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Estimating the Costs of International Corporate Tax Avoidance: The Case of the Czech Republic

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Abstract:
International corporate tax avoidance by multinational enterprises likely lowers the Czech Republic's corporate income tax revenue, but it is not clear by how much. To clarify this I first review existing estimates of the costs of international corporate tax avoidance to government revenue worldwide. I then discuss research and revenue estimates relevant for the Czech Republic and develop a few new ones, albeit only illustrative. None of the existing research focused on the Czech Republic nor the five recent international studies I examine provide reliable estimates for the Czech Republic. The extrapolations from these studies result into a range from 6 to 57 billion CZK (4-38 % of current corporate income tax revenue) with a median of 15 billion CZK (10 %) in annual corporate income tax revenue loss. This scale is comparable with the responses of 35 Czech experts with a median of 20 billion CZK (13 %). I conclude with a discussion of these rough estimates as well as questions for further research and policy recommendations.

Keywords: corporate income tax; international taxation; tax avoidance; BEPS; Czech Republic
JEL: F23; H25; H26; O19

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1 Introduction

Tax revenues underpin most government expenditures worldwide and the taxation of multinational enterprises (MNEs) plays an important role in revenue mobilization efforts, which are hampered when tax is avoided. While international corporate tax avoidance and tax havens have been affecting countries worldwide for decades, only in recent years have the associated challenges been subject to intensive scrutiny in both research and policy. For example, Crivelli et al. (2015) of the IMF estimated that thee worldwide losses of corporate tax base erosion and profit shifting (BEPS) by MNEs related to tax havens amounts to approximately 600 billion US dollars, while the Organization for Economic Cooperation and Development (OECD) (2013) responded to governments' concerns with policy recommendations to better align rights to tax with economic activity. The existing research clearly indicates that the international tax system provides MNEs with opportunities to lower their taxes, but the existing literature seems inconclusive about the scale of the government revenue implications for the countries affected.

The economics literature has got better over time at identifying MNEs' specific tax avoidance mechanisms. There are three main recognised profit shifting channels: debt shifting, location of intangible assets and intellectual property, and strategic transfer pricing. All three are motivated by the MNEs' assumed desire to lower their total tax paid by at least nominally transferring their profits and thus tax bases to jurisdictions where they pay lower taxes, i.e. with lower effective tax rates. This transfer can be implemented, for example, through often unnecessary loans at high interest rates from one MNE unit located in a low-tax jurisdiction to another profitable unit. Alternatively, intangible assets and intellectual property such as brands or research and development can be stationed artificially at an MNE's subsidiary in a tax haven, to which high service fees are then paid by other parts of the MNE. The third main channel for profit shifting is to inflate or deflate the prices of goods or services being transferred between the various foreign parts of a MNE in such a way as to minimise the tax burden faced in all the countries put together. In addition to these three main channels MNEs also engage in other international corporate tax avoidance strategies, a term I use to cover various related phenomena in addition to BEPS as defined by OECD (2013), such as tax evasion, misalignment of economic activity and profits, illicit financial flows, and trade mispricing. Whatever mechanisms MNEs employ for international corporate tax avoidance, these influence not only the tax paid by MNEs, but, naturally, also the government tax revenues in the countries concerned.

The main question I aim to address in this research is what the corporate income tax revenue loss is in the Czech Republic as a result of international corporate tax avoidance. I review estimates of the scale of international corporate tax avoidance and the corresponding tax revenue lost, so as to further an understanding of the associated revenue risks and to provide an evidence base for effective policy response. To answer this research question I combine various methodological approaches, all of which build in one way or another on existing research into the revenue impacts of international corporate tax avoidance. I now briefly introduce the four main methodological approaches, which I later discuss in detail when I apply them in section 3. First, I examine studies focused on the Czech Republic with empirical estimates of tax revenues specific to this country. Second, I look for international studies with country-level results for the Czech Republic, especially five recent influential studies. Third, I extrapolate from these international studies' estimates, especially when country-level results are not available for the Czech Republic, which is the case in most of these studies. Lastly, I carry out a survey of experts to ask them my main research question directly and thus elicit their opinion.

I focus on the Czech Republic, a medium-sized and very open central European economy, which makes an interesting case study. In addition to the existing scarce literature on the Czech Republic, I include an overview of existing worldwide evidence for two related reasons: first the lack of evidence specific to the Czech Republic, and second the recent emergence of cross-country estimates. There are not many relevant findings specific for the Czech Republic and some of the most relevant evidence for the Czech Republic comes from cross-country studies for the whole world. Furthermore, a global approach reflects the interconnectedness of today's economies and the international dimension of corporate taxation, as well as recent global policy initiatives. This global approach is further supported by data availability, especially since the best available data suitable for estimating international corporate tax avoidance for specific countries, such as the Czech Republic, often comes from international rather than national sources.

