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OF ECONOMIC STUDIES
Faculty of Social Sciences
Charles University

$$\frac{n!}{(n-1)!} p^{m-1} (1-p)^{n-m} = p \sum_{\ell=0}^{n-1} \frac{\ell+1}{n} \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell}$$
$$= p \frac{n-1}{n} \sum_{\ell=0}^{n-1} \left[\frac{\ell}{n-1} + \frac{1}{n-1} \right] \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p^2 \frac{n-1}{n} +$$

$$\frac{\ell!}{(n-1)!} p^{m-1} (1-p)^{n-m} = p \sum_{\ell=0}^{n-1} \frac{\ell+1}{n} \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p \frac{n-1}{n} \sum_{\ell=0}^{n-1} \left[\frac{\ell}{n-1} + \frac{1}{n-1} \right] \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p^2 \frac{n-1}{n} +$$

Institute of Economic Studies,
Faculty of Social Sciences,
Charles University in Prague

[UK FSV – IES]

Opletalova 26
CZ-110 00, Prague
E-mail : ies@fsv.cuni.cz
<http://ies.fsv.cuni.cz>

Institut ekonomických studií
Fakulta sociálních věd
Univerzita Karlova v Praze

Opletalova 26
110 00 Praha 1

E-mail : ies@fsv.cuni.cz
<http://ies.fsv.cuni.cz>

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The US Corporate Income Tax Reform and Its Implications for the EU

Petr Janský*

* IES, Charles University Prague,
Email: petr.jansky@fsv.cuni.cz

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Abstract:

The recent US tax reform, Tax Cuts and Jobs Act of 2017, lowered the statutory corporate income tax rates and brought other important changes for the taxation of multinational enterprises worldwide. This paper reviews these changes and discusses their effects for effective tax rates and tax revenues within the US as well as the EU. In the light of the uncertain impacts of the US reform, the EU doing nothing specific seems a reasonable response in the short term. Still, the EU should consider implementing policy proposals, which are good in themselves and regardless of the ultimate effects of the US reform. These include the Common Consolidated Corporate Tax Base and other measures focused at lowering the adverse effects of profit shifting to other countries as well as within the EU.

Keywords: policy reform, tax policy, Tax Cuts and Jobs Act of 2017, European Union, United States

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1 Introduction

The recent US tax reform, Tax Cuts and Jobs Act of 2017, represents a substantial reform in taxation of multinational enterprises (MNEs) worldwide. In this paper I focus the corporate income tax provisions, included in An overall tax reform, and I discuss their possible effects, including those on corporate income tax rates and government revenues in the EU member states. I also answer some complementary research questions such as whether the US tax reform is likely to contribute to the race to the bottom in MNEs' effective tax rates (ETRs), broadly defined here as the average rates at which MNEs are taxed on their gross incomes. I synthesise the findings of the existing empirical studies and provide policy recommendations. I thus aim to contribute in this paper to ongoing policy debates about taxes paid by multinational enterprises and about changes in the system of international corporate taxation.

The US reform is an important development for the US as well as for taxation worldwide. Although it is impossible to know what specific effects it will have over the long run, a few preliminary conclusions emerge on the basis of the discussion in this paper. The US tax reform is not revenue neutral (Joint Committee on Taxation, 2017a) and we can expect a substantial lowering of ETRs for US-based MNEs. The effect on the race to the bottom, as with other effects, is not clear and all scenarios are possible – there might be acceleration, stabilisation as well as reversal in the downward changes in both nominal and effective rates observed over the past few decades. According to the International Monetary Fund (IMF), the US corporate tax rate cut might reduce tax revenue from MNEs in other countries by, on average, 5.2% to 13.5% if other countries react in line with historical reaction functions (Chalk, Keen, & Perry, 2018)). According to Spengel et al. (2018), non-US MNEs face incentives to relocate their investments into the US from countries with higher corporate tax rates.

In the rest of the paper, I follow this structure. Section 2 discusses the US tax reform. Section 3 provides a brief overview of the expected effects of the US tax reform, focusing on its corporate tax elements. Section 4 reviews some effects that have already been observed. Section 5 discusses what the US tax reform implies for the EU. In the final section, I conclude with policy recommendations, in particular, for the EU.

