DO TAX EXPERTS AND NON-EXPERTS DIFFER IN THEIR SENSE OF FAIRNESS ABOUT A MORE EVEN DISTRIBUTION OF "DIGITAL" PROFITS ACROSS COUNTRIES? - EVIDENCE FROM A SURVEY IN GERMANY

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Abstract

The taxation of multinational enterprises (MNEs) is challenging. The profits of an MNE should be aligned with value creation and taxed accordingly using the arm's length principle (ALP) to achieve a proper distribution of taxing rights. However, those who are not tax experts, such as tax politicians, often raise concerns that, in a digital economy, arm's length profits lead to a tax base allocation based on value creation. Therefore, they advocate fair taxation but, on the contrary, don't describe or explain what can be understood as fair. In this paper, we use a survey to shed light on questions about whether tax experts, such as tax advisors and auditors, and non-experts differ in their senses of fairness with regard to a more even distribution of profits across countries. Our findings indicate that tax experts' senses of fairness differ from non-experts' senses of fairness about a more even distribution of profits across countries. Tax experts – to a certain extent – consider the ALP and value contributions, while non-experts do not. As the ALP allocates a vital role to inter-nation equity, it is essential that there is no perceived unfairness in this regard, or the current regime of international taxation is called into question.

INTRODUCTION

Almost all articles, press releases, and political statements dealing with the taxation of digital business models in principle and the international allocation of taxing rights across jurisdictions postulate that the digital economy must be taxed fairly. For example, one will find the word "fair" eighteen times within the European Commission (EC) communication *A Fair and Efficient Tax System in the European Union for the Digital Single Market* (EC, 2017), but what can be understood as "fair" is not described or explained.[4]

On the one hand, one could assume that fairness relates to the fact that multinational enterprises (MNEs) should be taxed at a certain level (effective minimum taxation), as the low effective tax rates applicable to digitalized MNEs are emphasized again and again in political discussions. For example, the European Union (EU) estimates that companies with digital business models pay, on average, half of the effective tax rate applied to companies with traditional business models.[5] Global action seems to be needed to stop an unfair and harmful race to the bottom of the tax rates. Incentives to shift profits could be significantly limited through the development and consistent implementation of rules that would safeguard the

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[4] The EC published two proposals: *Proposal for a council directive laying down rules relating to the corporate taxation of a significant digital presence* (2018a) and *Proposal for a council directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services* (2018b).
[5] C.f. EU (2014).

imposition of a minimum level of tax on profits. Against this background, Germany and France have also launched international initiatives for effective minimum taxation (Global Anti-Base Erosion) to meet the challenges of the digital economy and ensure that a level playing field exists.

On the other hand, one could assume that fairness relates to the principle that an MNE's business profits should be taxed in the countries where their business activities take place and value is created, regardless of the MNE's effective tax rate. The achievement of this objective should be ensured by employing the arm's length principle (ALP) as the main principle for allocating business profits between the enterprises that form an MNE and different countries.[6] The ALP is legally codified in German national tax law and in all German double tax treaties, and is also found in many national tax laws and double tax treaties worldwide (Article 9, OECD-Model Tax Convention; see Langbein & Fuss, 2018, for the history of the ALP). The purpose of the ALP is to allocate taxable profits to different enterprises of an MNE in accordance with the outcomes of market transactions between independent third parties and, therefore, to ensure that profits are taxed where the business activity (i.e., the functions performed, risks borne, and assets employed) takes place, that is, where its resources are located and directed (e.g., Langbein & Fuss, 2018; Vann, 2010).

The public in general and tax politicians in particular often raise concerns that, in a digital economy, arm's length profits lead to a tax base allocation based on value creation. This relates to the empirical evidence showing that digital business models, in particular, were quite successful in avoiding taxation.[7] In traditional business models, the taxation rights of a jurisdiction correspond with the scope and extent of the MNE's business activities in that country. However, in digital business models, digital goods and services can be provided without the company having a physical presence in a specific country. As a result, it is not essential to have a physical presence in a certain country and, therefore, value creation is more difficult to evaluate, since the use of typical heuristics, such as employees or tangible assets, as reference points is not possible or reasonable.[8]

The main concern of the debate is that "user" value creation due to data gathering is located in a tax jurisdiction where the company carrying out a digital activity is not physically established and, therefore, where its "activities" cannot be taxed.

In practice, the current transfer pricing guidelines and rules seem to ignore this issue of "user value creation" (for a comprehensive analysis, see Greil, 2019) and may not provide a satisfactory solution by which to allocate profits aligning with the business activity (see Devereux & Vella, 2017). Additionally, Greil, Müller and Olbert (2019) indicate that existing transfer pricing rules approximate economic activity to a greater extent than the formulary apportionment of corporate profits would, despite the conceptual shortcomings of the ALP. However, the increased automation of business activities makes it harder to justify the allocation of profits based on physical allocation factors.

