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Taxing the Residual Profit of Multinational Enterprises: A Critique of Formulaic Apportionment and a Proposal

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Key Messages

- The OECD/G20 Inclusive Framework on BEPS proposes a share of the residual profit earned by large multinational enterprises to be taxed in market jurisdictions using a revenue-based formula ('formulaic apportionment').
- Formulaic apportionment of residual profit is hardly practicable as it requires a.) an international agreement on rules of financial accounting and b.) generates undesirable incentives for the setting of tax rates in market jurisdictions.
- These drawbacks can be overcome by granting market jurisdictions the right to impose a withholding tax on qualified outbound payments, such as payments for digital services.
- Allocable costs should be tax-deductible on the condition that the jurisdiction receiving payments adopt the new tax regime.
- This simpler method of expanding taxing rights should facilitate international agreement on new tax rules in a digital economy.

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by

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Abstract:

According to plans put forward by the OECD/G20 Inclusive Framework on BEPS, a share of residual profit earned by eligible MNEs is to be taxed by market jurisdictions. For this purpose, revenue-based formulaic apportionment of residual profit is proposed. This note argues against the use of a rule requiring the multilateral assessment of MNEs' worldwide profit and recommends an alternative method of sharing taxing rights with market jurisdictions. The proposed method relies on unilateral profit splitting and is suggested by the application of Shapley value theory to the fair and equitable division of taxing rights between cooperating jurisdictions.

JEL Classification: H25, M48, F23

Keywords: BEPS Project, Pillar One, formulaic apportionment, profit splitting, cooperative game theory

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Introduction

In October 2020, the OECD/G20 Inclusive Framework on BEPS released two Blueprints (Pillars One and Two) written with the intention of developing a consensus solution to the tax challenges posed by the digitalization of the economy. This note focusses on Pillar One, which seeks to expand the taxing rights of market jurisdictions "where there is an active and sustained participation of a business in the economy of that jurisdiction through activities in, or remotely directed at, that jurisdiction"(OECD, 2020b, p. 12). The proposal developed in the Pillar One Blueprint (OECD, 2020a) provides that a portion of an eligible MNE's residual profit ("Amount A") is first determined and then apportioned to eligible market jurisdictions for the purpose of taxation. The apportionment is (i) formulaic and (ii) revenue-based, meaning that the Blueprint allocation rule for residual profit can aptly be described as *revenue-based formulaic apportionment*.

In this note, I argue against the use of a rule that requires the assessment of MNEs' (worldwide consolidated) residual profit. The only rules which could serve as a model for this have been implemented domestically in countries where uniform accounting rules are well established and applied nationwide. The literature constantly refers to the USA, but also to Canada and Germany. By contrast, there is no relevant example of profit allocation between independent countries. The reasons are obvious. The assessment of an MNE's consolidated profit requires international agreement on rules of financial accounting.[1] Not only is this politically difficult to achieve; the formulaic apportionment (FA) of an MNE's profit also generates normatively debatable results and undesirable incentives for the setting of tax rates in market jurisdictions. I therefore argue in favor of an alternative method of sharing taxing rights with foreign market jurisdictions. The proposed method relies on profit splitting and is suggested by the application of Shapley value theory to the fair and equitable division of taxing rights between cooperating jurisdictions (Richter, 2021). In what follows, it is referred to as *Shapley-based profit splitting*. The distinctive feature of this method is that splitting is not applied to worldwide profit but only to the profit contributed by an eligible market jurisdiction. The difference to revenue-based FA is greater than might be supposed. The advantage of the method is that all the points of criticism

[1] The Pillar One Blueprint proposes reliance on consolidated financial accounts prepared under US-GAAP or IFRS.

levelled at FA and listed above either do not apply or do so to a lesser degree. In particular, the method does not require the assessment of an eligible MNE's worldwide profit and *a fortiori* an international agreement on universally applicable rules of accounting. It also provides normatively more convincing results and less debatable incentives for the setting of tax rates in market jurisdictions.

A model-based critique of formulaic apportionment

I focus my arguments on the example of an MNE with business activity in two countries which are, for the sake of brevity, referred to as "Home" and "Abroad". Research and development as well as production are located in Home. Abroad is a market country which is served exclusively from Home. Variables referring to Home are written with uppercase letters and those referring to Abroad with lowercase. More specifically, I denote by X, x the quantities sold in Home and Abroad, respectively. P, p are the prices obtained in Home and Abroad. Costs are determined in line with the arm's length principle and assumed to cover an agreed fixed return for defined baseline marketing and distribution activities (Amount B). Hence, residual profit can be written as

$$\Pi \equiv (P - C)X + (p - C)x - F. \qquad (1)$$

with F denoting fixed costs and C denoting the allocable (variable per unit) cost of quantity. The question to be answered is: what share of Π is to be taxed in Abroad?

