The end of bank secrecy: implications for redistribution and optimal taxation

Niels Johannesen*, ⓘD

* University of Copenhagen and CEBI, Denmark, e-mail: niels.johannesen@econ.ku.dk

Abstract

This paper argues that the ability to enforce taxes on offshore income may shape the redistributional properties of the tax system through two channels. First, it mechanically raises tax progressivity for given parameters of the tax system because high-income taxpayers own most of the offshore wealth. In the US, recent comprehensive reporting by offshore banks suggests the mechanical increase in average tax rates may be around 1.5 percentage points for the top 0.01 per cent and virtually zero below the top 1 per cent. Second, it may further raise tax progressivity by changing the trade-offs underlying optimal taxation in favour of higher taxation of top incomes.

Keywords: automatic information exchange, tax enforcement, tax compliance, tax havens, optimal taxation

JEL classification: H26, H24, H21

I. Introduction

Financial secrecy in offshore tax havens has historically created significant opportunities for tax evasion. In the simplest cases of offshore evasion, taxpayers hold personal accounts in tax haven banks and refrain from self-reporting the accounts for tax purposes in the home country. In more sophisticated cases, taxpayers control assets through holding companies in other tax havens, which adds more layers of secrecy. Offshore tax evasion is believed to be quantitatively important as the assets controlled by households through banks in tax havens amount to trillions of dollars (Zucman, 2013; Alstadsæter *et al*., 2018; Johannesen *et al*., 2023) and, until recently, many of these assets were not tax compliant (Alstadsæter *et al*., 2019; Londoño-Velez and Tortarolo, 2022).[1]

The scope for offshore tax evasion, however, has arguably become much smaller in the most recent years, as a highly ambitious policy designed to detect unreported foreign financial income is being implemented on a global scale. Specifically, more than 100 countries—including major tax havens such as Switzerland, the Cayman Islands, and Luxembourg—have agreed to exchange information about financial accounts in an automatic and comprehensive manner. When households hold financial accounts in a foreign bank, the tax authorities in the home country automatically receive information about account balances and income flows every year. Importantly, banks must, in principle, send account information to the home country of the beneficial owners even when accounts are nominally owned through shell corporations or other intermediaries.

In light of these advances in the fight against offshore tax evasion, this paper explores how the ability to enforce taxes on offshore financial income may affect the redistributive properties of the tax system. I consider two

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[1] A distinct strand of literature considers the use of offshore tax havens by multinational firms for tax avoidance purposes (e.g. Damgaard *et al*., 2019; Tørsløv *et al*., 2019; Coppola *et al*., 2021).

distinct channels. First, including previously unreported offshore income in the tax base has a mechanical effect on tax progressivity holding the parameters of the tax system constant. Intuitively, individuals who would otherwise evade taxes on their offshore income pay more taxes for the same amount of true income and thus face a higher average tax rate. Loosely speaking, if such individuals are predominantly at the top of the income distribution, the tax system becomes more progressive; if they are at the bottom, it becomes less progressive. Second, the ability to tax offshore financial income affects the shape of the optimal tax schedule. Intuitively, the two key determinants of optimal taxation are the properties of the income distribution and the strength of the behavioural responses to taxation. Both of these determinants are likely to be affected when governments become able to detect and tax offshore financial income. The idea that the parameters determining the optimal tax schedule are themselves endogenous to other dimensions of the policy space is well-established in the literature (e.g. Slemrod and Kopczuk, 2002).

The first analytical part of the paper attempts to quantify how the ability to tax offshore income mechanically affects tax progressivity in the United States. The analysis draws on results from a recent study that uses the new automatic reporting from foreign banks to describe the distribution of foreign financial assets across income groups (Johannesen *et al.*, 2023). The goal is to compare, for each income group separately, the actual average tax rate in disaggregated national accounts (Piketty *et al.*, 2018) to the counterfactual average tax rates that would have prevailed if evasion rates on financial income in tax havens had remained at the same high level as before the recent wave of enforcement efforts (Alstadsæter *et al.*, 2019).

