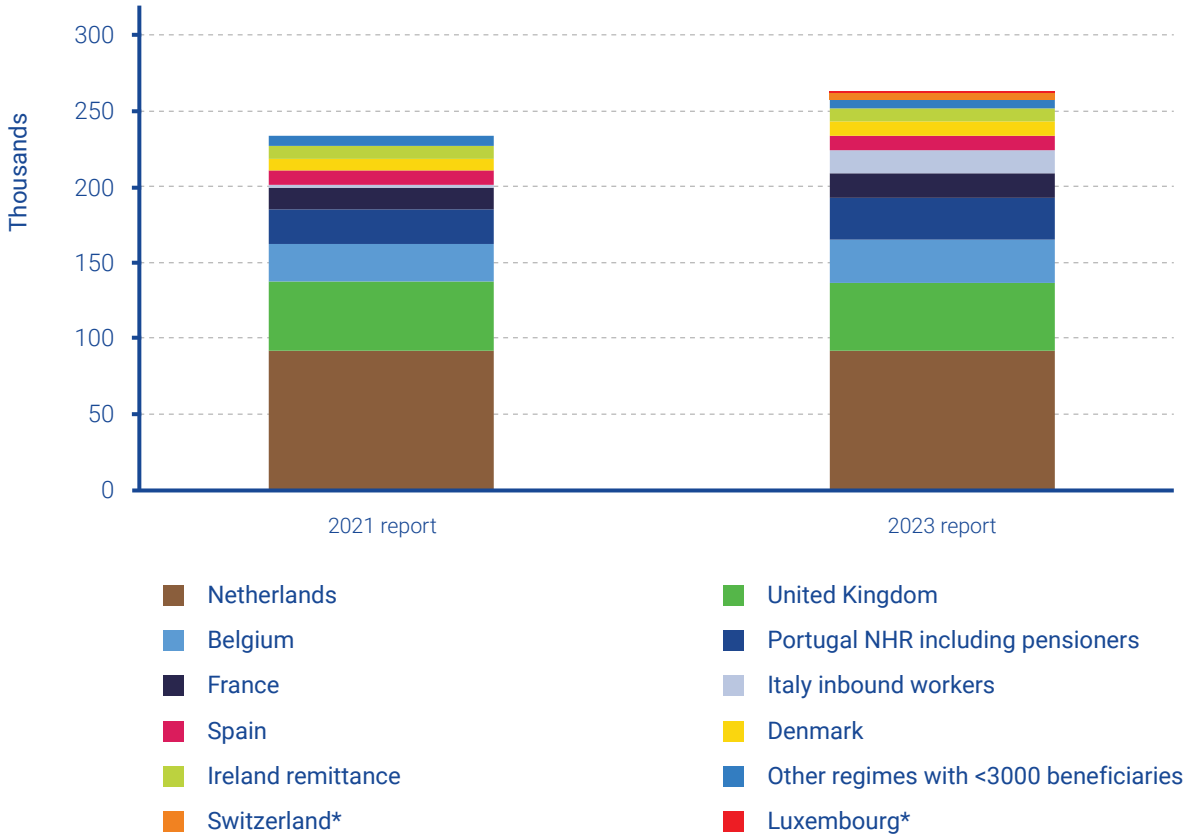
[76]Eloi Flamant, Sarah Godar, and Gaspard Richard (2021), *New Forms of Tax Competition: An Empirical Investigation*. EU Tax Observatory Report No. 3, available online at https://www.taxobservatory.eu/publication/new-forms-of-tax-competition-an-empirical-investigation/

likely explains the concentration of super-rich foreigners in certain Swiss cantons[77].

Compared to 2021, the number of beneficiaries has increased for most regimes. Figure 1 compares the numbers of beneficiaries collected for our previous report to the latest available figures (see table A1 in the Appendix for the respective reference years and data sources). We find that overall, at least 260,000 people benefit from one of the three types of preferential regimes covered in this study. This is an increase of roughly 30,000 beneficiaries compared to 2021. The bulk of the increase is due to the increased popularity of the regimes included in the analysis (+ 24,000 individuals). The rest is due to the inclusion of 2 new preferential regimes: the Swiss high-net-worth-individuals regime (4,557 individuals) and the Luxembourg inpatriates regime (1,084 individuals).

The Belgian, UK and Dutch regimes are the most popular with 92,000, 45,000, and 28,000 beneficiaries, respectively. The least frequently used are the Austrian artists and foreign workers regimes with less than 200 beneficiaries each. The Austrian workers regime and the UK remittance basis regime are the only two for which authorities have reported a decreasing number of beneficiaries. An update for the Austrian artists regime was not provided.

Figure 3.1
Number of beneficiaries of preferential tax regimes in Europe



Notes: The figure plots the numbers of beneficiaries of special tax regimes reported in 2021 in Flamant, E., Godar, S., Richard, G., New Forms of Tax Competition: An Empirical Investigation, and the updated numbers reported in this chapter. Reference years may differ by country as we used the latest available numbers for each country (see Appendix). *The Swiss and Luxembourg regimes were not included in our 2021 report and are highlighted here in orange and red. Sources: EU Tax Observatory calculations, see text.

[77]See Enea Baselgia and Isabel Martínez (2023), "Behavioural responses to special tax regimes for the super-rich: Evidence from Switzerland". EU Tax Observatory Working Paper No. 12.

1.2. The fiscal cost of preferential personal income tax regimes

Our estimates suggest that the total fiscal cost of the regimes included in our analysis is €7.5 billion per year. For comparison, the budget of the Erasmus program in the European Union is €3.3 billion per year, and the contribution by the United Kingdom to the 2023 budget of the European Union linked to the Withdrawal Agreement is €9.8 billion. The average tax benefit per beneficiary is €34,300 per year. For comparison, a worker employed full time at the minimum wage in France earns €16,214 in annual net wage in 2023.

How do we derive these estimates? We do not know who ultimately bears the cost of a preferential regime. Is it the country offering the tax rebate as it collects less revenue than it could? Or is it the beneficiary's country of origin as it loses a taxpayer? We do not have sufficient information to estimate the distribution of costs across countries. For simplicity, we compute the additional revenue that could be generated in the host countries if they all removed the preferential regimes at the same time without considering further behavioural adjustments. We thus obtain a rough estimate of the potentially forgone tax revenue in total, regardless of how it would be distributed between countries.

Table 3.1

Fiscal cost of preferential tax regimes by country

	Regime type	Reference year	Fiscal cost (€ million)	Benefit per beneficiary (€)	Ratio of average tax saving per beneficiary to average income tax by adult
Austria - workers	2	2020	0.3	1,747	0.3
Austria - artists	2	2021	5		
Belgium - foreign executives	2	2022	160	5,623	0.9
Denmark - 32.84% rule *	2	2019	236	25,607	1.4
Finland – 32% rule	2	2020	5	7,225	1
France - impatriate	1	2020	229	14,089	3.3
Greece - high net worth (EUR 500,000)*	1	2021	9.1	156,896	134.4
Ireland -r emittance basis*	1	2017	589	69,294	9.5
Ireland - special assignee relief programme	2	2020	36.6	22,061	3
Italy - inbound workers*	2	2020	422	27,977	6.5
Italy - high net worth (EUR 500,000)*	1	2019	54	128,266	29.8
Luxembourg – international employees*	2	2021	21	20,038	1.5
Netherlands – 30% rule	2	2020	1,100	11,950	2.4
Portugal - non-habitual resident incl. pensions	1/3	2020	893	32,616	19.4
Spain - inpatriates*	1	2020	134	13,601	3.8
Sweden – expert tax	2	2020	45.4	12,576	1.4
Switzerland – high net worth (EUR 900,000)*	1	2018	328	72,000	13.5
United Kingdom – remittance basis	1	2018	3,200	69,264	10
Total			7,467	34,300	

Notes: This table presents fiscal cost estimates of preferential tax regimes in Europe. The three types of regimes are 1) worldwide or foreign-sourced income, 2) regimes which apply to income earned performing a specific economic activity in the country, 3) pension regimes. The year in column 2 indicates the latest available data point. The last column shows the ratio of the average fiscal cost (or tax benefit) per beneficiary to the average personal income tax payment per adult in each country (computed as total personal income tax revenues divided by the population aged 15 or more). When countries do not provide estimates of the fiscal cost, we estimate the fiscal costs based on the reported average income of beneficiaries, or we assume average incomes of €120,000 (€500,000 for the Italian and Greek regimes, and €900,000 for the Swiss regime). Our own estimates are marked with an asterisk.

Overall, governments forego an estimated amount of €7.5 billion in tax revenue.[78] The UK, Dutch and Portuguese regimes contribute most to the overall fiscal cost because of the large number of beneficiaries and high cost per beneficiary. The highest per-person costs arise for the Italian, Greek and Swiss high-net-worth individuals regimes with an estimated average tax benefit of more than €70,000. As these regimes clearly target the super-rich, the total number of beneficiaries is comparably low. Because the average income of beneficiaries is kept confidential, we base our estimates on assumed average incomes of €500,000 for Italy and Greece, and €900,000 for Switzerland. Note that our estimates refer to personal income tax only and disregard the potential fiscal costs of reduced wealth taxation.

To get a sense of the size of the tax saving that beneficiaries obtain on average, we can compare them to the average income tax paid in each country by the full population (last column of Table 3.1). Specifically, we calculate the ratio of the average tax benefit per beneficiary to the average amount of personal income taxes collected per adult resident (aged 15 or above) in 2021. For instance, in Austria, the average size of the rebate is equal to 30% of the average amount of taxes paid by an adult in Austria in 2021. In Luxembourg, this rebate is equal to 1.5 times the income tax paid by the average taxpayer in that country.

1.3. Which regimes are the most harmful?

We rank the regimes according to their harmfulness based on four criteria:

- **Regime duration:** The longer lasting the regime, the more attractive it is and the more tax losses it causes. In our ranking, a score of 1 is assigned to regimes lasting four years or less (a relatively short period of time is unlikely to encourage a lot of mobility for purely fiscal reasons), a score of 2 is assigned to regimes lasting 5 to 6 years, a score of 3 to regimes of 7 to 8 years, and a score of 4 to all longer-lasting schemes. The average regime duration is over 7.5 years.

- **Income conditions:** This indicator measures the extent to which the regime undermines income tax progressivity in the country implementing it. Many schemes are designed to offer tax exemptions only to the wealthiest individuals. The indicator considers both explicit and implicit income thresholds needed to benefit from a given regime. Some regimes include an explicit income condition (i.e., only people with income above a certain threshold are eligible). Other schemes set an implicit condition by only being advantageous to sufficiently high-income individuals (e.g., a flat-tax rate of 32% which will only benefit individuals subject to a higher effective tax rate). A score of 1 is assigned when neither explicit nor implicit income conditions apply, i.e., the regime does not only benefit rich taxpayers. A score of 2.5 indicates that income conditions exist (below €200,000 of taxable income per year) and a score of 4 indicates a high-income condition (over €200,000 per year).

- **Professional activity requirement:** Some regimes seek to attract certain types of professionals (artists, researchers, executives, etc.). Such regimes may have an economic purpose beyond attracting tax revenue and are simultaneously less threatening to the tax base of neighbouring countries, as they only target specific groups of workers. Other regimes, on the contrary, do not even require participation in the labour market. The potential gain of foreign tax base is larger in these cases; it is also typically the sole motivation for these regimes. By allowing new residents to benefit from the regime without being employed or operating a business, this type of preferential regime may also facilitate fraud. In our ranking, a score of 1 is thus assigned when only a specific

[78]Compared to our last report, this represents an increase of roughly €3 billion, of which 10% are due to additional regimes covered (Italy, Luxembourg, and Switzerland), 20% can be explained by increased numbers of beneficiaries or average income of beneficiaries, and 70% are driven by improved data sources and or methodology and are thus not comparable to the last report estimate.

professional segment is targeted; a score of 2.5 is assigned to regimes targeting all labour income earners and a score of 4 to regimes not requiring any participation in economic activity.

- **Size of tax benefit:** The size of the tax exemption is measured by the ratio between the tax paid by an individual earning €120,000 of taxable income per year (€500,000 in the case of the Italian and Greek high-net-worth regimes and €900,000 for Switzerland) and benefitting from the regime in question and the tax paid by a similar individual not benefitting from the regime. Scoring depends on the size of the exemption: a score of 1 is assigned to a tax burden equal to at least 80% of the burden imposed to a non-beneficiary, a score of 2 to a burden of 60 to 80%, 3 to a burden of 40 to 60%, and a score of 4 to a burden below 40%. For example, the Italian researchers' regime reduces the tax burden on income earned to 10% and thus is assigned a score of 4.

Table 3.2
Ranking of regimes according to their harmfulness

	Regime type	Duration	Income condition	Professional activity requirement	Size of the tax benefit	Scoring
Greece – high net worth (500,000)	1	4	4	4	4	10
Italy – high net worth (500,000)	1	4	4	4	3	10
Switzerland – high net worth (900,000)	1	4	4	4	2	9
Cyprus – high income	2	4	2.5	3	4	8
Denmark – 32.84% rule	2	3	2.5	3	3	6
Italy – inbound workers	2	4	1	3	3	6
Cyprus – pensions	3	4	1	2	4	6
Portugal – pensions	3	4	1	2	4	6
Luxembourg – international employees	2	3	2.5	3	2	5
Sweden – expert tax	2	2	2.5	2	4	5
Portugal – non-habitual resident	1	4	1	2	3	5
France – inpatriate	1	3	1	3	3	5
Cyprus – low income (50,000)	2	3	1	3	3	5
Spain – inpatriates	1	2	2.5	3	2	5
Netherlands – 30% rule	2	2	2.5	2	3	5
Ireland – special assignee relief programme	2	2	2.5	3	2	5
Italy – pensions	3	2	1	2	4	4
Malta – high-income and pensions	1	1	2.5	2	3	4
Belgium – foreign executives	2	3	1	2	2	3
Italy – sportsmen	2	2	1	1	4	3
Austria – workers	2	2	1	3	2	3
Finland – 32% rule	2	1	2.5	2	2	3
Italy – researchers	2	1	1	1	4	2
Finland - researchers	2	1	1	1	4	2
Austria – artists	2	2	1	1	2	1

Notes: This table ranks preferential personal income tax regimes according to 4 criteria for harmfulness. The higher the score, the more harmful the regime. The size score is calculated based on an assumed average income of €120,000 (€500,000 for the Italian and Greek regimes, €900,000 for the Swiss regime, and 50,000 for the Cypriot low-income regime) unless different income thresholds apply. The three types of regimes are 1) worldwide or foreign-sourced income 2) regimes which apply to income earned performing a specific economic activity in the country 3) pension regimes. Out of the 29 regimes described in the Appendix, four are excluded from the ranking as it was not possible to estimate the size of the tax benefit in a consistent way. Sources: EU Tax Observatory estimation, see text.

