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**THE ROLE OF CONDUIT COUNTRIES AND
TAX HAVENS IN CORPORATE TAX AVOIDANCE**

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Abstract

Traditional tax havens and conduit countries have different economic and tax characteristics. This paper shows that conduit countries are larger economies, have higher statutory and effective tax rates, have more bilateral treaties and are more transparent. Because of these characteristics, other countries apply lower withholding taxes on income flows to conduit countries compared to tax havens and do not apply CFC-rules on profit income generated in conduit countries. I assess quantitatively the role of tax havens and conduit countries in international corporate tax avoidance taking account of the literature on corporate tax revenue losses, treaty shopping and phantom investment. I allocate the global tax revenues losses due to profit shifting and treaty shopping to individual countries, using GDP, tax rates, FDI positions and FDI income. Traditional tax havens are only responsible for a small part of corporate tax avoidance. Conduit countries are involved in a much larger share, in particular on treaty shopping. A large share of the profit shifting losses is also due to different tax arrangements between other developed countries.

Keywords: international tax avoidance; corporate income tax; withholding taxes; conduit countries; tax havens, treaty shopping

JEL-codes: F21; F23; H25

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1. Introduction

Countries, international institutions, and media blame tax havens for their role in international corporate tax avoidance. This is also the case for European countries; the European Commission and the European Parliament labeled a number of EU Member States as tax havens in recent years.¹ The literature characterizes tax havens often as countries with no or negligible corporate income taxes, no cooperative responses to tax information requests of other countries and possibilities for having bank accounts and firms without registering ultimate beneficial owners.² These characteristics do not apply to most European tax havens. The academic literature classifies some of these EU-countries also as offshore financial centers, investment hubs, transit countries or conduit countries. All these labels belong to somewhat different but overlapping country groups. A common characteristic is that these countries have large inward and outward direct investment positions and receive and distribute large investment income flows (at least on paper).

This paper discusses whether it makes sense to distinguish traditional tax havens and conduit countries by surveying the literature and using international statistics. More knowledge about the role of these types of countries in international corporate tax avoidance is needed, to indicate the importance of these countries and to propose policy measures for limiting corporate tax avoidance.

To do so, I define tax havens as countries with specific tax and economic characteristics. Therefore, I use data on corporate tax rates, and indicators on financial secrecy and on tax havenness. I also use international economic statistics on GDP and foreign direct investment (FDI) positions. Based upon the literature, I define a group of conduit countries. Because it is nearly impossible to define this group very strictly, I select various country groups. Applying the data, I argue that conduit countries and tax havens have different economic and tax characteristics.³ Consequently, other countries treat conduit countries and tax havens differently; countries apply CFC-rules only to tax havens and countries have double tax treaties, including lower withholding tax rates, with conduit countries but not with tax havens.⁴ While countries could deliberately have acted to become a tax haven, this is less clear for becoming a conduit country. Countries often choose to foster their investment climate, which could also stimulate a conduit role (but not necessarily).

A second contribution of the paper is that I assess the role of conduit countries and tax havens in international corporate tax avoidance. First, I summarize the most important results regarding the magnitude of missing global corporate income tax (CIT) revenues. Since the OECD BEPS-report in 2015, several studies have also appeared that try to estimate the effect of corporate tax avoidance on tax revenues. In doing so, these studies use different methods.⁵ I discuss the advantages and disadvantages of the various methods and derive a middle estimate on the global corporate tax

1 EC (2018), EP (2019) and Fuest et al. (2021) among others. According to US statistics, a large share of the overseas profits of their multinational firms comes from European tax havens as Ireland, the Netherlands, Luxembourg, and Switzerland (see Clausing (2016), Tørsløv et al. (2018) and Zucman (2014), among others).

2 Dharmapala and Hines (2009), Gravelle (2015), and OECD (1998), among others.

3 This was already identified by Hines and Rice (1994) who use the terms 'Big-7' and 'Dots' to distinguish both country groups.

4 I am referring to treaties with agreements on double taxation and withholding taxes, not information exchange agreements.

5 Many empirical studies have analyzed various mechanisms of tax avoidance, but these studies do not present overall estimates on missed corporate tax revenues.

revenue loss of 150 billion dollars. According to Heckemeyer and Overesch (2017), this is mainly due to transfer pricing; debt shifting is a less important mechanism.

Second, I also include the quantitative effects of treaty shopping on global tax revenue losses (van 't Riet and Lejour, 2018).⁶ Recent treaty shopping analyses identify pivotal jurisdictions on international routes.⁷ These are intermediate countries often used for diverting international investment and the possible taxable returns on these investments. It is important to discriminate real investment flows from the diverted ones via conduit countries to avoid double counting of foreign investments, investment income and corporate tax revenue losses.⁸ In doing so, I estimate the tax revenue loss due to treaty shopping at 38 billion dollars, mainly due to less revenues from withholding taxes. Ranking the tax avoidance mechanisms, the importance of treaty shopping lies in between transfer pricing and debt shifting in terms of revenue losses.

With these estimates I assess quantitatively the role of tax havens and conduit countries in international corporate tax avoidance. Thus far, the literature focused mainly on developed and developing countries.⁹ I use various indicators to allocate the estimated global revenue loss to individual countries. These indicators are GDP, GDP corrected for corporate tax differences, FDI positions and FDI income. Tax havens are only responsible for a small part of global tax avoidance, although their contribution is large given their small economies. The role of conduit countries is much more important in terms of global revenue losses with respect to treaty shopping. A large part of the global revenue losses is also due to different tax arrangements between other countries. At the same time, these countries are losing substantial tax revenues.

Section 2 presents an overview of the papers on tax revenue losses of international corporate tax avoidance. The differences in tax systems between tax havens and conduit countries are the topic of Section 3. Based on various definitions in the literature, I define three sets of conduit countries. Section 4 presents the size of foreign direct investment positions to and from conduit countries and tax havens. This section also discusses the role of both types of countries in international tax planning of multinationals and shows that conduit and tax haven countries do not only have different tax characteristics but are also treated differently in the tax systems of other developed countries. Section 5 assesses the quantitative impact of treaty shopping taking account of the double counting of foreign investment positions and of international investment income. I quantify the involvement of tax havens and conduit countries in international tax avoidance in Section 6, using various mechanisms to assign the global tax revenue losses to individual countries. Section 7 presents firm level data of US multinationals, and Dutch special purpose entities (SPEs) on diverted income flows. Section 8 concludes and presents some policy conclusions.

6 De Beer et al. (2020) also discuss treaty shopping and refer to some estimates on revenue losses, but these are for specific countries.

7 Hong (2018), Petkova et al. (2019), and van 't Riet and Lejour (2018).

8 Recently, Damgaard et al. (2019) have labelled double counted investments as phantom investments.

9 For example, Crivelli et al. (2016) estimate a tax revenue loss for OECD countries of 95 billion dollar and for non-OECD countries of 28 billion dollar. Bolwijn et al. (2018) derive a midrange estimate of 90 billion dollar for developing countries and a 110 billion dollar revenue loss for developed ones.

2. The magnitude of international corporate tax avoidance

Estimates on the magnitude of international corporate tax avoidance are pivotal for understanding its importance. Since the OECD (2015) formulated this as one of its action points, several studies have estimated the effect of tax avoidance on global corporate tax revenues. OECD (2015) estimates that the loss of global tax revenues from corporate tax avoidance is 4 to 10 percent of total revenues. This is 100 to 240 billion US dollar based on data for 2014.¹⁰ As this range suggests, these estimates are surrounded by a high degree of uncertainty.

The basic idea of corporate tax avoidance is that firms shift profits to low-tax countries using various techniques. The literature links the size of these profits to the corporate tax rates of various countries. This gives an idea of the sensitivity of tax rate differences on tax planning decisions. However, the basic problem is that we do not know the possible distribution of profits over countries if these differences in corporate income tax rates would not exist. By definition, research can only approximate the size of profit shifting.

These approximations have methodological limitations. Bradbury et al. (2018) summarize three limitations that also apply to the studies discussed in this section. First, there are limitations for using international firm-level data. The data is not representative because firm selection over countries is not random, and firms in developing countries are underrepresented.¹¹ Second, there are various analytical and methodological issues. It is hard to discriminate 'real' activities from tax-shifting motives. Quite often tax and non-tax motives for business decisions are intertwined. Thereby it is also hard to value many intra-firm activities and transactions because there is no objective market value. Third, in analyzing the impact of taxation on business decisions, the choice of the tax rates is important. The use of statutory tax rates is often not correct. Effective tax rates have to be used, but estimated effective tax rates are often backward looking, while forward-looking tax rates are needed. Fourth, most firm-level studies use accounting data that define commercial profits. Bilicka (2019) emphasizes the use of administrative firm-level data that define taxable profits. The disadvantage is that administrative data are normally only available for individual countries.

Given these limitations, the bandwidth provided by the OECD study is indicative for the magnitude of profit shifting; it concerns large amounts. Many other papers also present outcomes within this range. Table 1 provides a short overview.

Crivelli et al. (2016) use macroeconomic data and analyze investment decisions that are partly motivated by tax rates and profit shifting. They deduce that countries lose 123 billion US dollar in corporate income taxes in 2013. That is approximately 0.2 percent of GDP. Most of the OECD countries are losing tax revenues, but the impact is relatively larger for developing countries (1.3% of GDP). These estimates are short-run losses according to the authors. They also consider the long-term estimates of international tax competition that leads to lower corporate income tax rates. Then

¹⁰ The results are based on an estimated semi-tax elasticity on reported earnings of -1.0 for all subsidiaries of multinational companies. For profitable subsidiaries, the semi-elasticity is -1.6. These semi-elasticities are slightly higher than the consensus in the meta-study by Heckemeyer and Overesch (2017).

¹¹ Garcia-Bernardo et al. (2020) present an overview of the similarities and differences of various databases on US multinationals. The recent country-by-country reporting requirements of large multinationals could be a new source for estimating the size of corporate tax avoidance the coming years, see e.g. Fuest et al. (2021).

the tax revenue loss is about five times larger.¹² Cobham and Janský (2018) re-estimate the data from Crivelli et al. (2016) and conclude that the long-term effect is approximately 500 billion US dollar. They also present tax revenue losses and, in some cases revenue gains.

Beer et al. (2020) perform a meta-analysis on the estimates that measure the effects of differences in corporate tax rates on profit shifting. They use the outcome of this analysis as their core elasticity to estimate the degree of profit shifting and corresponding loss or gain of tax revenue for 81 low-tax and high-tax countries. The global net loss is about 0.1 percent of GDP, which is about 50 billion US dollar. This outcome is smaller than in other studies because many tax havens are not included, and the average statutory tax rate is quite high. As a result, the tax revenue loss for the US is larger than the global loss and many low-tax countries receive extra revenues due to inward profit shifting. However, a number of these countries are transit or conduit countries. Multinationals often use these countries as pass through, because these countries do not levy any profit tax on these flows. Therefore, it seems that the revenue gains are overestimated for these countries and that the tax revenue losses for other countries are underestimated due to the high average tax rate.

Clausing (2016) estimates a 280 billion US dollar loss as missed corporate income tax revenues in 2012 worldwide. This global revenue loss is derived from foreign direct investments and profits of American companies, data that are not systematically collected for multinationals headquartered in other countries. For the United States, the revenue loss is 77 to 111 billion dollars. Clausing (2016) translates these outcomes to the world using figures for the 2000 largest multinationals. This could be an overestimate of tax revenue losses, because other studies show that the share of multinationals with American owners in international tax avoidance is relatively large.

Zucman (2014) also estimates tax avoidance by US companies. He shows that the effective CIT rate has fallen from 30 percent in 1998 to 20 percent in 2013 of which two thirds is due to tax avoidance (between 60 and 80 percent). The missed tax revenues amount to 133 billion dollars in 2013.¹³ More than 50 percent of the foreign profits of American multinationals are registered in tax havens.¹⁴

Recently, Blouin and Robinson (2019) have criticized studies using US data on foreign earnings because these data contain many double counts that follow from the American valuation method of the participation shares in foreign subsidiaries. Blouin and Robinson correct for these double counts, which reduces the share of foreign profits and the share of tax havens. This would put Zucman's estimate (2014) 50 billion dollars lower. The tax loss in the United States according to Clausing (2016) estimates would be 3 to 4 times lower.

Tørsløv et al. (2020) use balance of payments data to determine the global pattern of corporate earnings. They use bilateral data to distinguish domestic profits from foreign profits (of foreign multinationals). According to their method, multinational firms have shifted more than 600 billion dollars of the realized foreign profits of a total of 1700 billion US dollars to other countries in 2015. This is about 180 billion dollars in tax revenues.

12 The spillover effects of tax competition are statistically significant. These are particularly important for the OECD countries in determining the long-term effect.

13 That is two thirds of the missed CIT revenues of 200 billion dollars. This is about 0.6% of GDP.

14 These are Ireland, Luxembourg, Netherlands, Switzerland, Bermuda and Caribbean tax havens, and Singapore. Further, I will only classify Bermuda and the Caribbean as traditional tax havens.