The results suggest that offshore enforcement may have a substantial impact on tax progressivity through the mechanical channel. Specifically, it appears to increase the average tax rate at the top of the true income distribution by around 1.5 percentage points, from around 32.5 per cent in the counterfactual with high evasion to the actual rate of around 34 per cent, while the effect at the bottom and in the middle of the distribution is negligible. The key mechanism is that offshore financial income is heavily concentrated in high-income groups and large enough to significantly reduce these groups' average tax rate if it largely evades taxation. Interestingly, the counterfactual exhibits slight regressivity at the top, i.e. lower average tax rates for the top 0.01 per cent than for the income group just below, reflecting a significant positive income gradient in offshore income even at the top. The regressivity is reversed when taxes on offshore income are enforced. We demonstrate that these patterns are quite robust to changes in the parametric assumptions underlying the analysis, e.g. the average return on offshore assets and the counterfactual compliance rate.

These findings may appear puzzling, as there is no sign in the observational data that the US tax system has become more progressive over the period where tax enforcement on offshore income has improved.[2] Beyond the effect of other policy changes in the same period, this may also be due to the measurement error created by offshore tax evasion. Tax evaders who under-report offshore income to achieve low effective tax rates, i.e. low tax payments measured relative to true income, are systematically placed too low in the income distribution because income ranks are based on reported rather than true income. Thus, the tax regressivity created by the strong income gradient in offshore tax evasion is not reflected in observational data. Our analytical approach can address this problem under the assumption that automatic information exchange eliminates, or at least strongly reduces, mismeasurement of income due to offshore evasion.

The second analytical part of the paper discusses the implications for optimal income taxation within the simple framework proposed by Diamond and Saez (2011). In this framework, the trade-off underlying the choice of the top marginal tax rate depends on two parameters: the elasticity of taxable income (*e*), which captures the relevant behavioural responses of taxpayers to changes in the marginal taxes, and the Pareto parameter (*a*), which characterizes the tail of the distribution of taxable income. Intuitively, the elasticity of taxable income determines the marginal deadweight loss associated with higher marginal tax rates, while the Pareto parameter determines the mechanical revenue gain, which constitutes the other side of the trade-off.

Arguably, the ability to enforce taxes on offshore financial income changes both parameters in a way that raises the optimal top marginal tax rate. First, the ability to detect offshore tax evasion is likely to reduce the elasticity of taxable income at the top, as it attenuates behavioural responses on one margin: the shifting of savings to undeclared offshore accounts. In the extreme case where tax authorities can perfectly monitor income through foreign accounts, we should expect such responses to cease altogether. There may of course be offsetting effects on other behavioural margins, e.g. taxpayers may decide to save less if it is no longer possible to evade through offshore accounts, but it is natural to assume that the direct effect dominates. In this case, the overall behavioural elasticity decreases and the optimal top marginal tax rate goes up. Second, the ability to detect offshore tax evasion is also

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[2] For instance, the difference in average tax rates between the top 10 per cent and the top 0.01 per cent was larger in each of the years 2013–15, before the onset of automatic information exchange, than in the years 2017–19 (Piketty *et al.*, 2018).

likely to reduce the Pareto parameter. Intuitively, since offshore income disproportionately belongs to high-income individuals, including it in taxable income is likely to make the distribution in the top tail more unequal. In this case, the Pareto parameter decreases and the optimal top marginal tax rate goes up.

The analysis shows that policies allowing for effective enforcement of taxes on offshore income can play an important role in redressing the progressivity of the tax system and, ultimately, mitigating the rise in post-tax income inequality (e.g. Piketty *et al.*, 2018). This should in part occur mechanically, independent of any changes in tax bases and rates and in a way that is not directly visible to researchers studying tax rate trends in observational data, and in part through tax reforms facilitated by the changes in the underlying trade-offs created by the new enforcement environment.