[6] The ALP is – at least, for OECD countries – also the cornerstone of the attribution of profits to the permanent establishment (PE) and the enterprise.

[7] Typical channels include transfer pricing (Davies, Martin, Parenti, & Toubal, 2018), debt shifting (Egger, Keuschnigg, Merlo, & Wamser, 2014), royalties (Dischinger & Riedel, 2011; Griffith, Miller, & O' Connell, 2014; Karkinsky & Riedel, 2012), and shifting of functions (Mutti & Grubert, 2004; Ruf & Weichenrieder, 2012; Voget, 2011).

[8] See also BEPS Action 1 (OECD, 2015), where is argued that digitalization facilitates the internationalization of all aspects of a company's business, as it is not necessary to create a physical local.

The current transfer pricing system, which focuses on value creation and business activities, can also be used to structure the tax burden of an MNE group, as the transfer pricing system is linked to mobile factors. MNEs are thus able to allocate these factors in a tax-efficient way (the relocation of real economic activities; investment shifting). It even provides the incentive to structure the tax burden and can also have negative welfare effects (Aliber, 1993; Avi-Yonah, Clausing, & Durst, 2009; Devereux & Keuschnigg, 2008; Durst, 2012; Luckhaupt, Overesch, & Schreiber, 2012; Morse, 2013; Rectenwald, 2012; Vann, 2010).

In the public and among tax authorities there currently exists, therefore, a strong feeling that there could be a mismatch between where taxation of the profit takes place and where value is created, especially for digital activities. Therefore, some countries are unsatisfied with the ALP and implement special levies; for example, India introduced an equalization levy, the UK and Australia introduced diverted profits taxes, and the US introduced the base erosion and anti-abuse tax (BEAT). Against this background, both the Organisation for Economic Cooperation and Development (OECD, 2019) and the EU (EC, 2018, 148 final; EC, 2018, 147 final) are elaborating possible solutions by which to address the fragmentation of the international tax system, restore this system, and achieve a fairer tax system.

In this paper, we use a survey conducted with tax experts and non-experts to shed light on questions about whether they differ in their sense of fairness about a more even distribution of profits across countries. The aim of our survey is neither to estimate arm's length profit allocations nor to attempt to obtain a definition of fairness. Participants – tax auditors and tax advisors as tax experts, and business students as non-experts – were presented with a stylized description of a digital business model in a two-country context. In principle, participants had to assess, as a neutral third party, whether a presented arm's length allocation of profits between the two countries could be considered to be a fair allocation and what the proposed fair allocation of profits would be. In the follow-up questions, we also varied the tax differential. We expected differences in the response behavior. On the one hand, for example, the ALP may trigger an anchor effect among the experts, and they may, therefore, tend to perceive a fairer distribution. Furthermore, the experts should have a better overview of the overall tax system and may consider other aspects in their responses, like value added taxes, which play a vital role in the taxation of digital services. On the other hand, the non-experts, in particular, could be framed by the current political discussion and perceive an unfair distribution of taxing rights.

We analyzed our survey using the following guiding research questions:

- *Research Question 1*: Do tax experts differ from non-experts in their sense of fairness about a more even distribution of profits across countries?
- *Research Question 2*: Do tax auditors and tax advisors differ in their sense of fairness about a more even distribution of profits across countries?
- *Research Question 3*: Do different tax rates in the countries have an impact on the groups' senses of fairness about a more even distribution of profits across countries?
- *Research Question 4*: Does the arm's length allocation of profits between the countries have an impact on the groups' senses of fairness about a more even distribution of profits across countries?

Following the research hypotheses, our results can be briefly summarized as follows. We find significant differences in the sense of fairness differences between experts and non-experts in scenarios with a very uneven distribution of profits across countries. However, we do not find significant differences in the sense of fairness between experts and non-experts in more even

distribution of profits across countries scenarios (*Research Question 1*). This provides initial evidence that non-experts prefer a more even distribution of profits across countries. When analyzing the different roles within expert groups, we find significant differences in the sense of fairness between tax advisors and tax auditors if the distribution of profits across countries is very uneven. On the contrary, we no longer find significant differences in the sense of fairness between expert groups if the distribution of profits across countries is (slightly) more even (*Research Question 2*). Furthermore, we find that the sense of fairness about a more even distribution of profits is independent of the tax differential for both expert groups while it is not for non-experts (*Research Question 3*). This provides an indication that tax differentials might explain why experts and non-experts have different views about the technical issues related to the ALP. Finally, we consider the exogenously-given arm's length allocation of profits. Both the experts and the non-experts propose significantly different fair allocations. However, unlike non-experts, experts are clearly influenced by the given arm's length allocation of profits (*Research Question 4*).