Table 1: Overview of estimated tax revenues losses due to corporate tax avoidance

Article	Region	Tax revenue loss (billion US dollar)	Year	Other remarks
Beer et al. (2020)	81 countries	49.1	2015	Elasticity plus simulation
Beer et al. (2020)	USA	62.4	2015	
Crivelli et al. (2016)	World	123	2013	Elasticity
Crivelli et al. (2016)	World	647	2013	Long term
Cobham & Janský (2018)	World	500	2013	Long term
OECD (2015)	World	100 – 240	2014	Orbis data
<i>Studies using US data (BEA)</i>				
Clausing (2016)	USA	77-111/ (90)	2012	
Clausing (2016)	World	280	2012	Based on US
Tørsløv et al. (2020)	World	180	2015	Balance of payment data
Zucman (2014)	USA	133	2013	Balance of payment data
Blouin & Robinson (2019)	USA	80	2013	Corrected Zucman (2014)
Blouin & Robinson (2019)	USA	10-32	2012	Corrected Clausing (2016)
<i>Studies using FDI data</i>				
Bolwijn et al. (2018)	Developing	90	2012	Estimate
Bolwijn et al. (2018)	Developed	110	2012	Estimate
Janský & Palanský (2019)	World	125	2016	Country split

Sources: cited articles and the overview table in Bradbury et al. (2018).

Bolwijn et al. (2018) use data on foreign direct investment to estimate CIT revenue losses. They distinguish three types of countries: tax havens, transit countries and ordinary countries.¹⁵ The Netherlands, Luxembourg, Hungary, and Austria are considered transit countries. This is for practical reasons; these countries register foreign investments by or via Special Purpose Entities (SPEs).¹⁶ SPEs are entities that are directly or indirectly controlled by foreign owners and have their assets and liabilities primarily in other countries. The foreign investment positions on their balance sheets are loans to or participations from daughter companies in other countries and are normally not invested in the jurisdiction of the SPE (see Lejour et al. (2021) for an analysis of the Dutch SPEs). The share of foreign direct investment (stock) to (or owned by) transit countries and tax havens is 51 to 65 percent of the global total. This suggests that about half to two thirds of these investments are likely to be tax driven.

Bolwijn et al. (2018) then determine the relationship between the degree of offshore investments and the rate of return for developed and developing countries. According to their preferred specification developing countries lose 90 billion US dollar in tax revenues. An additional 110 billion euros are lost by developed countries. Janský and Palanský (2019) refine the analysis by Bolwijn et al. (2018) with more country-specific elements for 2015. Their estimated global loss of tax revenues is smaller, approximately 90 billion dollars.

A recent study of Janský (2020) estimates revenue losses by economic sector. Other studies focus only on a few (developing) countries. Examples are Janský (2018) for 14 developing countries in sub-Saharan Africa and Asia and Balabushko et al. (2017) for the Ukraine. I only have selected studies estimating global revenue costs, and do not include country studies in the comparison.

Ignoring the long-term effects of strategic tax competition, the estimates of lost corporate income from worldwide tax revenues range from 50 billion dollars (Beer et al., 2020) to 280 billion dollars (Clausing, 2016). This is a large bandwidth, and if I exclude the extremes, estimates range from 90 to 240 billion dollar with an average of about 150 billion dollars. That is 6 percent of the worldwide

15 Bolwijn et al. (2018) call these transit countries also conduit or OFC countries (Offshore Financial Centers).

16 Based on other criteria, the authors also add Belgium, Ireland, Hong Kong, Singapore, and Switzerland.

corporate tax revenues, on average. This bandwidth reflects the large uncertainties and methodological problems in estimating the global corporate tax losses.

3. Classification of conduit countries and tax havens

A general accepted definition of tax havens does not exist. The name covers various notions at the same time, although it seems that a tax haven has to fulfill three characteristics mentioned below. The main problem is that all three characteristics do not specify strict criteria in classifying a country as tax haven or not. First, the jurisdiction levies no, or effectively low, taxes on (corporate) income. A high or normal statutory rate is of little consequence when the tax code contains all sorts of tax reducing exceptions. A second characteristic is that the tax code may lack transparency. A third characteristic is that the jurisdiction may be non-cooperative in supplying information of foreign taxpayers, at the request of other tax authorities (OECD, 1998). Consequently, individuals and firms may deliberately keep income and wealth hidden, and therefore taxes can be avoided or even evaded.

Tax havens have an advantage in providing financial services: they are economically open, provide a sophisticated communications infrastructure, and perform well on governance indicators measuring political and legal stability as well as corruption,¹⁷ compared to developing countries. According to GDP per capita, these countries rank as middle income, and sometimes as high-income countries. Dharmapala and Hines (2009) show that countries deliberately decide to become a tax haven, because it is profitable.¹⁸ These islands have often small and not diversified economies and being a tax haven is a way to develop a large financial sector. According to Slemrod and Wilson (2009) tax havens benefit from offering concealment services, at the cost of missed corporate income tax revenues.

The large overseas profits of American multinationals in Bermuda, Caribbean tax havens (including British Virgin Islands and Cayman Islands), Ireland, Luxembourg, the Netherlands, Singapore and Switzerland are reason to classify these countries as the largest tax havens.¹⁹ Nearly all these countries figure also on various tax haven lists, such as Gravelle (2015). The Gravelle list contains a category 'other financial centers', such as Ireland, Luxembourg and Switzerland. These countries have normal corporate income tax rates but are characterized as tax havens because of their role as conduits or pass through. Therefore, the effective tax rates on foreign profits are low in these countries.

Garcia-Bernardo et al. (2017) distinguish two types of O(ffshore) F(inancial) C(enter)s: sink-OFCs that store capital, and conduit-OFCs that facilitate the movement of capital between sink-OFCs and other countries. Using firm-level data of the Orbis database, Garcia-Bernardo et al. (2017) classify Ireland, the Netherlands, Singapore, Switzerland and the UK as conduit-OFCs. Using a less strict definition also Cyprus, Hong Kong and Luxembourg fall in this category. Bolwijn et al. (2018) use a strict measure on countries with self-declared SPEs. These are Austria, Hungary, Luxembourg and the

¹⁷ Dharmapala (2008), Dharmapala and Hines (2009), and Miethe (2020) are a few examples.

¹⁸ This is indeed the case for traditional tax havens. I will argue that this is not the case for conduit countries.

¹⁹ See Tørsløv et al. (2020), Zucman (2014), Blouin and Robinson (2019), and Clausing (2016), among others. Hines and Rice (1994) tagged Ireland, Luxembourg, Singapore, and Switzerland as tax havens thirty years ago.

Netherlands. Using a broader measure, they also include Belgium, Ireland, Hong Kong, Singapore, and Switzerland. Van 't Riet and Lejour (2018) classify the UK, Luxembourg and the Netherlands as the most important conduit countries.

These definitions are very close to the one of investment hubs. These are larger jurisdictions with substantial real economic activities that facilitate international investment due to their favorable investment conditions and services. UNCTAD (2015) and other international organizations define Investment hubs as countries with a large FDI position compared to GDP; the cut-off ratio is 200%. These are Hong Kong, Ireland, Luxembourg, the Netherlands, Singapore, and Switzerland. Larger economies as Belgium and the UK also have ratios above 100% but are not always considered as investment hubs.

Based on these classifications I define three sets of conduit countries. The strictest one consists of Hong Kong, Ireland, Luxembourg, the Netherlands, Singapore, and Switzerland. A less strict definition also includes Cyprus, Malta and the UK and the broadest definition includes Austria, Belgium and Hungary.²⁰

As tax havens, conduit countries have highly developed legal systems that facilitate the needs of multinational corporations (Mintz, 2004, Garcia-Bernardo et al. 2017). Sometimes these countries have also bank secrecy rules, like Switzerland. Conduits play a key role in the global corporate ownership network by allowing the transfer of capital without taxation (Garcia-Bernardo et al., 2017). According to Mintz (2004) these countries have equally large incoming and outgoing FDI flows.

These characteristics do not answer the question why countries want to become conduits. The economies of these countries are much larger than those of tax havens. Motives as diversification of the economy and economic growth are less reason for developing a conduit status. An exception is Luxembourg. It has a small and prospering economy, partly by creating a tax arbitrage functions for multinational firms (Marian, 2017). For other conduit countries, the literature does not answer the why question. Mintz (2004) argues that this function is the outcome of various efficiency and tax revenue arguments, depending on international tax competition. Slemrod and Wilson (2009) argue that the costs of being a tax haven are higher or even too high for larger economies while the benefits do not increase with economic size. This could explain that conduit countries do not choose to be a traditional tax haven. Slemrod and Wilson (2009) do not use the phrase conduit countries but brick and mortar economies with low tax rates, while seem to be comparable with conduit countries. They do not analyze these economies, but suggest that these countries have a dual motivation for setting low tax rates: the investment climate and profit shifting.

In line with these arguments, I conclude that it is a byproduct of designing an attractive investment climate for multinationals firms. The countries are often middle sized and open economies. These countries do not have the benefits of large consumer markets compared to large economies and therefore pursue competitive policies for attracting firms. The tax system could include a relatively low CIT rate, double tax relief by exemption, rulings with the tax authorities, many bilateral tax

²⁰ Alternatively, one could interpret both groups of countries as sub groups of tax havens, as tax havens are more broadly defined than I have in this paper. For me that is a matter of semantics. The takeaway is that both group have different characteristics and that limiting tax avoidance requires different solutions.

treaties and low withholding tax rates. These tax characteristics are also beneficial for a conduit function.

Of course, countries benefit from that function. It creates more demand for business services, like juridical and tax advice, and generates higher corporate tax income revenues. SEO (2013) estimates a GDP gain of about 3 billion euros in the Netherlands for 2011. This is probably an overestimate according to various comments, including from the authors themselves. Then, the benefit of the conduit function is limited to 0.3 to 0.4% of GDP. SEO (2013) also argues that this is the result of the Dutch policies for stimulating an attractive investment climate.

I assess the similarities and differences between conduit countries and traditional tax havens using international statistics. I present both types of countries using indicators on the various characteristics of tax havens (defined above) their FDI positions, and the tax burdens for incoming and outgoing dividends in Tables 2 to 4.

Statutory tax rates are low or non-existent in tax havens, although there is some variation. Column (1) shows that the average statutory rates are substantially higher in conduit countries, but somewhat lower than in other developed countries. This is different for the effective tax rates estimated by Tørsløv et al. (2020) in column (2) of Table 2. These are on average much lower in conduit countries than in other countries. Ireland, Luxembourg, the Netherlands and Singapore are prominent examples, but this is not the case for Hong Kong, Switzerland and the UK. For most of the remaining countries, effective tax rates are only slightly lower than statutory tax rates. Average effective tax rates in tax havens are negligible.

Tax havens are also known because of their lack of transparency and secrecy. Tax justice (TJN, 2018) has developed a financial secrecy indicator (FSI) for more than hundred countries. Column (3) of Table 2 presents the outcomes. The variation is relatively limited, because nearly all countries score between 50% and 75%. It appears that the FSI ratings are higher for tax havens than for other countries. Conduit countries score on average higher than developed countries on the FSI, but lower than for traditional tax havens. Ireland and Luxembourg have relatively low index scores, but Switzerland scores high.

I also include the number of Tax Information Exchange Agreements (TIEAs) in column (4) of Table 2. Tax havens had to sign these agreements if they want to leave a blacklist of the OECD (OECD, 2011). Most of these TIEAs are signed between tax havens and OECD countries, although several smaller OECD countries did not sign these agreements. The number of TIEAs could indicate cooperative responses to information requests for tax purposes. However, it is doubtful whether this is a good proxy for tax havens' willingness to respond to these requests. At least tax evaders do not seem to respond to this development; Kemme et al. (2017) find very limited evidence that TIEAs reduce tax evasion.

Column (5) in Table 2 is a tax haven (TH) index, developed by Tax Justice Network (2019). This overall index is the average of 20 mostly tax-related indicators of corporate tax haven-ness and includes some indicators in the other columns. The TH index includes the lowest tax rate, loopholes and gaps in tax laws, anti-avoidance measures, transparency and use of double tax treaties, among others. According to this index, conduit countries have less tax haven characteristics than tax havens on average, but the outcomes of other countries are much lower.

Table 2: Tax haven characteristics of selected countries

Countries	CIT stat	CIT eff	FSI	TIEAs number	TH-score
Columns	(1)	(2)	(3)	(4)	(5)
Anguilla	0	0	78.2	16	100.00
Bermuda	0	0	72.73	22	100.00
British Virgin Islands	0	0	71.3	20	100.00
Cayman Islands	0	0	76.08	20	100.00
Gibraltar	10	5	69.48	19	65.59
Guernsey	0	0	70.65	18	97.50
Isle of Man	0	0	64.68	16	100.00
Panama	25	5	71.88	1	71.78
Average 21 Tax havens	11.05	2.48	71.12	13.52	82.81
Median 21 Tax Havens	10.00	3.00	71.88	18.00	72.84
Hong Kong	16.5	18	66.38	0	73.03
Ireland	12.5	4	48.15	17	75.67
Luxembourg	28.7	3	55.45	0	72.44
Netherlands	25	10	67.4	26	78.01
Singapore	17	8	64.98	0	81.35
Switzerland	17.9	21	74.05	0	83.31
Average 6 Conduits	19.69	10.80	62.74	7.16	77.30
Average 9 Conduits	20.46	11.44	60.60	7.11	74.66
Average 12 Conduits	21.97	12.50	58.40	6.75	71.70
Median 9 Conduits	17.9	10	61.75	0	73.51
China	25	20	59.85	2	58.30
France	31	27	49.9	29	55.70
Germany	29.7	11	51.73	16	52.34
Poland	19	10	55.55	0	40.45
USA	27	21	62.89	13	43.21
Average 21 other	25.04	19.80	52.33	8.86	52.65
Median 21 other	23.59	20.04	52.13	3.00	52.95

Sources: OECD, KPMG on statutory tax rates (CIT stat), Tørsløv et al. (2020) on effective tax rates in 2015 (CIT effect), Tax Justice Network on Financial Secrecy Indicator and Tax haven score in 2019, and OECD (2011) on number of TIEAs (tax information exchange agreements). Annex 1 shows an extended table of 21 tax havens, 12 conduits, and 21 other (developed) countries.

