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## Tax Policy

# The Fiscal Revenue Effects of International Tax Planning

**In the course of the “Panama Papers” discussion, questions arise concerning the fiscal effects of international profit shifting and tax avoidance. A recent OECD study estimates the worldwide corporate tax losses to lie between 4 and 10 percent of the revenues. Applied to Germany, this would reflect between 3 and 7 billion Euro or maximum 1 percent of total tax revenues. However, the estimation underlies questionable assumptions and therefore severe uncertainties.**

The investigations around the so-called “Panama Papers” revealed an excessive usage of letterbox companies partly in the area of legal profit shifting, partly in the area of illegal tax evasion. While there is no doubt that institutions and governments should fight against tax evasion, profit shifting and tax avoidance are legal but often regarded as not desired (OECD, 2015).

## Quantitative approach by the OECD

An important issue in this regard is the quantitative relevance of tax planning activities for corporate tax revenues. The OECD (2015) recently published an

analysis as part of its project against Base Erosion and Profit Shifting (BEPS), which estimates the fiscal effects of international profit shifting and the exploiting of mismatches between tax systems in different countries. The authors use micro data on firms and their financial accounts and ownership structure from the database ORBIS. Using firms with at least 250 employees from 46 countries for the years 2000-2010, they end up with 1.2 million observations. Based on an econometric analysis, the OECD estimates the total fiscal effect to lie between 4 and 10 percent of global corporate tax revenues. Key for these findings are, amongst others, the followings assumptions which are highly questionable and might lead to a significant bias:

- The representativeness of the firms strongly varies between countries: While for Germany over 40 percent of the firms with more than 250 employees are included, the share for the United States only lies around 5 percent. Therefore, it is unclear if this sample represents the business of the worldwide multinational enterprises (MNE) accordingly.
- The central idea of the analysis is that companies

**Taking into account tax revenues of roughly 70 billion Euros paid by corporations in Germany (EU, 2015), the OECD range would mean corporate tax losses approximately between 3 and 7 billion Euros. Income taxes paid by non-incorporated companies are neglected due to statistical reasons.**

Applying the OECD Results to Germany		
1 Corporate and Local Business Tax Revenues in Germany	70 billion Euro	
2 Tax loss estimated by the OECD due to profit shifting (2/3) and tax exempts (1/3)	Min. 4 percent	Max. 10 percent
3 Corporate Tax Loss for Germany	2.8 billion Euro	7.0 billion Euro

Source: OECD (2015), EU (2015)



exploit the different statutory corporate tax rates between countries they operate in to reduce their overall tax liabilities. Therefore, the parameter of interest for the econometric analysis is the semi-elasticity, i.e. the response of reported profits to tax differentials in different countries. The OECD estimates the semi-elasticity to be equal to -1.6 for MNE. This means that an increase of 10 percentage points in the statutory corporate tax rate reduces the reported corporate profits by 16 percent. For example, a company located in two Countries A and B with a corporate tax rate of 30 percent in Country A and 20 percent in Country B reduces its reported profits by 16 percent in Country A due to profit shifting compared to an identical domestic company only located in Country A. As critical in this analysis can be seen that neither country-specific nor firm individual fixed-effects are included in the estimation. This might seriously bias the estimates. Heckemeyer and Overesch (2013) review the literature in a “meta-analysis” of 25 studies, which all face similar approaches for the analysis of profit shifting like the OECD. The authors conclude a semi-elasticity about 20 percent lower than estimated by the OECD.

- The OECD multiplies the estimated semi-elasticity of -1.6 with 150 percent for firms outside the sample for sensitivity reasons. This reflects a rather arbitrary approach since there is no evidence indicating a higher tax planning intensity for companies outside the sample.
- In the OECD study, basically two equations are estimated to calculate the overall corporate tax revenue loss. Firstly, the firm’s profit in its located country is regressed on the statutory corporate tax differential between the country and the average of the affiliates’ countries. Secondly, a regression model is estimated which compares the effective tax rates between similar firms in terms of size that only vary in the parameter domestic or multinational operations. The idea is that MNE can exploit mismatches between tax systems and optimize their tax liabilities. This includes, for instance, the restructuring of certain types of income to countries that have tax exempts or the usage of differences in the tax allowances for interest payments between countries. Then, the results of both equations are aggregated to a total fiscal revenue effect, which implies independence of the two

equations. Instead, it is more reasonable to think of tax planning as a simultaneous process to shift profits between affiliates and to optimize the effective tax rate through international mismatches between tax systems.

## Prediction of corporate tax losses

This wide range between 4 and 10 percent of corporate tax revenues or 100 to 240 billion US Dollars indicates that a solid guess can be hardly made. Other findings in the literature do not provide any robust results and highly differ from the OECD results. For instance, a study by the European Parliamentary Research Service (2015) estimates the total fiscal effect for every EU country using a different macro approach with national account data. The corporate tax losses for the EU are estimated to lie between 50 to 70 billion Euro, which would be a range between 17 and 24 percent of corporate tax revenue. The higher estimate refers to the period 2009 to 2013 and the lower one to the year 2013. In the study, an also frequently used tax-efficiency-approach is chosen, which calculates a potential tax revenue without profit shifting and compares it with the actually reported revenue. The EU study predicts that 30 to 35 billion Euro of the EU tax loss are accounted for by Germany on its own, which would be more than 40 percent of Germany's tax revenues paid by corporations. However, the applied approach lacks of consistency of predicted tax losses. For Germany, predictions for the profit shifting volume calculated with this method vary between 0 and 60 billion Euro depending on the considered tax year (Heckemeyer / Spengel, 2008).

The OECD prediction only holds on the global level assuming a profit share of multinationals in total profits of 59 percent and an average tax differential between affiliates of 3.6 percentage points. Therefore it is an open issue how to apply the results to country specific tax revenue effects. Due to deviating tax differentials variation is expected to be very high between countries. For the case of Germany, two effects would drive the prediction of losses of corpo-

rate tax revenue. First, the average tax differential is expected to be higher than the overall average due to the fact that Germany's statutory corporate tax rate is above average, especially compared to other European countries (OECD, 2015, p. 138). This would yield a higher fiscal effect for Germany than the global OECD estimate. An opposing effect is driven by the restrictive tax law and tax authorities which ensures Germany's tax burden and limits profit shifting and tax avoidance more effectively than many other OECD countries (Lohse / Riedel, 2013). Even by applying the upper bound of the OECD range to Germany, this corporate tax loss would be maximum 1 percent of total tax revenues, equal to approximately 7 billion Euro (table).

## Literature

European Parliamentary Research Service, 2015, Bringing transparency, coordination and convergence to corporate tax policies in the European Union: Assessment of the magnitude of aggressive corporate tax planning, European Added Value Unit, Study, Brussels

Heckemeyer, Jost H. / Spengel, Christoph, 2008, Ausmaß der Gewinnverlagerung multinationalen Unternehmen – empirische Evidenz und Implikationen für die deutsche Steuerpolitik, Perspektiven der Wirtschaftspolitik, Vol. 9, 37-61

Heckemeyer, Jost H. / Overesch, Michael, 2013, Multinationals' Profit Response to Tax Differentials: Effect Size and Shifting Channels, ZEW Discussion Paper No. 13-045

Lohse, Theresa / Riedel, Nadine, 2013, Do Transfer Pricing Laws Limit International Income Shifting? Evidence from European Multinationals, CESIFO Working Paper No. 4404

OECD, 2015, OECD/G20 Base Erosion and Profit Shifting Project – Measuring and Monitoring BEPS, Action 11: 2015 Final Report, Paris