In the Blueprint, profit allocation requires that an internationally agreed share σ of Π be allocated to market jurisdictions in accordance with their relative shares of total revenue. Taken literally, this means that Abroad would obtain the right to tax the base

$$b_{sFA} \equiv \frac{px}{PX+px}\sigma\Pi \qquad \textit{sales-based FA.} \qquad (2)$$

Less literally, but more convincingly, one might consider apportioning residual profit according to the relative shares of total net revenues. Net revenues are those obtained after subtracting allocable costs:

$$b_{nrFA} \equiv \frac{(p-C)x}{(P-C)X+(p-C)x}\sigma\Pi \qquad \textit{net revenue-based FA.} \qquad (3)$$

My criticism of FA is three-fold. The first point relates to information. Specifications (2) and (3) both require the determination of Π. In a world with jurisdiction-specific accounting rules this is an ambitious undertaking. My second point is that the implied apportionment of taxable profit arguably conflicts with the OECD's objective of aligning profit taxation with value creation. To see this clearly, we best focus on $C = 0$ so that there is no difference between the specifications (2) and (3). Hence, allocable costs are assumed to vanish as is a characteristic of automated digital services (ADS). Further, we assume that the MNE is able to increase revenues in Home, PX, without increasing fixed costs and revenues in Abroad, thus raising the profit-to-sales ratio, $\rho \equiv \Pi/(PX + px)$. This increase benefits not only Home but also Abroad, since the tax base associated with FA can be written as the product of ρ and σpx:

$$b_{FA} = \rho\sigma px\,. \tag{4}$$

Any increase in b_{FA} which is caused by an increase of ρ and not of px or $(p - C)x$ can be criticized for conflicting with the OECD's objective of aligning profit taxation with value creation. By assumption, the marginal value is created in Home and not in Abroad and yet the tax base in Abroad rises.

My third and final point of criticism refers to the political trade-off Abroad faces when taxing corporate income. The problem here is that the incentive would be strong for Abroad to resort to a beggar-your-neighbor policy and impose a higher tax rate than it would do if it only taxed the profit of resident firms. After all, the MNE to be taxed is foreign-owned and by assumption not domiciled in Abroad. If the MNE responded to higher taxation by raising the local price, p, Abroad would benefit even more as a result of its increased share of worldwide revenues. As before, this point is only detailed for the special case of $C = 0$. If we assume that px increases in response to taxation in Abroad while PX remains constant, the ratio PX/px then decreases while $px/(PX + px) = 1/(PX/px + 1)$ increases. As a result, the share of worldwide profit Π allocated to Abroad rises.

None of these criticisms apply to the Shapley-based rule of residual profit allocation or at least not to the same extent. In its strict form, the Shapley-based method sets

$$b_{ShPS} \equiv \sigma(p - C)x \qquad \textit{Shapley-based profit splitting.} \tag{5}$$

The parameter σ, whose value is not necessarily equal to the one used for FA, requires international agreement. It is important to note that the Shapley approach requires payments made between affiliated companies for the use of intangible property such as royalties to be considered as non-eligible costs. This is because the approach interprets residual profit as the return on patentable knowhow which is to be fairly apportioned between home and market countries. Net revenue, $(p - C)x$, represents the profit the MNE earns by extending business activity to Abroad. According to eq. (5) Abroad is assigned a share σ of the contributed profit because it provides the market potential. Home and Abroad are both needed for creating transboundary value and thus the profit earned in Abroad is to be fairly apportioned for the purpose of taxation. Payments between affiliated companies for the use of intellectual property are rightly considered non-eligible costs because they cannot be separated from profit distributions on economic grounds. The separation in current tax law is based on the legal fiction that affiliated and non-affiliated firms can be treated equally. This fiction is a major reason why the attempt to price the return on intellectual property at arm's length is so problematic.

The merits of Shapley-based profit splitting

The advantage of Shapley-based profit splitting is three-fold. First of all, it raises fewer information-related problems, as apportionment is independent of Π. The implementation of eq. (5) only requires an assessment of sales and allocable costs. Secondly, eq. (5) offers less scope for tax export, as the tax base only increases if the profit contributed by Abroad increases. Thirdly, the structure of eq. (5) is not derived from ad-hoc arguments but by axiomatic reasoning. As shown by Richter (2021), Shapley-based profit splitting is closely linked to the OECD's axiomatic objective of aligning profit taxation with value creation.