If I compare the sets of conduit countries, it appears that for a broader selection the characteristics are better comparable to those of other developed countries and less comparable to traditional tax havens. This is not surprising, but confirms that Austria, Belgium and Hungary are not part of the hard core of conduit countries. I could also classify these countries as other developed countries.

Concluding, the main differences between traditional tax havens and conduit countries is that the latter have on average higher statutory and effective tax rates, but the latter are lower than in other developed countries. Regarding the financial secrecy indicator and tax haven indicator conduit countries rank lower than tax havens on average, but the differences are smaller than between conduit countries and other developed ones.

4. Foreign Direct Investment

Inward and outward FDI positions could indicate opportunities for corporate tax avoidance by multinationals using conduit countries and tax havens. Table 3 presents the top20 of countries on inward and outward FDI positions from the IMF CDIS database. The global FDI stock is about 35 000 billion US dollars in 2018. Except for the value of the FDI stock, I present the FDI stock relative to GDP. Overall, this ratio is about 40%. This ratio is also a measure to identify investment hubs, as discussed earlier.

Table 3 shows that tax havens as Bermuda, British Virgin Islands, Cayman Islands and Jersey have much larger FDI positions relative to GDP than investment hubs, except for Luxembourg. Compared to other developed countries, the financial sector in Luxembourg is very large, as share of GDP. These investment ratios are huge, because the investment positions are only on paper attributed to these islands. These are not invested in the real economy of the tax havens, but nearly all the FDI positions are passed through tax havens. The huge inward FDI positions correspond to similar huge outward FDI positions.

Based on the FDI statistics, Damgaard et al. (2019) conclude that the Netherlands, Luxembourg, Hong Kong, Switzerland, Singapore, Ireland, Bermuda, the British Virgin Islands, and the Cayman Islands host more than 40 percent of global FDI while their combined share in global GDP is only around 3 percent. This implies a FDI stock to GDP ratio above 10, much higher than the global average of 0.4 (including phantom investment).

Damgaard et al. (2019) conclude that about 38% of global FDI is phantom (or double counted) in 2017. The reporting host is not the ultimate host country of the investment, or the reporting source country is not the ultimate source. For Ireland, Cayman Islands, the Netherlands, British Virgin Islands, Bermuda, Hong Kong, and Luxembourg the estimated ratio of outward FDI to the ultimate host country to total outward FDI is at most 50%, suggesting that most of the outward FDI in these countries is diverted according to Damgaard et al. (2019). Bolwijn et al. (2018) conclude that half to even two thirds of the global FDI stock is related to conduit countries and tax havens. This is not all double counted, but for a large share it will be the case. They use self-reported SPE-shares in FDI for Luxembourg and the Netherlands, among others. These shares are about 90% and 80% respectively, much higher than in Damgaard et al. (2019). Both countries together report about 30% of the global inward and outward FDI stock (including SPEs). The self-reported SPE-shares by Luxembourg and the Netherlands suggest that the numbers of Damgaard et al. (2019) are a lower bound of phantom investment.²¹

²¹ The FDI stocks consisting of equity and debt are probably also inflated by debt shifting. Tørsløv et al. (2020) suggests that this could amount to 10%.

Table 3: Country top 20 list on inward and outward investment positions in 2018 (million US dollar).

Investment from	Investment position (bln \$)	Ratio to GDP (%)	Investment in	Investment position (bln \$)	Ratio to GDP (%)
World	35,399	41%	World	36,438	42%
United States	4,127	20%	United States	4,504	22%
Netherlands, The	3,193	349%	United Kingdom	3,404	119%
United Kingdom	2,873	101%	Netherlands, The	3,193	349%
Luxembourg	2,832	3,996%	Luxembourg	2,381	3,360%
Hong Kong	1,781	491%	Ireland	1,688	441%
Germany	1,553	39%	Switzerland	1,476	209%
Japan	1,506	30%	China	1,465	11%
Switzerland	1,452	206%	Hong Kong	1,319	364%
France	1,324	48%	Germany	1,053	27%
British Virgin Isl.	1,268	123,434%	Canada	995	58%
Ireland	1,187	310%	France	893	32%
Bermuda	1,066	17,005%	Cayman Islands	876	17,038%
Canada	978	57%	British Virgin Isl.	868	84,485%
Cayman Islands	857	16,658%	Singapore	719	197%
Belgium	822	151%	Spain	654	46%
China	767	6%	Bermuda	626	9,991%
Singapore	619	170%	Belgium	618	113%
Spain	512	36%	Australia	535	37%
Italy	399	19%	Brazil	525	28%
Sweden	354	64%	Italy	513	25%
Jersey	325	5,837%	Russian Federation	387	23%
Austria	302	66%	Cyprus	386	1,545%

Source: IMF CDIS database, counterpart data,²² World Development Indicators (World Bank) and CIA fact book for GDP.

Although the inward and outward investment positions of tax havens are higher (in relative terms) than of those of conduit countries, their role is different (Mintz, 2004). In conduit countries, the investment flows pass the SPEs, as is also the case for the returns on investment vice versa. The SPEs have a mother company in another country. This is often not the case for companies in tax havens. The company residing in the tax haven is often the formal headquarter, although the ultimate owners often reside elsewhere. The outward FDI positions of most tax havens are larger than the inward positions (Bermuda is an exception). From there, new investments flow to holdings in other countries.

Recent network analyses of Garcia-Bernardo et al. (2017), Hong (2018), and van 't Riet and Lejour (2018) confirm the conclusion of Mintz (2004). Conduit countries are in the middle of the country-network of international corporate taxation.²³ In terms of taxes, it is much cheaper to divert dividends via a conduit than via traditional tax havens. Conduit countries do not tax incoming flows, because the conduits exempt corporate taxation as method for double tax relief and the investment countries levy no or modest withholding taxes on dividends (often due to the bilateral tax treaties).²⁴ This would be different for tax havens as recipients of dividends. Most investment countries levy a

22 See Damgaard et al. (2019) on the description and coverage of the CDIS data. About hundred countries report their outward and inward bilateral FDI positions. Tax havens do not report, so researchers have to rely on counterpart data for their FDI positions.

23 Nakamoto and Ikeda (2018) apply centrality analysis on interest and royalty flows.

24 See Mintz (2004) and van 't Riet and Lejour (2018) among others.

withholding tax on outgoing dividend to these countries. Conduit countries do hardly tax outgoing flows, because the rates of their withholding taxes are or negligible. Moreover, the residence countries often exempt the corporate income tax; because the statutory tax rates in conduit countries are reasonably high (see Table 2).

Table 4: Network characteristics of selected countries

Countries	Withholding Standard (%)	Average With. tax outward (%)	Outward direct routes (%)	Inward direct routes (%)	DTT (no)	Conduit ranking (%)
Column	(1)	(2)	(3)	(4)	(5)	(6)
Anguilla						
Bermuda	0	0	26.37	17.38	0	0.8
British Virgin Islands	0	0	26.37	17.38	0	0.8
Cayman Islands	0	0	26.37	17.38	0	0.8
Gibraltar						
Guernsey	0	0	26.37	17.38	0	0.8
Isle of Man	0	0	26.37	17.38	0	0.8
Panama	17	15.61	32.98	36.67	14	0
<i>Average 15 Tax havens</i>	4.47	3.86	26	21.32	4.4	0.57
<i>Median 15 Tax Havens</i>	0	0	26.37	17.38	0	0.8
Hong Kong	0	0	23.37	13.8	14	2.3
Ireland	20	2.66	16.2	5.58	53	5.6
Luxembourg	15	1.79	6.92	4.03	57	8.4
Netherlands	15	4.47	10.05	3.39	74	7.7
Singapore	0	0	13	10.84	40	6.1
Switzerland	35	7.31	13.03	4.92	71	3.2
<i>Average 6 Conduits</i>	14.17	2.71	13.76	7.09	51.50	5.55
<i>Average 9 Conduits</i>	9.44	1.8	14.26	6.71	48.11	6.17
<i>Average 12 Conduits</i>	11.25	2.43	13.34	6.38	51.33	4.89
<i>Median 9 Conduits</i>	0	0	13.03	5.58	51	5.6
China	10	9.41	13.77	8.59	61	0
France	30	5.23	8.07	4.91	80	1.5
Germany	25	8.11	11.18	6.08	71	0.8
Poland	19	7.8	13.75	6.29	64	1.4
USA	30	10.26	11.99	16.67	54	0
<i>Average 21 Other</i>	19.28	6.81	11.81	7.70	57.50	2.02
<i>Median 21 Other</i>	20.00	7.25	11.99	6.7	59	0.8

Source: Van 't Riet and Lejour (2018). The numbers, including averages and conduit positions, follow from calculations of 108 countries using corporate taxes rates, double tax relief methods, CFC-rules, bilateral withholding taxes on dividends and standard withholding taxes if bilateral taxes are not applicable. The number of double tax treaties is also derived from the same 108 countries. The outward rates follow from the withholding taxes of these countries and possible corporate income taxation in their counterparts. The inward rates follow from corporate income taxation in those countries and withholding taxes in the counterpart countries. For a definition of conduit ranking, I refer to the text. Annex 2 presents a list of 54 countries.

The tax characteristics of conduit countries and towards these countries facilitate international tax planning of multinationals (see also Hines, 2010; Zucman, 2014). Table 4 illustrates the impact of these characteristics for the same countries as in Table 2. The average bilateral withholding taxes are

indeed on average much lower for conduit countries (see column (2)). This also applies for the standard withholding tax on dividends in column (1). The outgoing dividends of tax havens are on average taxed at a 26%-rate, while those of conduit countries at 14%, because resident countries apply CFC-rules on dividends from tax havens (see column (3)). The dividends to conduit countries are also substantially less taxed than the dividends to tax havens, because investment countries often levy lower withholding taxes vis a vis conduit countries. Column (4) in Table 4 shows that the average tax in conduit countries is 12%-point lower than in tax havens. Conduit countries have about 50 tax treaties as is shown in column (5).

Column (6) of Table 4 presents the conduit role of each country as calculated from the network analysis. This so-called betweenness indicator measures the number of times that a country on a tax-minimizing route divided by all tax-minimizing routes. In 8.4% of all cases, Luxemburg is a pass-through country on these routes. By definition the conduit countries appear relatively often on these routes. Other countries are sometimes also a conduit on a tax-minimizing route, but most other countries and tax havens are never a pass-through country.

5. Treaty shopping

Most empirical studies only focus on corporate tax avoidance through transfer mispricing, debt shifting, and the strategic location of intellectual property rights. Empirical research into treaty shopping, relocations of head offices, hybrid mismatches or tax deferral is hardly developed.²⁵ Because not all avoidance channels are included in the calculations, the outcomes underestimate missing tax revenues. To some extent, I will correct for this by assessing the lost tax revenues due to treaty shopping. Building upon Heckemeyer and Overesch (2017) I will also assess the importance of treaty shopping as tax avoidance channel compared to other channels. Other tax avoidance strategies are not included due to a lack of data.

Treaty shopping occurs if multinationals take advantage of the reduced withholding taxes on dividends, interest or royalties agreed upon in bilateral tax treaties, while the firm is not located in one of the treaty countries. The multinational establishes an intermediate subsidiary, such as a SPE, in a treaty country to make use of the reduced rates. Two characteristics of treaty shopping are that the intermediate subsidiary or SPE has minimal economic activity, and that income is hardly subjected to minimal (if any) tax in that jurisdiction (Avi Yonah and Panayi, 2010; Mintz, 2004).

Van 't Riet and Lejour (2018) conclude that multinationals can save on average 6 percentage points tax on dividends by using treaty shopping.²⁶ Tørsløv et al. (2020) derive that about 900 billion dollars as dividend is transferred between countries, so that could reduce dividend tax income by 54 billion dollars.²⁷ This is probably an overestimation for two reasons. First, firms cannot always use a tax

²⁵ See also Beer et al. (2020) for an overview of all these channels.

²⁶ With Maarten van 't Riet, I mapped out the potential tax benefits of treaty shopping. The cheapest tax routes have been determined for 108 countries using the Floyd-Warshall algorithm. This is an original approach for analyzing this form of tax avoidance and recently Hong (2018) and Petkova et al. (2019) apply this method with other algorithms.

²⁷ This is an aggregate of about 80 countries covering more than 90% of the world economy. The global total is somewhat higher.

treaty because of strict anti-abuse provisions. Second, the 900 billion dollars includes many double counts of flows through multiple countries, exactly the mirror of the diverted foreign investment flows. According to van 't Riet and Lejour (2018) treaty shopping pays off in two thirds of the cases and that implies a lot of double counting based on national reporting. These two thirds correspond to the 65% of the FDI stock that relates to conduit countries and tax havens according to Bolwijn et al. (2018).

If treaty shopping pays off, there is at least one conduit country between the resident and investment country. Two or even more countries report FDI; the residence country and conduit for outward investment and the conduit and host country for inward investment. Adding national FDI statistics imply thus double counting. The returns on investment, dividend in case of participation, and interest in case of debt, flow in the opposite direction. Van 't Riet and Lejour (2018) show that there is often only one conduit country at an indirect route using a strict definition of tax minimization. Then double counting of FDI stocks is 33%, which is somewhat lower than the number of Damgaard et al. (2019) on FDI.²⁸ Using a less strict definition, there are often two conduit countries. Then there is triple reporting on all indirect routes and the double counting ratio is 44%.²⁹ In the remainder, I use a midpoint of these two numbers: 39%. Of course, this number is not very precise, but using two separate numbers would not add much to the analysis. If 39% of the dividend flows is double counted, the loss of dividend tax revenues is about 33 billion US dollar.

