

State of Tax Justice 2024: Methodology note on estimating the scale of undeclared offshore wealth and related tax revenue losses

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1 Introduction

The State of Tax Justice 2024 reports that in 2021, in our headline realistic estimates, the world lost US\$144.8 billion in tax to tax abuse related to offshore financial wealth. Despite some progress achieved by automatic information exchange, the amount of estimated undeclared offshore wealth remains high at around US\$13.6 trillion (or 9% of global GDP). These estimates come from method uses portfolio data of countries to identify hidden wealth as the difference between reported cross-border liabilities and cross-border assets. This method identifies hidden wealth as wealth that exists, according to official statistics of the country where the wealth is located, but no one owns it, according to official statistics of all other countries. In the State of Tax Justice, we identify the probable location of this hidden wealth and assign it to owners all over the world. We then adjust the estimates for the likely impact of the recent advent of automatic information exchange based on the best available evidence.

In this methodological note, we describe the data and methodology we use to arrive at estimates of undeclared offshore wealth and the resulting tax revenue losses. The code that implements the methodology described in this note is available at osf.io/zfb2w/.

2 Data

The primary source of data that we use to estimate the distribution of offshore financial wealth is the Locational Banking Statistics (LBS) from the Bank for International Settlements (BIS). Many offshore financial centres have been reporting information on the owners of deposits in their banks to the BIS for many years, however, only in 2016 did they authorize the BIS to publish this data as part of the LBS. While this data is now available for some countries starting in the 1980s and up to 2023, in the State of Tax Justice 2024, we focus on data for 2021 for

country-level results (and the years 2016-2021 for an analysis of the time trend) to cover the same period as the Country-by-Country Reporting data used in the corporate tax abuse section of the report.

3 Methodology

Our approach to distribute wealth hidden offshore to owners in different countries can be summarized in five steps. First, we estimate where the hidden wealth is located by identifying ‘abnormal’ bank deposits in highly secretive financial centres – deposits that we would not expect to see in these countries based simply on the size of their economies. Second, we follow Alstadsæter, Johannesen et al. (2018)’s approach to attribute these abnormal deposits to their origin countries. Third, we combine these country shares with the existing estimates of total global offshore financial wealth to derive the value of total offshore wealth originating from each individual country. Finally, we derive the tax revenue losses resulting from income earned on this wealth, building on the established approach of Zucman (2015). A more detailed explanation follows.

In the first step, we identify the location of hidden wealth by what we call “abnormal deposits”. We start by identifying jurisdictions that (a) attract amounts of bank deposits that are disproportionately large in comparison to the size of their economy and (b) offer strong bank secrecy laws. For our purposes, we define these jurisdictions as those that have high secrecy scores on the Financial Secrecy Index 2022¹ for the category of ownership registration. Combining these two indicators (i.e. high score on financial secrecy and high intensity of inward bank deposits), we identify jurisdictions with significant abnormal deposits due to secrecy as follows: countries with an inward bank deposit intensity of 30 per cent of GDP and a secrecy

¹We use the 2022 edition of the Financial Secrecy Index in this step to be in line with the data used in this analysis, which comes from the end of 2021. The 2022 edition of the Financial Secrecy Index had a cut-off date on September 30, 2021, and thus is the closest edition to the main data.