2 The US corporate tax reform

The US government approved a major tax reform in late 2017, the so called Tax Cuts and Jobs Act of 2017, which has major implications for US citizens and firms as well as for the rest of the world. The tax bill is more than one thousand pages long, includes numerous changes and is very complex (Avi-Yonah et al., 2018). For individuals, the reform lowers personal income tax rates until 2025 when they are scheduled to return to the pre-2017 level. The law also increases exemptions for individual alternative minimum tax and thus lowers this form of taxation. The reform further repeals the Affordable

Care Act's individual mandate, increases the thresholds for the application of estate tax, lowers the state and local tax deductions as well as mortgage interest deduction. It makes other changes to child tax credit, medical expense deduction, standard deduction and personal exemptions. The numerous changes have major implications for individual taxes and incomes.

The US tax reform gives rise to major changes for companies, many of them with the stated motivation of stimulating increased corporate investment in the US. The US is no longer going to have one of the highest statutory rates and it introduces a partial move to territoriality as well as some measures against profit shifting. Different changes apply to different types of companies: most of the MNEs are so called C corporations and I focus on them. The reform lowers the federal corporate income tax rate from 35% to 21% (for companies with profits over \$10 million). This is one of the most important changes in the reform and is one that is closely related to the focus of this paper. Another change of particular importance to MNEs is the reform's shift from worldwide taxation (which, together with the high statutory rate, contributed to international profit shifting) towards (partial) territoriality, which is more common in developed countries and in which US MNEs are able to exempt foreign profits from taxation in the US. In addition, the new law taxes companies' accumulated foreign income (currently around \$3 trillion) either at 15% (cash) or at 8% (non-cash) upon repatriation, while previously the US taxed MNEs' global income at 35%, but they could defer taxes on foreign income until they repatriated the income to the US. One of the law's temporary provisions allows companies to fully and immediately deduct the cost of certain equipment (by contrast with the practice of depreciation, in which companies spread the recognition of their equipment costs for tax purposes over several years). While the new law repeals corporate alternative minimum tax that was aimed to prevent large-scale tax avoidance, it has introduced other similar measures.

The reform includes two new provisions against international corporate tax avoidance. One of them, base erosion anti-abuse tax (BEAT), applies to all big companies operating in the US and targets cross-border payments to foreign affiliates, such as royalties on intellectual property, as explained by The Economist (2018). Firms must now add such services back into their US corporate profits and pay a 10% tax (since 2019, 5% rate applied in 2018) on this broader base - if it exceeds the standard calculation of 21% on a narrower base. This works regardless of how much foreign tax firms paid because foreign tax credit does not apply. BEAT seems to be an extremely strong instrument since it applies regardless of the level of taxation in other countries. The other new provision focuses on companies with global intangible low-taxed income (GILTI) returns on intangible assets (e.g. patents or software) located abroad (the GILTI tax rate being 10.5% now and 13.125% from 2026 onwards). The intended targets of BEAT and GILTI might be MNEs with activities in tax havens, but only time will tell how much other companies, including those from Europe, will be affected. For example, a recent analysis has shown that some MNEs using tax havens (generating a lot of turnover from the US but reporting low profits or losses in the US) might actually benefit from the tax reform (Erman &

Bergin, 2018). BEAT and GILTI can be considered as sticks with which to defend the US tax base, but there is also another new and complex provision, a carrot.

The reform also includes one provision to attract more taxable profit into the US. Foreign derived intangible income (FDII) deduction can be used by companies to lower their US taxes. For the purposes of FDII, intangible income is defined as income in excess of 10% of a taxpayer's Qualified Business Asset Investments, which are depreciable assets used in a trade or business and do not include intangible income. Any income that qualifies under FDII is taxed at a preferential rate of 13.125%. The calculations required for FDII are complex (and it therefore remains to be seen whether it contradicts some OECD BEPS regulations), interconnected with GILTI and their effects are particularly hard to assess. The three tax provisions might turn out to narrow the tax rate choices between those framed by the rates. While I focus on the corporate income tax rates changes and their implications, I briefly discuss the overall impacts of the law below.

3 The expected impact of the reform

Learning about the reform's effects is difficult for reasons that are commonly encountered in similar situations. Isolating the effects of the US tax reform at a time when there are other concurrent changes and developments in the economy is challenging. There is no plausible comparison for the one United States and one world that we have and modelling a counter-factual is thus practically impossible. The reform includes many changes and new provisions and evaluating them and their interactions is difficult. This specific reform was prepared in haste and it takes time before all the details are translated into instructions for tax collectors and businesses and before it is clear what has been approved and what effects it might have. It also takes time for the reform to have any effect and, for example, for firms to make investment decisions and for individuals to adjust their savings behaviour. Despite these difficulties, there are a few evaluations of the US tax reform, both before and after it was passed.