Van 't Riet and Lejour (2018) focus on dividends. Van 't Riet and Lejour (2019) show that for interest and royalties, the potential benefits of treaty shopping appear to be a factor 5 less than for dividends. The global magnitude of international paid and received interest income is about 200 billion dollars in 2015 (Tørsløv et al., 2020). This is interest income, which is part of investment income; it does not include international interest payments between banks or between banks and households. The global amount of the international charge on intellectual property rights is nearly 400 billion dollar in 2015 (World Bank). Then the revenue loss of withholding taxes on interest and royalties would be about 8 billion US dollar (1.2% of 600 billion). Suppose that the double counting is similar as for dividend flows, that is 39%, the global loss on revenues of withholding taxes on interest and royalties from treaty shopping would about 5 billion US dollar. Together with the tax revenue loss on dividends, this would amount to 38 billion dollars to the global losses of corporate tax avoidance.³⁰

Van 't Riet and Lejour (2018) show also that revenue losses due to treaty shopping occur mainly in capital importing countries and are mainly due to lower withholding taxes. Bilateral tax treaties could also include more generous relief method on double taxation in the residence country, but their impact on tax revenue losses is limited. This outcome confirms the conclusion of Avi Jonah and Panayi (2010) that capital-importing countries (including developing countries) are losing tax

28 One third of the routes is direct. Then, country reporting is straightforward. If there is on average one conduit, two countries report dividends on the indirect routes. The double counting share is $0.5 * 2/3 = 33\%$.

29 See previous footnote. The double counting ratio becomes $0.67 * 2/3 = 44\%$.

30 Using the other percentages of double counting, the estimated tax revenue loss ranges from 33 to 42 billion US dollars, suggesting that the precise percentage only a minor impact on the tax revenue losses.

revenues due to treaty shopping.³¹ Empirical studies to the tax revenue costs of tax treaties also show this is the case.³²

I add the 38 billion to the consensus estimate of 150 billion dollars. The resulting 188 billion dollar is still likely to underestimate the true size of global revenue losses, because there are no estimates on the revenue losses of various other tax-avoidance channels. For the quantified tax-avoidance channels, Table 5 presents the relative importance of every channel. Using the result of Heckemeyer and Overesch (2017) that 82% of profit shifting is due to non-financial techniques such as transfer pricing and shifting of IP-rights. The other 18% is due to financial techniques, such as debt shifting. The consensus estimate of 150 billion dollar includes these tax avoidance techniques. These numbers are rebalanced including the 38 billion dollars revenue loss from treaty shopping. Treaty shopping is responsible for 27% of the global tax revenue loss and transfer pricing even 60%.

Table 5. The relative importance of various tax-avoidance channels

Tax-avoidance Channel	Global revenue loss (bln \$)	Share from Heckemeyer and Overesch (2017)	Global revenue loss	Global shares
Transfer pricing	150	82%	123	65%
Debt shifting		18%	27	14%
Treaty shopping	38	-	38	20%
All channels	188		188	100%

Sources: See studies in Table 1, Heckemeyer and Overesch (2017), van 't Riet and Lejour (2018, 2019), and own calculations.

Transfer pricing and debt shifting are separate tax avoidance channels that do not interact. Multinationals could be inclined to use both channels, even between the same daughter companies, because the fiscal incentives are similar. For treaty shopping, this is different. By relocating intellectual property rights or internal debt with daughter companies, multinationals could also use treaty-shopping routes. The benefits of treaty shopping are not explicitly included in the estimates on debt shifting and the relocation of IP but could implicitly be included to some extent.

It is hard to estimate the possible interaction between the various mechanisms. There is probably no interaction between transfer pricing (excluding on IP-rights) and treaty shopping. Moreover, the main revenues losses of treaty shopping accrue to the lower withholding taxes on dividends. The contribution of lower withholding taxes on interest and royalties is about 5 billion dollars (see above). This implies that I could double count at most 5 billion dollars by adding up the tax revenues losses of profit shifting and treaty shopping. I ignore this in the remainder of the paper because it is a modest share of the total estimate.

6. Corporate income tax revenue losses

I use simple assumptions to divide the global revenue loss over the countries. This does not do full justice to more sophisticated methods based on country-by-country data, or on national account data, that also correct inconsistencies. However, all these methods have their methodological flaws and data issues (see Section 2). Beer et al. (2020) use a more sophisticated method to allocate the

³¹ This does not imply that developing countries should not sign bilateral tax treaties. The economic benefits could outweigh missing tax revenues although empirical studies do not always identify significant extra foreign investment due to a treaty.

³² See Balabushko et al. (2017) and Janský (2020).

corporate tax revenue loss to individual countries by estimating the amount of shifted profits by country using a profit shifting elasticity and tax rate differences. The problem with their method is that countries with lower than average CIT rates benefit from higher CIT revenues due to profit shifting. However, multinational firms pass these profits through conduit countries and these could hardly benefit from higher tax revenues. At least the corporate income tax does often not apply to shifted profits. The pass through is not included in the estimates of Beer et al. (2020) and others. Clausing (2016), Tørsløv et al (2020), Zucman (2014) attribute large overseas profits to various conduit countries, which do not seem to be the ultimate destination of shifted profits. It would be necessary to identify the countries that receive these profits for calculating the possible tax revenue gains of these countries, if any. It could also be the case that there are only tax revenue losses in those countries where the profits come from, but no revenue gains in other countries because shifted profits are not subjected to a profit tax at all.

I estimate the missed CIT revenues for individual countries by dividing the global tax revenue losses over all countries. Based on the studies in section 2, this is on average 150 billion dollar that follows mainly from profit shifting activities. Then I add the 38-billion-dollar loss due to treaty shopping. First, I use only GDP shares to allocate these losses. These shares do not account for the openness of the economy to foreign investment, nor for differences in corporate tax rates. Second, I expect that countries that levy higher corporate taxes experience larger revenue losses due to avoidance. Therefore, I add the statutory CIT rate relative to the average tax rate. Because the distortionary effects of taxation are larger the higher the tax rate is, I also add a square as third specification.

Fourth, I derive the national CIT revenue loss using the real FDI stock in these countries, i.e. the total FDI stock, minus phantom or diverted FDI. Theoretically, this seems attractive because a higher FDI stock reflects more multinational activity. The magnitude of tax avoidance results mainly from the behavior of large multinational firms. I use the country shares in Damgaard et al. (2019) on phantom FDI for deriving the real FDI stocks. From Bolwijn et al. (2018) I use the explicit shares of the FDI stocks by SPEs in Austria, Hungary, Luxembourg, and the Netherlands. A second reason for using FDI stocks is that the size of inward FDI also reflects the investment climate of a country and implicitly the corporate income tax system.

However, the size of the FDI stock does not always corresponds to the size of the returns on investment. Therefore, I use dividends from Tørsløv et al. (2020) for estimating the country shares as a fifth approach. The next equation summarizes all approaches:

$$Loss_i = \alpha_i \cdot Gloss, \quad \alpha_i = \frac{GDP_i}{GDP}, \frac{T_i}{Ta}, \frac{GDP_i}{GDP}, \frac{T_i^2}{Ta}, \frac{GDP_i}{GDP}, \frac{FDI_i}{FDI}, \frac{DIV_i}{DIV}$$

The national CIT loss, $Loss_i$, is a share α_i of the global loss, $Gloss$. For the share α_i I use various definitions. These are (i) global GDP share, (ii) global GDP share corrected for statutory CIT rate (T_i) compared to GDP-weighted average of CIT rates (Ta), (iii) including a square to the relative tax rate, (iv) global FDI share, and (v) global dividend share.³³

Table 6 presents the outcomes of the various measures to divide the global profit shifting losses over tax havens, conduit countries and other developed countries. These losses only reflect the revenue losses of tax avoidance strategies by 'own' multinationals established in the countries.

33 The notes of Table 6 list the data sources.

The 21 tax havens form only 0.3% of the world economy. This is mainly due to Lebanon, Macao and Panama, whose economies are subsequently larger than those of other tax havens are. The impact of the other tax havens on global GDP is negligible. Correspondingly, their tax revenue losses due to corporate tax avoidance are very low. If I take account of the differences in CIT rates, the impact is even lower.

Table 6: National tax revenue losses due to corporate tax avoidance in 2016

Country	GDP	Losses	CIT	Losses	Losses	FDI_	Losses	FDI_inc	Losses
Allocation		GDP		GDP*CIT	GDP*CIT ²	nSPE	FDI	_nspe	FDI_inc
Unit	Share	Bln \$	Rate	Bln US\$	Bln US\$	Share	Bln \$	Share	Bln \$
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Source	WB	(1)*188	RL	(2)*CIT/R	(4)*CIT/R	IMF/Dam	(6)*188	Tørsløv	(8)*188
Anguilla	0.00%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
Bermuda	0.01%	0.01	0.00	0.00	0.00	2.30%	4.33	0.00%	0.00
British Virgin Islands	0.00%	0.00	0.00	0.00	0.00	2.56%	4.81	0.00%	0.00
Cayman Islands	0.01%	0.01	0.00	0.00	0.00	4.05%	7.61	0.00%	0.00
Gibraltar	0.00%	0.00	0.00	0.00	0.00	0.04%	0.08	0.00%	0.00
Guernsey	0.00%	0.01	0.00	0.00	0.00	0.11%	0.21	0.00%	0.00
Isle of Man	0.01%	0.02	0.00	0.00	0.00	0.15%	0.28	0.00%	0.00
Panama	0.08%	0.15	25.00	0.12	0.09	0.26%	0.49	0.00%	0.00
Total tax havens	0.30%	0.57	8.48	0.30	0.20	11.04%	20.76	0.00%	0.00
Hong Kong	0.43%	0.81	16.50	0.44	0.23	3.20%	6.01	0.00%	0.00
Ireland	0.45%	0.85	12.50	0.35	0.14	5.63%	10.59	6.48%	12.18
Luxembourg	0.08%	0.16	29.20	0.15	0.14	0.47%	0.89	1.80%	3.39
Netherlands	1.09%	2.04	25.00	1.69	1.32	2.69%	5.05	4.04%	7.59
Singapore	0.43%	0.81	17.00	0.46	0.24	2.39%	4.50	0.00%	0.00
Switzerland	0.84%	1.57	21.10	1.10	0.73	4.55%	8.56	5.40%	10.14
Total 6 conduit	3.33%	6.25	20.22	4.20	2.80	18.94%	35.60	17.71%	33.30
Total 9 conduit	6.76%	12.72	21.31	9.12	6.34	34.25%	59.68	27.86%	47.06
Total 12 conduit	8.14%	15.30	22.48	11.55	8.58	31.75%	64.39	25.03%	52.39
China	16.17%	30.39	25.00	25.17	19.67	4.03%	7.58	12.93%	24.31
France	3.30%	6.20	34.30	7.05	7.56	2.89%	5.43	2.60%	4.89
Germany	4.69%	8.82	30.20	8.82	8.33	3.22%	6.06	3.37%	6.33
Poland	0.70%	1.31	19.00	0.82	0.49	0.70%	1.32	1.82%	3.42
Portugal	0.29%	0.54	31.50	0.56	0.55	0.34%	0.64	0.49%	0.91
United States	24.41%	45.89	39.10	59.43	72.63	16.42%	30.87	15.94%	29.97
Total other	64.39%	121.05	25.92	130.80	138.41	39.51%	74.29	52.41%	98.53

Notes: Columns 1, 3, 5, 7 and 9 present the country shares of the global revenue losses based on GDP, GDP times relative CIT rates, GDP times relative CIT rates squared, real FDI stocks, and dividends. The corresponding losses (in US dollar) are in the even columns. These are own calculations based on, respectively, World Bank, OECD/ van 't and Lejour (2018), IMF/Damgaard et al (2019) and Tørsløv et al. (2020), see Annex 3 for a complete country list.

In terms of the share of tax havens in the real FDI stock, the impact would be much larger. This is mainly due to the large FDI stocks in British Virgin Islands, Bermuda, Cayman Islands and Jersey. Despite the efforts of Damgaard et al. (2019) to distinguish phantom from real FDI, the tax haven shares of global FDI are too large to absorb in their economies. It suggests that the FDI stocks in tax havens need larger corrections. The data on dividends transferred by SPEs supports this conjecture. Column (8) of Table 6 shows that the real dividends for tax havens are negligible, and so is the loss of corporate tax revenues in these countries (see column (9)).

Most conduit countries are substantially larger economies. According to the strict interpretation of conduit countries, these countries form 3.3% of the world economy, but is 8.1% in the most extended interpretation. The tax revenue losses due to corporate tax avoidance vary from 6.3 to 15.3 billion dollar (column (2) of Table 6). If I also take account of the impact of corporate tax rate differences, the tax revenues are lower, because conduit countries have relatively low statutory CIT rates compared to other developed countries.