The paper contributes to the growing literature that studies the fiscal and redistributive consequences of offshore tax evasion and the policies to curb it (e.g. Alstadsæter *et al.*, 2019; Londoño-Velez and Ávila-Mahecha, 2021; Londoño-Velez and Tortarolo, 2022; Johannesen *et al.*, 2020; Johannesen *et al.*, 2023; Leenders *et al.*, 2023). None of these papers analyses the implications for tax progressivity. Another closely related paper is Ahrens *et al.* (2022), which studies empirically how information exchange and other dimensions of financial transparency shape political choices over capital income tax rates. Consistent with the theoretical argument made here, they find that governments are more likely to respond to fiscal pressure by raising capital income taxation when cross-border information exchange is more developed.

The paper proceeds in the following way. Section II describes the early policy efforts to fight offshore and provides details about automatic information exchange. Section III quantifies how the ability to tax offshore income has mechanically changed tax progressivity in the United States, while section IV discusses how it may change the optimal top marginal tax rate. Section V concludes.

II. The advent of automatic information exchange

(i) Early policies targeting offshore tax evasion

In the not so distant past, tax evasion through offshore bank accounts was associated with an extremely low probability of detection. Tax havens boasted a range of institutions designed to safeguard the privacy of bank customers, e.g. secrecy rules prohibiting banks from disclosing customer information and non-participation in international agreements about information exchange. By placing financial assets in tax havens and not self-reporting the corresponding income, many taxpayers were thus able to evade taxes on their financial income at very low risk. Early policies implemented in the course of the 2000s aiming to curb this form of offshore tax evasion were largely unsuccessful. The EU Savings Directive, under which a group of cooperating tax havens levied withholding taxes on the interest income of EU residents on behalf of their home countries, was easily circumvented by shifting assets to non-cooperating tax havens or, more simply, by shifting nominal ownership to shell corporations (Johannesen, 2014; Omartian, 2017). The G20 tax haven crackdown, compelling tax havens to share bank information on request in cases of suspected tax evasion, increased the detection risk only marginally and therefore did not cause material improvements in tax compliance (Johannesen and Zucman, 2014; Hanlon *et al.*, 2015). Some individual countries combined these multilateral efforts to raise the costs of tax evasion with unilateral efforts to reduce the costs of tax compliance in the form of voluntary disclosure programmes, with limited success (Langenmayr, 2017; Johannesen *et al.*, 2020; Alstadsæter *et al.*, 2022).

(ii) Automatic information exchange

Recently, a new form of global cooperation has emerged that may potentially be much more effective at fighting offshore tax evasion than earlier policies. At the heart of the cooperation is automatic information exchange, under which financial institutions must identify the beneficial owners of all accounts and, periodically and automatically, share information about account balances and income flows with the residence country of the beneficial owners. Automatic information exchange is implemented through two distinct ways: bilateral agreements between the United States and other countries under the Foreign Account Tax Compliance Act (FATCA), and multilateral agreements between around 110 countries following the Common Reporting Standard (CRS). If the cooperation works as intended, it raises the probability of detecting offshore tax evasion in much the same way as third-party information raises the probability of detecting other forms tax evasion in the domestic context (Kleven *et al.*, 2011). In principle, tax authorities can easily verify that taxpayers report their foreign financial income truthfully by comparing it to the reports sent by the foreign financial institutions where the accounts are held.

Automatic information exchange has two key conceptual advantages compared to earlier policies. First, as opposed to the pre-existing mode of information exchange, where tax authorities could only request bank information

in specific cases with prior indications of tax evasion, automatic information exchange is comprehensive and covers all foreign financial accounts. The difference is highly consequential in practice, as it can increase the volume of the exchanged information by several orders of magnitude (Keen and Ligthart, 2006). Second, compared to the approach taken by the European Savings Directive, where foreign financial income is subject to a flat withholding tax, automatic information allows for taxation with the progressive tax schedule that applies to domestic personal income.