To the best of our knowledge, we are the first to have conducted a survey allowing for differences in the sense of fairness between international tax experts and non-experts, as well as between those in different roles, such as tax auditors and tax advisors, to be disentangled. We contribute to the current research in a threefold way. First, the results could have an impact on current political discussions, as we provide insights into the question of whether tax experts and non-experts differ in their sense of fairness about a more even distribution of profits across countries. As the ALP plays a vital role in achieving inter-nation equity (Navarro, 2018), it is essential that there is no perceived unfairness in this regard. The ALP would then lose its justification. Second, the results could pave the way for further related experimental research regarding the perceived fairness of transfer pricing. Third, our results also provide insights for corporate taxpayers who want to avoid a reputation for "unfairness" due to very aggressive tax structuring and, rather, to show moral leadership – see Gribnau and Jallai (2017).[9]

RELATED LITERATURE

A vast literature shows that individuals dislike perceived inequitable outcomes and have some form of social preference. The ultimatum game (see Güth, Schmittberger, & Schwarze, 1982) is the prototypical game to test whether individuals care not only about their own payoffs but also about their payoffs as relative to those of others. From a standard economic point of view, the profit-maximizing proposer should walk off with virtually the whole surplus in the bilateral bargaining game. However, it is well-known that this is generally not the case, because individuals have some form of social preferences. In particular, responders resist unfair offers (Güth et al., 1982; Güth & Tietz, 1990; Roth, 1995) and proposers make fair offers instead of using their strategic advantage. A robust result in these games is that offers to the responder of less than 20% are often rejected, whereas offers of 40% or more are usually accepted (Camerer, 2003; Fehr & Schmidt, 2003; Roth, 1995; Seldon & Tsigaris, 2010). The simplicity of the ultimatum game renders the 50/50 split a fair outcome (at least in Western cultures; see Fehr, Goette, & Zehnder, 2009, with examples). For our subject group of tax experts, empirical evidence shows that the actual agents involved in the international taxation rights, e.g., tax auditors, do judge the outcomes based on "fairness" considerations. Kirchler, Maciejovsky and Schneider (2003) find that fiscal officers are strongly affected by social preferences. When comparing them to various other groups, such as business students, business lawyers, or

[9] Related to this, Kahneman, Knetsch and Thaler (1986a,1986b), and subsequent papers, show that even profit-maximizing firms will act in a "fair" way if "unfair" behavior involves, for example, punishment costs.

entrepreneurs, the authors find that tax auditors judge all forms of tax reduction as least fair. Following Kirchler et al. (2003), we focus on fiscal officers as compared to other groups involved in (international) taxation, such as tax advisors. Our subject pool includes two "expert" groups as well as a control group of business students.

In our survey, participants are in the position of a neutral third party. Therefore, the literature on distributive fairness norms, as well as that on social preferences as a proposer or responder, is closely related. Even if marginal productivities of participants in a collaboration are clearly observable (as is the case in our survey, since the arm's length allocation of profits is exogenously given), the importance of distributive fairness norms is highly context-dependent (see Karagözoğlu, 2012 for a survey).[10] Furthermore, as argued in the introduction, value contributions (i.e., marginal contributions) are extremely difficult to verify. In such cases, the collaboration partners are frequently remunerated by means of a pre-defined fixed share of the joint output (i.e., by implementing some kind of "profit sharing"). In our survey, we account for this by focusing "only" on the profit shares and not on the concrete transfer pricing method. In such scenarios, equal sharing is often referred to as a normatively appealing allocation rule (see Ashlagi, Karagözoğlu, & Klaus, 2012).

Furthermore, in the more tax evasion related literature, it is found that "perceived" fairness has an impact on the attitude and behavior of taxpayers. For instance, the level of tax evasion decreases if the tax system is perceived as fair by the taxpayers (see Fortin, Lacroix, & Villeval, 2007; Kornhauser, 2005; Spicer & Becker, 1980). Conversely, taxpayers may evade because the tax system is unfair, and the more they receive social information about the extent of others' tax evasion, the less guilty they feel about evading, and so their evasion increases. Thus, an individual will comply as long as she or he believes that compliance is the social norm (however defined); conversely, if non-compliance becomes pervasive, then the social norm of compliance disappears (Alm, 2013; Elster, 1989).