Using the numbers for the 9 conduit countries in column (6) of Table 6, I conclude that the 30% share in global real FDI is lower than for the total FDI stock, including SPEs, but is much higher than the GDP share of these countries. It is lower because the shares of Luxembourg and the Netherlands in real FDI are much lower, but the ratios of real FDI stocks to GDP of Hong Kong, Ireland, Switzerland, and the UK are quite high, even considering the openness of these economies. This suggests that the real FDI shares are not a very good proxy for the national CIT revenue losses of conduit countries and inhibit a substantial upward bias as is also the case for tax havens. The global share in terms of dividends is somewhat lower, but still 25%, even if I correct it for dividends via SPEs. This includes probably also shifted profits to these countries. Given this bias in corrected FDI and dividend statistics, I prefer to use the GDP measure corrected with CIT rates for allocating the lost CIT revenues. This implies that the revenue loss for the 9 conduit countries is 6.3 to 9.1 billion US dollars.

The selection of other developed countries forms the major share of the world economy; 64.4%. Their share in the real FDI stock is only 40%. Because large economies are normally less open to trade and foreign investment, a lower share seems reasonable. However, this number should be higher, as I argued before that the shares of the tax havens and conduit countries in global real FDI stock are too low. The high GDP share implies large tax revenue losses of about 121 billion dollars (column (2)), of which a large part belongs to the US. Columns (4) and (5) take account of the relatively high statutory tax rate. Then the revenue impact of tax avoidance could amount to 138 billion dollars or these countries. These countries are the main losers from international corporate tax avoidance.

I can hardly verify the country estimates because most other studies do not present individual country results. Cobham and Janský (2018) are an exception. Based on their much larger global tax revenue loss of about 500 billion dollars, they even find modest revenue increases in Cyprus, Hungary, Ireland, Singapore, and Switzerland due to the low CIT rates in these countries. For the remaining conduit countries, they find relatively low revenue losses. Different from this paper, Cobham & Janský (2018) do not take account of the conduit role of these countries. They also find revenue losses for the China, France, Germany, Japan and the US. Relative to the estimated global loss, these revenue losses are similar to my results.³⁴

After having assessed the revenue losses of the CIT and of the withholding taxes over the countries, I focus on the role of conduit countries in treaty shopping. For detailed assessments on the precise role of SPEs in specific conduit countries, I need detailed data on incoming and outgoing FDI income of these SPEs including the geographical origin and destination country. These data are hardly available. An exemption is Lejour et al. (2021) presenting detailed data of Dutch SPEs. Even with these data, it is hard to assess the magnitude of revenue losses of tax treaties. Because detailed data

³⁴ I cannot compare the outcomes for traditional tax havens, because Cobham & Janský (2018) focus mainly on developing countries.

are not widely available, I use macro data on GDP, FDI and investment income for assessing the role of various countries in treaty shopping.

The 12 conduit countries possess 60% of the reported FDI stock via SPEs and even 75% of FDI income via SPEs, as shown in columns (1) and (3) of Table 7. Because the country data on SPE-dividends are not complete due to a lack of country reporting on SPEs and non-SPEs, the shares for conduit countries are probably upward biased. I also use total FDI income as third measure, but for conduit countries this measure is probably a lower bound.

Table 7: The involvement of tax havens and conduit countries in revenue losses by treaty shopping

Country	FDI-SPE stock	TS_losses	FDI_SPE income	TS_losses	FDI_income	TS_losses
Allocation		FDI-SPE		FDI_income		FDI_income
Unit	Share	Bln US\$	Share	Bln US\$	Share	Bln US\$
Column	(1)	(2)	(3)	(4)	(5)	(6)
Source	IMF/DAM	(1)*45	Tørsløv	(3)*45	Tørsløv	(5)*45
Anguilla	0.00%	0.00	0.02%	0.01	0.01%	0.00
Bermuda	1.12%	0.43	9.57%	3.64	3.17%	1.20
British Virgin Islands	2.44%	0.93	0.11%	0.04	0.04%	0.01
Cayman Islands	0.41%	0.15	6.47%	2.46	2.14%	0.81
Gibraltar	0.33%	0.12	0.06%	0.02	0.02%	0.01
Guernsey	0.05%	0.02	0.15%	0.06	0.05%	0.02
Isle of Man	0.23%	0.09	0.12%	0.05	0.04%	0.02
Panama	0.03%	0.01	0.85%	0.32	0.28%	0.11
Total 21 tax havens	5.46%	2.08	20.27%	7.70	6.70%	2.55
Hong Kong SAR, China	4.68%	1.78	27.48%	10.44	9.09%	3.45
Ireland	3.83%	1.46	0.00%	0.00	4.29%	1.63
Luxembourg	15.92%	6.05	9.37%	3.56	4.29%	1.63
Netherlands	18.45%	7.01	28.26%	10.74	12.02%	4.57
Singapore	1.64%	0.62	9.82%	3.73	3.25%	1.23
Switzerland	3.87%	1.47	1.35%	0.51	4.02%	1.53
Total 6 conduits	48.39%	18.39	76.27%	28.98	36.97%	14.05
Total 9 conduits	57.07%	21.69	79.36%	30.16	42.84%	16.28
Total 12 conduits	60.30%	22.92	78.32%	29.76	45.02%	17.11
China	4.53%	1.72	0.00%	0.00	8.57%	3.26
France	2.16%	0.82	0.00%	0.00	1.72%	0.65
Germany	2.80%	1.06	0.00%	0.00	2.23%	0.85
Poland	0.48%	0.18	0.00%	0.00	1.21%	0.46
Portugal	0.28%	0.11	0.00%	0.00	0.32%	0.12
United States	8.27%	3.14	0.00%	0.00	10.56%	4.01
Total 21 other	25.27%	9.60	0.00%	0.00	34.73%	13.20

Notes: Columns 1, 3, and 5 present the country shares of the involvement in treaty shopping based on SPE-FDI stocks, SPE-FDI income and FDI income (mainly dividends). The even columns present the corresponding losses (in US dollar). These are own calculations based on, respectively, IMF/Damgaard et al. (2019) and Tørsløv et al. (2020), see Annex 3 for a complete country list.

One could wonder whether the SPE-shares should not be higher for the conduit countries. With perfect data on phantom FDI, SPE-dividends and definitions of conduit countries, the shares could even amount to 100%. For various reasons this is not the case. First, there are also SPEs in other developed countries used for passing FDI and their returns. According to Damgaard et al. (2019), France and Germany have substantial SPE shares. Second, as discussed above, the shares of real investment in Hong Kong, Singapore and Switzerland are probably too high to reflect the absorption

of all foreign investment in the real economy. This suggests that the share of FDI via SPEs is larger than estimated by Damgaard et al. (2019).

Conduit countries are involved in about 14 to 30 billion dollars of the tax revenue losses due to treaty shopping that for the greater part accrue to other developed countries. This is the major share of the revenue loss. The estimates in columns (2) and (6) of Table 7 also show that other developed countries are also involved in treaty shopping using the SPE-FDI and dividend shares as measures. This could amount to 13 billion dollars. Due to a lack of data and assumptions, I do not register SPE dividend income for these countries, so according to this measure their contribution is zero (column (4) of table 7). The flipside is that tax havens are involved for about 20 percent in treaty shopping according to this measure. According to the other allocation methods, their contribution is probably more limited.

There is no systematic information on the international income flows. It is also not possible to identify the precise role of conduit countries in terms of tax revenue losses. If the country would levy substantial taxes on passing income flows it would not be a conduit, but its role as conduit also depends on the number of tax treaties and withholding tax rates agreed. So, the treaty partners are also involved, whether these are host or residence countries. E.g. Lejour et al. (2021) could only find limited evidence of tax gains by treaty shopping via the Netherlands. This does not necessarily imply that these gains do not exist; it could also imply that these are hard to identify, even with micro data of SPEs. A large part of the income flows to Dutch SPEs come from other conduit countries such as Ireland, Luxembourg, Singapore, and Switzerland. These countries also could lose tax revenues but are probably not the ultimate investment countries.

I also estimate the role of tax havens, conduit and other countries in profit shifting based on the 150 billion dollar of global corporate tax revenue losses. Because tax avoidance strategies like transfer pricing, debt shifting and the shifting of intellectual property rights are only possible for multinational firms, I use FDI and FDI-income statistics to assess the role the various countries. First, I use FDI stocks, and then I correct them for SPEs (as a second measure). Third, I use FDI income and fourth, FDI income by non-SPEs. The last measure is the preferred one, but many countries do not register FDI income of SPEs and non-SPEs separately, as mentioned above. Therefore, my conclusions will be mainly based on the measure using FDI income.

Due to their very limited role in global GDP, the revenue loss in tax havens themselves is minimal, see Table 6.³⁵ Based on their share in global FDI positions I have some idea about their role in corporate tax avoidance. British Virgin Islands, Bermuda, and Cayman Islands possess about 6.5% of the global outward FDI stock according to the statistics. As shown in Table 3, this share is very high, compared to their economies. If I add the other 18 tax havens (used in this paper), the share in global FDI is about 8%. Based on the proportional division of the revenue losses due to profit shifting that would imply an involvement of about 12 billion dollars in CIT avoidance. Using only the FDI income, the amount is 2 billion US dollars lower (column (6)). This suggests that the global share of dividends and paid interest by tax havens, correlates strongly with the global share in FDI.

The conduit countries play an important role in international corporate tax avoidance. About 43% of the revenue loss due to profit shifting passes these countries which is about 65 billion US dollars (column (2)). Luxembourg, the Netherlands, and the UK are the leading conduit countries here. Because I relate the returns on international investment to the size of the FDI stock, these are the

³⁵ Hines and Rice (1994) identify 41 countries as tax havens for US multinationals. Their combined population amounts only to 1.2% of the western world's population and they produce only 3.0% of the western GDP.

same countries as for treaty shopping. Using FDI income instead of the FDI stock, the outcome is more or less the same. Correcting for SPEs, the numbers are somewhat lower.

Table 8: The role of conduit countries and tax havens in in profit shifting

Country	FDI	ps_losses	FDI_nSPE	ps_losses	FDI	ps_losses	FDI-	ps_losses
					income		nsp	
Allocation		FDI		FDI_nSPE		FDI inc	income	FDI_nSPE_inc
Unit	Share	BIn US\$	Share	BIn US\$	Share	BIn US\$	Share	BIn US\$
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Source	IMF/DAM	(1)*150	IMF/DAM	(3)*150	Tørsløv	(5)*150	Tørsløv	(7)*150
Anguilla	0.00%	0.00	0.00%	0.00	0.01%	0.01	0.00	0.00
Bermuda	1.74%	2.60	2.30%	3.46	3.17%	4.75	0.00	0.00
British Virgin Islands	2.40%	3.61	2.56%	3.84	0.04%	0.05	0.00	0.00
Cayman Islands	2.43%	3.64	4.05%	6.07	2.14%	3.21	0.00	0.00
Gibraltar	0.15%	0.23	0.04%	0.06	0.02%	0.03	0.00	0.00
Guernsey	0.08%	0.13	0.11%	0.17	0.05%	0.08	0.00	0.00
Isle of Man	0.17%	0.26	0.15%	0.22	0.04%	0.06	0.00	0.00
Panama	0.16%	0.24	0.26%	0.39	0.28%	0.42	0.00	0.00
Total tax havens	8.36%	12.53	11.04%	16.56	6.70%	10.06	0.00	0.00
Hong Kong	3.65%	5.48	3.20%	4.80	9.09%	13.63	0.00%	0.00
Ireland	4.68%	7.02	5.63%	8.45	4.29%	6.44	6.48%	9.72
Luxembourg	6.60%	9.90	0.47%	0.71	4.29%	6.44	1.80%	2.70
Netherlands	8.85%	13.27	2.69%	4.03	12.02%	18.03	4.04%	6.06
Singapore	1.99%	2.99	2.39%	3.59	3.25%	4.87	0.00%	0.00
Switzerland	4.09%	6.13	4.55%	6.83	4.02%	6.03	5.40%	8.09
Total 6 conduit	29.86%	44.79	18.94%	28.41	36.97%	55.45	17.71%	26.57
Total 9 conduit	40.49%	60.73	31.75%	47.62	42.84%	64.25	25.03%	37.55
Total 12 conduit	43.18%	64.76	34.25%	51.38	45.02%	67.53	27.86%	41.80
China	4.06%	6.09	4.03%	6.05	8.57%	12.86	12.93%	19.40
France	2.48%	3.71	2.89%	4.33	1.72%	2.58	2.60%	3.90
Germany	2.92%	4.38	3.22%	4.83	2.23%	3.35	3.37%	5.05
Poland	0.58%	0.87	0.70%	1.05	1.21%	1.81	1.82%	2.73
Portugal	0.30%	0.45	0.34%	0.51	0.32%	0.48	0.49%	0.73
United States	12.48%	18.72	16.42%	24.63	10.56%	15.85	15.94%	23.91
Total 21 other	32.18%	48.27	39.51%	59.27	34.73%	52.10	52.41%	78.62

Notes: Columns 1, 3, 5 and 7 present the country shares of the involvement in profit shifting based on inward FDI stocks, inward FDI stocks corrected for SPEs, FDI income and FDI income corrected for SPEs (mainly dividends). The even columns present the corresponding losses (in US dollar). These are own calculations based on, respectively, IMF/Damgaard et al. (2019) and Tørsløv et al. (2020), see Annex 3 for a complete country list.

A large share of the tax revenue loss comes from profit shifting between other developed countries. Column (3) of Table 8 illustrates that these countries receive nearly 40% of the FDI stock corrected for SPEs. This would imply that other developed countries are involved in about 60 billion dollars revenue losses of other countries. Using FDI income as allocation measure, it is about 10 billion dollars lower. So, other developed countries are also (actively) involved in profit shifting, strategies from which these countries are also the losers in terms of CIT tax revenues. The US seems to be involved for about a third of the profit shifting losses by developed countries. That would imply that the CIT revenue losses in the US are not only due to the tax systems in other countries, but also to the US tax system and the interaction with other national tax systems.