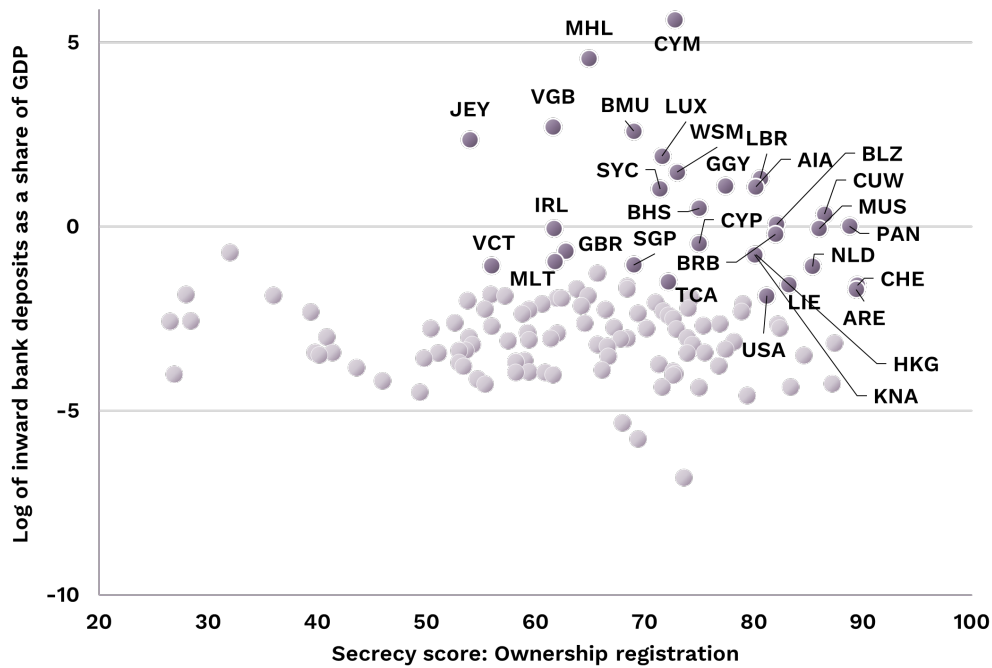


Figure 1. Bank deposits and financial secrecy

score of more than 50, and those with an inward bank deposit intensity of 15 per cent of GDP and a secrecy score of more than 70. These countries are highlighted in Figure ???. In the banks of these jurisdictions, foreign deposits are significantly higher than would be expected based on the size of the jurisdictions' economies, and at the same time, these countries offer high financial secrecy. The list of these countries contains most of the economically important offshore financial centres.

Excluding these jurisdictions, we seek to establish a 'normal' relationship between inward deposits and GDP. Using a sample of the remaining countries i and data for each year separately, we estimate the following model:

$$\text{Log inward bank deposits}_i = \beta_0 + \beta_1 \times \log \text{GDP}_i + \epsilon$$

Figure ?? shows the resulting relationship between (log) GDP and (log) inward bank deposits. In total, the regression is carried out using a sample of 190 remaining countries. There is a strong positive relationship between GDP and inward bank