SURVEY

Participants

The questionnaires were distributed to tax auditors, tax advisors, and business students in Germany. The respondents were approached in conferences or seminars (tax auditors and tax advisors) or within university seminars (business students). Those within the group of tax auditors and tax advisors were specifically addressed at transfer pricing related conferences and seminars. Therefore, they had either practical or theoretical experience, or at least a very high affinity with, transfer pricing related topics, since they presumably had a background in international tax. The response rate in this set-up was high and non-responses rarely occurred. Overall, 203 subjects – 131 men, 68 women, and 4 of unknown gender) – participated. Table 1 (below) summarizes the subject sample. "Relevance" refers to the question of whether digital business models will become, subject to the individual's judgement, more important in the future. "Experience" summarizes personal experience in the valuation of transfer pricing issues for a digital business model. We consider a transfer pricing related subject in our survey design. Therefore, we consider tax auditors and tax advisors as "experts" and business students as a control group.

[10] Karagözoğlu (2012) shows that the prevalence of different fairness norms depends inter alia on the type of inputs. For financial investments, the majority of subjects prefer equal shares (see, e.g., Gantner, Güth & Königstein, 2001, or Cappelen, Hole, Sørensen, & Tungodden, 2007) while, for real-effort tasks, the evidence is less supportive of equal sharing (see, e.g., Konow, 2000, or Cappelen, Hole, Sørensen, & Tungodden, 2010).

We assume that students are reasonable surrogates for real-world individuals. The use of students as subjects in behavioral research is commonplace (Ashton & Kramer, 1980). There is a comprehensive literature available on this subject. The findings of Trottier and Gordon (2018), for instance, suggest that having some disassociation between students and the target population they are meant to represent does not necessarily make students inappropriate surrogates. Alm, Bloomquist and McKee (2015) find that the behavioral responses of students are largely the same as those of nonstudents in identical experiments. Depositario, Nayga Jr., Wu and Laude (2009) show that there is no significant difference between students' and nonstudents' willingness to pay bids in experimental auctions. Elliott, Hodge, Kennedy and Pronk (2007) suggest that using MBA students as proxies for nonprofessional investors is a valid methodological choice, provided the researchers give careful consideration to aligning a task's integrative complexity with the appropriate level of MBA student. Additionally, Liyanarachchi (2007) shows that accounting students may be adequate surrogates for practitioners in many decision-making experiments. Remus (1996) compared the decision-making of managers to that of graduate and undergraduate business students, using a complex decision task in which all subjects were equally naive, and found no significant differences between the managers and graduate business students.

Nevertheless, we clearly acknowledge that the subject of international taxation rights often causes controversial discussions, not only amongst students but also within our groups of experts. Therefore, it is necessary to interpret the subject pool, as well as the results of our survey, with caution, as is the case for all of these studies that lack external validity.

Table 1. Subject Pool Descriptive

Subject pool	Total	Auditors	Advisors	Students
Size	203	71	51	81
Age (mean)	37.6	43.3	42.6	23.6
Relevance = yes	99%	100%	100%	97%
Experience = yes	25%	44%	22%	10%

Experimental Design

In the questionnaire, participants were presented with a description of a stylized digital business model in a two-country world, as follows:

A firm develops an algorithm for a social network in country A. Users participate in the social network and enable the firm to generate revenue and profits with the submitted user data. The social network is active in country B, as well as country A. For simplicity, both countries "supply" the same number of users in the social network, and the tax rates are identical and set to 20%.

Participants were asked to assess, as neutral third parties, whether a presented allocation of profits between the countries can be considered as a fair allocation and what the "fair" allocation would be. Using a neutral third-party approach means that subjects are answering the survey questions without being in the specific role of the tax authority or a tax advisor. Typically, this debiases any behavior by subjects arising from the fact that subjects want to appear "consistent" to their given role (e.g., it could be assumed that tax advisors cannot care about fairness). Given this neutral role setting, differences between subject pools should be

weaker and the presented results regarding differences between subject groups (e.g., between tax auditors and tax advisors) should be rather conservative.

First, we asked: "Do you consider the presented allocation of profits between country A and country B as a fair allocation?". We then asked: "What do you consider as a fair allocation of profits between country A and country B?". Participants were asked to answer question 1 on a scale from 1 to 9 (1= not fair to 9 = fair). For the second question, they were presented with predefined allocations (100/0, 90/10 etc.) of the normalized total profit of 100 mEUR. It is crucial to note that the questions do not refer to an arm's length allocation of profits but, rather, to "perceived" fair allocations. The aim of the survey is not to estimate arm's length profit allocations but to elicit "fairness" considerations in transfer pricing related scenarios.