The following example illustrates this double role. A multinational firm has holdings in two countries, A and B. Assume that country B levies higher corporate income taxes. The firm decides that the holding in country A must provide a loan to the holding in B and holding B pays interest income. This lowers the profit of holding B. This is part of the national CIT losses in Table 6. Country A is involved in the debt shifting that led to the revenue loss. The columns with profit shifting losses in Table 8 reflect this. Country A could be another industrialized country, a conduit or tax haven.

I notice a few limitations to the calculations. First, I focus on global revenue losses of corporate tax avoidance here, while many countries have the reputation as tax haven because of international tax planning of personal wealth and not necessarily because of international corporate tax avoidance. Second, I relate the losses of corporate tax avoidance and shifted profits to the shares in FDI stocks and income only, and not to differences in corporate tax rates. Because tax havens often do not have a CIT (see Table 2), the revenue effect of shifting 1 dollar from Germany to a tax haven is much larger than shifting it to France, for example.

The analysis in this section shows that other developed countries are the main losers in terms of lost tax revenues due to international corporate tax avoidance. In particular, the United States could lose 60 to 70 billion dollars each year. If the losses are allocated over the countries using the FDI stocks or FDI-income of non-SPEs the numbers are lower. As argued, these numbers are an underestimate. The conduit countries have a large role in the tax avoidance due to treaty shopping and the corresponding CIT revenue losses. These countries have also a substantial role in profit shifting strategies of multinational firms and the corresponding revenue losses. The impact of conduit countries is larger than that of traditional tax havens. A large part of the revenue losses due to profits shifting are also due to the role of other developed countries in these tax avoidance strategies.

7. Two countries: The United States and the Netherlands

My estimates of CIT revenue losses rely on relatively simple assumptions using mainly macro data from international databases. In this section, I will confront these outcomes with data of the United States and the Netherlands.³⁶ These data also emphasize the close economic relation between both countries and the specific role of a conduit country, different from a traditional tax haven. It also shows that it is very hard to pin down the precise contribution of conduit countries to international corporate tax avoidance.

According to US data, a large part of the corporate income tax base of American companies has shifted to conduit countries (see Table 9).³⁷ From these data sources, it seems that profits remain in the conduit countries and that these countries should tax these profits. In practice, multinational firms pass profits through these countries, and therefore conduit countries do not classify these profits as taxable income. These countries seem to levy a low effective tax rate, see the estimates of Tørsløv et al. (2020).

³⁶ I made this choice because the US has the largest economy and the largest CIT revenue losses and because of the available firm-level data on Dutch SPEs.

³⁷ Clausing (2016), Hines and Rice (1994) and Zucman (2014) are a few examples.

Table 9: Shifted profits in tax havens and conduit countries according to various studies

Country	Clausing (2016)		Tørsløv et al. (2020)
	US profits		Global
Scale	Only	Without	Only
Shifting profits			
Hong Kong			39
Ireland	98.7	23.6	106
Luxembourg	81.1	15.0	47
Netherlands	139.3	33.0	57
Singapore	31.9	10.5	70
Switzerland	43.3	14.6	58
Total conduits			377
Bermuda	69.8	9.9	24
British overseas			97
Cayman Islands	32.2	8.7	See overseas
All others (<15%)	98.8	89.8	
Total tax havens and conduits	595	205	
Total all other	10	257	

Sources: see references in the heading of the tables.

Clausing (2016) estimates that the profits of US subsidiaries in the Netherlands amount to 172 billion dollars in 2012 of which 139 billion dollars are shifted profits. This is nearly a quarter of the shifted profits by American multinationals. This order of magnitude is comparable to Zucman (2014), but higher than Tørsløv et al. (2020). The shifted profits in Ireland and Luxembourg are nearly 100 billion US dollar, much larger than the profits that American multinationals generate in these countries. According to Clausing, 40 percent of the shifted profits could accrue to the US corporate tax base. If taxed at 39 percent, tax revenues will be 50 billion dollar larger in the United States. This is only for the shifted overseas profits in these three countries. If all conduit countries and tax havens are included, the revenue gain is about twice as large. This is about twice as large as estimated in Table 6. The reason is that I use a lower global total on missed revenue losses than estimated by Clausing (2016). One of the reasons is that Blouin and Robinson (2019) argue that the numbers of Clausing (2016) and others are too large due to double counting problems.

Tørsløv et al. (2020) estimate that multinationals have shifted 57 billion dollars in profits to the Netherlands in 2015. The calculated effective rate of the corporate income tax at 10 percent is much lower than the statutory rate of 25 percent. The reasons are, first, that many profits pass the Netherlands through SPEs and are therefore not taxed and, second, that companies opt for a limited partnership, so that (for the time being) no CIT must be paid in the Netherlands and the US because limited partnerships are pass-through entities according to the Dutch tax. For Ireland and Luxembourg, the size of overseas profits is somewhat lower in absolute terms, but much larger compared to GDP. Overall, the size of overseas profits in conduit countries is much larger than in traditional tax havens.

For the Netherlands, data on the balance sheets of the Dutch SPEs are available. The main function of the SPEs is to divert foreign direct investment and loans through the Netherlands.³⁸ The data include the dividends, interest and royalty flows to and from the SPEs. For dividends, the incoming

³⁸ The data in this Section come from Lejour et al. (2021). This paper also presents the details of the data.

flows are less concentrated in terms of the origin countries than for interest flows, as is shown in Table 10. Incoming royalty flows are heavily concentrated. Most of them come from Ireland and the top three origin countries nearly cover 90 percent of the flows. Quite often, the United States is the origin of a flow that can be explained by the large economy, but in many other cases the sizes of the flows are hardly related to the economic size of countries. Examples are Ireland and Singapore.

Table 10 Top3 Country ranking by incoming flows in 2014-2016

Incoming dividends 2014-2016		Incoming interest 2014-2016		Incoming royalties 2014-2016	
Country	Share	Country	Share	Country	Share
Singapore	11%	Germany	23%	Ireland	59%
Brazil	11%	Ireland	17%	Singapore	19%
United States	10%	Spain	10%	United States	9%

Source: Lejour et al. (2021)

The United States is also an important destination country, but I also find tax havens such as Bermuda and Cayman Islands in the top three and conduit countries such as Switzerland (see Table 11). The size of these flows does not reflect the residence of the ultimate beneficial owner (UBO). The residence country of the UBO is available for a large subsample of the SPEs, covering over 85% of outgoing dividends, interest, and royalties. Table 11 compares the shares of outgoing flows with the shares of the ultimate beneficial owners. It shows that Switzerland, Cayman Islands, and Bermuda receive relatively large flows while the ultimate beneficial owner resides in another country, quite often the United States. The opposite is the case for the United States. A large part of the outgoing dividends (41%), interest (36%) and royalties (98%) belongs to ultimate beneficial owners in the United States, but the direct flows to the United States are only 26% for dividends, 18% for interest and 23% for royalties.

Table 11 Top3 Outgoing flows to countries and ultimate beneficial owners

Country	Dividends (in %) 2014-2016		Country	Interest (in %) 2014-2016		Country	Royalties (in %) 2008-2010	
	Direct	UBO		Direct	UBO		Direct	UBO
United States	26	41	United States	18	36	Bermuda	65	*
Switzerland	15	5	United Kingdom	13	9	United States	23	98
United Kingdom	13	20	Cayman Islands	13	0			

* Not reported due to non-disclosure rules. For outgoing royalties, Lejour et al. (2021) report the largest flows for 2008 to 2010.

The income flows via Dutch SPEs illustrate the long chains of diverted investment and their returns. Because national statistical institutes measure FDI and income, these investment and income flows are double counted from a global perspective, and sometimes even in national statistics. This confirms the phantom FDI of Damgaard et al. (2019) and the doubling counting of FDI by Bolwijn et al. (2018). The Dutch data also show that multinationals use SPEs in conduit countries as pass through. The data also confirm the large role of US multinationals in profit shifting via the Dutch SPEs.

The destinations of the income flows are often not the residence of the ultimate beneficial owners. This implies that these residence countries such as the United States probably lose much tax revenues because the headquarters are in other countries.

8. Conclusions and policy implications

Tax havens and conduit countries have different appealing tax systems that multinationals use for corporate tax avoidance. Tax havens have low or negligible tax rates on investment income, non-cooperative tax authorities with those of other countries, and possibilities for non-identifiable bank accounts and holding companies. Conduit countries or investment hubs have reasonable statutory tax rates on investment income, but lower effective rates than other developed countries. Conduit countries often apply generous relief methods for double taxation, such as exemption, and have low or no withholding taxes on outgoing dividends, interest and royalties. Conduit countries do not only levy themselves hardly any taxes, but also negotiate low tax rates on incoming flows from their treaty partners, low rates that do not apply for tax havens. Moreover, conduit countries are not affected by CFC-rules as traditional tax havens are. Some other characteristics are the number of bilateral investment treaties these countries have, the possibility for tax rulings with the authorities (Luxembourg and Netherlands are well known for this practice), and a developed financial sector. Therefore, conduit countries are attractive as pass through, while tax havens are attractive for residing headquarters.

Conduit countries are important for in treaty shopping. I show quantitatively that the larger share of the global revenue loss of 38 billion dollars comes from diverted profits that pass conduit countries, although the precise size depends on the indicator. The role of tax havens is quite modest. For profit shifting techniques, the story is different. The global revenue losses are also larger, about 150 billion dollars, although this number reflects a midpoint of a wide range. A substantial part results from profit shifting behavior of multinational holdings in developed countries, but also a large part occurs between developed countries and conduit countries. The role of tax havens can also not be ignored, but is less prominent in absolute size.

The question is whether tax havens and conduit countries should be treated similarly in limiting corporate tax avoidance, as is often assumed in academia and policy circles. If multinational firms transfer received income in conduit countries directly to the ultimate or other intermediate destination, the standard rules on international taxation do not give much guidance on taxing rights. Normally the (ultimate) host country taxes active income generated in that country and the (ultimate) residence country taxes passive income and in some cases also the active income for foreign daughter companies. There is no explicit role for conduit countries. This is not surprising; the international taxation rules have been developed in times when the diversion of FDI and profit shifting was no common practice. Nowadays, tax avoidance seems to be the rule instead of the exception.

Higher corporate tax rates in conduit countries will not be a solution as could be the case for traditional tax havens, because governments do not tax diverted income flows. Therefore, conduit countries must take other measures. This is hard because governments also want to remain attractive for real foreign investments. For this reason, countries often use the exemption method in double tax relief and levy low or negligible withholding taxes.

There are various policy solutions, however. A first one is that countries could restrict the use of the exemption method for double tax relief to situations in which profits are sufficiently taxed in the

country where the profit is generated. Other countries could impose stricter CFC-rules or countries could agree internationally on minimum taxation as discussed in the pillar-2 proposals of the OECD/G20 framework. A second one is that countries could impose minimum rates on withholding taxes for interest and royalties. This would make it much less attractive to divert interest and royalties via conduit countries. This minimum level would also limit the possibilities for negotiating large reductions of the standard rates on withholding taxes with your treaty partners.³⁹ A third solution is a much stricter use of the limitation of benefits in tax treaties. The benefit of the tax treaty could only be granted if the income flow is sufficiently taxed in another country. So, the treaty benefits should be denied if income flows are ultimately destined for a tax haven. With the multilateral instrument of the OECD, many treaties will already impose stricter rules on the limitation of benefits, but it is too early to conclude whether these stricter rules are effective.⁴⁰

These measures will mainly affect treaty shopping and less other tax avoidance techniques. These could be effective in reducing the conduit role, although higher rates on withholding taxes could also reduce international debt and IP-shifting. Stricter CFC-rules or minimum tax rates could reduce transfer pricing. In all cases, the effectiveness of the measures depends to a large extent on the height of the tax rates.

The policy actions could also hurt the investment climate if countries impose them unilaterally. Moreover, measures could limit the conduit role of countries, but will not hinder multinationals in their search for low tax rates. They will restructure their company structure and make use of other conduit countries if the laws permit doing so. For both reasons international cooperation on tax policies is necessary. It is the only way for governments to mitigate the magnitude of international tax avoidance significantly. Because the role of conduit countries and tax havens is increasing, international cooperation is becoming more urgent.

39 Lejour and Van 't Riet (2020) plea for these reasons for common minimum withholding taxes at the external borders of the EU, comparable to external import tariffs in a common market.

⁴⁰ See Baerentzen et al. (2020).