I structure the remainder of this paper as follows. In section 2, I review existing worldwide estimates of the government revenue costs of international corporate tax avoidance. In section 3 I discuss research and revenue estimates relevant for the Czech Republic and develop a few new illustrative estimates. I conclude with a discussion of future research and policy recommendations.

2 International literature review

I begin by reviewing the international literature focused on worldwide estimates of how much tax revenue governments lose due to international corporate tax avoidance. I structure the existing research into four loose and interlinked categories for better understanding, which might be labelled pioneering, trade, recent and revenue estimates.

2.1 Early research

First I discuss some of the pioneering estimates of illicit financial flows, assets held offshore and associated government tax revenue losses by, mostly, non-governmental organisations. Early research with the ambition of providing global estimates was linked with development implications of tax havens and motivated by the realisation that tax revenues currently not collected due to illicit activities might –if collected – be used to invest in social policy programmes, especially in poor countries. A number of studies emerged around the year 2000. For example, Oxfam (2000) estimated that poor countries suffered a yearly loss of around USD 50 billion due to tax havens, while Tax Justice Network (2005) estimated that around USD 11 trillion of assets is held offshore.

In addition to these early approaches discussed above, I briefly discuss some of the earlier estimates based on international trade data to approximate the scale of trade mispricing and illicit financial flows. Academic studies have used trade data, ideally at transaction level (Clausing, 2003; De Boyrie, Pak, & Zdanowicz, 2005; de Boyrie, Pak, & Zdanowicz, 2005; Pak, 2007; Zdanowicz, 2009), to broadly support the view that tax is a motivation for trade pricing decisions. More recent research using very detailed trade data has employed more reliable methodologies, but is largely limited in geographical coverage, as is the case of Vicard (2015) and Davies, Martin, Parenti, & Toubal (2015) using detailed French firm-level trade data. Overall, the earlier pioneering and trade studies succeeded in bringing international corporate tax avoidance to wider attention, but their methodologies often share drawbacks, as discussed by Fuest & Riedel (2012) or Hines (2010). Most of the methods necessarily rely on strong assumptions and many of the estimates cannot be straightforwardly interpreted as there is no counterfactual available.

2.2 Recent research

Recent estimates have arisen partly in response to the imperfections of previous studies, as well as from the increasing availability of more detailed data sets and other recent developments, especially improved estimation methodologies. I divide these more recent estimates into 'recent' and 'recent revenue' categories, beginning with those that do not provide cross-country estimates of government revenue losses. Economists often focus on estimating the sensitivity of reported income to difference in tax rates. Dharmapala (2014) reviews the literature on how the reported income changes with respect to tax rate differences across countries, represented by Hines Jr & Rice (1994), Huizinga & Laeven (2008) and Dharmapala & Riedel (2013). The consensus of the recent literature by Heckemeyer & Overesch (2013), who followed the earlier meta-analysis by Mooij & Ederveen (2008), is that there is a semi-elasticity of reported income with respect to the tax rate differential across countries of 0.8. These kind of estimates capture marginal effects (i.e. the change in reported profits associated with a small change in tax rates, holding all else constant), and therefore, as Miller (2014) sums up, are not necessarily inconsistent with evidence that large amounts of income have been shifted offshore. Neither a review by Riedel (2015) nor most other academics have developed their estimates of profit shifting into estimates of revenue impacts, but one exception to this is Clausing (2009) with her estimates for the United States.

In a related area of research, governments around the world are concerned with a tax gap as the difference between the true amount of tax legally due and what taxpayers actually pay. According to a survey by the European Commission (2016) that covers the Czech Republic, only Germany seems to carry out and publish estimates of corporate income tax gaps, namely a top-down approach by Bach (2013) and a bottom-up one by Finke (2014). While Hebous & Lipatov (2014) also use German data to confirm that firms' investment in highly corrupt countries is associated with a high probability of having affiliates in tax havens, some other research uses more global data sets to quantify the misalignment between reported profits and economic activity and thus potentially an upper limit of the corporate income tax gap (Cobham & Janský, 2015; Cobham & Loretz, 2014; Davies et al., 2015; Gumpert, Hines, & Schnitzer, 2016; MSCI, 2015; Riedel, Zinn, & Hofmann, 2015). Since the focus of this paper is the estimated impact of international corporate tax avoidance on government tax revenues, I now turn to the relevant publications that provide worldwide estimates.