The ranking of regimes by harmfulness does not show significant changes compared to 2021. The high-net-worth individuals' regimes of Greece and Italy are still the most harmful because they offer large exemptions to extremely rich individuals. The Swiss regime ranks only slightly lower because the average tax benefit is lower compared to the (assumed) average income of beneficiaries. At the bottom of the list, regimes trying to attract foreign researchers, scientists or artists score relatively low because they avoid income conditions and are only short-term.

Some regimes witnessed changes since 2021. Belgium reformed its expatriate regime. The new regime is supposed to increase legal certainty for beneficiaries as it is included in the income tax code. Major changes include a minimum gross salary of €75,000 and a limitation extended to 8 years provided that the beneficiary is still meeting the eligibility conditions. As a result, the Belgian regime moved up the ranking. Cyprus amended its two regimes, first by lowering the earnings threshold to benefit from a 50% tax exemption on income from any employment in Cyprus from €100,00 to €55,000, second by lowering the ceiling of the regime offering a 20% tax exemption to low-income earners.

1.4. Increasing diversity of regimes

Increasing mobility and the rise of work from home intensify tax competition over mobile workers. A recent study[79] estimates that 3-15% of all UK taxpayers could, in principle, work remotely and might thus become internationally mobile in the medium term. This boosts the attractiveness of tax regimes for "non-domiciled" residents which allow beneficiaries to exempt their foreign income from taxation in their new country of residence. In addition, more governments might be tempted to offer preferential personal tax regimes as a complement to corporate tax incentives.[80]

New tailor-made digital nomad regimes aim at attracting mobile workers and the increase of remote work might increase their popularity. In the last years, several countries in Europe[81] have started to offer "digital nomad" visa for non-EU/EEA nationals. They allow remote workers to work for employers or clients in other countries and are usually subject to a minimum remuneration condition. For stays below 183 days, these visas usually come with "non-dom" regimes where foreign earned income is not taxable. However, after 183 days, digital workers become tax residents and most EU countries do not provide specific tax relief for foreign but tax-resident digital workers. An exception is Croatia which exempts foreign-sourced income of digital nomads from Croatian income tax.[82] In Malta, the administration had to back down on the tax exemption on foreign income remitted granted through the visa, as it was constituting a loophole to the "non-dom" regime that requires high-income earners to pay at least a lump-sum of taxes in Malta on remitted income.

In adition, two types of "golden visa" programs currently exist in European countries: Austria's[83] and Malta's citizenship by investment programs grant citizenship rights after some years and significant investment. Austria, Cyprus, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Spain, and the United Kingdom also offer residence by investment programs. In Europe, these programs may be combined with the preferential tax regimes analysed above but are usually not directly linked to

[79]Compared de la Feria, R. & Maffini, G. (2021), The impact of digitalisation on personal income taxes. British Tax Review 2021 (2), pp. 154-168.

[80]Fischer, L., Heckemeyer, J., Spengel, C., Steinbrenner, D. (2022). Tax Policies in a Transition to a Knowledge-Based Economy: The Effective Tax Burden of Companies and Highly Skilled Labour. Intertax, 50 (4), pp. 286 – 321.

[81]Croatia, Cyprus, Estonia, Greece, Hungary, Italy, Latvia, Malta, Portugal, Romania, Spain.

[82]Narodne Novine Nn 138/2020, Law on Amendments to the Income Tax Act (nn.hr), https://narodne-novine.nn.hr/clanci/sluzbeni/2020_12_138_2625.html

[83]Bundesministerium für Inneres (2023), Staatsbürgerschaftswesen. Verleihung der Staatsbürgerschaft im besonderen Interesse der Republik gem. § 10 Abs. 6 StbG, Available online at: https://www.bmi.gv.at/406/verleihung.aspx, accessed 7 Aug 2023.

tax benefits. Instead, these programs are advertised for providing visa-free travel to the Schengen area and good educational and health infrastructure.[84] Citizenship and residency by investment programs are increasingly scrutinised because of the housing crises and concerns about national security. There is a view that they may add pressure to the domestic real estate market, pushing prices up. Real estate acquired in such contexts may also be used to launder money or circumvent international sanctions. In February 2023, Portugal decided to abolish its residence by investment program.

2 The emerging global corporate subsidies race

2.1. A new form of international tax competition targeted to green-energy producers

The multiplication of Chinese state subsidies and the enactment of the Inflation Reduction Act (IRA) in the United States in 2022 have triggered a global subsidies race for green-energy producers. Tax credits for producers of electronic vehicles, batteries, photovoltaic cells, and other types of clean energy make up a large fraction of the US federal funding created by the IRA. This law was met by a quick response of the European Union, which announced a temporary relaxation of its state aid rules, a revision of country chapters in the Recovery and Resilience Facility (the instrument designed to mitigate the impacts of the Covid pandemic) to include tax credits and subsidies, and a Green Deal Industrial Plan.

Economically, business tax credits are like negative taxes. From that perspective the current subsidies race can be seen as a continuation of the trend of international corporate tax competition, historically led by European countries. But there is a key difference: in contrast to across-the-board reduction in corporate income tax rates, the tax credits introduced in the United States and considered in many countries have a crucial positive-sum aspect to them. They can contribute to accelerating the transition to a zero-carbon economy, benefitting the entire world.

A key question is the extent to which this type of policy may contribute to increasing inequality, relative to other feasible policies to address climate change. The economic incidence of corporate tax cuts – the extent to which they benefit shareholders, workers, consumers – is uncertain but modern studies find significant benefits for shareholders (who tend to be towards the top of the income distribution) and for high-wage workers.[85] The same might be true for the green-energy credits and subsidies popping up globally. To address this issue, the IRA includes provisions to mitigate some of these un-equalizing effects, such as bonus credits for companies that pay higher wages for employees, in effect forcing some of the incidence of the subsidies onto workers. These policies are worth studying by other countries. If they are found to have compelling equalizing effects, they could be replicated elsewhere.

In principle there is no trade-off between fighting existential threats such as climate change and reducing inequality. A range of policies can contribute to achieving both at the same time, such as investment in public infrastructure, the public provision of key goods and services, and enhanced international cooperation. An analogue is the policies enacted by the United States during World War II to combat the existential threat of Nazism, which led to both a dramatic transformation of the economy in a short period of time and a massive compression of inequality.

[84]See for instance Henley & Partners (2023), Residence by Investment Programs, available online at: https://www.henleyglobal.com/residence-investment, accessed 7 Aug 2023.

[85]For recent estimates, see, e.g., Patrick J. Kennedy, Christine Dobridge, Paul Landefeld, and Jacob Mortsenson (2022) "The Efficiency-Equity Tradeoff of the Corporate Income Tax: Evidence from the Tax Cuts and Jobs Act", working paper.

In practice, it is likely that the path followed by the United States in 2022 was the only politically feasible one at that specific point in time. This does not mean that it is the most desirable economically, that it is the only possible one elsewhere today, or that it will always be the only possible one in the future.

Another question raised by the rise of green-energy subsidies is the risk this entails for global trade. Some of the IRA subsidies (such as the electric vehicle subsidies) are contingent on the use of domestic products instead of exports. If a growing number of countries were to adopt similar domestic sourcing requirements, there is a risk that this process may contribute to a rise of trade barriers globally. Some observers believe that the IRA domestic content provisions violate World Trade Organization rules.[86] But the WTO itself has been substantially weakened since the United States has started to block appointments to the WTO's dispute settlement Appellate Body in 2017, in effect putting many inter-state disputes in a state of limbo.

Even if the IRA subsidies violate WTO rules, this does not imply that green-energy subsidies should necessarily be prohibited. There is a general recognition that the WTO rules, which were designed in the aftermath of World War II, are partly outdated. There is a need for a more modern regulation of international trade that puts the issues of climate change and tax cooperation at the center stage. The key question is whether this is what will emerge from the current situation, or whether the forces of international tax competition and rising trade barriers will prevail.

2.2. Greenwashing the global minimum tax

A key plank of the IRA is the creation of a market of green tax credits where any firm can buy credits given to green energy producers. This allows companies not directly linked to the production or manufacturing of green energy to benefit from the IRA subsidies. To take a concrete example, JP Morgan could buy $1 billion in tax credit from an electric vehicle producer with no tax liability (e.g., because it is not profitable yet). JP Morgan would pay, say, $950 million to buy these credits and could then reduce its tax bill by $1 billion.

Importantly, the global minimum tax will not prevent firms from reducing their effective tax rate below 15% in that way. In the OECD model rules, refundable tax credits are not considered a reduction in taxes paid. What is a "refundable tax credit"? In July 2023, the OECD clarified that this category includes the IRA green-energy tax credits.[87] In the above example, the $950 million credit claimed by JP Morgan will not be considered as a tax cut. Only the (small) difference between the credit and the price at which it was bought ($50 million in the above example) will. This will allow firms like JP Morgan – and more broadly firms in industries that have nothing to do with green energy – to keep effective tax rates below 15%, by buying credits from green-energy producers.

Tax credit exemptions add to a long list of choices that have weakened the global minimum tax, discussed in chapter 2. The upshot is that the global minimum tax needs to be substantially strengthened if it is to make a difference. We discuss options in chapter 5.

2.3. How costly is the global subsidies race?

How large will be the budgetary impacts of the green-energy subsidies race? We stress that there is considerable uncertainty about the final costs. The available information, however, suggests they may well be significant – as large or larger than the expected revenue from the global minimum tax on multinationals.

[86]See for instance Noah Kaufman, Chris Bataille, Gautam Jain, and Sagatom Saha (2023), "The United States broke global trade rules to try to fix climate change – to finish the job it has to fix the trade system", The Conversation, 5 September 2023.

[87]OECD (2023), *Tax Challenges Arising from the Digitalisation of the Economy – Administrative Guidance on the Global Anti-Base Erosion Model Rules* (Pillar Two), July 2023, OECD/G20 Inclusive Framework on BEPS, OECD, Paris, www.oecd.org/tax/beps/administrative-guidance-global-anti-base-erosion- rules-pillar-two-july-2023.pdf.

In our central scenario, US green-energy tax credits will amount to the equivalent of about 15% of US corporate tax revenue in the next decade. EU green-energy tax credits will amount to nearly as much. For reference, profit shifting by multinational companies is estimated to reduce global corporate tax revenue by about 15% in the United States, up to 20% in some continental European countries, and about 10% globally (see chapter 2). From that perspective the costs of the new global subsidies race are highly significant.

To arrive at these percentages for the United States, we use (a) the projected corporate tax revenue of the Congressional Budget Office from 2024 to 2023[88], and (b) estimates on the use of the tax credits by firms. The key uncertainty stems from the fact that the IRA does not cap expenditures on the key IRA subsidies and credits: if there is strong take-up, the costs will be high.

A low-end estimate is given by the Congressional Budget Office which estimates the tax credits will cost $271 billion over the next decade.[89] Figure 3.2 illustrates the implied cost of the programme as a percentage of corporate tax revenue on the blue left-hand side bar. Under that scenario, the green-energy tax credits will cost the equivalent of about 5% of US corporate tax revenue in the next decade.

A medium estimate uses the demand of green energy in the next decade as estimated using the energy-economic model US-REGEN.[90] This predicts about $780 billion to be utilised by corporations in the form of tax credits in the next decade. In that scenario the US tax credits will cost about 15% of US corporate tax revenue. This is illustrated by the blue bar in the middle of Figure 3.2.

Last, a high-end estimate is provided by Bistline and co-authors, who place the cost of tax credits at $1,070 billion over the next decade,[91] equivalent to 21% of US corporate tax revenue. In Figure 3.2 this is shown in the blue bar on the right-hand side.

Following the Inflation Reduction Act, the European Commission has encouraged EU member states to use tax credits to subside green energy production.[92] We consider three scenarios about the size of these subsidies: (a) the European Union implements incentives of similar fiscal magnitude as the United States, (b) half as large, and (c) 1.5 times as large.To estimate costs as a percentage of corporate tax revenue, we first project GDP growth in the European Union for the next 10 years. We assume a nominal growth rate and corporate tax revenue growth rate of 3% per year.[93] By assumption, corporate tax revenues remain constant as a share of GDP at about 3% of EU GDP. [94]

[88]Congressional Budget Office (2023), The Budget and Economic Outlook: 2023 to 2033. https://www.cbo.gov/publication/58848.

[89]Congressional Budget Office (2022), Estimated Budgetary Effects of H.R. 5376, the Inflation Reduction Act of 2022. https://www.cbo.gov/publication/58366.

[90]The U.S. Regional Economy, Greenhouse Gas and Energy (US-REGEN) model is developed by the Electric Power Research Institute (https://www.epri.com). It incorporates regional and technological details of the power sector.