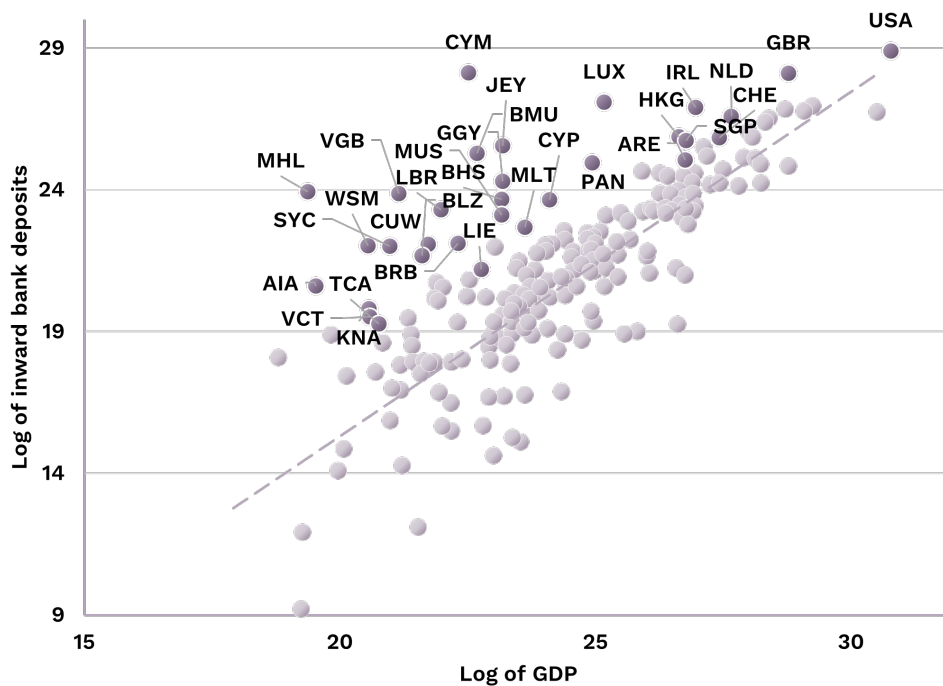


Figure 2. Inward bank deposits and GDP; 2021

deposits in these countries: the R-squared for the regression is 0.756. Labeled individually and highlighted are those jurisdictions excluded from the regression.

The disproportionate amount of inward bank deposits (compared to GDP) in these 31 jurisdictions is further examined in Figure ??, where we present the development of the share of cross-border deposits in these jurisdictions of the global total. We observe that while they account for only a small share of global GDP (which has remained relatively stable over time), they collectively host over 40% of global cross-border deposits in 2021, a share that has steadily risen from just around 13% in 1980.

The level of “abnormal deposits” in each jurisdiction is then defined as the difference between actual, observed deposits, and the expected deposits as predicted by the regression coefficient. The assumption is that these deposits are located here precisely due to the fact that these jurisdictions provide some form of financial secrecy.

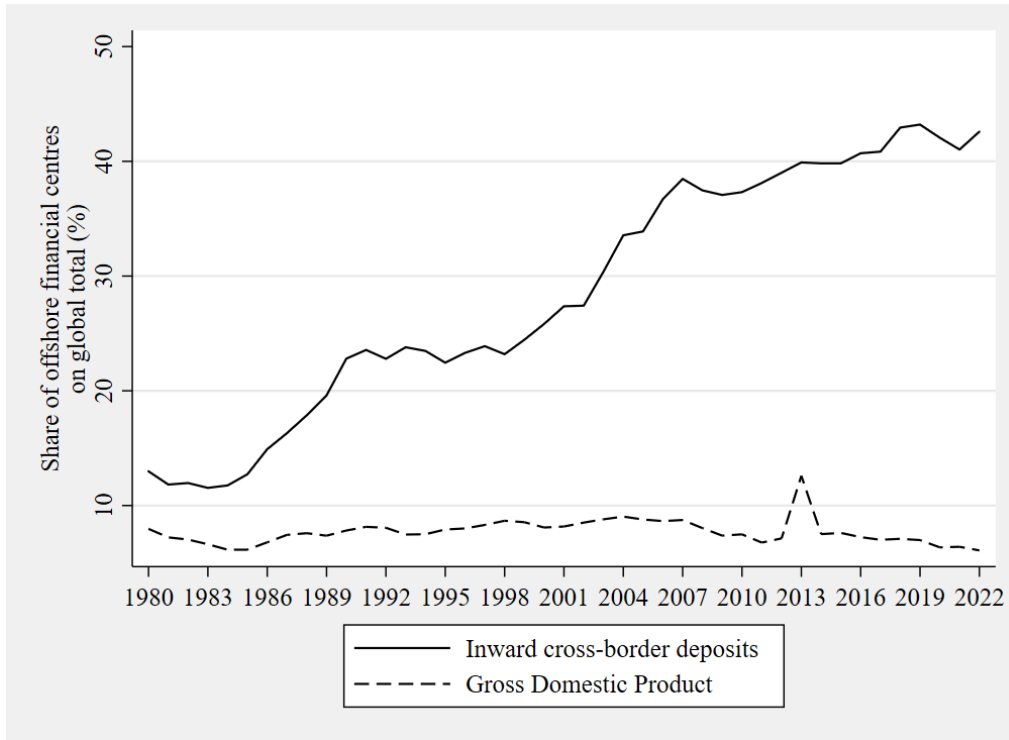


Figure 3. Share of offshore financial centres’ inward bank deposits and GDP on the global total over time