2.3 Recent revenue estimates

In terms of recent corporate income tax revenue loss estimates due to international corporate tax avoidance, there are five recent studies in particular by influential international organisations that aim to estimate the scale of international corporate tax avoidance: OECD (2015b), International Monetary Fund's (IMF) Crivelli et al. (2015), United Nations Conference on Trade and Development (UNCTAD) (2015), IMF (2014), and European Parliament Research Service (EPRS) (2015). They all answer the question as to how much governments lose because of international corporate tax avoidance, although they differ in their methodology. Since these recent revenue estimates are most relevant for my research questions, I provide more details below and list these studies in an approximate order of methodological reliability.

OECD (2015b) finds that tax planning is widespread among MNEs and entails tax revenue losses. It estimates revenue losses from BEPS conservatively at USD 100-240 billion annually, or anywhere from 4-10% of global corporate income tax (CIT) revenues. In its revenue estimates, OECD (2015b) combines estimates of revenue losses due to profit shifting related to differences in tax rates across countries and differences in average effective tax rates for large affiliates of MNEs and domestic companies. Exploiting the differences in tax rates similarly to OECD (2015b), IMF's Crivelli et al. (2015) estimate losses due to profit shifting related to tax havens by looking at the counterfactual if the tax havens' tax rates were not lower than for other countries. IMF's Crivelli et al. (2015) estimate worldwide losses of BEPS related to tax havens at approximately 600 billion US dollars. Their long-run approximate estimates are $400 billion for OECD countries, 1% of their GDP, and $200 billion for developing countries, 1.3% of their GDP.

UNCTAD (2015) estimates tax revenue losses related to inward investment stocks as directly linked to offshore hubs. UNCTAD (2015) estimates that some 30 per cent of cross-border corporate investment stocks have been routed through offshore hubs before reaching their destination and the estimated revenue losses are due to a lower reported rate of return for investment from offshore hubs. Their preferred estimate of annual global revenue losses is 8% of CIT or USD 200 billion in 2012. While UNCTAD's (2015) main methodological drawbacks might be that it only estimates losses related to a direct investment relationship, the methodology used by IMF (2014) and EPRS (2015) seems even less likely to capture the true costs of international corporate tax avoidance. IMF (2014) and EPRS (2015) estimate corporate income tax revenues related to differences in countries' corporate income tax efficiency ratio (using gross and net operating surplus, respectively) relative to the average ratio in the other countries. IMF (2014) estimates it at 5% of CIT in OECD and almost 13% in non-OECD countries in 2012 and EPRS (2015) estimates it at 50-70 billion euro or 160-190 billion euro for EU-28 in 2011. This methodology's results provide a comparatively very wide scope for other interpretations than international corporate tax avoidance. In part due to the continuing methodological and data limitations, there is also continuing disagreement on whether similar estimates, well represented by the five studies, should be considered small or large. Although the authors of the five studies consider the tax losses substantial, some other researchers are not convinced that the estimated scale is relatively large (Dharmapala, 2014; Forstater, 2015; J. Hines, 2014).

3 Empirical estimates for the Czech Republic

In this section I focus on the Czech Republic and how much tax revenue it might be losing due to international corporate tax avoidance. I review relevant estimates for the Czech Republic and I discuss the possible scale of international corporate tax avoidance in the Czech Republic, focusing on corporate income tax revenue loss estimates. I consider in turn at least four different methodological approaches to these estimates, which I explain in detail along the way, from empirical evidence specific to the Czech Republic and a survey of experts' opinions to international country-level estimates from the five cross-country studies discussed above and estimates extrapolated from these for the Czech Republic.

3.1 Research on international corporate tax avoidance

I begin by briefly reviewing the existing relevant studies for the Czech Republic, although these do not provide the revenue estimates that are the focus of this paper. A couple of research papers have focused on profit shifting out of the Czech Republic and used the best available international firm-level data, Burea van Dijk's Orbis database. Janský & Kokeš (2015) provide some evidence consistent with the view that havens enable corporate tax base erosion and profit shifting from the Czech Republic. They analyse financial and ownership data from 13,603 companies operating in the Czech Republic, including multinational corporations (4124), some of which have links to so called tax havens (528). Their empirical evidence suggests that the effect of the multinational corporations' links with tax havens on the debt ratio of companies in the Czech Republic is positive, whereas the evidence on profits and taxes is not so conclusive. In similar research, Janský & Kokeš (2016) focus on a few jurisdictions with important links with the Czech Republic and suggest that profit shifts through debt financing from the Czech Republic to some European tax havens, namely Luxembourg, Switzerland and, to a lesser extent, the Netherlands, which other research has indicated to be an important tax haven (Weyzig, 2012, 2014).