In total, participants were presented with three scenarios that varied the arm's length allocation of profits and the resulting taxation right. In Scenario 1, no taxation right was given to country B in principle, such that all profits were taxed in country A (100/0 allocation between A and B). In Scenario 2, country B captured a taxation right since (routine) marketing activities for country B were performed in country B. The questionnaire then stated that an "established" transfer pricing method results in an allocation of 90 mEUR for country A and 10 mEUR for country B (90/10 allocation between A and B). In Scenario 3, we increased the profit allocation to country B, such that the relative profit allocation was 60 mEUR for country A and 40 mEUR for country B (60/40 allocation between A and B). It was our intention to set the stated profit allocation as the exogenously-given arm's length allocation of profits. Therefore, in Scenario 2 and 3, we stated that an "established" transfer pricing method resulted in the given allocation. In Scenario 1, the allocation of profits was, by definition of the questionnaire, arm's length, since no taxation rights in principle were given to country B. We deliberately did not give specific information regarding the applied transfer pricing method in order to avoid doubts regarding the appropriateness of the method. We used our two-question approach (fairness and proposed fair allocation) in all three scenarios. We varied each scenario by assuming that country A was a low tax country and reducing the tax rate from 20% to 5%.

The scenarios are presented so as to secure answers consistent with professional tax practice. However, the scenarios are highly stylized and, therefore, are not suitable for generalization to the real world. The following results must, therefore, be interpreted with caution.

RESULTS

Research Question 1 - Experts vs. Non-Experts

First, we analyze whether tax experts differ from non-experts in respect of their sense of fairness about a more even distribution of profits across countries. Figure 1 illustrates the senses of fairness across the three scenarios.

We find that, in scenarios where the distribution of profits is more uneven – i.e., in the scenario with 100/0 and 90/10 distribution of profits across countries – experts and non-experts differ in their sense of fairness ($p<0.10$ in 100/0 and $p<0.05$ in 90/10, Mann-Whitney U test - MWU). This is different in the 60/40 scenario, where there is a more even distribution of profits across countries. Here, we do not find a statistically significant difference between experts' and non-experts' senses of fairness. By comparing the different scenarios, we therefore find initial evidence that tax experts have a different sense of fairness about a more even distribution of

profits across countries than non-experts. Namely, we find that non-experts prefer a more even distribution of profits across countries.

When comparing senses of fairness across scenarios, we find significant increases with a more even distribution of profits. Both, experts and non-experts' senses of fairness show statistically significant increases across all scenarios ($p<0.01$ from 100/0 to 90/10; $p<0.01$ from 90/10 to 60/40 for experts and $p<0.05$ from 100/0 to 90/10; $p<0.01$ from 90/10 to 60/40 for non-experts, Wilcoxon signed-rank test - WSR).

Result 1 – We find significant differences between experts and non-experts' senses of fairness in scenarios featuring (very) uneven distribution of profits across countries. We do not find significant differences experts and non-experts' senses of fairness in scenarios featuring a more even distribution of profits across countries. This provides initial evidence that non-experts prefer a more even distribution of profits across countries. In addition, both experts and non-experts show an increased sense of fairness with a more even distribution of profits.

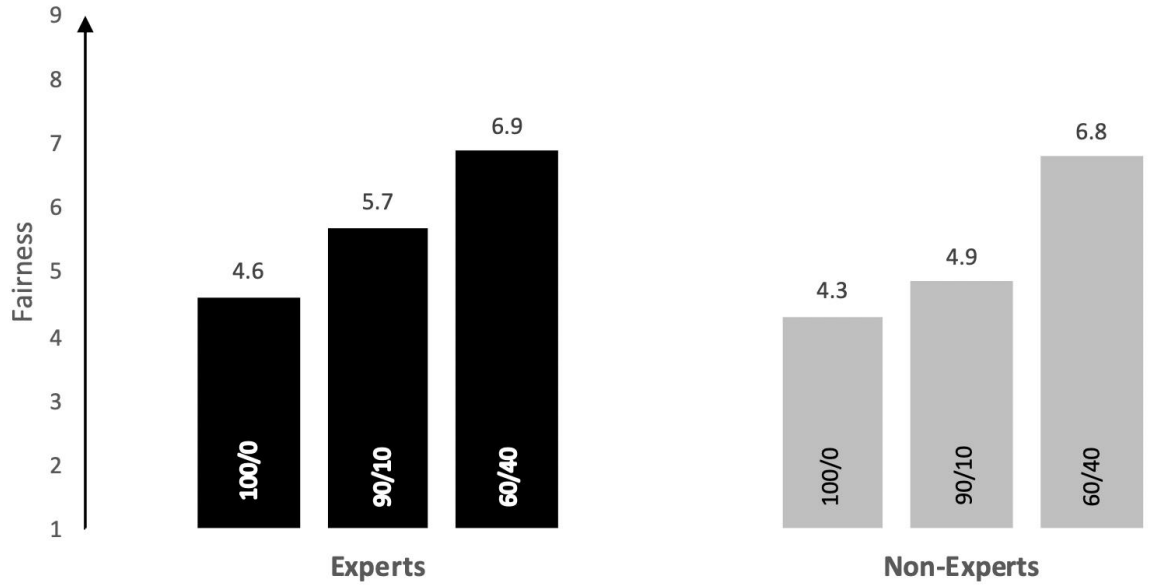

Fig. 1. Sense of Fairness between Experts and Non-Experts.