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Annex 1: Characteristics of tax havens, conduits countries and other developed countries

Countries	CIT stat	CIT eff	FSI	TIEAs number	TH score
Column	(1)	(2)	(3)	(4)	(5)
Andorra	10	5	58.33	18	69.05
Anguilla	0	0	78.2	16	100.00
Antigua and Barbuda	25	4	76.08	18	
Aruba	25	5		19	64.39
Bahamas	0	0	75.38	22	100.00
Barbados	5.5	3	74	0	
Bermuda	0	0	72.73	22	100.00
British Virgin Islands	0	0	71.3	20	100.00
Cayman Islands	0	0	76.08	20	100.00
Curacao	22	0	74.85	0	72.04
Gibraltar	10	5	69.48	19	65.59
Guernsey	0	0	70.65	18	97.50
Isle of Man	0	0	64.68	16	100.00
Jersey	0	0	65.53	15	98.33
Lebanon	17	5	63.98	0	72.84
Liechtenstein	12.5	5	74.98	18	69.51
Macao	12	5	65	7	56.65
Monaco	28	5	70.3	19	67.56
Panama	25	5	71.88	1	71.78
Seychelles	40	5		0	68.11
Turks and Caicos Islands	0	0	77.83	16	100.00
<i>Average TH</i>	<i>11.05</i>	<i>2.48</i>	<i>71.12</i>	<i>13.52</i>	<i>82.81</i>
<i>Median TH</i>	<i>10</i>	<i>3</i>	<i>71.88</i>	<i>18</i>	<i>72.84</i>
Austria	25	18	56.5	4	51.59
Belgium	29.6	19	45.05	13	67.84
Cyprus	12.5	17	61.08	0	71.13
Hong Kong	16.5	18	66.38	0	73.03
Hungary	9	11	53.8	0	69.10
Ireland	12.5	4	48.15	17	75.67
Luxembourg	28.7	3	55.45	0	72.44
Malta	35	5	61.75	0	73.51
Netherlands	25	10	67.4	26	78.01
Singapore	17	8	64.98	0	81.35
Switzerland	17.9	21	74.05	0	83.31
United Kingdom	19	17	46.2	21	63.45
<i>Average 6</i>	<i>19.69</i>	<i>10.80</i>	<i>62.74</i>	<i>7.16</i>	<i>77.30</i>
<i>Average 9</i>	<i>20.46</i>	<i>11.44</i>	<i>60.60</i>	<i>7.11</i>	<i>74.66</i>
<i>Average 12</i>	<i>21.97</i>	<i>12.50</i>	<i>58.40</i>	<i>6.75</i>	<i>71.70</i>
<i>Median 9</i>	<i>17.9</i>	<i>10</i>	<i>61.75</i>	<i>0</i>	<i>73.51</i>

Countries	CIT stat	CIT eff	FSI	TIEAs number	TH score
Canada	38	35	55.84	11	
China	25	20	59.85	2	58.30
Croatia	18		55.08	0	54.53
Czech Republic	19	20	55.4	1	58.89
Denmark	22	15	45.33	31	51.70
Estonia	0	12	43.05	0	66.52
Finland	21	20	52.13	30	55.03
France	31	27	49.9	29	55.70
Germany	29.7	11	51.73	16	52.34
Greece	28	19	51.48	5	39.06
Italy	27.9	18	50.38	0	50.55
Japan	29.7	26	62.85	3	
Latvia	0	10	59.13	0	68.13
Poland	19	10	55.55	0	40.45
Portugal (Madeira)	21	23	54.03	10	45.84
Slovakia	22	25	50.93	0	52.95
Slovenia	19	18	37.55	0	49.57
South Africa	28	25	56.24	3	47.12
Spain	25	18	43.95	4	54.54
Sweden	21.4	23	45.65	28	55.97
USA	27	21	62.89	13	43.21
Average	<i>25.04</i>	<i>19.80</i>	<i>52.33</i>	<i>8.86</i>	<i>52.65</i>
Median	<i>23.50</i>	<i>20.04</i>	<i>52.13</i>	<i>3.00</i>	<i>52.95</i>

Sources: OECD, KPMG on statutory tax rates (CIT stat), Tørsløv et al. (2020) on effective tax rates in 2015 (CIT effect), Tax Justice Network on Financial Secrecy Indicator and Tax haven score in 2019, and OECD (2011) on number of TIEAs (tax information exchange agreements). Annex 1 shows an extended table of 21 tax havens, 12 conduits, and 21 other (developed) countries.

Annex 2: Network characteristics of countries (2013)

Country	WHT DIV standard (%)	Avg. BWHT outward (%)	Outward direct Routes (%)	Inward direct routes (%)	DTT (no)	Conduit ranking (%)
Column	(1)	(2)	(3)	(4)	(5)	(6)
Andorra						
Anguilla						
Antigua and Barbuda						
Aruba	10	9.96	28.53	17.38	1	0
Bahamas	0	0	26.37	17.39	0	0.8
Barbados	15	9.78	28.77	10.27	23	0.2
Bermuda	0	0	26.37	17.38	0	0.8
Cayman Islands	0	0	26.37	17.38	0	0.8
Curacao	0	0	6.65	17.38	0	1.7
Gibraltar						
Guernsey	0	0	26.37	17.38	0	0.8
Isle of Man	0	0	26.37	17.38	0	0.8
Jersey	0	0	26.37	17.38	0	0.8
Lebanon	10	9.47	29.3	28.82	13	0
Liechtenstein	0	0	24.15	16.32	3	1
Macao	0	0	24.26	27.31	0	0
Monaco						
Panama	17	15.61	32.98	36.67	14	0
Seychelles	15	13	30.82	43.96	12	0
Turk & Caicos Islands						
Virgin Islands U.K.	0	0	26.37	17.38	0	0.8
Average 15 Tax havens	4.47	3.86	26	21.32	4.4	0.57
Austria	25	6.79	11.26	4.82	66	2.1
Belgium	25	6.19	9.1	5.56	70	1.1
Cyprus	0	0	19.93	7.52	35	4.5
Hong Kong	0	0	23.37	13.8	14	2.3
Hungary	0	0	11.35	5.79	47	6.2
Ireland	20	2.66	16.2	5.58	53	5.6
Luxembourg	15	1.79	6.92	4.03	57	8.4
Malta	0	0	16.89	6.59	38	4.3
Netherlands	15	4.47	10.05	3.39	74	7.7
Singapore	0	0	13	10.84	40	6.1
Switzerland	35	7.31	13.03	4.92	71	3.2
United Kingdom	0	0	8.92	3.75	51	13.4
Average 6 conduit	14.17	2.71	13.76	7.09	51.50	5.55
Average 9 conduit	9.44	1.8	14.26	6.71	48.11	6.17
Average 12 conduit	11.25	2.43	13.34	6.38	51.33	4.89

Canada	25	8.76	12.93	6.4	75	0.1
China	10	9.41	13.77	8.59	61	0
Croatia	12	8.63	13.75	11.94	44	0.4
Czech Republic	35	7.5	14.37	6.7	66	1.4
Denmark	27	7.24	12.71	4.58	61	4
Estonia	0	0	10.07	6.72	36	6.7
Finland	24.5	5.87	11.69	3.65	59	4.7
France	30	5.23	8.07	4.91	80	1.5
Germany	25	8.11	11.18	6.08	71	0.8
Greece						
Italy	20	8.04	10.6	7	69	0.8
Japan	20	7.25	9.24	7.73	47	0
Latvia	10	5.62	15.35	6.31	45	2
Poland	19	7.8	13.75	6.29	64	1.4
Portugal	25	9.28	12	9.66	53	1
Slovak Republic	0	0	8.79	13.05	42	5.3
Slovenia	15	6.75	14.98	6.51	46	2
South Africa	15	6.68	10.42	6.63	55	0.1
Spain	21	7.84	9.88	6.76	71	3.6
Sweden	30	5.97	12.5	3.83	67	4.5
United States	30	10.26	11.99	16.67	54	0
20 other countries	19.28	6.81	11.81	7.70	57.50	2.02

Source: Van 't Riet and Lejour (2018). The numbers, including averages and conduit positions, are based on the calculations using 108 countries. This also applies for the number of double tax treaties.

Annex 3: Magnitude of tax avoidance by country

Table The national tax revenue losses due to corporate tax avoidance in 2016

Country	GDP	Losses	CIT	Losses	Losses	FDI_	Losses	FDI_inc	Losses
Allocation		GDP		GDP*CIT	GDP*CIT ²	nSPE		_nspe	
Unit	Share	Bln US\$	Rate	Bln US\$	Bln US\$	Share	Bln US\$	Share	Bln US\$
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Source	WB	(1)*205	RL	(2)*CIT	(4)*CIT	IMF/Dam	(6)*205	Tørsløv	(8)*205
Andorra	0.00%	0.01	0.00	0.01	0.01	0.01%	0.01	0.00%	0.00
Anguilla	0.00%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
Antigua and Barbuda	0.00%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
Aruba	0.00%	0.01	28.00	0.01	0.01	0.00%	0.00	0.00%	0.00
Bahamas, The	0.01%	0.03	0.00	0.00	0.00	0.34%	0.64	0.00%	0.00
Barbados	0.01%	0.01	25.00	0.01	0.01	0.52%	0.97	0.00%	0.00
Bermuda	0.01%	0.01	0.00	0.00	0.00	2.30%	4.33	0.00%	0.00
British Virgin Islands	0.00%	0.00	0.00	0.00	0.00	2.56%	4.81	0.00%	0.00
Cayman Islands	0.01%	0.01	0.00	0.00	0.00	4.05%	7.61	0.00%	0.00
Curacao	0.00%	0.01	27.50	0.01	0.01	0.27%	0.50	0.00%	0.00
Gibraltar	0.00%	0.00	0.00	0.00	0.00	0.04%	0.08	0.00%	0.00
Guernsey	0.00%	0.01	0.00	0.00	0.00	0.11%	0.21	0.00%	0.00
Isle of Man	0.01%	0.02	0.00	0.00	0.00	0.15%	0.28	0.00%	0.00
Jersey	0.01%	0.01	0.00	0.00	0.00	0.34%	0.65	0.00%	0.00
Lebanon	0.07%	0.13	15.00	0.06	0.03	0.01%	0.02	0.00%	0.00
Liechtenstein	0.01%	0.02	12.50	0.01	0.00	0.01%	0.02	0.00%	0.00
Macao SAR, China	0.07%	0.12	12.00	0.05	0.02	0.05%	0.10	0.00%	0.00
Monaco	0.01%	0.02	0.00	0.02	0.02	0.01%	0.03	0.00%	0.00
Panama	0.08%	0.15	25.00	0.12	0.09	0.26%	0.49	0.00%	0.00
Seychelles	0.00%	0.00	33.00	0.00	0.00	0.01%	0.01	0.00%	0.00
Turks and Caicos Islands	0.00%	0.00	0.00	0.00	0.00	0.00%	0.00	0.00%	0.00
Total tax havens	0.30%	0.57	8.48	0.30	0.20	11.04%	20.76	0.00%	0.00
Austria	0.54%	1.02	25.00	0.84	0.66	0.78%	1.47	0.00%	
Belgium	0.64%	1.21	34.00	1.37	1.45	1.53%	2.87	1.96%	3.68
Cyprus	0.03%	0.06	12.50	0.02	0.01	1.29%	2.42	0.00%	0.00
Hong Kong	0.43%	0.81	16.50	0.44	0.23	3.20%	6.01	0.00%	0.00
Hungary	0.19%	0.35	19.00	0.22	0.13	0.20%	0.37	0.88%	1.65
Ireland	0.45%	0.85	12.50	0.35	0.14	5.63%	10.59	6.48%	12.18
Luxembourg	0.08%	0.16	29.20	0.15	0.14	0.47%	0.89	1.80%	3.39
Malta	0.02%	0.03	35.00	0.04	0.04	0.20%	0.37	0.00%	0.00
Netherlands	1.09%	2.04	25.00	1.69	1.32	2.69%	5.05	4.04%	7.59
Singapore	0.43%	0.81	17.00	0.46	0.24	2.39%	4.50	0.00%	0.00
Switzerland	0.84%	1.57	21.10	1.10	0.73	4.55%	8.56	5.40%	10.14
United Kingdom	3.39%	6.38	23.00	4.86	3.49	11.33%	21.29	7.32%	13.76
Total 6 conduit	3.33%	6.25	20.22	4.20	2.80	18.94%	35.60	17.71%	33.30
Total 9 conduit	6.76%	12.72	21.31	9.12	6.34	34.25%	59.68	27.86%	47.06
Total 12 conduit	8.14%	15.30	22.48	11.55	8.58	31.75%	64.39	25.03%	52.39
Canada	2.04%	3.83	26.30	3.33	2.74	3.93%	7.40	3.45%	6.49
China	16.17%	30.39	25.00	25.17	19.67	4.03%	7.58	12.93%	24.31
Croatia	0.07%	0.14	20.00	0.09	0.06	0.09%	0.16	0.00%	

Czech Republic	0.29%	0.55	19.00	0.34	0.20	0.44%	0.83	1.45%	2.72
Denmark	0.42%	0.79	25.00	0.66	0.51	0.50%	0.95	0.53%	1.00
Estonia	0.04%	0.07	21.00	0.05	0.03	0.06%	0.10	0.13%	0.25
Finland	0.33%	0.62	24.50	0.50	0.38	0.26%	0.49	0.41%	0.77
France	3.30%	6.20	34.30	7.05	7.56	2.89%	5.43	2.60%	4.89
Germany	4.69%	8.82	30.20	8.82	8.33	3.22%	6.06	3.37%	6.33
Greece	0.26%	0.49	26.00	0.42	0.34	0.08%	0.15	0.12%	0.22
Italy	2.48%	4.65	31.40	4.84	4.75	1.59%	2.99	1.17%	2.20
Japan	5.91%	11.10	37.00	13.61	15.74	1.04%	1.95	2.42%	4.55
Latvia	0.04%	0.08	15.00	0.04	0.02	0.04%	0.08	0.12%	0.22
Poland	0.70%	1.31	19.00	0.82	0.49	0.70%	1.32	1.82%	3.42
Portugal	0.29%	0.54	31.50	0.56	0.55	0.34%	0.64	0.49%	0.91
Slovak Republic	0.13%	0.24	23.00	0.18	0.13	0.13%	0.24	0.44%	0.83
Slovenia	0.06%	0.12	17.00	0.07	0.04	0.04%	0.07	0.11%	0.20
South Africa	0.44%	0.82	28.00	0.76	0.67	0.38%	0.72	0.71%	1.33
Spain	1.69%	3.17	30.00	3.15	2.95	2.18%	4.10	2.14%	4.02
Sweden	0.66%	1.24	22.00	0.91	0.62	1.14%	2.15	2.08%	3.91
United States	24.41%	45.89	39.10	59.43	72.63	16.42%	30.87	15.94%	29.97
Total	64.39%	121.05	25.92	130.80	138.41	39.51%	74.29	52.41%	98.53
Global total	72.83%	149.30		155.55	160.50	84.81%	173.85	80.28%	164.57

Notes: Columns 1, 3, 5, 7 and 9 present the country shares of the global revenue losses based on GDP, GDP times relative CIT rates, GDP times relative CIT rates squared, real FDI stocks, and dividends. The corresponding losses (in US dollar) are presented in the even columns. These are own calculations based on, respectively, World Bank, OECD/ Van 't and Lejour (2018), IMF/Damgaard et al (2019) and Tørsløv et al. (2020).