Further evidence also points to the fact that some tax havens are more important for the Czech Republic than others. Bisnode (2016) regularly reports how many Czech firms have owners in their group of tax havens and the top ten jurisdictions in early 2016 were as follows: Netherlands (4160 firms had owners in the Netherlands), United States (3016), Cyprus (2107), Luxembourg (1015), Seychelles (887), British Virgin Islands (434), United Arab Emirates (300), Panama (243), Malta (236), Lichtenstein (226). Relatedly, in his unpublished dissertation thesis, Ištok (2016) explores the possibilities of setting up new onshore and offshore companies and corporate structure settings by Slovak enterprises for the purpose of tax planning and tax optimisation using both Czech and Slovak intermediators and suggests that the Netherlands, Cyprus and Malta are among the relevant jurisdictions. Furthermore, Bisnode (2015), in cooperation with the Czech Republic's Transparency International, estimates that over the past 8 years companies with beneficial owners from tax havens (defined as including the United States among other countries) won public procurement contracts amounting to 244 billion CZK (for comparison, the GDP of the Czech Republic was 4472 billion CZK in 2015), with a large share of owners from the Netherlands, Cyprus and Luxembourg. Pérez, Brada, & Drabek (2012) observe that a surprisingly large stock of Czech foreign direct investment is located in Liechtenstein and the British Virgin Islands and argue that money laundering centres account for nearly 30 % of Czech outward direct investment. Also studying the relevance of various tax havens, Janský (2016) focuses on financial secrecy rather than on profit shifting and extends the existing research on the Financial Secrecy Index by Cobham et al. (2015) to develop an indicator called the Bilateral Financial Secrecy Index. He uses it to assess which secrecy jurisdictions are important for which countries and the results specific to the Czech Republic reveal that while some of the usual global suspects identified by Cobham et al. (2015) do rank highly for the Czech Republic, Luxembourg, Austria and Jersey are ranked much higher.

3.2 Research on tax revenue estimates

Now I turn to the gist of this section: revenue estimates. As far as I am aware, there are no recent estimates specific to the Czech Republic of the scale of BEPS with regard to the size of revenue foregone that would be of comparable quality to the studies with international focus discussed above. There are likely only two studies that might be considered as such: illustrative revenue estimates by Janský & Kokeš (2016) for specific tax havens, and Burianová (2013) with a general, and not so rigorous, approach. Since their informative value and reliability is limited I discuss them here mostly for the sake of completeness.

Janský & Kokeš (2016) study firm-level data from MNEs with links to the Czech Republic and one of the three important European tax havens. Their results suggest profit shifts through debt financing from the Czech Republic to the tax havens (Luxembourg, Switzerland and, to a lesser extent, the Netherlands). They proceed to estimate the potential revenue implications, for which they apply a number of important assumptions about interest rates as well as profit shifting actually taking place for the case of the Netherlands, for which (despite the earlier results not being statistically significant) they estimate the upper bounds of the corporate tax not paid at 2.2% of the paid taxes in 2010 (or 0.5% once they exclude one large and heavily indebted company). If all companies shifted debt in this way, they estimate that revenue loss due to this kind of profit shifting would stand at CZK 2 billion (compared with the total Czech corporate tax revenue of CZK 86 billion in 2010). This estimate is dependent on many assumptions and is relevant only for one tax haven and one type of profit shifting; I therefore consider it only illustrative.

Another illustrative revenue estimate comes from Burianová (2013), who, in her student thesis, applies the methodology used by Murphy (2009) for the United Kingdom to the Czech Republic. She estimates that tax losses caused by the use of tax havens might be 11 billion CZK from high net worth individuals resident in the Czech Republic, 5 billion CZK from large Czech companies and 5.15 billion CZK as a result of illegal tax evasion by individuals. This comes to a total of 21 billion CZK of tax lost per annum due to tax haven activities by Czech subjects. From the point of view of international corporate tax avoidance the relevant part of this estimate is 5 billion CZK, from what is called large Czech companies, which is based on an extrapolation of Kar & Freitas (2012), a source that is very unreliable as evidence of international corporate tax avoidance. Due to the assumptions and methods involved, I consider this estimate to be illustrative at most.

3.3 International estimates with country-level results

Since empirical evidence specific for the Czech Republic is scarce, a good alternative is to examine the existing worldwide estimates, especially the five recent studies by international organisations reviewed above, and to look for any country-level estimates for the Czech Republic. Unfortunately, only IMF (2014) and EPRS (2015) provide country-level estimates and with a similar and not so reliable methodology, whereas neither OECD (2015b) nor IMF's Crivelli et al. (2015) nor UNCTAD (2015) provide country-level estimates; moreover their research is not trivial to replicate in order to arrive at these and, at the time of writing, there are no replications of these studies with country-level estimates. So let me look at what the two studies with published estimates for the Czech Republic say.