Some studies aimed to estimate the reform's impact around the time of its adoption. The US government issued reports detailing the expected impacts. The Joint Committee on Taxation (2017a) estimated the budget effects for the fiscal years from 2018 until 2027. It estimated the overall net total over this period at \$-1,456 billion, i.e. contributing this amount to the government debt. Individual tax reform contributes a net total of \$-1,127 billion, business tax reform \$-654 billion and international tax reform \$324. The Joint Committee on Taxation (2017a) includes budgetary estimates for tens of individual provisions in the tax reform. For example, the Joint Committee on Taxation (2017a) estimated the budget effects of the 21% corporate income tax rate at around \$101 billion in 2018 and \$125 billion in 2019 (and a maximum of \$156 billion in 2027). The non-governmental and non-partisan Penn Wharton Budget Model (2017) estimates the overall net total loss even higher, at between \$1.9 trillion to \$2.2 trillion over the next decade (\$1.9 trillion includes changes to federal outlays and is thus consistent with the Joint Committee on Taxation, 2017a). Avi-Yonah et al. (2018) and Kamin et al. (2018) argue that the

reform allows new tax games and planning opportunities for well-advised taxpayers, which will give rise to unforeseen consequences and costs and that these may not be fully reflected in the officially estimated costs. One of the reasons that the costs of the tax reform, in terms of increased deficit, are so high is that tax expenditures have been barely cut back. As the Joint Committee on Taxation (2018) and the Committee for a Responsible Federal Budget (2018) report, tax expenditures amounted to \$1.47 trillion in 2018 and 2019, compared to \$1.49 trillion in 2016 and \$1.50 trillion in 2017 and are bound to rise in 2020 beyond their 2017 level. The government revenue impacts are clearly expected to be negative, but naturally some of the models' assumptions, including those about growth, may end up being different.

The government supporting the reform argued that the reform will accelerate economic growth. It suggested that economic growth could be higher than the standard models can capture. The Joint Committee on Taxation (2017b) estimated the macroeconomic effects of the reform, arguing that the reform will lead to growth that will have budgetary effects as well. In addition to the conventional model used by the Joint Committee on Taxation (2017a), the Joint Committee on Taxation (2017b) uses three macroeconomic simulation models to simulate the growth effects (the macroeconomic revenue feedback effects) of the reform. The Joint Committee on Taxation (2017b) estimates that the reform would increase the average level of GDP by about 0.7 percent (relative to the average level of GDP in the previous law baseline over the 10-year budget window). That increase in output would increase revenues relative to the conventional estimate of a loss of \$1,456 billion over that period by about \$451 billion. This budget effect would be partially offset by an increase in interest payments on the Federal debt of about \$66 billion over the budget period. They further expect that both an increase in GDP and resulting additional revenues would continue in the second decade after enactment, although at a lower level, as many of the provisions that are expected to increase GDP within the budget window expire before the second decade. The Joint Committee on Taxation's earlier estimates were subject to debate by economists and it likely overstates the magnitude of investment-induced higher wages (Buiter & Sibert, 2018). Estimates by the Penn Wharton Budget Model (2017) of between \$-1.9 trillion and \$-2.2 trillion are already inclusive of additional economic growth at about 0.6-1.1% GDP relative to no tax changes. Auerbach, Gale, & Krupkin (2018) argue that the current debt projections are still underestimates for a number of reasons.

Which groups of individuals bear the burden of this tax reform and which individuals benefit from it most is an important part of the reform's evaluation. According to the Center on Budget and Policy Priorities (2017) as well as other estimates and sources, as summarised by Wolf (2017) or The Economist (2018), the distributional impacts are obvious – the reform is regressive overall and individuals with particularly high incomes (e.g. those in the top 1%) seem to be doing particularly well from the reform. Auerbach, Kotlikoff, & Koehler (2018) find very modest reductions in average remaining lifetime net tax rates across all groups of the population, but the absolute average net tax

reductions that the rich are to enjoy are dramatically larger than those provided to the poor. Supporting empirical evidence is provided by Nallareddy, Rouen, & Serrato (2018), who use changes in US state corporate tax rates to find that tax cuts lead to increases in income inequality.