Table The involvement of tax havens and conduit countries in revenue losses by treaty shopping

Country	FDI-SPE stock	losses	FDI_SPE inc	Losses	FDI_income	losses
Allocation Unit	Share	FDI-SPE Bln US\$	Share	FDI-SPE-inc Bln US\$	Share	FDI-inc Bln US\$
Column	(1)	(2)	(3)	(4)	(5)	(6)
Source	IMF/DAM	(1)*45	Tørsløv	(3)*45	Tørsløv	(5)*45
Andorra	0.00%	0.00	0.01%	0.00	0.00%	0.00
Anguilla	0.00%	0.00	0.02%	0.01	0.01%	0.00
Antigua and Barbuda	0.00%	0.00	0.02%	0.01	0.01%	0.00
Aruba	0.00%	0.00	0.02%	0.01	0.01%	0.00
Bahamas. The	0.04%	0.02	0.49%	0.19	0.16%	0.06
Barbados	0.22%	0.08	0.43%	0.16	0.14%	0.05
Bermuda	1.12%	0.43	9.57%	3.64	3.17%	1.20
British Virgin Islands	2.44%	0.93	0.11%	0.04	0.04%	0.01
Cayman Islands	0.41%	0.15	6.47%	2.46	2.14%	0.81
Curacao	0.25%	0.09	0.10%	0.04	0.03%	0.01
Gibraltar	0.33%	0.12	0.06%	0.02	0.02%	0.01
Guernsey	0.05%	0.02	0.15%	0.06	0.05%	0.02
Isle of Man	0.23%	0.09	0.12%	0.05	0.04%	0.02
Jersey	0.23%	0.09	0.47%	0.18	0.15%	0.06
Lebanon	0.01%	0.00	0.09%	0.03	0.03%	0.01
Liechtenstein	0.00%	0.00	0.00%	0.00	0.00%	0.00
Macao SAR. China	0.08%	0.03	1.29%	0.49	0.43%	0.16
Monaco	0.00%	0.00	0.00%	0.00	0.00%	0.00
Panama	0.03%	0.01	0.85%	0.32	0.28%	0.11
Seychelles	0.01%	0.00	0.01%	0.01	0.00%	0.00
Turks and Caicos Islands	0.00%	0.00	0.00%	0.00	0.00%	0.00
Total 21 tax havens	5.46%	2.08	20.27%	7.70	6.70%	2.55
Austria	0.73%	0.28	-1.85%	-0.70	0.04%	0.02
Belgium	2.12%	0.81	0.24%	0.09	1.38%	0.52
Cyprus	0.87%	0.33	1.06%	0.40	0.35%	0.13
Hong Kong SAR. China	4.68%	1.78	27.48%	10.44	9.09%	3.45
Hungary	0.38%	0.15	0.58%	0.22	0.77%	0.29
Ireland	3.83%	1.46	0.00%	0.00	4.29%	1.63
Luxembourg	15.92%	6.05	9.37%	3.56	4.29%	1.63
Malta	0.04%	0.01	2.03%	0.77	0.67%	0.25
Netherlands	18.45%	7.01	28.26%	10.74	12.02%	4.57
Singapore	1.64%	0.62	9.82%	3.73	3.25%	1.23
Switzerland	3.87%	1.47	1.35%	0.51	4.02%	1.53
United Kingdom	7.77%	2.95			4.85%	1.84
Total 6 conduits	48.39%	18.39	76.27%	28.98	36.97%	14.05
Total 12 conduits	57.07%	21.69	79.36%	30.16	42.84%	16.28
Total 9 conduits	60.30%	22.92	78.32%	29.76	45.02%	17.11
Canada	1.40%	0.53	0.00%	0.00	2.29%	0.87
China	4.53%	1.72	0.00%	0.00	8.57%	3.26
Croatia	0.07%	0.03				
Czech Republic	0.33%	0.13	0.00%	0.00	0.96%	0.36
Denmark	0.21%	0.08	0.00%	0.00	0.35%	0.13
Estonia	0.02%	0.01	0.00%	0.00	0.09%	0.03
Finland	0.18%	0.07	0.00%	0.00	0.27%	0.10
France	2.16%	0.82	0.00%	0.00	1.72%	0.65
Germany	2.80%	1.06	0.00%	0.00	2.23%	0.85

Greece	0.07%	0.03	0.00%	0.00	0.08%	0.03
Italy	1.33%	0.51	0.00%	0.00	0.78%	0.29
Japan	0.65%	0.25	0.00%	0.00	1.60%	0.61
Latvia	0.02%	0.01	0.00%	0.00	0.08%	0.03
Poland	0.48%	0.18	0.00%	0.00	1.21%	0.46
Portugal	0.28%	0.11	0.00%	0.00	0.32%	0.12
Slovak Republic	0.14%	0.05	0.00%	0.00	0.29%	0.11
Slovenia	0.03%	0.01	0.00%	0.00	0.07%	0.03
South Africa	0.16%	0.06	0.00%	0.00	0.47%	0.18
Spain	1.48%	0.56	0.00%	0.00	1.42%	0.54
Sweden	0.67%	0.26	0.00%	0.00	1.38%	0.52
United States	8.27%	3.14	0.00%	0.00	10.56%	4.01
Total 21 other countries	25.27%	9.60	0.00%	0.00	34.73%	13.20

Notes: Columns 1, 3, and 5 present the country shares of the involvement in treaty shopping based on SPE-FDI stocks, SPE-FDI income and FDI income (mainly dividends). The corresponding losses (in US dollar) are presented in the even columns. These are own calculations based on, respectively, IMF/Damgaard et al (2019) and Tørsløv et al. (2020).

Table The involvement of tax havens and conduit countries in revenue losses by profit shifting

Country	FDI	losses	FDI_nSPE	losses	FDI-	losses	FDI-	losses
Allocation	FDI		FDI-nSPE		income	income_nspe		FDI-inc-
Unit	Share	Bln US\$	Share	Bln US\$	Share	Bln US\$	Share	Bln US\$
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Source	IMF/DAM	(1)*150	IMF/DAM	(3)*150	Tørsløv	(5)*150	Tørsløv	(7)*150
Andorra	0.00%	0.01	0.01%	0.01	0.00%	0.00	0.00%	0.00
Anguilla	0.00%	0.00	0.00%	0.00	0.01%	0.01	0.00%	0.00
Antigua and Barbuda	0.00%	0.00	0.00%	0.00	0.01%	0.01	0.00%	0.00
Aruba	0.00%	0.00	0.00%	0.00	0.01%	0.01	0.00%	0.00
Bahamas. The	0.21%	0.31	0.34%	0.51	0.16%	0.24	0.00%	0.00
Barbados	0.38%	0.56	0.52%	0.77	0.14%	0.21	0.00%	0.00
Bermuda	1.74%	2.60	2.30%	3.46	3.17%	4.75	0.00%	0.00
British Virgin Islands	2.40%	3.61	2.56%	3.84	0.04%	0.05	0.00%	0.00
Cayman Islands	2.43%	3.64	4.05%	6.07	2.14%	3.21	0.00%	0.00
Curacao	0.25%	0.37	0.27%	0.40	0.03%	0.05	0.00%	0.00
Gibraltar	0.15%	0.23	0.04%	0.06	0.02%	0.03	0.00%	0.00
Guernsey	0.08%	0.13	0.11%	0.17	0.05%	0.08	0.00%	0.00
Isle of Man	0.17%	0.26	0.15%	0.22	0.04%	0.06	0.00%	0.00
Jersey	0.28%	0.43	0.34%	0.52	0.15%	0.23	0.00%	0.00
Lebanon	0.01%	0.01	0.01%	0.02	0.03%	0.04	0.00%	0.00
Liechtenstein	0.01%	0.01	0.01%	0.02	0.00%	0.00	0.00%	0.00
Macao SAR. China	0.06%	0.09	0.05%	0.08	0.43%	0.64	0.00%	0.00
Monaco	0.01%	0.01	0.01%	0.02	0.00%	0.00	0.00%	0.00
Panama	0.16%	0.24	0.26%	0.39	0.28%	0.42	0.00%	0.00
Seychelles	0.01%	0.01	0.01%	0.01	0.00%	0.01	0.00%	0.00
Turks and Caicos Islands	0.00%	0.00	0.00%	0.00	0.00%	0.00	0.00%	0.00
Total 21 tax havens	8.36%	12.53	11.04%	16.56	6.70%	10.06	0.00%	0.00
Austria	0.73%	1.09	0.78%	1.17	0.04%	0.06	0.00%	0.00
Belgium	1.70%	2.55	1.53%	2.29	1.38%	2.06	1.96%	2.93
Cyprus	1.07%	1.60	1.29%	1.93	0.35%	0.52	0.00%	0.00
Hong Kong	3.65%	5.48	3.20%	4.80	9.09%	13.63	0.00%	0.00
Hungary	0.26%	0.40	0.20%	0.30	0.77%	1.16	0.88%	1.31
Ireland	4.68%	7.02	5.63%	8.45	4.29%	6.44	6.48%	9.72
Luxembourg	6.60%	9.90	0.47%	0.71	4.29%	6.44	1.80%	2.70
Malta	0.12%	0.19	0.20%	0.29	0.67%	1.01	0.00%	0.00
Netherlands	8.85%	13.27	2.69%	4.03	12.02%	18.03	4.04%	6.06
Singapore	1.99%	2.99	2.39%	3.59	3.25%	4.87	0.00%	0.00
Switzerland	4.09%	6.13	4.55%	6.83	4.02%	6.03	5.40%	8.09
United Kingdom	9.43%	14.15	11.33%	16.99	4.85%	7.28	7.32%	10.98
Total 6 conduit	29.86%	44.79	18.94%	28.41	36.97%	55.45	17.71%	26.57
Total 9 conduit	40.49%	60.73	31.75%	47.62	42.84%	64.25	25.03%	37.55
Total 12 conduit	43.18%	64.76	34.25%	51.38	45.02%	67.53	27.86%	41.80
Canada	2.76%	4.14	3.93%	5.90	2.29%	3.43	3.45%	5.17
China	4.06%	6.09	4.03%	6.05	8.57%	12.86	12.93%	19.40
Croatia	0.08%	0.12	0.09%	0.13	0.00%	0.00	0.00%	0.00
Czech Republic	0.38%	0.57	0.44%	0.66	0.96%	1.44	1.45%	2.17

Denmark	0.37%	0.55	0.50%	0.76	0.35%	0.53	0.53%	0.80
Estonia	0.04%	0.06	0.06%	0.08	0.09%	0.13	0.13%	0.20
Finland	0.22%	0.33	0.26%	0.39	0.27%	0.41	0.41%	0.61
France	2.48%	3.71	2.89%	4.33	1.72%	2.58	2.60%	3.90
Germany	2.92%	4.38	3.22%	4.83	2.23%	3.35	3.37%	5.05
Greece	0.07%	0.11	0.08%	0.12	0.08%	0.12	0.12%	0.17
Italy	1.42%	2.13	1.59%	2.39	0.78%	1.16	1.17%	1.75
Japan	0.84%	1.26	1.04%	1.56	1.60%	2.41	2.42%	3.63
Latvia	0.03%	0.05	0.04%	0.06	0.08%	0.11	0.12%	0.17
Poland	0.58%	0.87	0.70%	1.05	1.21%	1.81	1.82%	2.73
Portugal	0.30%	0.45	0.34%	0.51	0.32%	0.48	0.49%	0.73
Slovak Republic	0.13%	0.19	0.13%	0.19	0.29%	0.44	0.44%	0.66
Slovenia	0.04%	0.05	0.04%	0.06	0.07%	0.11	0.11%	0.16
South Africa	0.28%	0.42	0.38%	0.57	0.47%	0.70	0.71%	1.06
Spain	1.81%	2.72	2.18%	3.27	1.42%	2.12	2.14%	3.20
Sweden	0.91%	1.36	1.14%	1.71	1.38%	2.07	2.08%	3.12
United States	12.48%	18.72	16.42%	24.63	10.56%	15.85	15.94%	23.91
Total 21 other countries	32.18%	48.27	39.51%	59.27	34.73%	52.10	52.41%	78.62

Notes: Columns 1, 3, 5 and 7 present the country shares of the involvement in profit shifting based on inward FDI stocks, inward FDI stocks corrected for SPEs, FDI income and FDI income corrected for SPEs (mainly dividends). The corresponding losses (in US dollar) are presented in the even columns. These are own calculations based on, respectively, IMF/Damgaard et al. (2019) and Tørsløv et al. (2020).