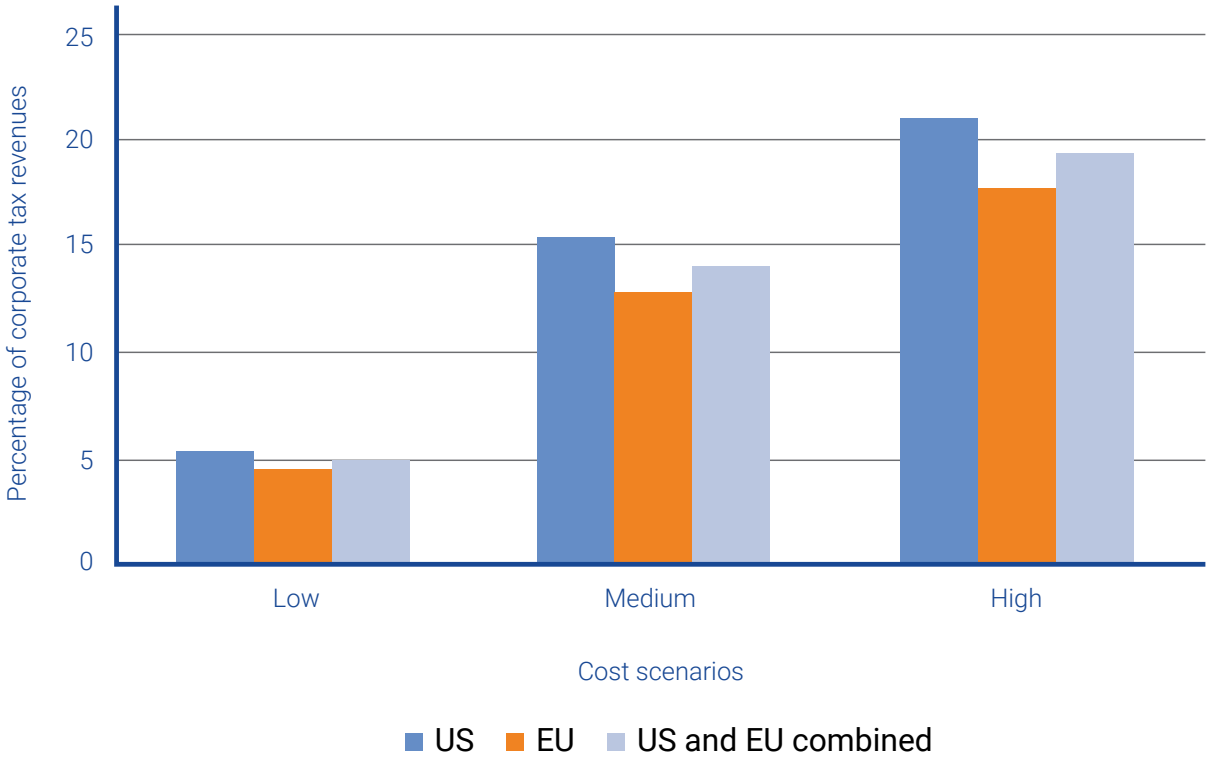
[91]John Bistline, Neil Mehrotra and Catherine Wolfram (2023), "Economic Implications of the Climate Provisions of the Inflation Reduction Act", NBER Working Paper No. 31267.

[92]Commission Notice Guidance on Recovery and Resilience Plans in the context of REPowerEU 2023/C 80/01 90C/2023/1259. The tax credit incentives were part of a guidance by EU Member States to revise their Recovery and Resilience Plans. This has been an established procedure since the COVID pandemic for countries to access EU funds. The revised proposals call for Member States to submit incentives for the clean-energy sector.

[93]This is in line with ECB's inflation target of close but below 2% a year and a long-term real growth rate for the EU at about 1%.

[94]Taxation Trends in the European Union, 2022 edition, Directorate-General for Taxation and Customs Union, European Commission, Publications Office of the European Union, Luxembourg, 2022

Figure 3.2
Budgetary costs of green-energy subsidies (10-year average)



Notes: The graph illustrates projected budgetary costs of the tax credits in the Inflation Reduction Act of 2022 (blue bar), an equivalent size programme being implemented by the European Union (orange bar) and a combined estimation for both the European Union and the United States (grey bar). The bar chart shows the average cost over 10 years (2024 to 2033). For the United States we use official 10-year forward GDP projections and corporate tax revenue projections by the Congressional Budget Office. For the European Union, we assume an annual nominal GDP and corporate tax revenue growth rate of 3%. Sources: EU Tax Observatory estimation, see Online Appendix for more information.

Figure 3.2 reports the estimated cost of EU subsidies under the assumption that the EU package will be similar in size to the US one (perhaps as a result of international competition), in the three scenarios described above for the eventual size of the US programme. In the low-end scenario, the cost adds up to about 4.5% of the European Union's corporate tax revenue. In the central scenario the cost rises to 13% of corporate tax revenues, and to nearly 18% in the high-end scenario. Projections in the cases where the European Union implements programmes half and 1.5 times as large as the United States are illustrated in the Appendix.

These computations should be seen as merely tentative and illustrative, given the uncertainty about the take-up of the IRA tax credits in the United States and the reaction of the European Union. But they illustrate that the magnitudes involved are all but anecdotal. Combining the United States and the European Union, in our central scenario the cost of green-energy tax credits represents 14% of corporate tax revenue. This would offset the additional revenue of Pillar 2. As discussed above, the beneficiaries are likely to be towards the top of the income distribution, unless strong measures are taken to force the incidence of these subsidies onto low- and middle-wage workers.

CHAPTER 4: TAX DEFICITS OF HIGH-NET-WORTH INDIVIDUALS

Over the last few years there has been renewed interest for the taxation of high-net-worth individuals, especially billionaires. This interest has been fueled by revelations suggesting that billionaires sometimes pay little in individual income taxes, such as the revelations from the media ProPublica in the United States in 2021.[95] A growing body of research attempts to quantify how effective tax rates vary across the income distribution, with a focus on the top of the distribution. This chapter discusses the evidence that emerges from this ongoing collective effort.

Pioneering research in partnership with tax administrations shows that global billionaires have very low personal effective tax rates, of between 0% and 0.5% of their wealth. Personal taxes include individual income taxes and wealth taxes when they exist. In a country like the United States the effective personal tax rate of billionaires appears closer to 0.5%, while in a country like France it is closer to 0% – in both cases, it is negligible relative to wealth. When expressed as a fraction of income and when considering all taxes paid at all levels of government (including corporate taxes, consumption taxes, payroll taxes, etc.), the effective tax rates of billionaires appear significantly lower than those of other groups of the population.

A key reason why billionaires tend to have low effective tax rates is that in many (though not all) countries they can use personal wealth-holding companies to avoid the income tax. In these countries, using a holding company allows wealthy owners of publicly listed corporations that distribute dividends to avoid paying taxes on these dividends. These holding companies are in a grey zone between avoidance and evasion. To the extent that they are created with the purpose of avoiding the income tax, they can legitimately be seen as closer to evasion. Some countries like the United States do not tolerate this practice and automatically subject dividends earned through personal holding companies to the income tax.

1 Effective tax rates by socio-economic group

For a long time, it was difficult to estimate the effective tax rates of very wealthy individuals, because public statistics on this issue are lacking. Statistical authorities around the world rarely publish data on wealth that adequately cover the top of the distribution, as it is difficult to capture very high net-worth individual in household surveys. Because most countries do not have individual wealth taxes, few tax authorities publish statistics on personal wealth. In that context information on billionaires often comes from magazines that publish named lists of wealthy individuals, such as *Forbes* and *Bloomberg*. Because there is some information in the public domain on the assets of rich individuals (such as large stakes in publicly listed companies) these magazines can provide valuable insights into the wealth of billionaires, but they are silent about their tax payments since those are typically not public (exceptions exist).

In recent years some studies have started to address this gap. By triangulating various data sources in the United States, Emmanuel Saez and Gabriel Zucman provided a first estimate of the taxes paid by the *Forbes*

[95] "The Secret IRS Files: Trove of Never- Before-Seen Records Reveal How the Wealthiest Avoid Income Tax". *ProPublica*, June 8 2021.

400 wealthiest individuals, a group close to the population of US resident billionaires in 2018.[96] Thanks to a pioneering collaboration with the French tax authorities, Laurent Bach and co-authors were able to estimate the amount of personal income and wealth taxes paid by French billionaires in 2016.[97] By combining this study with earlier work that covered the entire population (but with no granular zoom on billionaires), it is possible to estimate how effective tax rates vary across the entire distribution.[98] In the Netherlands, Arjan Bruil and co-authors were able to conduct a detailed study of tax progressivity using administrative data and going all the way up to the top 0.01% of the income distribution.[98] In this chapter we propose a synthesis of the findings and insights of these three studies.

These three studies are interesting in that they capture countries with different overall levels of taxation. One is a relatively low-tax country (the United States), one is a medium-tax country (the Netherlands), and one is high-tax (France). Moreover, altogether these three countries host almost 35% of all global billionaires and account for nearly 40% of global billionaire wealth. Out of the 20 wealthiest people listed by Bloomberg, 16 lived in the United States or in France in 2023. That said, we stress that the evidence on billionaire taxes remains at this stage very limited globally. There is no study to date on the effective tax rates of billionaires in developing countries, for example. More studies are necessary.

Figure 4.1 reports estimates of how effective tax rates vary across the income distribution in the three countries we consider. This figure takes into account all taxes paid at all levels of government: consumption taxes (including the VAT in France and the Netherlands), payroll taxes, individual income taxes, corporate taxes, property taxes, estates taxes, and wealth taxes when they exist (France). All taxes are allocated to individuals, even taxes nominally paid by firms; in particular all taxes on corporate profits are assigned to the individual owners of corporations.[100] Individuals are ranked by their pre-tax income, and all studies use a harmonized definition of income (or a close approximation) following the economic literature on "distributional national accounts." Specifically, pre-tax income includes all national income (measured following standard national account definitions) before government taxes and transfers and after the operation of the pension system.[101] Just as corporate taxes are allocated to the individual owners of corporations, so too are corporate profits allocated to these same individuals, no matter whether the profits are distributed as dividends or retained within the firms. Pre-tax income excludes unrealized capital gains.

To visualize the results, individuals are binned by deciles, with a zoom at the top of the distribution. P0-10 denotes the 10% of adults at the bottom of the pre-tax income distribution, P10-20 the next decile, etc. As we move up the distribution finer decompositions are shown; for instance P99.9 – P99.99 denotes the group between the 99.9th percentile of the income distribution and the 99.99th percentile. Because of income inequality, these groups, although they contain few individuals, account for a significant fraction of total income (and thus of total tax payments). Last, we add a dot representing "billionaires" (individuals owning more than roughly $1 billion in net wealth). Barring exceptions, these individuals are not only at the top of the

[96]Emmanuel Saez and Gabriel Zucman (2019), The Triumph of Injustice: *How the Rich Dodge Taxes and How to Make Them Pay*, W.W. Norton.

[97]Laurent Bach, Antoine Bozio, Arthur Gouillouzouic, and Clément Malgouyres (2023), «Quels impôts les milliardaires paient-ils ?», Note de l'IPP n° 92, juin 2023.

[98]See Antoine Bozio, Bertrand Garbinti, Jonathan Goupille-Lebret, Malka Guillot, and Thomas Piketty (2023), "Predistribution vs. Redistribution: Evidence from France and the U.S.", forthcoming in *American Economic Journal: Applied Economics*.

[99]Arjan Bruil, Céline Van Essen, Wouter Leenders, Arjan Lejour, Jan Mohlmann, and Simon Rabaté (2022), «Inequality and Redistribution in the Netherlands,» CPB Discussion Paper.

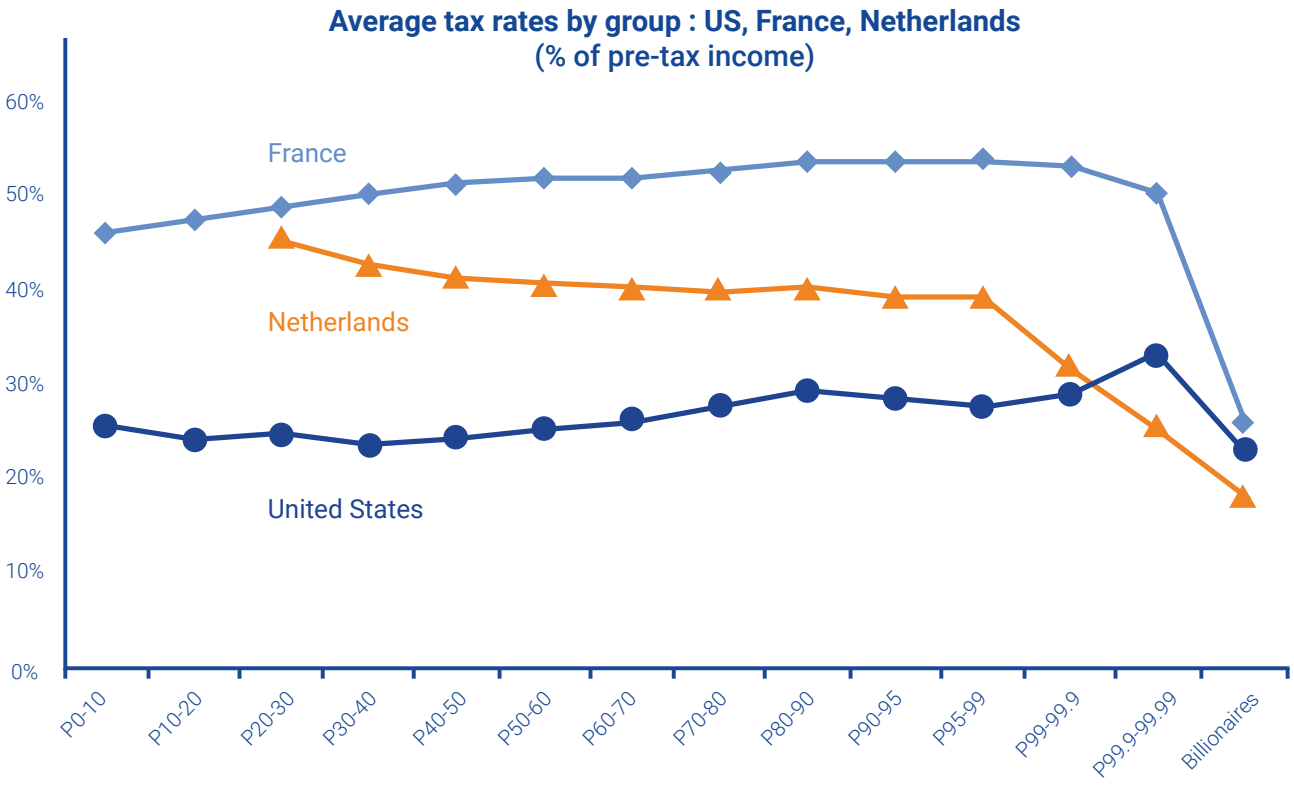
[100]For a modern treatment of the methodology involved in such an analysis, see Emmanuel Saez and Gabriel Zucman (2023), "Distributional Tax Analysis in Theory and Practice: Harberger Meets Diamond-Mirrlees", working paper.