Research Question 2 – Tax Auditors vs. Tax Advisors

Second, we analyze whether tax auditors differ from tax advisors in terms of their sense of fairness about a more even distribution of profits across countries. Figure 2 illustrates tax auditors' and tax advisors' senses of fairness across the three scenarios.

Both tax advisors and tax auditors show weakly significant different senses of fairness in the most uneven 100/0 profit allocation across countries ($p<0.10$, MWU test). In this extreme scenario, tax auditors consider the allocation of profits to be significantly more unfair. However, a small increase in the tax base of country B in the 90/10 scenario aligns the senses of fairness of the expert groups (MWU test). Furthermore, the most even distribution of profits across countries in the 60/40 scenario shows no statistically significant difference in the sense of fairness between the expert groups (MWU test). Therefore, we find initial evidence that tax

auditors and tax advisors only differ in their senses of fairness about a more even distribution of profits across countries if the given distribution is very uneven (meaning, in practice, that there are no taxation rights in one country).

When comparing the change across scenarios, we find significant increases in the sense of fairness across both expert groups consistently with a more even distribution of profits ($p<0.05$ from 100/0 to 90/10; $p<0.05$ from 90/10 to 60/40 WSR test for tax advisors, $p<0.01$ from 100/0 to 90/10; $p<0.10$ from 90/10 to 60/40 WSR test for tax auditors).

Result 2 – We find weakly significant differences in the sense of fairness between tax advisors and tax auditors if the distribution of profits across countries is very uneven. We no longer find significant differences in the sense of fairness between expert groups if the distribution of profits across countries is (slightly) more even.

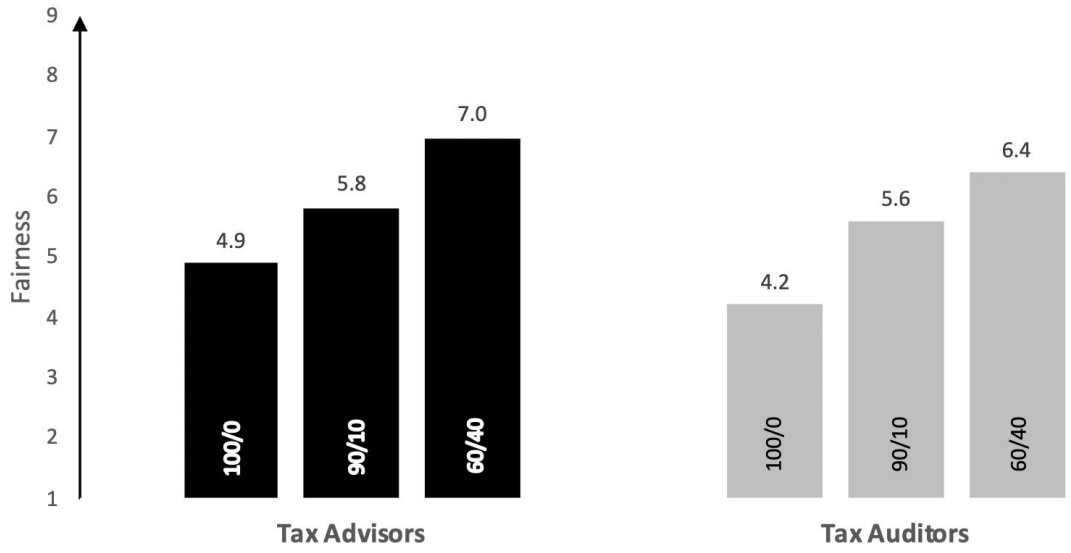

Fig. 2. Sense of Fairness between Tax Auditors and Tax Advisors.

Research Question 3 – Impact of the Tax Differential

Third, we analyze the impact of the tax differential on the sense of fairness. Figure 3 illustrates the senses of fairness across the three scenarios given the same tax rate as well as a lower tax rate in country A.

For our expert groups, sense of fairness is commonly independent of the tax rates (no significant differences for tax advisors, and $p>0.05$ only in the 60/40 scenario for tax auditors, WSR test). A contrary result holds for the non-experts, where we find significant effects in all three scenarios ($p<0.05$ in the 90/10 scenario and $p<0.01$ in the other scenarios, WSR test). Therefore, we can conclude the following.

Result 3 – We find that the sense of fairness about a more even distribution of profits is independent of the tax differential for both expert groups, while it is not for non-experts. This

provides an indication that tax differentials might explain why experts and non-experts have different views on the technical issues related to the ALP.