We find that 51.6% of global bank deposits can be considered abnormal as per our definition, meaning that they are located in individual jurisdictions in quantities that are higher than would be expected based on the size of these jurisdictions’ economies. Note that this includes additional jurisdictions to the 31 pre-identified: that is, jurisdictions within the regression sample can also be identified as holding abnormal deposits, where the levels exceed that predicted. For each jurisdiction, our approach allows us to quantify how much money is considered to represent abnormal bank deposits and how large a share of each jurisdiction’s total bank deposits these abnormal deposits represent; we list the top 20 countries on this metric in Table 5.1 in the State of Tax Justice 2024 report.

While some of the jurisdictions that host abnormal deposits are not routinely considered to be important destinations of offshore wealth (such as Italy or Spain) and their secrecy scores on Ownership registration are correspondingly relatively low, we choose not to exclude these countries from our consideration as destina-

tions of offshore wealth. For such countries, the large abnormal deposits could be explained by other factors than financial secrecy offered by the destination country – such as unusually intense cross-border economic activity – but we do not see a way accurately to estimate the size of these effects. In the light of this caveat, our estimates of inflicted loss by countries with low secrecy scores may be somewhat overstated, while those by countries with high secrecy scores are likely to be understated.

In the second step of our approach, we attribute these abnormal deposits to their origin countries. To do so, we broadly follow Alstadsæter, Johannesen et al. (2018)’s approach and again use the BIS Locational Banking Statistics. This dataset contains information on the origin of bank deposits in high-secrecy jurisdictions which report this data to the BIS: some of the most popular secrecy jurisdictions now report, including Luxembourg, Netherlands, Hong Kong, Switzerland, and the Channel Islands. On the other hand, some secrecy jurisdictions that are important for offshore wealth still do not report the relevant data at the level of disaggregation that we use in this analysis. In total, 72 per cent of the global abnormal deposits in 2021 are covered by the BIS data; until all countries report, we are left to make an assumption, similarly to Alstadsæter, Johannesen et al. (2018), that the distribution of origin countries for deposits stored in the BIS-reporting jurisdictions which have abnormal deposits also holds in the non-BIS-reporting jurisdictions.

The BIS data on bank deposits has one important drawback: it does not differentiate between households’ deposits and corporate deposits. Therefore, the ultimate owner is not always attributed to the actual source country of the deposits. For example, if a German person sets up a shell company in Hong Kong and opens a bank account for this company in Switzerland, this will show up in the data as a Hong Kong-Swiss relationship, rather than a German-Swiss relationship. While this could be partially solved by only focusing on households, the BIS data does not offer a distinction between households’ and corporations’ deposits. In our approach,

we thus assume that households' bank deposits are geographically distributed in a similar way as corporations' bank deposits. Also, even if there was such a distinction in the data, it would be questionable whether to use it: households can easily create shell corporations, and their wealth would thus be reported as corporate bank deposits.

In Table 5.2 in the State of Tax Justice 2024 report, the second column shows the share of global offshore wealth that is attributed to each country. One consequence of the drawback of the BIS data that we discuss above is that important offshore financial centres appear to have a high share of global offshore wealth, because the shell corporations incorporated there hold deposits in other offshore financial centres. While this means that non-havens' estimated shares of global offshore wealth are likely to be understated by our approach, we do not see a good way to correct for this limitation of the data. For example, the share of global offshore wealth of Jersey (0.6%) is much larger than would be expected from an economy of Jersey's size (which only accounts for around 0.0036% of the global GDP), because we are unable to differentiate between genuine deposits of the citizens of Jersey in offshore financial centres and deposits made by Jersey-incorporated shell companies owned by citizens of other countries. In future research, combining the BIS data with other sources, such as leaks of confidential documents, might shed light on the size of these effects and allow methods for correction to be developed.