Notwithstanding these advantages, automatic information exchange in its current form also has important limitations. First, the partial scope in terms of participating jurisdictions, asset classes, and ownership structures implies that tax evaders have some room to rearrange their portfolios to escape information exchange. While 110 countries undertake automatic information exchange under the CRS, including all major offshore financial centres, it remains possible to hold financial accounts in countries that do not share account information with foreign governments. Moreover, automatic information exchange concerns accounts in banks and other financial institutions but not real estate, business assets, or shares in non-listed corporations. Further, as banks only disclose the beneficial owners of corporate accounts if they have a controlling ownership share in the corporation, ownership structures with multiple shareholders may remove assets from the scope of the policy by reducing the ownership share of all owners below the threshold that defines control. Second, even when foreign assets are in principle within the scope of automatic information exchange, it is not given that all financial institutions report information as prescribed. Conceivably, some banks may intentionally misreport in an attempt to satisfy customers with undisclosed accounts, but misreporting may also occur because banks fail to identify the true account owners despite their best efforts. Third, even when banks duly submit their reports, it can happen that the tax authorities are unable to match them with sufficient certainty to a taxpayer, in which case they are not immediately useful for tax enforcement (Johannesen *et al.*, 2023).

(iii) Empirical evidence

The evidence on the compliance effects of automatic information exchange is still limited, but is generally encouraging. Several papers find that the new mode of cooperation has caused a large drop in bank deposits in tax havens (Menkhoff and Miethe, 2019; O'Reilly *et al.*, 2019; Casi *et al.*, 2020); another finds a decline in 'round-tripping' investment through tax havens (De Simone *et al.*, 2020), while yet another documents a drop in incorporations in tax havens (Omartian, 2017). Other studies present evidence consistent with continued evasion, notably through shifting asset classes not covered by information exchange such as real estate and art (De Simone *et al.*, 2020; Bomare and Herry, 2022) and acquisition of golden passports (Langenmayr and Zyska, 2023). Some of the spectacular successes with amnesties around the onset of automatic information exchange may be attributable to a perception that the detection risk of undeclared offshore accounts has become at least significantly higher (Londoño-Velez and Tortarolo, 2022).[3]

III. The mechanical effect on tax progressivity

This section asks how the ability to enforce taxes on offshore financial income mechanically affects tax progressivity, holding the parameters of the tax system constant. Our application concerns the United States in 2018 and draws heavily on a recent descriptive paper that uses reports by foreign financial institutions under FATCA to study the foreign wealth of US households (Johannesen *et al.*, 2023). Ideally, we would have conducted the same analysis for multiple years; however, information on the distribution of foreign wealth across income groups is only available for 2018.

(i) Analytical steps

In a first step, I compute the average income tax rate for each income group, i.e. the ratio of total income tax payments (column 2) to total income (column 1), drawing on tables from the distributional national accounts (Piketty *et al.*, 2018). As shown in Table 1, the income tax system exhibits some progressivity with tax rates increasing monotonically in income (column 3). The average tax rate is around 26 per cent in the bottom half of the income distribution and almost 34 per cent at the very top.

Next, I attempt to measure average income tax rates in a counterfactual case where the ability to enforce taxes on offshore financial income had remained low. I start from the aggregate value of US-owned financial assets in tax havens, i.e. $1,940 billion, reported by Johannesen *et al.* (2023) and exploit that these authors are able to link

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[3] See De Simone and Stomberg (2023) in this issue for a more detailed review of the literature and further evidence on compliance effects.

Table 1: Average tax rates by income group

	Total income ($ billion) (1)	Total income taxes ($ billion) (2)	Actual income tax rate (%) (3)	Assets in tax havens ($ billion) (4)	Imputed income in tax havens ($ billion) (5)	Counter-factual income tax rate (%) (6)
p0–50	2,354	603	**25.6**	287	14	**25.4**
p50–90	7,219	2,068	**28.6**	151	8	**28.6**
p90–99	4,697	1,330	**28.3**	172	9	**28.3**
p99–p99.9	1,855	554	**29.8**	325	16	**29.6**
p99.9–p99.99	842	282	**33.5**	362	18	**32.9**
Top 0.01	707	240	**33.9**	644	32	**32.5**
All	17,673	5,077		1,940	97	