[101]For further details on these distributional national accounts concepts and a broad-audience introduction, see Emmanuel Saez and Gabriel Zucman (2020), "The Rise of Income and Wealth Inequality in America: Evidence from Distributional Macroeconomic Accounts", Journal of Economic Perspectives, 34(4), pages 3 – 26.

wealth distribution but also at the top of the pre-tax income distribution, making this addition meaningful.[102]

A number of striking results emerge. First, in the three countries all groups of the population pay significant amounts of taxes. Tax rates are higher across the board in France (where the government collects a higher fraction of national income in taxes), lower in the United States, and generally in-between in the Netherlands. Second, in the three countries the tax system tends to become regressive at the very top. The regressivity starts around the 99th percentile in the Netherlands, while it is only visible for billionaires in the United States. In France a mild regressivity starts around the 99.9th percentile; the tax rates then collapse for billionaires. In all cases effective tax rates for billionaires are significantly lower than the effective tax rates of other income groups, and thus substantially lower than the average tax rate in the population.

Figure 4.1
The tax deficit of billionaires



Notes: This figure reports estimates of effective tax rates by pre-tax income groups and for billionaires in France, the Netherlands, and the United States. These estimates include all taxes paid at all levels of government and are expressed as a percent of pre-tax income. P0-10 denotes the 10% of adults at the bottom of the pre-tax income distribution, P10-20 the next decile, etc. Pre-tax income includes all national income (measured following standard national account definitions) before government taxes and transfers and after the operation of the pension system. National income excludes unrealized capital gains but includes the retained earnings of companies. Sources: United States: Emmanuel Saez and Gabriel Zucman (2019), The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay, W.W. Norton; data is for 2018. France: for P0-10 to P99.9-99.99, Antoine Bozio, Bertrand Garbinti, Jonathan Goupille-Lebret, Malka Guillot, and Thomas Piketty (2023), "Predistribution vs. Redistribution: Evidence from France and the U.S.", forthcoming in American Economic Journal: Applied Economics (data is for 2018); for billionaires: Laurent Bach, Antoine Bozio, Arthur Gouillouzouic, and Clément Malgouyres (2023) «Quels impôts les milliardaires paient-ils ?», Note de l'IPP n° 92, juin 2023 (data is for 2016). Netherlands: P20-30 to P99.9-99.99: Arjan Bruil, Céline Van Essen, Wouter Leenders, Arjan Lejour, Jan Mohlmann, and Simon Rabaté (2022), «Inequality and Redistribution in the Netherlands,» CPB Discussion Paper (data is for 2018); for billionaires: EU Tax Observatory extrapolations based on the regressivity trend observed between P99 and P99.99.

[102]Exceptions would include billionaire owners of corporations that make economic losses in a given year.

2 Why do billionaires tend to have lower tax rates than other social groups?

What can explain the regressivity of these tax systems at the very top? To better understand the low effective tax rate of billionaires, consider their individual income tax payments. The French study provides estimates of individual income taxes paid by income groups, expressed as a fraction of pre-tax income. The results are spectacular. The income tax is progressive up to roughly the 99.9th percentile of the pre-tax income distribution, with effective income tax rates peaking at about 25%. But it then becomes regressive and converges to nearly zero at the top end. For the top 0.0002% of the population (75 tax units, roughly the population of French resident billionaires), the income tax is equal to about 2% of their income. French billionaires pay a negligible amount of personal income taxes relative to their economic income. Because wealth is an order of magnitude larger than income for billionaires, the 2% tax rate out of income implies a close to 0% tax rate relative to wealth.

The wealthiest French billionaires are large shareholders of publicly listed, dividend-paying corporations. Yet, they do not appear to pay significant amounts of income tax, suggesting that their dividends go largely untaxed. How is this possible? In a nutshell, the dividend tax can be avoided by owning shares indirectly through a personal wealth-holding company. Dividends paid out to individuals directly cannot avoid or evade the income tax (which is withheld at source in France). The direct shareholder of a company like LVMH pays, in general, a 30% tax on the dividends distributed by this company (although exceptions exist, for instance for shares held on tax-favored saving accounts). But the mere act of interposing a holding company can be enough to avoid the tax. The use of such holding structures appears systematic among French billionaires.

This is not to say that billionaires pay no tax at all. As shown by Figure 4.1, their effective tax rate, all taxes included, is estimated to be slightly above 25%. The dividends of billionaires may go untaxed, but the profits of the corporations they own (such as LVMH or L'Oréal) are taxed at the corporate level by the corporate income tax. According to Laurent Bach and co-authors, the corporate tax is essentially the only tax paid by French billionaires.[103] The personal income tax fails at taxing them, as did the wealth tax when it existed before 2018.

According to the authors the same avoidance is likely to occur in many countries, including in other European countries.[104] In these countries like in France, holdings typically benefit from the parent-subsidiary regime that exempts the holdings from taxes on the dividends they receive, making the holdings essentially tax free (not unlike offshore companies incorporated in zero-tax jurisdictions).

The parent-subsidiary regime was designed to avoid the double-taxation of dividends, first within the group (when the dividend is paid by the subsidiary to the parent), then at the level of individual owners (when the parent pays out dividends to individual shareholders). In practice this regime can allow a zero taxation of dividend. Intra-group dividends go untaxed, and profits can accumulate in the parent company – which can be a personal wealth-holding company – that does not need to distribute them. The individual owners of the holdings can choose to distribute themselves a small income flow sufficient to cover their private consumption expenditures (which can be a very small fraction of their wealth if they are very wealthy). Or they can borrow money to fund this consumption, thus avoiding the income tax entirely.

[103]Laurent Bach, Antoine Bozio, Arthur Gouillouzouic, and Clément Malgouyres (2023), "Do Billionaires Pay Taxes?" op. cit.

[104]On the importance of holding companies and the avoidance of dividend taxation through such holdings in Norway, see Annette Alstadsæter, Martin Jacob, Wojciech Kopczuk, and Kjetil Telle (2016), «Accounting for Business Income in Measuring Top Income Shares: Integrated Accrual Approach Using Individual and Firm Data from Norway», NBER Working Paper no 22888.

An exception to the non-taxation of billionaires' dividend income is the United States. In this country, the use of holding companies for the purpose of avoiding the dividend tax has de facto been made impossible by several provisions in the tax code. An accumulated earnings tax has been levied since 1921 on the undistributed corporate profits deemed to be retained for tax avoidance purposes.[105] A personal holding company tax in place since 1937 effectively prevents wealthy individuals from avoiding the income tax by retaining income in holdings. Before 1921, shareholders could be directly taxed on the excessive retained earnings of their corporations. The view underpinning these different provisions is that retaining income in holding companies with the purpose of avoiding the personal income tax violates the economic substance doctrine, making this practice closer to evasion than avoidance. As such, it should be disallowed.

Because of these rules, US billionaires have somewhat higher effective income tax rates than French billionaires, although the difference should not be exaggerated. According to available estimates, US billionaires pay around 8% of their income in personal income taxes, corresponding to about 0.5% of their wealth (as opposed to 2% and 0.1% respectively in France).[106] This 8% rate remains low, and indeed much lower than effective income tax rates further down the distribution.

The fundamental problem is that income flows are difficult to measure and tax for very wealthy individuals, who can easily structure their wealth so that it does not generate much taxable income. In the United States, billionaire owners of listed companies sometimes instruct these companies to retain all their earnings, making it possible for their shareholders to avoid the individual income tax without the need for interposing a holding. The most famous example is probably the example of Warren Buffett, the main shareholder of Berkshire Hathaway, a listed company that has never paid any dividend. But some of the largest businesses in the United States do not pay dividends too, including Amazon, Facebook, and Alphabet, allowing their owners (such as Jeff Bezos, Mark Zuckerberg, Sergei Brin, and Larry Page) to benefit from relatively low effective income tax rates. As detailed in the next chapter, a minimum tax expressed as a fraction of wealth would be the most powerful tool to address this issue.

[105]Homer Elliott (1970), "The Accumulated Earnings Tax and the Reasonable Needs of the Business: A Proposal," *William and Mary Law Review*, 12: 34–50.

[106]See Emmanuel Saez and Gabriel Zucman (2019), The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay, op. cit.; see also Danny Yagan (2023), "What is the average federal individual income tax rate on the wealthiest Americans?", Oxford Review of Economic Policy, vol. 39(3), p. 438–450, who arrives at a similar estimate but using a different methodology and a different notion of income which includes unrealized capital gains.

CHAPTER 5: POLICIES TO COLLECT THE TAX DEFICIT OF MULTINATIONALS AND WEALTHY INDIVIDUALS

There is a growing demand worldwide for more progressive taxation. This demand can be explained by the rise of inequality and the lack of progressivity of existing tax systems at the top of the wealth distribution. Inequality has increased fast since the 1980s in countries such as the United States, China, India, less so in Continental Europe or in Japan. There are also variations in the progressivity of tax systems. But despite these differences, there is a large recognition that globalization and domestic policy changes over the last four decades have tended to benefit the wealthy, while the changes in the tax system have, if anything, exacerbated rather than curbed the rise of inequality.

There is also a widespread view that progressive taxation and capital taxation have become increasingly difficult – if not impossible – in a globalized world. International tax competition, the emergence of new forms of tax avoidance and evasion made possible by globalization mean that mobile factors of production cannot be taxed too much. If a country tries to tax multinational firms, according to this view, then multinationals will move their headquarters, their activity, or their profits to lower-tax countries. If a country tries to tax wealthy individuals, these taxpayers will relocate to tax havens. And indeed, the previous chapters have documented key challenges posed by globalization, such as the large amount of profit shifted by multinational companies to relatively low-tax places.

But international tax competition and evasion are not laws of nature; they are policy choices. These choices may not have always been very transparently or democratically debated over the last decades, but they are choices nonetheless. Countries can choose to adopt minimum taxes just like they can choose to put no floor to international tax competition. Policymakers can regulate the industry that facilitates tax evasion just like they can choose to deregulate (or even legitimize) it. Countries can choose to sign free-trade agreements that contain measures about fair taxation, just like they can choose to sign free-trade agreements silent about taxation. The current form of globalization is just one among many possible institutional arrangements.

This chapter describes a range of policies that can be implemented to reconcile globalization with tax justice. The common theme of these policies is that they focus on reducing the tax deficit of the economic actors – multinational companies, wealthy individuals – that have most benefited from globalization. Specifically, we make 6 proposals:

1. Reform the international agreement on minimum corporate taxation (Pillar 2) to implement a rate of 25% and remove the loopholes in it that fosters tax competition.
2. Introduce a new global minimum tax for the world's billionaires, mimicking what was achieved for multinational companies.
3. Institute mechanisms to tax wealthy people who have been long-term residents in a country and choose to move to a low-tax country.
4. Implement unilateral measures to collect some of the tax deficits of multinational companies and billionaires in case ambitious global agreements on these issues fail.
5. Move towards the creation of a Global Asset Registry to better fight tax evasion.
6. Strengthen the application of economic substance and anti-abuse rules.

Some of these policies build on existing international frameworks and are implementable in the short or medium term; other take a longer-horizon perspective. We start by considering policies that build on existing agreements and push them to the next step: we propose to improve the global minimum corporate tax and to replicate the process that led to it to implement a global minimum tax on the super-rich. We then consider options that are more ambitious and will likely require more time, such as a global asset registry, and options that can be implemented by countries unilaterally but may require some evolution in international treaties.

International cooperation is always preferable, but truly global agreements should be the end point rather than the starting point. Given the interest that some economic actors have in preserving the status quo of international tax competition, insisting on unanimity from the get-go severely limits the realm of possibilities. Instead, recent history shows how unilateral action (or multilateral action by a leading group of countries) can pave the way for eventually nearly global agreements. The US adoption of the Foreign Account Tax Compliance Act in 2010 pushed the global community to adopt the Common Reporting Standard in 2014. More recently, the introduction of unilateral digital service taxes in the late 2010s pushed countries to open a second round of BEPS negotiation in 2019, leading to the global minimum tax of 15% on multinational profits. Unilateral action, if it is well-founded economically, can accelerate rather than impede global cooperation.

Some of the proposals we make may require an evolution of the law, including international law. While some may view these legal evolutions as utopian, it is worth remembering that some of the key progress made over the last 15 years – the automatic exchange of bank information, and the global minimum tax on multinational profits – were largely viewed as utopian 15 years ago. The lesson from recent history is that new forms of international cooperation long deemed impossible can emerge relatively quickly when the issues are explained clearly and rigorously, technically feasible solutions exist, and the political will to implement them exists in at least one "first-moving" country. Current laws and treaties cannot be the final word on the issue of how to regulate taxation in an inter-connected world. The law will keep adapting, new treaties will be written, as has happened throughout history.

1 Building on the global corporate minimum tax: increase the rate and remove loopholes

The global minimum tax of 15% on multinational profits endorsed by more than 140 countries and territories in 2021 is a major achievement: it is the first time that an international agreement puts a floor to how low profit taxes can go. But, as explained in chapter 2, it also has several major limitations. Our first proposal is that countries should reform the existing agreement to address its two main issues: the carve-outs for substance and the low tax rate.