The reform introduces taxation of companies' accumulated foreign income and this could imply one-off increases in US government revenue. The accumulated offshore foreign income (around \$3 trillion) is going to be taxed at either 15% (cash) or 8% (non-cash) over an eight-year period until 2025 and many companies seem to be taking their time. This is somewhat similar to the not so expected effects of previous government changes to incentives for repatriations in 2004. MNEs were offered a tax holiday rate of 5.25% on any accumulated foreign profits that they brought back to the US. Most companies made use of it in 2005 and the holiday did not lead to increases in investment, number of employees or research and development (Dharmapala, Foley, & Forbes, 2011). Even when the profits arrive in the US, it is not clear that they will be used for investment – for example, as Wolf (2017) argues, the share of post-tax profits in US GDP has already nearly doubled since the early 2000s and the UK has gradually lowered its corporate tax rate from 30% to 19% since 2008, both with no identifiable benefit for investment. In related research, Brooks, Godfrey, Hillenbrand, & Money (2016) examine the link between corporation tax and financial performance and find no relationship between tax rates and stock returns for the UK. (Interestingly, they also find that firms that are reported in the newspapers in a negative way in relation to their level of corporation tax payment experience small negative stock returns.) Cnossen, Lejour, & Riet (2017) argue that the reform could lower the incentives for so called tax inversions by US MNEs, but increase treaty shopping, incentivising multinationals to redirect dividends through third-party countries with generous tax treaties. These expectations are based on macroeconomic simulations and there are now already some real economic data following the reform.

The overall US tax reform has been recently evaluated by IMF's Chalk, Keen, & Perry (2018) from the points of view of both the US itself and the rest of the world. On the one hand, they find the reform to have positive aspects such as steps to broaden the base of the personal income tax, reduce distortions to investment and financing decisions and mitigate outward profit shifting. On the other hand, they find the reform costly in terms of the expected revenue losses. They also argue that the reform leaves significant uncertainty as to how the US tax system will develop and that there is scope to more fully address distortions in business taxation. Importantly for the discussion in this paper, they find that the novel international provisions create a complex array of both positive and negative international spillovers (discussed on pages 34-40) and have the potential to significantly affect the taxes paid by MNEs in various countries and reshape the wider international tax system.

A recent paper focuses on the extent of profit shifting before and after the reform. Having observed the revenue costs of profit shifting to the US government estimated in excess of \$100 billion per year before the reform (Clausing, 2016), Clausing (2018) argues that the reform changes profit shifting incentives in a number of ways. Lowering the US corporate rate and introducing new provisions, GILTI, which

she labels as a global minimum tax and BEAT should decrease profit shifting from the US while territorial tax treatment and the removal of tax upon repatriation should raise the incentive to shift profits abroad. She estimates that, once adjustment to the legislation is complete, the reform's lower rate together with GILTI should reduce the US affiliate corporate tax base in haven countries by about 20 percent, increasing the tax base in both the US and in higher tax foreign countries. She argues that this will increase US tax revenue only modestly due to the design of the tax provisions. Specifically, the global rather than per-country nature of GILTI reduces expected additional revenues, which would be twice as large in the latter case.

Recently, two leading economists discuss the reform from a wider point of view. Their papers are a two-paper symposium on the subject in the *Journal of Economic Perspectives*. Slemrod (2018) argues that the reform is not a tax reform in the traditional sense of broadening the tax base and using the revenue so obtained to lower the rates applied to the new base. But it does contain several base-broadening features and it does cut the rate. He considers the contribution to deficits and to inequality as serious downside risks that we currently know too little about. Auerbach (2018) focuses on measuring the effects of corporate tax cuts and discusses the likely effects as well as the difficulties in evaluating the reform. He concludes that it is possible to reach some plausible conclusions about the rough magnitudes of the effects of the tax reform on US labor and capital income, but the potential for disagreement with these estimates is large. Another relevant example of recent discussion is a collection of five papers in *The Yale Law Journal* named *Reflections on the 2017 Tax Act* (*The Yale Law Journal*, 2018).