Notes: The table illustrates how to arrive at estimates of actual and counterfactual tax rates by income group. Actual tax rates (column 3) are computed as total income taxes divided by total income. Counterfactual tax rates (column 6) are computed in the same way but deducting 90 per cent of the financial income imputed on assets in tax havens from the tax base assuming a return of 5 per cent. *Data sources*: Piketty *et al.* (2018) and Johannesen *et al.* (2023).

a large share of these assets to their beneficial owners either directly or through a partnership. I allocate aggregate US wealth in tax havens to income groups by applying the distribution implied by the observed links to the aggregate value (column 4).[4] I impute the financial income earned by each of the income groups on their offshore wealth using a 5 per cent return, which is approximately what Johannesen *et al.* (2023) estimate in the data when accounting for interest, dividends, and capital gains (column 5). Finally, I compute the income taxes that would have been evaded with a 90 per cent evasion rate on offshore financial income, subtract it from the actual income taxes, and obtain the counterfactual average income tax rate (column 6). The evasion rate in the counterfactual case is consistent with the one observed in several studies of the period before the recent wave of enforcement policies (Alstadsæter *et al.*, 2019; US Senate, 2008).

(ii) Results

In the estimated counterfactual, average tax rates are lower for all the income groups by construction, which reflects that their true income is the same, but their tax liabilities are lower as only 10 per cent of their offshore financial income is effectively taxed. However, as illustrated in Figure 1, the difference between the actual and counterfactual tax rates varies systematically over the income distribution. It is negligible for all income groups below the top 1 per cent but reaches almost 1.5 per cent for the top 0.01 per cent. This striking pattern is due to the heavy concentration of tax haven wealth at the top of the income distribution. Specifically, the 0.1 per cent of the US population with the highest incomes own more than 50 per cent of the wealth in tax havens.[5]

The results suggest that enforcement of taxes on offshore income can play an important role in supporting the progressivity of the tax system. Indeed, the difference in tax rates between the middle class just above the median income level and the highest income earners appears to increase by more than one-third due to offshore enforcement. Moreover, the slight regressivity at the top in the counterfactual without offshore enforcement, which reflects a strong positive income gradient in offshore income within the top 1 per cent, is reversed when taxes on offshore income are enforced.[6]

[4] This implicitly assumes that the beneficial ownership of assets that cannot be tied to individuals is distributed across income groups in the same way as assets that can be tied to individuals.

[5] The concentration of offshore wealth in the hands of high-income and high-wealth groups has been documented by other studies in very different settings (Alstadsæter *et al.*, 2019; Guyton *et al.*, 2021; Londoño-Velez and Ávila-Mahecha, 2021; Londoño-Velez and Tortarolo, 2022; Boas *et al.*, 2023).

[6] Our analysis ignores financial accounts in countries other than tax havens. While US-owned financial assets in non-havens are roughly the same magnitude as assets in tax havens in the aggregate (Johannesen *et al.*, 2023), they are much more equally distributed across income groups and presumably also more tax compliant prior to FATCA than assets in havens. This suggests that the effect of tax enforcement on tax progressivity going through non-haven accounts is smaller and associated with more uncertainty than the effect going through haven accounts.
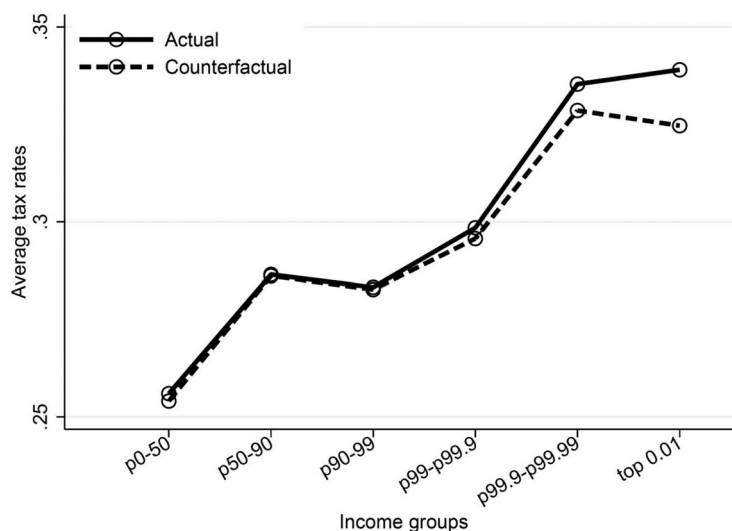
Figure 1: Average tax rates by income group. *Notes*: The figure shows the actual average tax rate by income group in 2018 and the counterfactual average tax rate assuming that 90 per cent of the financial income in tax havens is non-compliant and that non-compliant assets generate an average return of 5 per cent. *Data sources*: Piketty *et al*. (2018) and Johannesen *et al*. (2023).