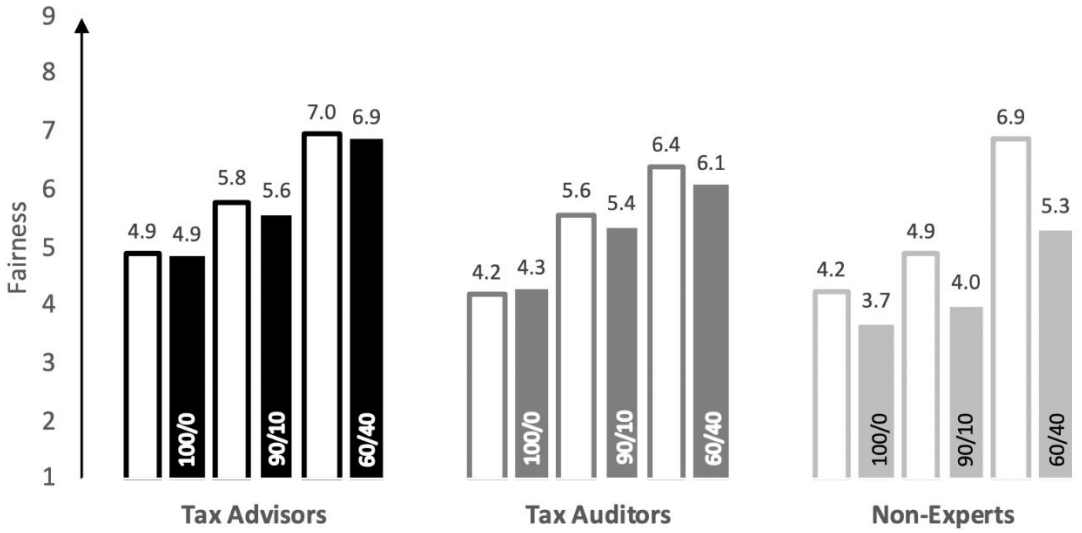

Fig. 3. Impact of the Tax Differential on Sense of Fairness.

Research Question 4 – Impact of the Arm's Length Allocation

Fourth, we analyze whether the exogenously-given arm's length allocation of profits underlying the scenarios has an impact on sense of fairness. To do so, we use our second question of the survey, which asks for a "proposed fair allocation of profits". Figure 4 illustrates the responses from both types of expert, as well as the non-experts, for the three scenarios.

In the 100/0 scenario, the arm's length allocation of profits is most uneven between country A and country B. We clearly observe that all three groups deviate from the exogenously-given arm's length allocation of profits by proposing a fair allocation of profits which is significantly different from 100/0 ($p<0.01$ WSR test for all groups). In economic terms, the difference is quite substantial. Notably, both expert groups propose an almost identical profit allocations (77/23 and 76/24 as their mean fair allocation, not statistically different, MWU test) while the proposed fair allocation by the non-experts is significantly even more equal ($p<0.01$ MWU test pairwise across groups).

The disparity between the proposed fair allocation and the arm's length allocation is also apparent in the second relatively uneven 90/10 scenario ($p<0.01$ WSR for all groups). However, in terms of changes between scenarios, the arm's length allocation of profits, as presented in the questionnaire, has an impact on the expert groups' proposed fair allocations (change from 100/0 to 90/10, $p<0.01$ for experts, WSR test). The reduction by expert groups from the nearly 77/23 allocation to a more equal distribution of approximately 70/30 is statistically significant. That pattern is mirrored in the (most even) 60/40 scenario. Here, both expert groups again adapt their proposed fair allocations to the presented arm's length allocation of profits (change from 90/10 to 60/40, $p<0.01$ for experts, WSR test).

On the other hand, the non-experts are only weakly influenced by the arm's length allocation of profits ($p<0.1$ for the change between 100/0 and 90/10, not significant for 90/10 to 60/40, WSR test). The expert groups are anchored by the arm's length allocation of profits, but they do not follow this closely. In contrast, the non-experts are generally not influenced by the arm's length allocation. We summarize as follows.

Result 4 – Both experts and non-experts propose significantly different fair allocations to the exogenously-given arm's length allocation of profits. However, experts are more influenced by the given arm's length allocation of profits than non-experts.