In the third step, we combine existing estimates of total global offshore financial wealth with our estimated origin country shares, to derive the value of offshore wealth originating from each individual country. In particular, we use the 2021 estimate of global offshore financial wealth that uses the original methodology developed by Zucman (2013) and recently re-estimated and published by Alstadsæter, Godar et al. (2023). The estimate suggests that the scale of total offshore wealth amounted to US\$14.2 trillion in 2021, of which US\$11.35 trillion is likely undeclared. It is important to note that this estimate only includes financial assets and not non-

financial wealth, which is likely to exceed financial wealth in value by a factor of 3-4 (Henry, 2012). For these reasons, this exercise is likely to be highly conservative in the projected scale of offshore wealth-related tax abuse. The third column of Table 5.2 in the State of Tax Justice 2024 report translates the constructed shares of global offshore financial wealth into US dollars, and the fourth column expresses these amounts as shares of GDP of the individual countries.

In a fourth step, which is new in the 2024 version of the State of Tax Justice report, we adjust the estimate of undeclared offshore wealth by using recent evidence on the effectiveness of automatic information exchange (a policy that the Tax Justice Network championed in early 2000s), as part of the OECD's Common Reporting Standard (CRS), an international framework designed to facilitate the automatic exchange of financial account information among participating jurisdictions. To evaluate the impact of CRS on the share of offshore wealth that is declared to home authorities, we introduce an indicator that captures CRS implementation timing and effectiveness.

We start by constructing a CRS existence factor, derived from OECD data on the first year of CRS implementation. The CRS existence factor is a binary variable indicating whether the CRS was in effect for a given country and year. Next, for countries that have implemented the CRS, we recognize recent evidence highlighting that CRS implementation is not immediately effective (Boas et al., 2024), and we therefore introduce a CRS implementation delay factor to account for the gradual ramp-up of compliance measures. Based on the findings of Boas et al. (2024) from Denmark, this factor reflects a phased increase in effectiveness over the first five years post-implementation, with a progression of 9% in the year prior to implementation (which reflects anticipation effects), 57% in the first year of implementation, 75% in the second, 85% in the third, before reaching its full effect by the fourth year of implementation. These adjustments enable a more accurate representation of CRS-related reductions in offshore wealth over time.

Lastly, we incorporate country-level differences in CRS enforcement by introducing a CRS effectiveness factor. Using country-level estimates of CRS effectiveness from Alstadsæter, Casi et al. (2023), this variable ranges from zero (no effect) to one (full effect), capturing cross-country variations in enforcement. Denmark, which exhibits a benchmark effectiveness rate of 27% (according to estimates by Boas et al. (2024)), serves as a reference point for calibrating these values across jurisdictions. We then construct the CRS effectiveness indicator as follows:

$$\text{CRS effectiveness}_{t,i} = 1 - ((1 - \text{CRS efficiency factor}_{t,i}) * \text{CRS delay factor}_{t,i}) \quad (1)$$

The combined use of CRS existence, delay, and effectiveness factors provides a comprehensive framework to estimate both the speed and magnitude of offshore wealth reductions under CRS in each country and year individually.

We then construct several scenarios to reflect the uncertainty about the impact of CRS on portfolio investment. We do so by varying the share of portfolio investment that the CRS adjustment applies to. The reason we do that is that recent research by Janský et al. (2024) provides evidence that CRS has had a much weaker (if any) impact on portfolio investment compared to bank deposits, which was anticipated by some critics of the CRS (Beer et al., 2019). The estimates of undeclared offshore wealth under each constructed scenario are shown in Figure ???. In our cautious scenario, we assume no impact of CRS on portfolio investment; in our realistic scenario, we assume a 50% impact; and in our optimistic scenario, we assume a full impact on portfolio investment.