(iii) Discussion

One may wonder: if the US tax system has really become notably more progressive as enforcement of taxes on off-shore income has tightened, notably with the advent of automatic information exchange in the most recent years, should we not expect a shift in tax progressivity in observational data over the same period? This is not necessarily the case due to the measurement error in income introduced by offshore tax evasion. Specifically, the tax evaders who use offshore evasion to achieve low effective tax rates, i.e. low tax payments measured relative to true income, are systematically placed too low in the income distribution because income ranks are based on reported rather than true income. This implies that the tax regressivity created by the income gradient in offshore evasion is not reflected in observational data.

The analysis rests on several important qualitative assumptions that merit discussion. First, it is implicitly assumed that the offshore financial income reported to the US tax authorities by foreign financial institutions under FATCA is self-reported by taxpayers on their tax returns. To the extent this assumption fails and evasion through offshore accounts remains significant, we would mis-measure income ranks as well as actual tax rates. While the assumption need not be entirely accurate, it seems natural to assume that the scope for evasion is limited when income is covered by automatic reporting. This is consistent with the general insight that third-party reporting by employers and financial institutions severely constrains tax evasion (e.g. Kleven *et al*., 2011) and with recent evidence from an audit experiment in Denmark showing that offshore accounts covered by automatic information exchange are largely tax compliant (Boas *et al*., 2023). Relatedly, it is assumed that all US-owned accounts in foreign financial institutions are covered by FATCA reporting. In 2018, the Internal Revenue Service received reports from financial institutions in 190 countries and, in the vast majority of these cases, information exchange was based on bilateral treaties ensuring comprehensive coverage. Finally, it is assumed that enhanced offshore enforcement does not change the allocation of income across domestic and foreign accounts. This assumption may be at odds with reality if taxpayers with non-compliant offshore accounts responded to the enforcement efforts by repatriating assets to domestic accounts, a mechanism found to be important in some contexts (e.g. Alstadsæter *et al*., 2022; Boas *et al*., 2023) but not all (e.g. Johannesen and Zucman, 2014; Londoño-Velez and Tortarolo, 2022). However, to the extent that offshore tax evaders engaged in significant repatriation in anticipation of the automatic information reporting, the results are likely to understate the increase in tax progressivity implied by offshore enforcement. This is because the true counterfactual would involve not only evasion of almost all of the offshore financial income but also the fraction of domestic financial income that derives from repatriated assets.