One might argue that the assessment of the allocable cost per unit, C, would have to be based on information which is not obtainable on a case-by-case basis. In this case, an alternative option would be to agree on allocable cost ratios, $c \equiv C/p$, which could be product- or industry-specific. Then one would set

$$b_{ShPS} \equiv \sigma(1 - c)px. \tag{6}$$

Shapley-based profit splitting is closely related to a withholding tax which has been proposed by Báez et al. (2020) and adopted by Articles 12A,B of the UN Model Tax Convention, and which would amount to setting

$$b_{WhT} \equiv \sigma px \qquad \textit{withholding tax.} \qquad (7)$$

The clear advantage of a withholding tax (combined with a rule avoiding double taxation by Home) relates to information. Levying such a tax obviously amounts to Shapley-based profit splitting whenever allocable costs, C, are negligible. The normative justification is therefore constrained to this special case. While allocable costs may be vanishing for the supply of digital services, this will apply less to other relevant supplies such as pharmaceuticals, vaccines, and technical services meant in the sense of Article 12A, UN MTC.[2]

Ensuring the stability of the tax cartel

The reform of international corporate income taxation initiated by the Inclusive Framework will only succeed if all the components of the new regime are adopted worldwide and do not later provide incentives for individual jurisdictions to opt out. The first condition, universal adoption, is likely to be met since, according to OECD (2020b) calculations, global tax revenues are expected to grow to such an extent that it should be possible to guarantee an increase in tax revenues for the participating jurisdictions. However, the second condition, ensuring that individual jurisdictions do not gain an advantage by subsequently going their own way, may be more difficult to fulfill. In theoretical terms, then, the new regime must establish a Nash equilibrium, ensuring that the optimal strategy of individual jurisdictions is to stick to compliant behavior and that defecting strategies do not pay off. In other words, the tax cartel must be stable.

The Nash equilibrium would be violated if individual jurisdictions were able to attract MNEs with the prospect of escaping the new regime and paying less tax. For this reason, the taxation of an MNE's worldwide activities should not appreciably depend on the location of

[2] The difference justifies the case distinction in Articles 12A and 12B of the UN Model Tax Convention. Schreiber et al. (2020) essentially find that the Pillar One Blueprint points in the wrong direction. At best, they would approve if market jurisdictions were given the opportunity to negotiate with home jurisdictions a certain taxable margin to be applied to local sales. This is structurally equivalent to a withholding tax with an agreed rate of σ.

the ultimate parent jurisdiction. The need to satisfy this condition is a further argument against FA (and in favor of Shapley) since assessing an MNE's residual profit, Π, is likely to prove an insoluble task if its headquarters is located in a jurisdiction that is not party to FA. By contrast, the Shapley profit allocation can be more easily implemented without regime-compliant behavior on the part of the MNE's ultimate parent jurisdiction. To understand this, it is necessary to distinguish market jurisdictions from the other jurisdictions in which the MNE maintains a permanent establishment (PE) in the traditional sense. Under the new regime, market jurisdictions could be granted the right to impose a withholding tax on eligible outbound payments. To the extent that there are allocable costs, their deduction in line with eq. (5) could be made conditional on the jurisdiction that receives the payments participating in the new regime. This would substantially dampen the incentive to leave the tax cartel. The other case, where a PE is located in a jurisdiction that has opted in to the new regime but the ultimate parent jurisdiction has not, is explicitly addressed by the GloBE rules of Pillar Two. There is no need here for additional considerations.[3]

The Pillar One Blueprint sees the need to agree on rules which allow for the minimizing of compliance costs and proposes a revenue threshold for this purpose. An MNE is to be eligible for revenue-based FA only if its annual consolidated group revenue (coupled with a *de minimis* foreign in-scope revenue carve-out) exceeds a certain threshold (OECD, 2020a). However, the reference to revenues is debatable whenever eligibility is to be extended to MNEs and industries for which allocable costs are not vanishing. In this case, a more convincing reference would be to the MNE's market value.

As this note has shown, there are thus alternatives to FA which are informationally less demanding and economically more convincing. These deserve to be considered "without prejudice" when addressing the tax challenges arising from digitalization (OECD, 2019, p. 6).

[3] Pillar Two aims to enforce minimum taxation worldwide for companies operating on a global scale. The Undertaxed Payments rule (UTPR) is part of the GloBE rules and serves to fight the incentives of MNEs for tax driven inversions.

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