In terms of estimated revenue losses, IMF (2014) reports an unweighted average revenue loss across all countries in the sample of 5 percent of current CIT revenue, but almost 13 percent in the non-OECD countries. They do not include detailed country-level estimates and so the approximate relative results can be derived from country-level mean values of CIT-efficiency in their Appendix Figure 2 in IMF (2014). I derive from the graph, since no numbers for the country are presented, that the Czech Republic has one of the highest CIT-efficiencies. Since the estimated revenue impact can only be negative if the country's CIT-efficiency is lower than the weighted average, the Czech Republic is not likely to be losing any revenue according to these estimates. EPRS (2015) publishes its estimates in tables and the conclusion for the Czech Republic is similar to that of IMF (2014). At 79%, the Czech Republic has the eighth highest CIT-efficiency in the incomplete EU sample, which is higher than the unweighted average of 75%, and is, according to this methodology and results, not losing revenue due to profit shifting. Both these approaches thus flag the Czech Republic as a potential beneficiary of corporate income tax profit shifting.

These observations from IMF (2014) and EPRS (2015), together with the fact that their methodology provides a wide scope for interpretations other than international corporate tax avoidance, lowers the potential further use of these conclusions, but it does provide an opportunity to look at the question of whether the Czech Republic might actually be benefiting from profit shifting. So far I have discussed how the Czech Republic is negatively affected by international corporate tax avoidance; could it in fact be the case that the Czech Republic is itself a tax haven or otherwise benefits from international corporate tax avoidance? Some evidence suggests that the Czech Republic is potentially behaving as a tax haven, especially towards multinational corporations intending to invest. It has a relatively low nominal corporate tax rate and it has used tax incentives to attract foreign direct investment (Bellak & Leibrecht, 2009; Sedmihradsky & Klazar, 2002). If the Czech Republic was indeed in some instances a tax haven and if MNEs are shifting their profits into the country (potentially motivated either by relatively low nominal corporate tax rate or a tax holiday often associated with an FDI inflow), this should be lowering the estimates that examine the profit shifting out of the Czech Republic (Janský & Kokeš, 2015). However, evidence that the Czech Republic is not a tax haven, at least in most relevant areas, is more persuasive.

To that end, let me lay out some of the arguments against the proposition that the Czech Republic is a tax haven or, more precisely, a beneficiary of international corporate tax avoidance. First, it is usually not considered as such; this is documented by its absence on any of the 13 tax haven lists used by Janský & Prats (2015) as well as by its policy actions, such as when the Czech Republic was one of the first EU countries to endorse the intention to exchange FATCA-type information amongst themselves in addition to exchanging information with the United States. Although it has relatively low statutory corporate tax rates, its effective tax rates are relatively high (Spengel et al., 2014). There seems to be more MNE economic activity located in the Czech Republic than the MNEs report (Cobham & Janský, 2015; Cobham & Loretz, 2014). Similarly, Nerudová & Solilová (2015) simulate the impact of the Common Consolidated Corporate Tax Base's (CCCTB) introduction on the Czech Republic and show that Czech Republic could gain if the CCCTB were introduced in all EU members states (the share on the group tax base would increase by 1.22%). Firms with bearer shares, which were shown to achieve significantly higher profit margins by tens of percentage points, participate in fewer competitive public procurement contracts and result in lower savings for the public authority (Chvalkovská, Janský, & Skuhrovec, 2012), were abolished in 2014. More generally, the Czech Republic is one of the smaller contributors to global financial secrecy in Europe (Cobham et al., 2015). There are some policies that enable aggressive tax planning, but less so than in many other EU member states, and none of these are active (European Commission, 2015); for example, the Czech Republic currently has no plans to introduce a patent box regime and is thus not contributing to the EU-wide race to the bottom in this particular respect.

Overall, although the evidence is limited and a more definitive answer will be only provided by future research, the Czech Republic does not seem to be a standard tax haven, and in most respects it does not behave as one. I therefore do not consider the country-level estimates for the Czech Republic by IMF (2014) and EPRS (2015) to be relevant for the conclusions of this paper, mainly due to the methodology of these two studies, which allows for a number of other interpretations than international corporate tax avoidance. On the basis of this preliminary conclusion and to clarify the discussion, the revenue estimates for the Czech Republic considered in this paper do not take into account any potential gains from profit shifting (I do not estimate any potential gains nor do I subtract such gains from any potential losses); I focus on the potential losses only.