We also investigate the sensitivity of the main results to the parametric assumptions underlying the main analysis and illustrate the results in Figure 2. Specifically, we vary the average return of offshore assets around the baseline case from 2.5 per cent to 10 per cent; we vary the counterfactual non-compliance rate around the baseline case
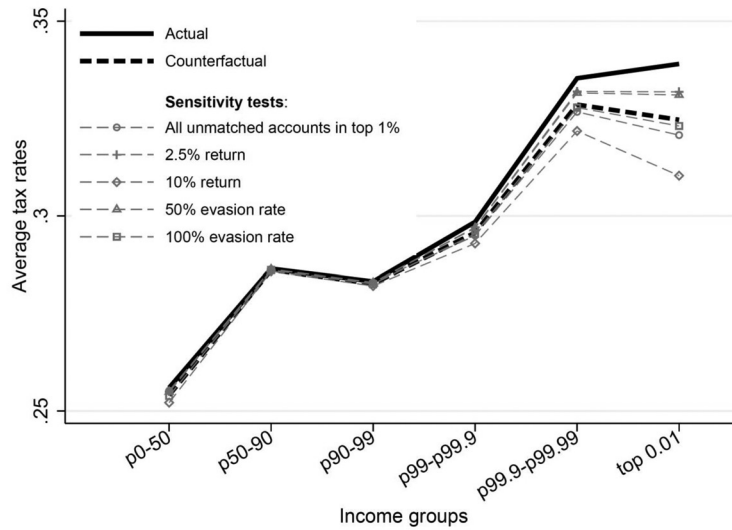
Figure 2: Sensitivity analysis. The figure shows the actual average tax rate by income group in 2018 and the counterfactual average tax rate assuming that that 90 per cent of the financial income in tax havens is non-compliant and that non-compliant assets generate an average return of 5 per cent. It also shows the counterfactual average tax rates under alternative parametric assumptions, i.e. an average return of 2.5 per cent or 10 per cent; a non-compliant share of financial income in tax havens of 50 per cent and 100 per cent. Finally, it shows the counterfactual average tax rates assuming that unmatched accounts all belong to the top 1 per cent of the income distribution, with each of the more narrow income groups' share of the unmatched accounts being proportional to their share of the matched accounts. *Data sources*: Piketty *et al.* (2018) and Johannesen *et al.* (2023).

from 50 per cent to 100 per cent; and we assign all of the accounts that cannot be matched to specific taxpayers to the taxpayers in the top 1 per cent of the income distribution based on the notion that more complex owner-ship structures are more likely to result in unmatched accounts and at the same time are more common among high-income taxpayers. Even with the most conservative assumptions, i.e. a 50 per cent evasion rate or a 2.5 per cent average return, the counterfactual tax rate at the very top remains around 1 percentage point below the actual tax rate and the regressivity at the top remains. Hence, the main findings are quite robust to changes in the parametric assumptions.

IV. The effect on tax progressivity through policy changes

(i) Framework

Denoting the income threshold at which the top marginal tax kicks in by z^* and the average income of individuals with income above the threshold by z_m, the optimal top marginal tax is given by the following expression (Diamond and Saez, 2011):

$$\tau^* = \frac{1}{1 + ea} \tag{1}$$

where e is the elasticity of taxable income with respect to the net-of-tax rate and a is the Pareto parameter $z_m/(z_m - z^*)$. The formula assumes that the social welfare weight on taxpayers with incomes above z^* is zero so that τ^* coincides with the rate that maximizes tax payments from this group.[7]

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[7] With a non-zero welfare weight on these taxpayers, the optimal top marginal tax rate becomes:

$$\tau^* = \frac{1 - G(z^*)}{1 - G(z^*) + ea} \tag{2}$$

where $G(z^*)$ is the average marginal welfare weight on taxpayers with incomes above z^* measured relative to the value of government revenue.

Assuming that wage income and financial income are subject to the same joint tax schedule, I ask how the ability to enforce taxes on offshore financial income affects the optimal top marginal tax rate in this simple framework? I consider how the optimal top marginal rate may change through each of the two parameters, *e* and *a*, in turn.

(ii) The elasticity of taxable income

The elasticity of taxable income captures a range of behavioural responses to taxation, including real labour supply and savings responses as well as various types of evasion and avoidance responses. When governments become better at detecting and taxing offshore financial income, it is natural to expect that the evasion through offshore accounts becomes less responsive to changes in the marginal tax rate. In the limit when they can monitor offshore income perfectly, we should expect offshore evasion to be zero regardless of the marginal tax rate. While this suggests that the overall elasticity of taxable income *e* falls, there may be offsetting effects on other behavioural margins. For instance, it is possible that the inability to evade taxes on financial income through offshore accounts induces taxpayers to reduce savings or even to migrate to a low-tax country. However, it is natural to assume that the direct effect dominates so that the overall elasticity *e* indeed falls.