1.1. Removing carve-outs from the global minimum tax

We start by considering the effects of removing Pillar 2's key loophole, the substance carve-out. Recall that these carve-outs allow firms to exclude from the base of the minimum tax a certain amount of profits in each country that depends on their capital stock and payroll in that country. In the first year of the agreement, firms can subtract 8% of the value of tangible assets and 10% of payroll from profits subject to the minimum tax. Over a transition period of ten years, the amounts of excluded income decline to reach 5% of tangible assets and 5% of payroll. These carve-outs give firms incentives to move production (assets and employment) to countries with tax rates below 15%, thus exacerbating international tax competition.

In a static framework, we estimate that removing carve-outs would increase revenues by 20-25% in the short term (1 year) and by about 10% in the long-run (10 years). Specifically, as shown by Table 5.1, if a 15% global minimum tax had been in place in 2023, according to our estimates this tax would have collected $220 billion in revenue globally assuming the year 1 carve-out (8% of assets and 10% of payroll) had been applied. Without carve-outs, we estimate that the minimum tax would have generated $270 billion globally, an increase of 22% over the year-1 carve-out baseline. After 10 years because the carve-outs are lowered, their costs decline. Even so, the carve-outs still reduce the revenue potential of the global minimum tax by about 10%.

Importantly, these estimates are purely static and ignore the key cost of carve-outs, which are dynamic. The carve-outs provide incentives for firms to move real activity (capital, employment) to relatively low-tax places, to keep benefiting from effective rates below 15% in these countries. Depending on the magnitude of the relocation of real activity, the ultimate revenue loss caused by the carve-outs may be significantly larger. The static estimates can be interpreted as a lower bound for their true cost.[107]

Table 5.1

The revenue potential of removing carve-outs from the global minimum tax in 2023 (billions of US$)

Income Group	Tax collection by headquarter countries				Tax collection by source countries			
	Number of countries	Without carve-outs	With carve-outs, year 1	With carve-outs, year 10	Number of countries	Without carve-outs	With carve-outs, year 1	With carve-outs, year 10
European Union	25	95.7	68.6	79.3	27	94.7	73.8	82.0
United States	1	96.8	90.8	93.1	1	17.0	10.2	12.8
Other high income	39	48.1	37.6	41.5	53	130.7	112.5	119.4
Upper middle income	19	28.3	23.1	24.9	51	24.8	22.5	23.4
Lower middle income	5	0.6	0.5	0.5	47	1.2	0.8	0.9
Low income	0	0.0	0.0	0.0	17	1.1	0.7	0.9
Memo: Tax havens	***40***	***66.4***	***54.1***	***58.9***	***37***	***159.0***	***143.4***	***149.2***
Total	89	269.6	220.5	239.4	196	269.6	220.5	239.4

Notes: The table reports estimates of the revenue potential of a Pillar 2 global minimum tax of 15% with and without carve-outs for substance. The estimation is done at the country levels and results are aggregated by country groups following the World Bank classification; country-level results are reported in the Online Appendix. The year 1 carve-out is equal to 8% of assets and 10% of payroll (meaning an amount of profits equal to 8% of assets and 10% of payroll can be excluded from the base of the minimum tax). The year 10 carve-out is equal to 5% of assets and 5% of payroll. Sources: EU Tax Observatory calculations, see Online Appendix.

The carve-outs embody the idea that tax competition, if it is real (firms moving production to low-tax countries), is legitimate or at least should not be regulated via international agreements. The only thing that is not legitimate, according to the view that underpins this loophole, is artificial profit shifting – the relocation of paper profits to very low tax countries. If companies choose to move production to low-tax countries, there should be no limit to how low their tax rates may go, according to the view that underpins the carve-outs. Any rate, even 0%, is acceptable.

The problem with this view is that international tax competition – especially when it involves rates of less than 15% – is a very negative form of international competition, one that is inherently negative sum. From

[107]See Mona Barake, Paul-Emmanuel Chouc, Theresa Neef, and Gabriel Zucman (2021), "Minimizing the Minimum Tax? The Critical Effect of Substance Carve-Outs", EU Tax Observatory note, July 2021.

a single-country perspective it can increase output, employment, and tax revenues. But globally it does not. Assets and jobs simply move from one country to another and global tax revenue collection falls. Most importantly, this process fuels inequality because it reduces the effective tax rates of the owners of multinational companies, who tend to be concentrated towards the top of the wealth distribution.

In principle, one may imagine that allowing countries to offer effective tax rates on corporate profits of less than 15% may spur global investments, increase the global capital stock, and eventually lead to higher wages throughout the world. The empirical basis for such a view, to put it mildly, is thin. By contrast, the mechanical inequality impacts of this type of extreme tax competition are clear, given the observed concentration of equity ownership throughout the world.

Our first recommendation is to remove substance carve-outs from the Pillar 2 minimum tax. The carve-outs were introduced relatively late in the negotiation. They have been little debated, and few policymakers (let alone ordinary citizens) seem to have realized their philosophical implications (legitimizing tax competition on very low rates) or their practical consequence (exacerbating this competition, depriving governments of significant amounts of revenues, and increasing inequality).

1.2. Increase the rate of the global minimum tax

Our second recommendation is that countries should consider higher minimum rates. The revenue potential from higher rates is indeed large. Increasing the minimum tax to 20% leads to an increase in revenue by a factor of 1.75 relative to a minimum tax rate of 15%. With a minimum rate of 25% the revenues nearly triple. With a minimum rate of 30% they almost quadruple (see Table 5.2).

To allocate these additional revenues to specific countries, we consider two polar cases: full collection of the minimum tax by headquarter countries and full collection by host countries. Where the revenues end up depends on whether host countries will implement minimum taxes. If they do not, headquarter countries will reap the benefits. For this reason, country-level results should be interpreted with care.

Table 5.2 presents our estimates of the revenue gains from minimum tax rates at 15%, 20%, 25% and 30% in the two polar scenarios described above. The top panel considers collection by headquarter countries (in technical terms, it simulates the application of the income inclusion rule of Pillar 2, where headquarter countries apply a top-up tax). The bottom panel considers collection by host countries (it simulates the application of the Qualified Domestic Minimum Top-up Tax of Pillar 2, where host jurisdictions claim the top-up tax). Both panels assume an elimination of substance-based carve-outs.

The baseline amount of additional global tax revenue is $270 billion in 2023, corresponding to a minimum tax of 15% without carve-outs. With a rate of 20% this amount increases to $475 billion. With a rate of 30% this amount increases to nearly $1 trillion. When revenues are collected by headquarter countries (top panel), high-income countries (where headquarters tend to be located) benefit more. When revenues are collected by host countries (bottom panel), tax havens (where large amounts of profits are booked today) benefit more. This is because the simulations are static and assume that profits currently booked in tax havens would remain booked in these havens. In fact, the profits would be partly re-allocated to other countries, leading to revenue gains for non-haven countries.

Table 5.2

The revenue potential of different minimum tax rates in 2023 (billions of US$)

A. Effect of higher minimum rates - tax collection by parent country

Income group	# countries	15%	20%	25%	30%
EU27	25	95.7	182.4	279.1	386.0
USA	1	96.8	146.4	202.0	262.2
Other high income	39	48.1	101.8	171.6	256.9
Upper middle income	19	28.3	42.9	58.5	76.4
Lower middle income	5	0.6	1.2	1.8	2.6
Memo: Tax havens	*40*	*66.4*	*112.8*	*169.4*	*242.9*
Total	89	269.6	474.6	713.0	984.0

B. Effect of higher minimum rates - tax collection by host country

Income group	# countries	15%	20%	25%	30%
EU27	27	94.7	175.6	264.2	361.1
USA	1	17.0	30.5	44.9	62.9
Other high income	53	130.7	212.0	299.4	393.2
Upper middle income	51	24.8	51.9	96.7	155.4
Lower middle income	47	1.2	2.5	4.4	6.8
Low income	17	1.1	2.2	3.3	4.7
Memo: Tax havens	*37*	*159.0*	*242.0*	*326.5*	*411.4*
Total	196	269.6	474.6	713.0	984.0

Notes: The table reports estimates of the revenue potential of a Pillar 2 global minimum tax with different rates (15%, 20%, 25%, 30%), without carve-outs for substance. The estimation is done at the country levels and results are aggregated by country groups following the World Bank classification; country-level results are reported in the Online Appendix. The top panel presents simulations where tax revenues are collected by headquarter countries; the bottom panel presents simulations where tax revenues are collected by host countries. In both cases the simulations are static, we do not factor in the relocation of profits that would be caused by the application of the minimum tax. Sources: EU Tax Observatory calculations, see Online Appendix.

The bottom line is that the global revenue gains from higher minimum rates are clear and large, even though their country distribution is uncertain. It should be noted that with a high minimum tax rate applied globally, there would be less incentive for multinational companies to shift profits across countries. This would benefit market countries (where sales occur) in ways that our estimates do not fully capture. A firm that has a large market in India, for example, would have no reason to set up structures to shift profits out of India, increasing the tax base there and the amount of profits collected by India. In that sense a high minimum tax rate can contribute to achieving both the objectives of Pillar 1 and Pillar 2. If there is a choice to be made between different options to push forward the BEPS process, it makes sense for global policymakers to focus on strengthening Pillar 2 with higher rates and reduced exemptions.

Summary recommendation

Re-open international negotiations on the minimum tax of large corporations with the aim of:

- Setting a minimum effective tax rate of at least 25%
- Removing substance carve-outs that foster international tax competition

2 A coordinated global minimum wealth tax on the very rich

The approach that led to the global minimum corporate tax on multinational companies could be applied to a global minimum tax on the very rich. The underlying logic is similar. Like multinational companies, wealthy individuals have been the main winners from globalization. Like multinational companies, they often have low effective tax rates, as we saw in chapter 4. Since countries have been able to reach an agreement for multinationals (long deemed utopian), an agreement on a minimum tax for the wealthy is not a priori impossible.

This debate flourishes against the backdrop of rising wealth inequality and a growing awareness of the loopholes in existing tax systems. Extreme wealth has increased particularly fast. While average wealth grew by 3% per year globally since 1995, the wealth of the richest individuals grew by 6% to 9% per year.[108] The share of global wealth captured by billionaires has been multiplied by 3 over the past 25 years.

Minimum taxes are the most powerful tools to address loopholes in existing tax systems because they ensure that no matter the specific exemptions, deductions, or tax avoidance strategies rich taxpayers may use, the amount of tax effectively paid cannot fall below a certain amount. The key question is relative to what the minimum tax should be computed – should it be expressed as a fraction of taxable income, or as a fraction of some other notion of income, of wealth, of consumption? For the very rich, recent research emphasizes that the most logical point of reference is wealth itself, because income and consumption flows are not well defined at the very top of the distribution, while wealth – the current market value of ones' assets, net of debts – is well-defined.[109] Of course, this does not mean that the only way to tax the rich is through a wealth tax; the progressive income tax (including the taxation of capital gains), corporate taxes (which serve as a de facto backstop for the income tax), and inheritance taxes all have important roles to play. Simply, for the specific issue of how to define the minimum tax rate to which rich individuals should be subject, wealth appears to be the best reference point.

Minimum taxes on the rich have three main potential advantages. First, they raise revenue in a context of growing needs for public investment in education, health, infrastructure, and the transition to net zero carbon emissions. Second, they can contribute to limiting the rise of economic inequality and to democratizing ownership. Third, they can improve tax compliance and facilitate broader tax reforms by reinforcing social cohesion. A government that can demonstrate that it manages to tax the very wealthiest people and enforce minimum fairness principles is more likely to be trusted.

To quantify the revenue potential of a global minimum tax on rich individuals, Table 5.3 considers a minimum tax on billionaires equal to 2% of their wealth. There are about 2,500 billionaires globally today. Their wealth adds up to close to $13 trillion (about $4.7 billion on average per billionaire). As discussed in chapter 4, the available evidence – which is growing but still limited – suggests billionaires have low effective tax rates. In the case of France, the personal income tax paid by the 75 wealthiest individuals (roughly the population of French billionaires) is equal to 2% of their income, i.e., essentially 0% of their wealth.[110] Wealth taxes were also negligible when they existed. In the case of the United States, the

[108]See, e.g., Lucas Chancel, Thomas Piketty, Emmanuel Saez, and Gabriel Zucman (eds), The World Inequality Report 2022, Harvard University Press.

[109]See, e.g., Thomas Piketty, Emmanuel Saez, and Gabriel Zucman (2023), "Rethinking Capital and Wealth Taxation", *Oxford Review of Economic Policy*, 2023, vol. 39, p. 575-591.

[110]Laurent Bach, Antoine Bozio, Arthur Gouillouzouic, and Clément Malgouyres (2023) «Quels impôts les milliardaires paient-ils ?», Note de l'IPP n° 92, juin 2023.

income tax payments of billionaires are slightly higher, of the order of 0.5% of wealth. For other regions we assume that the current effective personal (income plus wealth) tax rate of billionaires is the average of the one seen in France and in the United States, i.e., 0.25% of wealth. Under this assumption global billionaires pay around $44 billion in personal taxes today, about 0.35% of their wealth. A minimum tax that would bring their personal tax payments to 2% of wealth would thus add the equivalent of 1.65% of their wealth in tax. This minimum tax would generate $214 billion in government revenue globally.