4 The developments observed following the reform

It is possible even now to observe some economic developments since the reform took effect in January 2018. While other factors than the tax reform naturally affect the economy, as discussed earlier, and it is too soon to evaluate the reform's full effects, some observations can be made. As of July 2018, there is some preliminary information about basic economic indicators. Importantly, the tax reform seems to have contributed substantially to considerable increases in government deficit. The US corporate tax revenues in the first half of 2018 decreased substantially according to the US Treasury department and came to \$321 billion in the first quarter of 2018 in comparison with \$455 billion, according to Bureau of Economic Analysis (2018). In addition, Phillips (2018) analyses how the international corporate tax system works after the US reform and what steps in terms of reforms need to be taken to improve its functioning.

Basic economic indicators for the first half of 2018 show a mixed message about the possible effects of the tax reform. For example, Smith (2018) uses a variety of data sources to observe that real average hourly compensation slightly fell in the first quarter of 2018 and real gross domestic product per capita grew only moderately (1.3% in the first quarter). More optimistically, investment, measured as private non-residential fixed investment as a share of gross domestic product, rose in the first two quarters of

2018 (but remains below a 2015 peak). Rather than increase capital expenditures substantially, many companies seem to be giving money to their shareholders. Indeed, one important consequence of the tax reform seems to be that companies use buybacks to return money to shareholders. In the first two quarters more than \$700 billion have been passed on from companies to shareholders. While other impacts are important, in the rest of the paper I focus on the corporate tax aspects of the US tax reform.

Balance of payments data reported every quarter convey information about the repatriated offshore assets and cash so far. The dividend payments from foreign affiliates of US MNEs to the US parent company used to be around \$30 billion a quarter, but in the first quarter of 2018 they came to \$305 billion, an annualised pace of over \$1.2 trillion (Setser, 2018) (for a comparison, the value of profits held abroad was around \$3 trillion in 2017). How much of these profits will be eventually repatriated remains unknown. For example, there has been an increase in dividends directly linked with the tax reform (Kochkodin, 2018) and share buybacks set new records in the first and second (\$437 billion and \$242 billion, respectively) quarters of 2018 (Edgecliffe-Johnson, 2018). The repatriated profits can be paid out in dividends, spent on share buybacks, real investment or employee compensation.

Earnings reports of US MNEs for the first and second quarters of 2018 provide some hints about the likely scale of the reform's effects. We can expect that the cut in the rate by 16 percentage points together with other changes should be visible in the effective rates. There is some anecdotal evidence from the earnings' reports and other information sources. For example, the Institute on Taxation and Economic Policy's Gardner (2018) reports that 15 big US companies report tax savings of \$6.2 billion in the first quarter of 2018. The 15 companies reported between 4% and 42% cuts in the ETRs, with the median at 9%, compared to the rates that they faced in the first quarter of 2017. As of July 2018, there are now already some earnings' reports for the second quarter and a glimpse at one example might provide a cautionary tale. While Alphabet (Google) reported a decrease in ETR from 20% in the first quarter of 2017 to 11% in the first quarter of 2018, it reported an increase from 19% in the second quarter of 2017 to 24% in the second quarter of 2018. One explanation is that the decrease in the first quarter is partly due to an accounting change (maybe around five percentage points). More systematic evidence is going to be available only in the future when more data is available on the taxes paid.

5 The US tax reform and the EU

In this section I discuss the possible impacts of the US tax reform on the EU, including challenges coming from the US tax reform. As with the other effects of the reform, the effects on the EU and effective tax rates are yet to be known and so far any analysis of them is more theory- than data-based and, for example, a recent paper by Dharmapala (2018) discusses the reform's potential effects on the basis of the existing literature. The lower statutory rate and (expected) lower ETRs in the US is bound to affect the EU. One way to conceptualise these effects is to use fiscal externalities or spillovers in international corporate taxation, the effects of one country's rules and practices on others (which also

occur among the EU countries themselves, Cnossen, 2018). One classification distinguishes between three spillovers (Chalk, Keen, & Perry, 2018): real investment (reduction in tax rates in the US should lead to increases in investment there at the cost of investment elsewhere), profit shifting (reduction in US rates should reduce profit shifting out of the US and both GILTI and BEAT are likely to exacerbate this effect), policy reaction (the US no longer has one of the highest statutory rates and therefore does not serve as an anchor for other countries, but the policy outcomes will depend on the nature of interactions between the US and other countries). Furthermore, the IMF (2014) distinguishes between base spillovers, by which one country's actions directly affect others' corporate income tax bases; and strategic spillovers, by which they induce changes in other countries' tax policies. I believe that the US tax reform is relevant for the EU in terms of both of these spillover types. The logic of both of these spillovers points to lower taxation and lower tax rates in the EU because of the US tax reform.