I do not attempt to quantify the likely change in *e*. One approach would be to compare estimates of the tax elasticity of offshore tax evasion in different enforcement environments, e.g. in the early 2000s when enforcement on offshore income was almost impossible and the late 2010s when automatic information exchange is implemented, and back out how the contribution of this evasion margin to the overall elasticity of taxable income has changed. Even though this approach simplifies the problem by ignoring the possible offsetting effects on other margins, it is not immediately implementable due to a lack of credible estimates of the tax elasticity of offshore tax evasion.

(iii) The Pareto parameter

The Pareto parameter expresses the 'thinness' of the tail of the distribution of taxable income; with higher values of *a*, the density of taxpayers in the tail of the income distribution decays faster with the level of the income. When enhanced enforcement induces taxpayers to include their offshore financial income in overall taxable income, we should expect the tail of the distribution to become fatter, i.e. a smaller *a*, because of the skewed distribution of offshore financial income. To see this, note that a proportional increase in taxable income at all incomes leaves *a* unchanged. It follows that a disproportionate increase in taxable incomes at the top, which is the result of including offshore financial income in taxable income, lowers *a*. Consistent with this intuition, earlier studies using microdata for offshore accounts have found that top wealth shares increase significantly when accounting for offshore wealth (Alstadsæter *et al.*, 2019).

Again, I only make a qualitative argument and do not attempt to estimate the change in *a*. However, this would in principle be relatively straightforward with micro-data for total taxable income and offshore income.

(iv) Implications

It follows from the formula derived above that lower values of *a* and *e* change the trade-off underlying the optimal taxation of high incomes in favour of a higher top marginal tax rate. Intuitively, with a lower elasticity of taxable income, the deadweight loss associated with higher marginal tax rates at the top is smaller. Moreover, with a thicker tail of the distribution of taxable income, the mechanical revenue gain associated with higher marginal tax rates at the top is larger. Both effects make it relatively more attractive to tax top incomes at a higher rate. As global cooperation allow governments to enforce taxes on offshore income, we should therefore expect them to opt for higher marginal rates at the top.

There is some empirical evidence that governments are responding to the changes in policy trade-offs created by increased incentives. Indeed, Ahrens *et al.*, (2022) show that, faced by fiscal pressure, governments are more likely to raise taxes on capital income when there is more financial transparency and information exchange. However, this evidence is merely suggestive and more research is needed to reach definitive conclusions.

V. Conclusion

The new near-global regime of automatic information exchange and other enforcement policies have made it possible for governments to more successfully enforce taxes on offshore income. I argue that this may have important implications for the redistributive properties of the tax system in two ways. First, it mechanically raises tax progressivity for given parameters of the tax system because high-income taxpayers own a disproportionate share of the offshore wealth. In the United States, the mechanical increase in average tax rates may be around 1.5 percentage points for the top 0.01 per cent and virtually zero below the top 1 per cent. Second, it may further

raise tax progressivity by changing the trade-offs underlying optimal taxation in favour of higher taxation of top incomes. Specifically, the elasticity of taxable income should decrease and the tail of the distribution of taxable of income should become thicker. Both factors increase the optimal top marginal tax rate in a simple model of top-end taxation.

It is of course far from given that governments will follow the policy prescriptions of optimal tax theory and raise top marginal tax rates as the ability to tax foreign financial income increases. Actual public policies aggregate voter preferences in an imperfect process that involves compromises across multiple policy dimensions and lobbying by special interest groups. However, regardless of the specifics of the policy process, one should expect that a lower efficiency cost of high-end taxation will eventually manifest itself as higher tax rates at the top. Recent empirical evidence suggests that the improvements in cross-border information exchange have already caused an upward shift in capital income taxes within a relatively short time frame (Ahrens *et al.*, 2022). However, more analysis is warranted, notably because public policy is often sluggish and may respond to changes in the fundamental trade-offs with a significant delay.

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