3.4 Extrapolations from international estimates

To return to answering my main research question, one way to work around this lack of either specific estimates for the Czech Republic or global estimates with credible results for the Czech Republic is to extrapolate from the latter. I first discuss some extrapolations by others and then present my own extrapolations based on the five major studies discussed above. Following the discussion spurred by the publication of the Panama Papers, Glopolis (2016), a Czech NGO, wanted to open a discussion about the scale for the Czech Republic. To that end it commissioned a public opinion poll on the Czechs' attitude towards taxes and tax avoidance, and the results by Median (2015) suggest that people think that firms, and especially bigger firms, avoid paying taxes more than individuals. More importantly, Glopolis (2016) uses the ratio of the GDP of the Czech Republic to the EU (1% at current prices in 2014) to extrapolate the estimates of EPRS (2015) and arrives at a range of 15-21 and 48-57 billion CZK for the Czech Republic from profit shifting and from profit shifting and other practices, respectively.

In response, the Ministry of Finance of the Czech Republic (2016) argued that the Glopolis estimates are too high and unrealistic and published its own estimates for the Czech corporate tax revenues based on the OECD (2015b) estimates, which implied 6-15 billion CZK tax loss due to BEPS. Furthermore, the Ministry of Finance of the Czech Republic (2016) added that corporate tax is only the third biggest tax by revenue and annually accounts for 120-150 billion CZK, which is less than half of the revenue generated through value added tax; the VAT gap is more than half of the corporate tax revenue. Relatedly, the Ministry of Finance of the Czech Republic (2016a) reported increased tax revenues on a scale of hundreds of millions of CZK as a result of additional measures (a part of this is arguably due to a new requirement for selected firms to report more information on transfer pricing and this might be evaluated more rigorously in the future, for example, by comparing the results with a control group of firms close to fulfilling the selection criteria for this requirement).

Below I make a number of similar extrapolations in a systematic way for all five of the international studies discussed above, which attempt to estimate annual corporate income tax revenue loss due to international corporate tax avoidance. I make the extrapolations on the basis of either a share of CIT or a share of GDP, depending on what the study presents as its main result. I present the estimates for both shares of CIT and GDP as well as in billion CZK in table 1. The estimates range from 6 to 57 billion CZK. Perhaps not surprisingly, the lower estimate of OECD (2015b) is the lowest, whereas the higher estimate of EPRS (2015) is the highest extrapolated, which overlaps with the extrapolations made by the Ministry of Finance and Glopolis, mentioned above. The range is quite wide, although only two extrapolated estimates are higher than 15 billion CZK.

Table 1. Existing international estimates extrapolated for the Czech Republic

Reference	Billion CZK	% of CIT	% of GDP	Extrapolated indicator
OECD (2015b) (lower)	6	4	0.1	CIT
OECD (2015b) (higher)	15	10	0.3	CIT
IMF's Crivelli et al. (2015)	45	30	1.0	GDP
UNCTAD (2015)	12	8	0.3	CIT
IMF (2014)	8	5	0.2	CIT
EPRS (2015) (lower)	15	10	0.3	GDP
EPRS (2015) (higher)	57	38	1.3	GDP

Source: Author on the basis of the cited literature

Notes: Extrapolations assume the corporate income tax (CIT) revenue of the Czech Republic is 150 billion CZK (this is a forward-looking estimate, since the revenue was 140 billion CZK in 2015 and has been increasing in recent years), the Gross Domestic Product (GDP) is 4472 billion CZK, and the CZK/EUR exchange rate is 27.

I consider these extrapolations only illustrative; nevertheless, in the absence of better estimates, they can be considered as one of the starting points in any related expert discussion. It should be interesting to compare these with new findings, which might come from new now non-existing estimates specific for the Czech Republic or extrapolations of new international estimates or new country-level results of international estimates for the Czech Republic, as discussed in the cases of IMF (2014) and EPRS (2015) above. It is already clear now that the estimates might crucially depend on assumptions such as whether the tax rate considered is the statutory or effective rate. The relatively low nominal corporate tax rate (19%) deems the Czech Republic estimates to be relatively low, although effective tax rate is more telling with regard to BEPS and is not as low, especially in comparison with some other countries (Spengel et al., 2014). For example, according to one source of average effective tax rates by Cobham & Janský (2015), who estimate the misalignment of economic activity using US data for US-headquartered MNEs provided by the government Bureau of Economic Analysis, the Czech Republic has an effective rate of 18 % (in comparison with a statutory rate of 19 %), whereas, for example, Luxembourg and the Netherlands have effective rates of 1 and 2 % and statutory rates of 29 and 25 %, respectively.