First, the US's lower taxation of companies is likely to affect the EU's corporate income tax bases. Companies might react to the lower taxation by shifting their economic activities to the US or by shifting only their profits there. Locational decisions by MNEs seem to be largely driven by other factors than corporate income taxation. Empirical evidence suggests that economic activity is not shifted much in response to corporate income tax rate cuts. Overall, profit shifting seems to be more sensitive to tax rates than the economic activities of MNEs and countries thus lower their rates to attract profit shifting rather than economic activity.

Second, the US cut in the corporate income tax rate likely contributes to a lowering of the EU's corporate income tax rates and other changes in tax policies. Once such an economically important country as the US lowers its rate, other countries might feel that they need to keep up with the race to the bottom regardless of whether it makes sense economically. That this behaviour seems likely is confirmed by Altshuler & Goodspeed (2015), who use data from 1968 to 2008 to find support for the thesis that the US is the leader and European countries are followers in corporate income tax competition. In addition, the current pressure to lower tax rates can be documented and is visible in that statutory tax rates are being reduced (discussed in the section below). An October 2018 newspaper article discusses how the US reform spurs other countries to action (Feroz, 2018), in particular using the example of the United Kingdom. Italy reduced its headline corporate tax rate from 31.4% to 24% in 2017 and Belgium reduced its corporate tax rate (for large companies from 33.99% to 29.58% in 2019 and to 25% in 2021 and to even lower levels for small and medium enterprises). Also, France has plans to reduce its headline corporate tax rate from the current 33% to 28% in 2019 and gradually to 25% in 2022. This pressure on lower tax rates can lead to a race to the bottom in statutory and effective rates.

The corporate income taxes paid by MNEs in Europe and the US can be compared in aggregate. Avi-Yonah & Lahav (2011) use Standard & Poor's Compustat database, an alternative to Orbis, to estimate and compare the ETRs of the largest 100 US-based and EU-based MNEs. They prefer aggregate measures of ETRs because of a bias that can occur when using some kind of average of ETRs of

individual companies (either unweighted average or weighted by revenue or other variable than profit). Specifically, they divide the sum of all current income taxes by the sum of all pre-tax income in order to estimate aggregate effective tax rates for each of the two regions. Interestingly, they accessed data directly (that is, both pre-tax income and current income tax are available) or indirectly (that is, either pre-tax income or current income tax can be found by adding current and deferred income tax to net income or subtracting deferred income tax and net income from pre-tax income respectively). Their results for 2001-2010 reveal that the aggregate ETR is 35% in Europe and 31% in the US, which is the case despite the generally lower statutory tax rates in the EU and is likely to be partly due to the larger tax base in the EU. They conclude that the US could in fact reduce its corporate tax rate to the EU average in a revenue neutral fashion that would result in a tax regime that is more similar to that faced by EU companies. As I note above, however, the US tax reform is not revenue neutral and I expect a substantial lowering of ETRs for US-based MNEs.

There are studies that looked specifically at the implications of the US reform for the EU. One such study investigates the US tax reform's effects on corporate income tax rates and revenues in the EU. Spengel et al. (2018) analysed the US corporate tax reform proposals and their effects on Europe, Germany in particular. They use what they call effective average tax rates (EATRs, or forward-looking effective rates or law-based ETRs). They estimate that the US tax reform reduces the EATR on domestic US corporate investment from 36.5% to 23.3% (in the State of California) and US investments would thus face a lower EATR compared to Germany (28.2%) and would be closer to the EU average (20.9%). Spengel et al. (2018) also study cross-border investments. They find that, after the US reform, the EATR on US outbound investments into the EU decreases from 27.1% to 21.6% and the EATR on US inbound investments from the EU decreases from 36% to 23.8%. According to their results, non-US MNEs face incentives to relocate their investments into the US and thus pay lower US taxes. With regard to US investments into and from low-tax jurisdictions such as Ireland, however, they find a clear opposite tax incentive to avoid paying higher US taxes after the reform by shifting profits outside the US via debt financing of US inbound investments and equity financing of US outbound investments.