Table 5.3

Revenue potential of a minimum tax of 2% on the wealth on billionaires in 2023 (billions of US$)

Region	Number of billionaires	Total wealth ($B)	Average wealth ($B)	Personal tax currently paid	Tax paid with 2% wealth tax ($B)	Revenue of 2% minimum wealth tax ($B)
Europe	**499**	2,418	4.8	6.0	48.4	42.3
North America	**835**	4,822	5.8	24.1	96.4	72.3
East Asia	**838**	3,446	4.1	8.6	68.9	60.3
South & South-East Asia	**260**	991	3.8	2.5	19.8	17.3
Latin America	**105**	419	4.0	1.0	8.4	7.3
Sub-Saharan Africa	**11**	52	4.7	0.1	1.0	0.9
Middle-East & North Africa	**75**	182	2.4	0.5	3.6	3.2
Russia & Central Asia	**133**	586	4.4	1.5	11.7	10.3
Total	2,756	12,916	4.7	44	258	214

Notes: The table reports estimates of the revenue potential of a minimum tax on world billionaires equal to 2% of their wealth. The minimum tax is computed as 2% of their wealth, minus the amount of personal tax (income tax and any wealth tax if it exists) they already pay. For instance, the 499 European billionaires are estimated to have $2,418 billion in wealth. A straight 2% wealth tax would generate 2% of $2,418 billion which is $48.4 billion. After subtracting the amount of personal tax they currently pay (estimated to be equal to around $6.0 billion), the revenue of the 2% minimum wealth tax is equal to $42.3 billion for European billionaires. Source: the wealth of billionaires is taken from the *World Inequality Report 2022*, table 7.3. We assume that billionaire wealth in 2023 is equal to billionaire wealth in 2021, hence revenue estimates should be seen as conservative.

The bottom line is that a 2% minimum tax on global billionaires would generate about as much revenue as the Pillar 2 global minimum tax on multinational profits of 15%: in both cases around $220 billion if it had been implemented in 2023. This is a coincidence – there is no reason why the two minimum taxes, which are completely different, should yield about as much. This similarity perhaps reinforces the notion that a global agreement on a minimum tax on billionaire is all but unrealistic.

The minimum tax we propose is narrow in scope, since it would affect only billionaires – about 2,500 individuals in 2023. As a matter of logic there is no reason to subject only billionaires to it: ideally one would want a minimum tax that ensures all wealthy people (including centimillionaires and decamillionaires) pay a minimum amount relative to their wealth. One virtue of starting with billionaires is that this small group of individuals is quite visible, making it relatively easy to implement the tax. Moreover, recent research makes it clear that billionaires globally have low personal income tax rates, since at the very top of the wealth distribution taxable income tends to become vanishingly small relative to wealth (see chapter 4). There is more uncertainty on the effective tax rates (relative to wealth) of less wealthy individuals, making it more difficult at this stage to precisely assess the revenue potential of a minimum tax below the $1 billion threshold.

The idea of a minimum tax on billionaires has been endorsed by prominent political leaders, including

Joe Biden in the United States, who proposed a "billionaire minimum tax" of 25% in his 2023 budget request to Congress. Although this minimum tax is expressed as a fraction of income, the notion of income considered in this proposal is much broader than conventionally defined taxable income, since it includes unrealized capital gains.[111] Moreover, the proposal includes a tax on the stock on unrealized capital gains, which is akin to a heavy one-off wealth tax.

In some ways a global minimum tax on billionaires would be easier to implement than the Pillar-Two minimum tax on multinational companies. There is not much disagreement about which countries should collect this wealth tax – it would be logical for it to be collected by the residence countries of billionaires. A person's country of tax residency is typically defined as the country where that person spends more than half of the year, with more detailed rules already in place in bilateral tax agreement to settle cases involving part-year residency in multiple countries.

In some other respect, however, a global minimum tax on billionaires raises specific issues. The main difficulty involves the valuation of private businesses (i.e., businesses that are not listed on a stock exchange), an important form of wealth at the top of the wealth distribution. The private businesses owned by billionaires are typically large, making it possible, at least conceptually, to assess their value by comparing them to similar publicly listed companies. Concretely, to value these private businesses tax authorities could apply the valuation multiples observed for similar listed businesses in the same industry: multiple of market value to profits, market value to assets, market value to sales, etc.[112] Ultimately a global agreement would be an opportunity to develop harmonized rules for such valuations, which are already routinely conducted by private financial institutions in the context of mergers and acquisition, loans, bond issuance, etc., but without following internationally-agreed rules.

Another general concern with wealth taxes is that taxpayers may not have enough liquidity to pay them, forcing them to liquidate assets, with adverse effects on stock prices. Because the minimum tax we propose is small (2% of wealth) and focused on billionaires, these concerns are not relevant. Billionaires routinely obtain loans secured against their wealth (e.g., to consume while avoiding the income tax, or to make investments without having to divest from their businesses). They could do the same to pay the minimum tax if they wanted to. Fundamentally, the notion that billionaires suffer from liquidity issues makes little sense – if they report little taxable income, it is because they organize their own illiquidity to avoid the income tax.

The last concern with proposals for taxing extreme wealth is the challenge raised by international mobility. If the agreement on the minimum tax is global this risk is moot. Below we discuss strategies to enforce a minimum tax – and in particular address the issue of mobility – in the case of less than global implementation.

Summary recommendation

1. Convene international negotiations on minimum taxes on the wealthy.

2. Set a minimum effective tax rate expressed as a fraction of wealth.

3. Design harmonized rules for the valuation of private assets owned at the top of the wealth distribution.

[111]This proposal builds on a minimum tax mechanism described in Danny Yagan, Emmanuel Saez, and Gabriel Zucman (2021), "Capital Gains Withholding", UC Berkeley working paper. We refer to this paper for a complete technical discussion.

[112]For a more complete discussion of this issues (and more broadly of general issues with wealth taxation), see Emmanuel Saez and Gabriel Zucman (2019), "Progressive Wealth Taxation", Brookings Papers on Economic Activity, Fall 2019.

3 Regulating tax competition: Tax rich non-residents

To maximize effectiveness and avoid leaks, minimum taxes applied by all countries are ideal. But reaching a global consensus can be difficult as some countries benefit from the status quo of international tax competition or can benefit from deviating from a coordinated equilibrium.

A key difficulty in taxing wealthy individuals absent of a coordinated global wealth tax is the risk that these individuals may move to low-tax countries (or to countries that are high-tax overall but offer favourable regimes for rich foreigners, as documented in chapter 3). In many countries that abolished their wealth taxes, such as France and Sweden, this concern was the main reason for the repeal of the tax. This section discusses how this issue could be addressed. The next section describes more general approaches to ensure effective minimum taxes absent global agreements.

3.1. Current taxation of non-residents: two polar and unsatisfactory models

When it comes to taxing non-residents, two main models are currently applied. On the one hand, the United States taxes its citizens no matter where they live globally, and no matter how long they have lived in the United States. Most countries implement the opposite model: taxpayers stop being liable for taxes immediately after departure, no matter how long they have lived in their origin country.

Both models can be viewed as too extreme. The issue with the US model is that someone may have spent very little time in the United States and yet end up being liable for taxes until he or she dies (unless that person renounces US citizenship) – the problem of so-called "accidental Americans." This is true even for people with low incomes: all US citizens living outside of the United States must file a US tax return, which can be costly and complex.

In the model used by most other countries, by contrast, the issue is the opposite. Someone who has spent, say, 70 years in a country and became a billionaire there can move to a tax haven and immediately stop having any tax to pay. This is hard to justify, since wealth is at least partly a social construction: people who become very rich owe at least part of their success to the education they received, the infrastructure and public goods that allowed their businesses to thrive, the health care system, the legal and judicial system, etc. – all of which mobilized at least some public resources.

3.2. The ideal model: a middle ground between existing policies

The ideal policy, we argue, strikes a middle-ground between these two polar models. Countries should keep taxing rich people who have been long-term residents. This tax obligation would only apply to wealthy individuals who have spent a long time in a country. Nationality, in this system, is irrelevant. Moreover, any tax paid in the destination country would be credited against the amount of tax owed in the origin country, thus preventing any double taxation.

This system would effectively collect the tax deficit of wealthy individuals choosing to move to tax havens. The countries collecting the tax deficit would be the countries where these individuals have built their wealth. For people who move to relatively high-tax locales no or little extra tax would be owed. A few examples illustrate this proposal.

Consider first Arthur, who has been a tax resident in France for 50 years, became a billionaire there, and decides to move to a low-tax canton in Switzerland. In our proposal, Arthur would keep paying taxes in France after his departure because he has lived in France for a long time and became rich there. The tax

would apply no matter Arthur's nationality. Concretely, the French tax system (including wealth taxes, if any) would "follow" Arthur for some years after his move, with tax credits given to offset any tax paid in Switzerland.

For how long would French taxes continue to apply? A larger number of years (say 15 or 20 years) reduces incentives to move to low-tax places the most. A smaller number (say 3 or 5 years) still reduces these incentives, but less so. The duration could depend on the number of years that Arthur has been a tax resident in France. For example, if he has been in France for 40 years, then French taxes could follow him for 10 years; if he has been in France for 50 years then French taxes could follow him for 15 years, etc. The underlying idea is that tax duties towards a country gradually grow with the time one has spent there. The longer one has spent in a country, after all, the more one is likely to have benefitted from access to its market, its public goods and services, its infrastructure, etc.

Consider now the case of Sarah, a British student who comes to study in France for 2 years and returns to Britain after her curriculum. No tax would be owed to France after her departure because Sarah has not spent a long time in France. In practice, countries would only implement the anti-exile tax we propose to rich individuals who have spent say at least 5 or 10 years as residents, potentially with the gradual schedule described above (duration of the tax growing with the number of years spent as tax resident) to limit threshold effects. By construction such a system would have zero effect on short- or medium-term international mobility.

Last, consider the case of Patrick, a US citizen who has spent his whole life in the United States but is not very rich, and chooses to retire in Spain. Because Patrick is not very rich, no tax would be owed to the United States after departure, even though he has spent his whole life in the United States. This would be a dramatic simplification relative to the current practice of citizenship-based taxation in force in the United States, which applies to all citizens no matter their income. For the definition of what "very rich" means, simple income and asset tests could be used (annual income above a certain level and wealth above a certain level).

The key advantage of this system is that it addresses all forms of tax competition, whether it is standard tax competition on tax rates, or the preferential tax regimes that have flourished in recent years. Imagine for instance that a Swiss canton offers special tax regimes for wealthy foreigners. If France were to implement the system described here, there would be no point for rich residents of France to move to that canton, as the tax saving would be fully offset by higher taxes owed in France (at least for some years). France would collect the tax deficit of its rich expatriates. Moreover, this system is also immune to the risk of citizenship renunciation which weakens the US system of taxation based on citizenship, since our "anti-exile" tax is not based on nationality. Adding or renouncing a nationality would not make a difference to the amount of tax owed.

3.3. Feasibility of taxing non-residents

Is this system feasible in practice? First, it is worth noting that some countries already have this system in place. This is the case of Norway. According to Norwegian law, a person who has lived more than 10 years in Norway is required to keep paying personal taxes there for 3 years after leaving.[113] This rule applies to all personal taxes, including the individual wealth tax in force in Norway. The main limitation is that Norway has signed bilateral tax agreements that in some cases over-rule this general principle, reducing the scope of taxes owed in Norway. The agreement with Switzerland is particularly advantageous as it allows Norwegians moving to Switzerland to be exempt from tax in Norway from day 1 if they (or their spouses) do not own residential properties in Norway. Importantly, however, the general rule is that long-term residents of Norway remain taxable in Norway for 3 years after departure.

[113]Annette Alstadsæter, 2023, "Må endre skatteavtalen med Sveits", Dagens Næringsliv, 22 August 2023.

Second, many countries have some form of taxation of non-resident individuals, albeit more limited than in the system we propose or in Norway. These taxes typically only apply to specific forms of income, or they are one-off taxes – known as exit taxes – at the time of residency change. For instance, France taxes certain realized capital gains of former French residents who have moved abroad and realize their gains after departure. Non-residents must keep filing a tax declaration to France after their departure unless they choose to pay taxes on unrealized gains when they leave. The United States imposes an exit tax on unrealized capital gains upon citizenship renunciation for wealthy taxpayers. The mechanism we propose is more comprehensive: in our system, non-residents would remain liable for personal taxes (on all income, and all wealth when a wealth tax exists) after departure, with credits for taxes paid in the new country.

For a long time, taxes on non-residents were hard to enforce, due to a lack of information exchange between countries. This is probably the reason why, so far, few countries have implemented policies like these. With the automatic exchange of bank information in force since 2017-18, it becomes much easier for countries to enforce comprehensive taxes on non-residents.

A virtue of our proposal is that it does not require a global agreement. This does not mean that it may not require renegotiating some bilateral or multilateral agreements, such as double-tax treaties (as we saw with the case of Norway). The costs of renegotiating these treaties must be weighed against the benefits stemming from reduced tax competition on wealthy individuals.

Another objection is that our proposal may be perceived as restricting freedom of movement. It is worth noting, however, that exit taxes already exist in the European Union, where freedom of movement is strictly protected. To be sure, some of these mechanisms have been challenged in the past in the Court of Justice of the European Union, leading some countries to abandon or reform their exit taxes. Today, some EU countries (such as France) nonetheless have exit taxes that appear compatible with EU law. The jurisprudence on these issues is likely to keep evolving.

In our view, reduced tax competition on the wealthiest individuals is likely to reinforce the sustainability of European economic integration – and globalization more broadly – by limiting the possibilities for its main winners to have access to the lowest taxes, a process that otherwise risks undermining the support for globalization. In that sense, we view our proposal as eventually supporting a sustainably more open world.

Summary recommendation

Tax rich, long-term residents for some years after departure.

4 Implement minimum taxes unilaterally absent global agreements

The anti-exile tax describes above is a powerful illustration of the notion that tax competition is not a law of nature but a policy choice. Countries can choose to accept it (or even encourage it), just like they can choose to regulate it. This is true beyond the specific issue of how to tax former residents. There is, more generally, a lot that countries can do unilaterally (or multilaterally in the context of a "coalition of the willing") to implement effective minimum taxes on multinational companies and wealthy individuals absent a global agreement. The general idea is that any country can act as tax collector of last resort, i.e., choose to collect some of the taxes that other countries chose not to collect. This section explains how this could work practically in the case of multinational companies and billionaires respectively.