In the fifth and final step of our methodology, we derive the tax revenue losses resulting from financial wealth being stored in secrecy jurisdictions. Following Zucman (2015), we assume that all investments made in secrecy jurisdictions (including bank deposits, with likely lower yields, and other assets, such as securities and

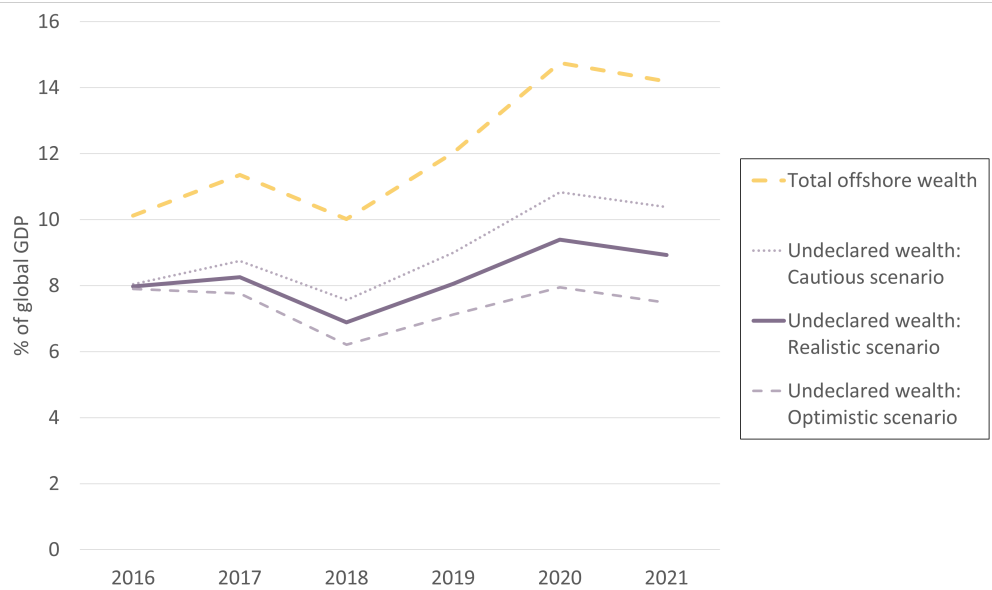


Figure 4. Undeclared offshore wealth and related tax revenue losses over time

bonds, with likely higher yields) yield an average of a 5 per cent return. We then multiply these returns by the top-bracket personal income tax (PIT) rates that would have been applied in the assets’ origin countries, had these assets not been moved to secrecy jurisdictions.

While using PIT rates might be introducing an upward bias to our estimates (in the sense that governments would, in reality, likely tax the returns at lower rates, perhaps because some of this income would be subject to the capital gains tax (CGT)), we ultimately choose to use PIT rates due to two reasons. First, although in theory we are considering a full range of assets, in practice the numbers are driven by financial account holdings (to which PIT rather than CGT would generally apply). Second, there is an argument that if the returns were actually declared for PIT, individuals would have an incentive to lower the relevant tax rate (e.g. by structuring as capital gains rather than individual income) – however, we focus on the tax-evading element of the returns. Therefore, the income that is being evaded as things stand (without any avoidance response) would be subject to PIT rather than CGT.

The existence of cases such as Italy where a lower rate than the PIT would apply to income streams from declared offshore assets might suggest making more conservative adjustments on a country by country basis, and we will consider this for future work. We note, however, that even in such a case, the very existence of the offshore wealth is the result of an originally undeclared income stream. For that reason, applying the higher PIT rate to a hypothetical income stream generated by the offshore wealth – rather than to the original income stream that generate the offshore wealth itself – will anyways understate the total tax losses substantially.

The fifth column of Table 5.2 in the State of Tax Justice 2024 report shows the estimates of tax revenue loss for each country. Finally, in the sixth and seventh column, we show the estimated contribution of each country to the global tax losses due to offshore wealth as a share, and the respective tax loss in US dollars inflicted on other countries.

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