Other studies looked at the implications of the US reform for other countries, including the EU. One such study investigates the tax spillovers from the US tax reform (Beer, Klemm, & Matheson (2018)). Authors calculate law-based ETRs under various assumptions, showing how the interest limitation and the Foreign Derived Intangible Income provision can raise or reduce rates. They tentatively estimate that, under constant policies elsewhere, the rate cut will reduce tax revenue from multinationals in other countries by, on average, 1.6% to 4.5%. If other countries react in line with historical reaction functions, the revenue loss from MNEs rises to an average of 5.2% to 13.5%. In a recent survey by the ifo Institute (2018), 913 economists across 120 countries were divided over the impact of US corporate tax cuts: 49% expects them to negatively impact their own country, but a majority of 65% expects the tax cuts to positively affect the US. Experts from the EU15 member states, in other developed economies and in

emerging Asian economies most frequently fear losses from the US tax reform. While 54% of experts expect global tax competition to increase in the years ahead, 25% expect no change in tax competition and 10% even expect it to weaken. In a Latin America and Asia survey, participants see the USA as the main driver behind tax competition in their own country. Western EU member states, by contrast, are considered the main drivers of competition in the EU and other industrialised countries. In response to the US tax reform, only 35% of EU15 and 10% of newer EU members favour decreasing rates and this support is smaller in high tax rate countries, while 34% of all experts prefer to take no action.

6 Conclusions

The 2017 US reform is an important development for the US as well as for taxation worldwide. Only partial effects are observable or expected with some certainty so far. For example, the US seems to be deriving surprisingly low corporate income tax revenues from its reform so far and this might turn out to be a sign of the difficulty of acting as a tax haven while being a big economy, where the real economy is likely to always outweigh any profits shifted there. More generally, some effects are likely to be positive for the US if not for the world, such as steps to broaden the tax base. Some effects might be negative - if not for the US, then for the world - such as a possible acceleration in the race to the bottom in the taxes that MNEs pay worldwide. The effect on the race to the bottom, as with other effects, is not clear and all scenarios are possible – there might be acceleration, stabilisation as well as reversal in the downward changes in both nominal and effective rates observed over the past few decades.

Only time will tell what implications the US reform will have for the EU, but, based on the simulation studies currently available, some challenges are already visible on the horizon. The US corporate tax rate cut will reduce tax revenue from MNEs in other countries by, on average, 5.2% to 13.5%, if other countries react in line with historical reaction functions, according to the cited IMF research. This range is of average estimates and there is bound to be a lot of heterogeneity in the impacts according to country's rates and other provisions. According to another cited study by academic researchers, non-US MNEs face incentives to relocate their investments into the US with the lower taxes, but for low-tax jurisdictions such as Ireland they find a clear opposite tax incentive to avoid paying higher US taxes by shifting profits outside the US. What the ultimate effects are in reality is hard to judge, also given the complexities of the reform (including its new provisions BEAT, GILTI, FDII) and the interaction with other countries' regulations.

The EU countries and the EU as a whole are considering their options in terms of how to respond to the US tax reform. In the light of the uncertain impacts of the US reform, doing nothing specific seems a reasonable response in the short term. Countries could respond by lowering the rates as the US did and, although this is not recommended, it is likely (and the simulations discussed above suggest so) that some EU countries will be tempted to do so, at least partly due to the US reform (indeed, mimicking the US actions has happened in the past with the related area of tax transparency - US FATCA was followed by

the EU's and other countries' system of automatic exchange of information, as analysed recently by Knobel, 2018). However, the ETRs presented here for some of the EU countries are already very small and lowering rates might thus not even be a viable option for all EU countries. What might be more relevant in terms of following the US, and only time will tell how much, is the introduction of a new tax provision similar to the BEAT and GILTI in the US.

The EU should be improving its corporate taxation regardless of the US tax reform. Improving the corporate income tax system can have benefits for all the various actors within the EU, from citizens and governments to domestic firms and MNEs. These actions should also make the EU ready when it decides to react to the US reform later. The EU should explore the policy options by assessing the effects of the Anti Tax Avoidance Directive, critically evaluating the usefulness of the OECD's base erosion and profit shifting (BEPS) process, re-considering the introduction of the Common Consolidated Corporate Tax Base (CCCTB), or taking steps to lower the so called tax competition within the EU. Indeed, the fact that US has made considerable changes might increase chances of a more fundamental international corporate tax reform, such as CCCTB, going beyond the borders of the EU.

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