4.1. Unilateral taxation of multinationals

Several participants in the BEPS negotiations have already signaled their willingness to consider minimum corporate tax rates higher than 15%. This is the case of the African Tax Administration Forum which coordinates the voice of African countries in international negotiations.[114] How could one country apply a higher minimum tax rate than the internationally agreed one?

To fix ideas, imagine that a country, say South Africa, wishes to implement a minimum tax rate of 25%. To do so it would first compute the tax deficit of each multinational company that has customers in South Africa. The notion of tax deficit is key to understand the measures we describe. We define the tax deficit of a company as the difference between what that company would have to pay in tax globally if it was subject to a 25% minimum tax rate in each country, and what it effectively pays.

Consider for instance a company present in three countries: South Africa, Cayman Islands, United States. The company reports $1 billion in profit in South Africa taxed at an effective rate of 27%, $1 billion in the Cayman Islands taxed at 0%, $1 billion in the United States taxed at 15%. The tax deficit of this company (relative to a norm of 25%) is $0 (tax deficit in South Africa) + $250 billion (tax deficit in the Cayman Islands) + $100 million (tax deficit in the United States), that is, $350 billion in total.

South Africa would then collect a share of this tax deficit. Which share? A simple and robust way to proceed is to set that share equal to the fraction of the global sales made by the multinational company in South Africa. For example, in the above example, imagine that the company makes 20% of its global sales in the South Africa. Then South Africa would collect a tax of 20% times $350 billion, i.e., $70 million. This would be a new tax, which could be described as a "remedial tax," based not on profits, nor on sales, but on the (apportioned) tax deficit of multinational companies. By construction, companies that have an effective tax rate of 25% or more in each country would have nothing more to pay. The remedial tax only targets firms that have a tax deficit, i.e., pay less than 25% in tax in at least one country.

A number of points about this remedial tax are worth noting.[115] First, it would be relatively easy to implement because the key information to collect it already exists within tax authorities. One of the advances made possible by BEPS has been the creation of country-by-country reporting, that is, accounts that report the profits, sales, and tax payments (among other indicators) made by multinational companies in each country. There is an automatic exchange of country-by-country reports among tax authorities. This means that South Africa, for example, has access to not only the country-by-country reports of multinationals headquartered in South Africa, but also of foreign multinationals with sales in South Africa. These new accounts, although imperfect, provide key information needed to assess the remedial tax we propose and can be combined with other data sources to maximize accuracy.[116]

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[114] https://www.ataftax.org/oecd-g20-inclusive-framework-releases-outcome-statement-on-the-two-pillar-solution-what-does-this-mean-for-africa

[115] For detailed discussions, see Emmanuel Saez and Gabriel Zucman (2019), *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*, chapter 6 (to our knowledge the first exposition of this idea); Kimberly Clausing, Emmanuel Saez and Gabriel Zucman (2021), "Ending Corporate Tax Avoidance and Tax Competition: A Plan to Collect the Tax Deficit of Multinationals", working paper; Mona Barake, Paul-Emmanuel Chouc, Theresa Neef, and Gabriel Zucman (2021), "Collecting the Tax Deficit of Multinational Companies: Simulations for the European Union", EU Tax Observatory report #1, June 2021.

[116] One limitation of country-by-country reports is that they do not report the destination of final sales. If a subsidiary incorporated in country A (say, Ireland) sells products to customers in country B (say France), in country-by-country reports the sales are assigned to country A – even though the final customers are in country B. To estimate the macroeconomic revenue potential of the remedial tax we describe there are ways to address this issue and approximate the location of final sales; see Paul-Emmanuel Chouc (2022), "Framing Multinationals' Sales Shifting: Concept, Magnitude and Policy Implications", master thesis, Institut Polytechnique de Paris; see also the Online Appendix. But for assessing the correct tax on a firm-by-firm basis, it would be necessary for tax authorities to complement country-by-country reports with VAT returns, which provide information on the location of final customers.

Second, the system we propose is different from taxing sales. In our system, a company that has sales in a country but makes no profit globally has no extra tax to pay. Only profit-making companies are taxed. This makes our tax fundamentally different from a VAT, a digital service tax, or any tax based on sales. Our remedial tax is also different from a "sales apportionment" of profits (as implemented by some local governments with sub-national corporate income taxes, such as some US states). In our proposal, what is apportioned across countries is not the profit of multinational companies, but their tax deficit. Concretely, our proposal keeps the current international corporate tax system as is. It just adds a security valve to it: a mechanism to collect the taxes that low-tax countries choose not to collect.

Third, this mechanism is close in spirit to the backstop measure in the Pillar 2 agreement known as the under-tax payment rule (allowing participating countries to collect the taxes uncollected by non-participating countries). Its main difference is that it is more comprehensive (as all the tax deficit is apportioned with no carve-out for substance or other exemptions) and simpler (as the UTPR uses assets and employees to determine which countries collect the tax deficit).[117] As we have seen, moreover, the application of the UTPR rules has been "partially suspended" for multinationals headquartered in countries with a statutory tax rate of more than 20%. The mechanism we propose could be used in the meantime. Despite the limitations of the UTPR rules, the important point is that the logic we describe is already accepted as necessary to ensure an effective implementation of minimum taxes. It would not mark a radical departure from prevailing norms but would simply ensure their effective implementation.

Fourth, an advantage of our system is that it does not provide incentives for multinationals to change the location of their headquarters, because all multinationals, whether they are headquartered domestically or abroad, are treated in the same way by the remedial tax we propose. This also increases the legal robustness of this mechanism because there is no discrimination between firms of different nationality or firms of different sectors. In contrast to other unilateral approaches that have been tried in the past (like digital services taxes which focus on one sector, overwhelmingly dominated by US firms), all multinationals are treated the same.

Last, it is worth thinking about the potential economic consequences of such remedial taxes. A common objection is that multinationals would have incentives to leave the countries that would implement them. This is not correct, however. If a country representing only a small fraction of the sales of a company applies the tax, then the tax only has trivial impacts for the firm. For example, if Norway implements the tax and accounts for 1% of the global sales of a company, then that company would have to pay 1% of its global tax deficit to Norway – a tiny cost to access the Norwegian market unlikely to make a difference to the profitability of the firm's operations in Norway. Vice-versa if Norway accounts for 90% of the firms' sales, then in effect Norway would collect almost all the firms' tax deficit. After such collection, the company remains profitable (its effective tax rate would simply become closer to 25%). There would be no point for the firm in leaving Norway, from which it derives almost all its profits.

Another objection is that firms would pass the tax onto consumers in the form of higher prices. In standard economic models with perfect competition this is not the case, as a firm that would try to increase its price would be competed away by other firms. In technical terms, the incidence of a corporate tax increase is on factor income – global capital income and potentially global wage income if firms scale back investment – not on consumers. If there is imperfect competition, some of the corporate tax can be passed through to consumers, although the link between market power and the pass-through of the corporate tax is subtle. The potential for such pass-through to consumers in industries with imperfect competition highlights that there is complementarity between anti-tax-avoidance measures (such as the remedial tax described here) and pro-

[117]In principle any formula can be used to apportion the tax deficit, e.g., the apportionment can use capital, payroll, intra-group transactions, etc., in addition or instead of sales. The advantage of using final sales as we propose is that final sales are difficult to shift to low-tax countries (customers cannot be moved from South Africa to Bermuda). The choice of the exact formula is to some extent secondary; what is essential is to ensure the tax deficit is fully collected.

competitive policies (anti-trust, etc.).

Last, it is possible that the remedial tax we describe may be deemed incompatible with some international agreements. If this was the case, this would require renegotiating these agreements. The costs of renegotiating these treaties must be weighed against the benefits stemming from collecting the tax deficit of multinational companies and reducing international tax competition on very low rates.

How much revenue could be obtained by countries unilaterally implementing a higher minimum tax in this way? Table 5.4 reports estimates of the revenue raised from apportioning the tax deficit of multinational companies (relative to a tax rate of 25%) proportionally to sales for some individual economies moving unilaterally (results for all countries are presented in the Online Appendix). For reference we also report the expected gains from increasing the Pillar 2 minimum tax rate to 25%, with headquarter countries collecting the minimum tax. As we saw in Table 5.3, the revenue potential of a 25% Pillar 2 minimum tax without substance carve-outs is large, about $713 billion in 2023 globally (as opposed to around $270 billion with a tax rate of 15%). A full collection of the tax deficit of multinational firms as proposed here would generate even more revenue, because it would also increase the effective rate on domestic profits (while in the Pillar 2 rules, this is only the case for EU countries). For individual countries, the potential in terms of extra corporate tax revenue is highly significant.

Table 5.4

Revenue potential of collecting the tax deficit of multinational firms proportionally to sales in 2023 (billions of US$)

	Tax deficit collection proportionally to sales		Pillar 2, collection by parent countries		Memo: 2023 corporate tax revenue
	15% rate	25% rate	15% rate	25% rate	
Brazil	5.4	11.6	2.4	5.2	61.6
Canada	17.7	50.4	6.0	17.1	81.4
France	7.9	44.6	6.4	36.2	68.1
India	2.4	7.3	0.6	1.8	93.6
Japan	7.0	35.2	4.5	22.7	236.4
South Africa	7.6	13.1	9.1	15.6	21.3
All	381.2	1,008.1	269.6	713.0	2,839

Notes: The table reports estimates of the revenue potential of collecting the tax deficit of multinational firms for a number of individual countries acting unilaterally (and for the world as a whole). The first two columns consider a scenario where the global tax deficit of multinational firms is apportioned to each country proportionally to the fraction of sales made in each country. The tax deficit is computed relative to a reference rate of 15% in the first column and 25% in the second column. For comparison, columns 3 and 4 report estimated revenues from Pillar 2 minimum tax rates of 15% and 25%, simulating tax collection by headquarter countries ("income inclusion rules") without carve-outs for substance and assuming no behavioral response. This generates less revenue globally because in the Pillar 2 rules the tax deficit on domestic profits is not collected (except in the case of EU countries).

4.2. Unilateral taxation of wealthy individuals

The same logic can be applied to wealthy individuals. Absent a global agreement on a minimum tax for the rich, individual countries could collect their portion of the tax deficit of wealthy individuals, mimicking the remedial tax described above for multinational companies.

To understand the logic of this proposal, consider a billionaire, John, who lives in the United States and owns a stake in a company worth $10 billion. To simplify, assume that this $10 billion stake accounts for all his wealth. Any country could compute the tax deficit of John, namely the difference between what John pays in personal taxes today and what he would have to pay if he was subject to a 2% minimum tax on wealth. For instance, if John pays $50 million in personal taxes, he has a tax deficit of 2% times $10 billion minus $50 million, which is $150 million.

Any country could then collect a portion of this tax deficit. For example, if the firm from which John derives his wealth makes 10% of its sales in India, then India could collect 10% of John's tax deficit, i.e., $15 million. The underlying logic is that 10% of John's wealth (the value of the business he owns) can be seen as deriving from access to India's market. If no country ensures that John pays at least 2% of his wealth in taxes, some countries need to step in and play the role of "tax collector of last resort."

Just like for multinational companies, destination market countries are well positioned to play this role, since manipulating the location of final customers is difficult. Like with multinationals, other formulas to apportion the tax deficit of billionaires can be considered. The apportionment could be based on the location of John's physical assets (including the assets owned by the businesses he owns), or the fraction of time John spends in different countries over the year, etc. The choice of the apportionment formula is not the most important aspect in all this. The important point is that an effective minimum wealth tax, absent a global agreement, requires some countries to collect the taxes that other countries choose not to collect. This is the same logic as the logic underpinning the "under-tax payment rules" in the Pillar 2 agreement – but applied to the personal taxes of billionaires as opposed to the profit taxes of multinational companies.

A few remarks are in order. First, most countries already tax some of the wealth of non-resident individuals through the property tax. Property taxes (which are a wealth tax on a specific form of wealth, namely tangible properties) are typically levied on both resident and non-resident individuals alike. If a US resident owns real estate in India (or business property like commercial real estate), then India already taxes this wealth today. The mechanism we describe here is simply an extension of this long-standing practice to all other forms of wealth beyond tangible properties.

The logic is the same: for a given country A, it is logical to ask foreign billionaires to pay some tax in A to the extent that (i) they own some property in A (or have access to the market of A, or spend some time in A, etc.) and (ii) that they fall below the minimum amount of tax that applies for domestic billionaires. To be clear, no individual country would collect the full tax deficit of foreign billionaires – each country would collect only a portion of it. But collecting none of it – i.e., fully exempting foreign billionaires from the minimum tax – seems difficult to justify.

Second, the minimum tax we propose does not create double taxation, because it operates as a "top-up tax": if foreign billionaires already pay 2% or more of their wealth in tax, then nothing more is owed anywhere. Importantly, if some countries started playing the role of tax collector of last resort on billionaires, this would give the residence countries of billionaires incentives to introduce their own minimum tax, so as to collect the minimum tax themselves. We see how one country (or a coalition of countries) implementing a minimum tax on billionaires unilaterally could start a race to the top on billionaire taxation. For non-participating countries, refusing to collect the minimum tax would indeed mean letting tax revenues on the table for other countries to grab.

Third, one of the reasons why this system has not been implemented in the past is probably that it requires substantial progress in information reporting and international information exchange. It requires more information than for the taxation of real properties. Because property taxes are only assessed on the value of domestic properties (not on other forms of wealth), there is no need to know the global wealth of property owners. By contrast in our proposal, each country would need to be able to identify global billionaires and their global tax payments, to compute their tax deficit. They would also need to establish from which countries their wealth originates (e.g., which businesses they own, the geography of the sales made by these businesses, etc.), to compute the portion of the tax deficit they would collect. This would require significant statistical progress (similar to the creation and exchange of country-by-country reports of multinational companies) and motivates our call for improvements in this area below.