3.5 A survey of experts' opinions

In the absence of reliable estimates from the approaches discussed above, one alternative is to use experts' estimates from surveys of their opinions. Here I present one such estimate, based on a survey of experts (tax experts from the Czech Ministry of Finance and General Financial Directorate, academics, and private sector and other professionals interested in tax havens). More specifically, the sample consists of participants at a workshop on tax havens, organised in Prague by Lukáš Moravec of Czech University of Life Sciences Prague and by the Czech branch of the International Fiscal Association on 10 May 2016; I am thankful to the organisers for enabling me to carry out this survey. I asked the participants to fill in a simple paper questionnaire asking how much they think the Czech public finances lose annually due to BEPS. (The workshop and questionnaire were both in Czech and the question read "Kolik miliard korun ročně tratí české veřejné rozpočty kvůli BEPS?"). The questionnaire asked them to fill in anonymously which sector they were from (public, private, academia, other) and their response to the question, in billion CZK. I asked them to fill in the questionnaire twice – once before, and once after telling them the preliminary extrapolation results from the international estimates presented in table 1 above.

I received filled-in questionnaires from 35 participants (7 from the public sector, 20 from the private sector, 5 from academia, and 3 from other sectors, including one from an NGO). Both the average and standard deviation decreased between the first and second round. The number of responses does not enable me to study differences across the sectors in a rigorous way, but these do not in any case appear substantial. Due to the relatively high standard deviations and outliers, I consider a median the most suitable descriptive statistic to consider as the main estimates from this survey. As table 2 below shows, the median responses were 26 and 20 billion CZK in the first and second rounds. Let me consider the median from the second round of answers as the more conservative estimate, and that which is not out of line with the international extrapolations.

Table 2. Expert estimates of losses for the public finances of the Czech Republic due to BEPS (in billion CZK)

	Median	Mean	Standard deviation
First round of answers	26	46.6	74.2
Second round of answers	20	29.3	30.7

Source: Author on the basis of 35 filled-in questionnaires on 10 May 2016.

Note: Rounds of answers refer to answers recorded before and after presenting the respondents with an earlier version of Table 1, i.e. international estimates extrapolated for the Czech Republic.

3.6 Discussion of the various estimates

I now discuss the various tax revenue estimates for the Czech Republic introduced above. To sum them up, I begin the discussion by listing the various approaches and their estimates of annual corporate income tax revenue losses for the Czech Republic due to international corporate tax avoidance. There are some estimates specific to the Czech Republic in terms of units of billion CZK that are however of limited relevance due to the limited quality of the methodology in the case of Burianová (2013) and limited statistical significance, country coverage and types of profit shifting in the case of Janský & Kokeš (2016). Also, not very usefully, the only two cross-country studies with country-level estimates for the Czech Republic, IMF (2014) and EPRS (2015), use what appears to be the least credible methodology of the five recent international studies reviewed.

As far as I can establish, extrapolations from international studies and Czech experts' opinions in this case likely provide the most relevant, albeit still only illustrative estimates. The seven extrapolated estimates range from 6 to 57 (6, 8, 12, 15, 15, 45, 57) billion CZK, although only two extrapolated estimates are higher than 15 billion CZK and the median is 15. The median values of experts' estimates, of 20 billion CZK, is not far from these international extrapolations. Since the international estimates are often conservative or partial, as in the case of UNCTAD (2015), they might well be considered consistent with the somewhat higher expert estimates – but this comparative discussion likely puts too much confidence in both of these approaches than they deserve given their methodological drawbacks.

Overall, on the basis of the discussed research I believe that, in the face of limited evidence and data, the honest answer is that we do not know the revenue impacts for the Czech Republic, although extrapolations of international studies and experts suggest that these impacts are above zero. Furthermore, on the basis of the reviewed research I consider it highly likely that the value of annual corporate income tax revenue losses for the Czech Republic due to international corporate tax avoidance is in the order of units of billions CZK and that it is likely to be in the lower tens of billions CZK. Together with the current corporate income tax revenue of the Czech Republic of around 150 billion CZK, I consider the revenue implications highly likely to be at minimum in the region of 4-10% of corporate income tax revenue, which overlaps with the estimates made by OECD (2015b), and likely at around 10-20% of current corporate income tax revenue or more, which is substantial.