Summary recommendations

Should international consensus fail on enhanced minimum taxation for corporations and minimum taxation for billionaires, governments should:

1. Collect the tax deficit of domestic and foreign multinational companies relative to a rate of 25%.

2. Collect the tax deficit of global billionaires relative to a 2% effective tax rate.

3. Improve information reporting on billionaire wealth and their holdings.

5 Towards a global asset registry

5.1. Extend the automatic exchange of bank information and plug loopholes

The automatic exchange of information has radically changed the landscape of international tax cooperation. As discussed in chapter 1, this new form of international cooperation, deemed utopian by many only 15 years ago, has led to a significant decline in tax evasion. It is a major accomplishment. It can and should, however, be improved in several ways.

5.1.1. Increase participation in the CRS

First, the United States should join the CRS. By unilaterally implementing FATCA, The United States kickstarted the dynamics that eventually led to the automatic exchange of bank information. Thus, it has played a crucial positive role in initiating the process. But the United States then refused to join the CRS, leading to the co-existence of two separate systems of information exchange. This creates complexity and possibilities for non-compliance, because financial institutions must deal with two intricate set of rules, and FATCA is in some respect less comprehensive than the CRS. In FATCA financial institutions do not have to report on account balances (only on income flows), and the rules to identify beneficial owners are more lenient than in the CRS.

5.1.2. Increase the scope of assets covered by the CRS

Second, the CRS should be extended to include real estate. As documented in chapter 1, the recent literature finds evidence of portfolio rebalancing after the introduction of the CRS, away from financial assets (covered by the CRS) towards real estate (not covered). Work by investigative journalists as part of the Rotenberg files and the Pandora Papers has outlined how, despite the CRS, some wealthy

households have managed to keep real assets – real estate, valuables, etc. – in the dark.

It is typically legal to own foreign assets, including real estate abroad. The tax law of most countries simply requires people to report these holdings and to pay taxes if income (e.g., rents) is earned from these assets, or if there is a wealth tax. Research shows that offshore real estate is used for many purposes including, sometimes, tax evasion (possibly along with other primary motives). For instance, researchers were able to match Norwegian taxpayers who own real estate in Dubai to these taxpayers' wealth tax returns, and to check whether these individuals had properly reported their Dubai holdings. Out of 371 Norwegian nationals with real estate in Dubai in 2020, of whom 227 were tax residents in Norway, the researchers found that only 66 (about a quarter) duly reported their Dubai properties on their wealth tax returns. In other words, in about three-quarters of the cases, tax evasion was involved.[118]

Even though there are many legitimate non-tax reasons for owning real estate abroad, this form of wealth might also increasingly be used to hide wealth and escape taxation – think of Dubai properties as the new Swiss bank accounts. The most direct way to address this concern would be for countries to exchange information on the ownership of real estate, like they do for financial assets. This would work best if combined with improved reporting on the ownership of shell companies, which are often used as nominal owners for luxury real estate.

One objection to including real estate in the CRS is that many countries do not have a wealth tax, and thus may find information on foreign ownership of real estate of limited use. Foreign real estate can generate income (rents, capital gains), but the income should be captured by the CRS. However, even countries with no comprehensive wealth tax sometimes attempt to tax real estate abroad, as France for example does with the "Impôt sur la fortune immobilière" (which replaced the French wealth tax). Other countries may be interested in introducing such real estate taxes (or broader wealth taxes) in the future and would benefit from improved information exchange. There is growing support at the G20 level for including real estate in the automatic exchange of bank information.[119]

Beyond real estate, cryptocurrency is the next frontier. The market valuation of cryptocurrency currently exceeds $1 trillion, up from $20 billion in 2017. The rapid increase in market valuation has raised questions over risks of tax evasion and money laundering, prompting the OECD to develop a specific reporting standard for cryptocurrencies called CARF (Crypto-Asset Reporting Framework). The European Union has introduced this reporting requirement into a new Directive on Administrative Cooperation (DAC8) voted in May 2023. However, shortcomings remain, including the fact that DAC does not account for all relevant transactions in crypto-assets.[120]

5.1.3. Improve statistical transparency

Governments also need to publish much more information on the Common Reporting Standard. The automatic exchange of information practiced since 2017-18 is, somewhat paradoxically, shrouded in secrecy. The bilateral exchange of information is not observed by anyone beyond the two exchanging countries, not even by the OECD. There is also scarce aggregate statistics available on the amount and

[118]See Annette Alstadsæter, Bluebery Planterose, Gabriel Zucman, and Andreas Økland (2022), "Who Owns Offshore Real Estate? Evidence from Dubai", EU Tax Observatory working paper #1, May 2022.

[119]See OECD (2023), *Enhancing International Tax Transparency on Real Estate: OECD Report to the G20 Finance Ministers and Central Bank Governors*, July 2023, India.

[120]There are ways in which the requirement of information imposed by DAC8 can be circumvented. For example, EU users of crypto-assets could use shell companies in their crypto transactions to avoid disclosing their identity. As highlighted by the Tax Justice Network ("EU ambition for DAC8 transparency on crypto is cut short by failure to think outside the OECD box"), DAC8 would represent the exchange of information only of those transactions carried out through crypto-asset exchanges. However, there are individuals who exchange crypto-assets through self-hosted wallets and decentralized exchanges, without going through intermediaries.

type of information exchanged under this agreement. This limits possibilities to objectively evaluate the effects of the CRS. Jurisdictions with a high degree of secrecy can claim they are no longer tax havens "as they contribute to the CRS", without any possible assessment of actual compliance with the rules.

Progress could be done by relaxing some of the regulations constraining the use of CRS information. Currently, information exchanged within the CRS can be used for tax purposes only. In most cases, "tax purposes" are interpreted narrowly, to mean solely within the tax administration itself. But CRS information can be valuable to other public administrations. In the OECD, there is an ongoing process to permit the use of information from the CRS in some public agencies of the receiving country, such as financial intelligence units, criminal prosecution, and anti-corruption agencies. Information should also be provided to the OECD and other international organizations with interest in these issues.

The OECD and national tax authorities also need to dramatically improve statistical reporting. The aggregate amount of wealth covered by CRS exchanges published by the OECD – 12 trillion euros in 2022 – is valuable information but also dramatically insufficient. To interpret this number it is critical to know where this offshore wealth is managed; where the owners of that wealth live; who are the owners of these assets (households directly, households through holding companies, large businesses, etc.); how this wealth is distributed (e.g., what fraction belongs to the top 1%, the top 0.1%, the top 0.01% of the wealth distribution); what is the income generated by that wealth; what is the amount of tax collected on this income (and on the wealth itself when a wealth tax exists); what is the contribution of these tax payments to the effective tax rates of different groups of the population, etc. While some studies attempt to provide quantitative evidence on some of these issues (see chapter 1), at the moment they can only do so in individual countries.

To begin with, a simple step would be for the OECD to collect and publish statistics on where the CRS-reported wealth is held – what fraction of the €12 trillion is managed by banks in Switzerland, in Luxembourg, in Singapore, etc. This would make it possible to compare CRS numbers with statistics on the amount of offshore wealth managed by each offshore center. To be sure, few countries publish statistics on offshore wealth, but some (like Switzerland and Luxembourg) do. To assess the effectiveness of the CRS, it is critical to be able to compare these numbers to the value of the foreign assets communicated to foreign tax authorities. If the OECD is not able to obtain that information, at the very least individual offshore centers should publish it.

Concretely, for example, we know – from official statistics published by the Swiss National Bank – that at the end of 2022, there was around $2.7 trillion in offshore wealth in Switzerland (i.e., foreign securities and fiduciary deposits managed by Swiss banks on behalf of non-Swiss residents). Switzerland should disclose the value of the assets that it communicates to foreign tax authorities. This would be the most direct way to know what fraction of Switzerland's offshore wealth is effectively covered by the CRS.

5.2. Strengthen beneficial ownership requirements

Countries are starting to centralize information on beneficial owners. According to Open Ownership, 57 countries currently have a beneficial ownership repository centralizing information about corporate beneficial ownership. Close to 60% of these countries have public access to their repository.[121]

Nearly half of the countries with central repositories are from the European Union. This stems from ambitious EU regulations. In 2015, EU countries adopted the fourth anti-money laundering directive

[121] See https://www.openownership.org/en/map/

requiring all Member States to centralize beneficial ownership information based on CRS standards and maintain the repository with accurate, adequate, and up-to-date information. In 2018, a new directive provided for the information to be made public. By 2021, all Member States but Italy (that had no repository at all), Greece, Spain and Finland had their repository accessible to the public (albeit some restrictions like fees or registrations were necessary in some of them).

A European Court of Justice ruling in November 2022 struck down the requirement for public access to beneficial ownership registries in EU Member States.[122] Following the decision at least 7 countries removed their repository from public access (Austria, Belgium, Germany, Ireland, Luxembourg, Malta, and the Netherlands).[123]

Public access should be defended. The multiplication of tax data available to tax administrations empower them to fight tax evasion. Public scrutiny can help by empowering civil society and journalists to monitor high-profile, public interest tax affairs, by building tax morale and citizens' trust in government. There is also evidence that transparency can increase tax compliance and therefore tax revenues.[124]

The European Union is considering a new anti-money laundering package aiming at securing access to the repository for people with legitimate interest. Crucially, the package also aims at plugging several loopholes in the fight against shell companies, by requiring Member States to create a full repository for real estate alongside the one for corporate entities and by including foreign entities owning either corporate entities or real estate. The EU Parliament is trying to push the standard one step further by extending the requirement for a central repository to high-value goods and to decrease the threshold for beneficial ownership from 25% (CRS standard) to 15% (and 5% for high-risk sectors).

5.3. Centralize information in a global asset registry

Information on various classes of assets and their ownership exists but remains fragmented in private companies, banks, (incomplete) national beneficial ownership registries, central securities depositories, and financial authorities. The dispersion of information across different institution makes it impossible at this stage to have a comprehensive view about wealth and its ownership. In turn, this limits the quality of public statistics on inequality and taxation, and can facilitate tax avoidance, evasion, and money laundering.

The creation of a unified asset registry could address this issue. Centralization of data would help link information across registers for different types of assets.[125] Building on automatic exchange of information standards, data could be centralized first at a regional level (e.g., for Europe at the level of the European Union) and then at a global level. Information could be cross-checked by specialized personnel tasked with gathering and linking wealth information across all asset types.[126]

The ultimate objective of the registry would be to record the ownership of both non-financial and financial assets. Countries have recorded the ownership of real estate for a very long time (for instance as far back

[122]See the ECJ ruling here: https://curia.europa.eu/jcms/upload/docs/application/pdf/2022-11/cp220188en.pdf

[123]According to an analysis carried out by Transparency International, see here.

[124]See, e.g., Michael Razen and Alexander Kupfer (2022), "The Effect of Tax Transparency on Consumer and Firm Behavior: Experimental Evidence", working paper.

[125]On the model proposed by Mack in Sébastien Mack (2022), "Out of the Dark: An EU Asset Register to Combat Illicit Financial Flows", Policy Brief Hertie School Jacques Delors Center, 06 April 2022.

[126]See, e.g., Gabriel Zucman (2015), *The Hidden Wealth of Nations: The Scourge of Tax Havens*, University of Chicago Press; Theresa Neef, Panayiotis Nicolaides, Lucas Chancel, Thomas Piketty, and Gabriel Zucman (2022), "Effective sanctions against oligarchs and the role of a European Asset Registry", EU Tax Observatory note.

as 1792 in France). But existing registries have not kept up with the evolution of the nature of wealth since then – most importantly, the growing importance of financial assets. A registry combining information from all available national and international sources would allow to make substantial progress not only in the fight against tax evasion, but also in the fight against money laundering and the financing of terrorism, in the monitoring of financial stability, and more broadly in the regulation of inequality and globalization. In particular, it could be used as a key input to implement the global minimum tax on billionaires described above.

6 Strengthen the application of anti-abuse rules

The tax laws of many countries include general anti-abuse provisions, according to which transactions conducted with the sole purpose (or sometimes the primary purpose) of avoiding taxes are illegal. These rules provide a general framework to invalidate transactions that lack economic substance without the need to specify specific schemes. In the European Union the Anti-Tax Avoidance Directive (ATAD) sets minimum standards and member starts are free to impose stricter rules.

A proactive interpretation of general anti-abuse rules by tax administrations could help defeat some of the aggressive tax planning structures used by wealthy individuals and corporations that are in the grey zone between avoidance and evasion. The strict or lax application of economic substance rules is indeed largely a policy choice.

One striking example is the different choices made today regarding the treatment of personal wealth-holding companies. As we have seen in chapter 4, in a country like France billionaires appear to use such holdings quasi-systematically to avoid dividend tax, without any specific limitations. But other countries make different choices. In the United States, the use of holding companies for the purpose of retaining earning and avoiding the dividend tax has de facto been made impossible by several provisions in the tax code. An accumulated earnings tax has been levied since 1921 on the undistributed corporate profits deemed to be retained for tax avoidance purposes.[127] A personal holding company tax in place since 1937 effectively prevents wealthy individuals from avoiding the income tax by retaining income in holdings. Before 1921, shareholders could be directly taxed on the excessive retained earnings of their corporations. The view underpinning these different provisions is that retaining income in holding companies with the sole purpose of avoiding the personal income tax should be disallowed.

Other countries could take a similar stance on holdings. Because the holdings often don't have economic substance, the tax benefits stemming from their use could be defeated under general anti-abuse rules. Concretely, the holdings should be made transparent for tax purposes (as they are in the United States), forcing billionaires to pay taxes on the income received by the holdings.

Summary recommendations

- Adopt a more proactive approach to the use of general anti-abuse rules.
- Mandate the tax transparency of personal holding companies.

[127]Homer Elliott (1970), "The Accumulated Earnings Tax and the Reasonable Needs of the Business: A Proposal," *William and Mary Law Review*, 12: 34–50.

EU Tax Observatory: https://www.taxobservatory.eu

Atlas of the Offshore World: https://atlas-offshore-world.org

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