Last, but not least, let me discuss a comparison with the VAT gap, which has become a topic of public debate in the Czech Republic following arguments by the Ministry of Finance of the Czech Republic (2016). Let me begin by clarifying the magnitude of the VAT gap. The European Commission (2016) observes that the Czech Ministry of Finance internally prepares estimates of the VAT gap, which are not officially published other than as part of a related academic paper by Stavjaňová (2014). Stavjaňová (2014) uses two different, but rather rough, methods to estimate the VAT gap in 2012 at 121-127 billion CZK. Although she does not believe that the VAT gap can be completely eliminated, since it covers transactions and losses which tax administration is not able to detect, she argues that it would be a realistic target for the Czech Republic to decrease the VAT gap by 20-30 billion CZK to attain the average VAT gap in the EU. An alternative estimate by the Supreme Audit Office of the Czech Republic (2015) puts the VAT gap at 105 billion CZK in 2013, whereas another, from an EU-wide study by CASE (2015), puts it at 3375 million euros or around 91 billion CZK.

So, at first sight, the revenue loss estimates for international corporate tax avoidance for the Czech Republic seem to be smaller than the VAT gap, but the potential revenues might in reality be of comparable order of magnitude. Of course, there are a number of differences between these taxes and their related gaps. For example, international policy cooperation might be more needed in the case of international corporate tax avoidance than when trying to close the VAT gap, although EU cooperation is also needed in the latter case. Naturally, some of the VAT gap is likely to be linked with cross-border activities, whereas a share of the VAT gap will be limited to the domestic economy - unfortunately, I cannot learn from the existing estimates what these respective shares are. In contrast, likely all of the tax gap related to international corporate tax avoidance is, by definition, related to the Czech Republic's interaction with other countries and its elimination is thus at least partially, and often fully, dependent on international coordination.

4 Conclusion

In the first part of this paper I reviewed both earlier and recent worldwide estimates of the government revenue costs of international corporate tax avoidance as well as other relevant recent research findings, including five recent influential revenue estimates. Based on this, in the second part of the paper I briefly reviewed existing research results relevant for the Czech Republic and discussed relevant estimates for the Czech Republic as well as presenting a few novel ones, albeit illustrative. In spite of the growing empirical evidence estimating the worldwide costs of international corporate tax avoidance, there are no reliable estimates of the related government tax revenue costs for the Czech Republic so far. The absence of reliable evidence calls for further research that would improve the reliability of these estimates and enable a more effective policy response.

Further research should provide more detailed estimates of the scale of this behaviour for the Czech Republic and better estimates might be delivered, for example, by using the government's administrative tax return data. Future research should also explore the changing characteristics of international corporate tax avoidance and its mechanisms of variation in terms of sector of activity or location, going beyond the Czech Republic and nation states. Another area in which future research would be desirable would be to study which countries are most affected by international corporate tax avoidance and which countries, policies or perpetrators are responsible, as well as the likely wider impact on people, income inequality, governments and their policies. Some of the globally relevant research should come from extending the country-specific methodologies to worldwide data when they become available, as in the case of the implementation of country-by-country reporting.

However limited the existing evidence is, it points to the need to implement policy recommendations focused on limiting international corporate tax avoidance. Regardless of whether the revenue losses are big or small, these policy recommendations should lead to lowering them both in the Czech Republic and globally. Both Czech and global policy discussion on international corporate tax avoidance might be, albeit slowly, moving from black-and-white tax haven distinctions toward the same conditions for all economies participating in the global economy, so that no country is able to offer tax, regulatory or secrecy arbitrage. Indeed, the existing research is relatively more helpful in identifying which tax haven-like countries are relevant for the Czech Republic than estimating their revenue consequences. I have here reviewed and extended the evidence base for policy makers to assess the risk of international corporate tax avoidance and that brings me to discuss key relevant policy proposals. The four specific policy proposals aimed at reducing international corporate tax avoidance follows – they are all under discussion at the EU and other international levels, but the Czech Republic has not fully implemented them yet.

First, I stress the importance of introducing beneficial ownership information, ideally publicly, so that anybody can know the real, beneficial owner of any company. Second, I recommend the full implementation of global automatic exchange of tax information so that tax authorities are knowledgeable about their taxpayers' taxes in other countries. Third, I propose to implement public country-by-country reporting (CBCR) for MNEs so that companies have to report where they have their economic activities and where they report profits and pay taxes. The fourth proposal is the least implemented so far and addresses the flaws of the current system of international corporate taxation most substantially: the introduction of a common consolidated corporate tax base (CCCTB) in the EU or globally, a system in which each MNE would be considered a unitary business rather than a network of independent affiliates, as is the case under the current arms-length principle. The Czech Republic should work towards international policy agreements that include these policy proposals and that would thus improve the system of international corporate taxation for its own benefit, as well as that of other countries.

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