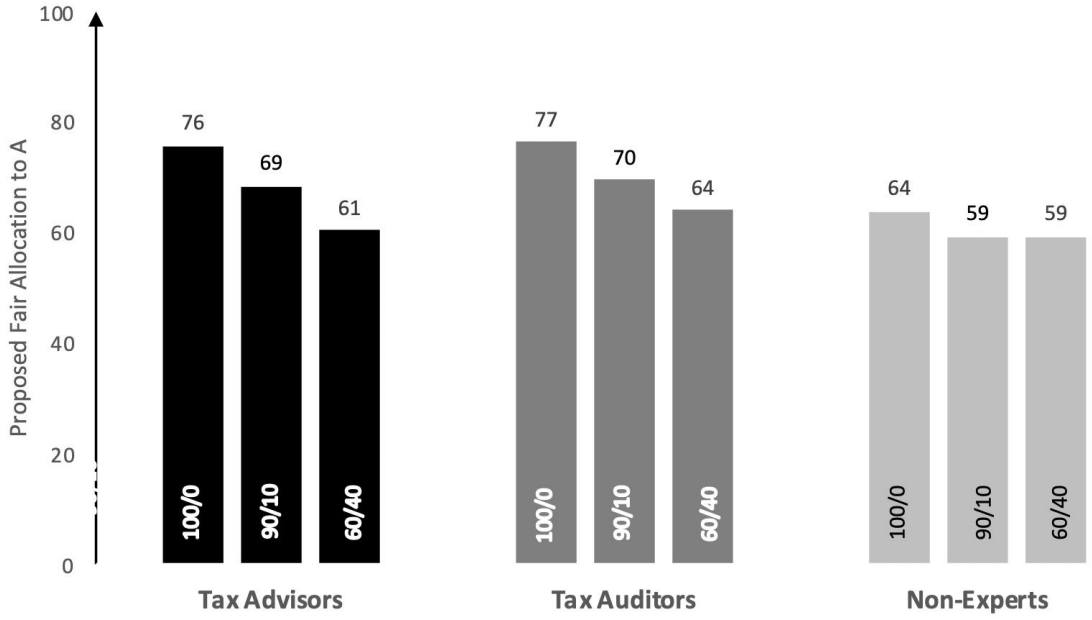

Fig. 4. Proposed Fair Allocation across Subject Pools and Scenarios.

DISCUSSION AND CONCLUSION

Our primary research question was whether tax experts and non-experts have different senses of fairness when presented with scenarios where there is an uneven distribution of profits across countries. Given the limitations of a survey study, we first find evidence that experts – divided into tax auditors and tax advisors – differ from non-experts in terms of their sense of fairness. This finding may explain why politicians, who are not usually experts, have different views about technical issues from tax experts. Their senses of fairness and, therefore recommendations for action, particularly seem to differ in the context of discussions regarding the taxation of the digital economy.

This is reinforced by our finding that the tax rate differential only has an impact on sense of fairness for non-experts. This is an important result, as it relates to the fact that MNEs should be taxed at a certain level. However, this finding also indicates that the arm's length principle is applied by experts consistently, regardless of the tax rate or tax rate differentials. In our opinion, further research on this topic could be fruitful, as one could still discuss whether or not transfer pricing disputes could be reduced when corporate tax rates all over the world converge.

We also find initial evidence that tax auditors and tax advisors only differ in their sense of fairness about a more even distribution of profits across countries if the given distribution is very uneven. This may result in tax auditors making transfer pricing adjustments, as their sense of fairness triggers stronger enforcement even though they are bound by law. To avoid such situations, one could anticipate that tax auditors will differ in their sense of fairness and structure the distribution of profits across countries more evenly. In this regard, the prospect theory is also of importance. The prospect theory (Kahneman & Tversky, 1979) allows for the prediction that tax refunds will be considered as a profit and that tax levied on the taxpayer will be seen as a loss, since the assessment of what is considered as profit or loss is a neutral reference point. Within the profit range, humans tend to be risk-averse. Therefore, it can be observed that tax evasion is less frequent in countries that collect taxes directly at the source than in countries where the tax is not levied directly at the source. This may be of particular importance if, in the context of the external tax audit, risk of a tax liability – which may be perceived as a loss - could arise. In this context, experiments have shown that human beings often adopt extreme positions and/or conduct confrontational behavioral strategies when attempting to minimize or avoid losses (negatively framed). Thus, receipt of an additional tax demand can lead to such behavior and, at the same time, to increased tax dishonesty (Engström, Nordblom, Ohlsson, & Persson, 2015; Robben et al., 1990).

Finally, in the 100/0 scenario, the arm's length allocation of profits is most uneven between country A and country B. We clearly observe that all three groups deviate from the exogenously-given arm's length allocation of profits by proposing a fair allocation of profits significantly different from 100/0. In this scenario, the arm's length allocation does not seem to be a fair allocation. In digital business models, digital goods and services can be provided without the need for the company supplying them to have a physical presence in a specific country. The main concern of the current fairness debate is that "user" value creation due to data gathering is located in a tax jurisdiction where the company carrying out a digital activity is not physically established and, thus, where its "activities" cannot be taxed. Our finding may support this perceived unfairness. One solution could be to reallocate some taxing rights from residence countries to market countries. In this context, the view that the arm's length principle may reward the country in which an MNE has its headquarters too generously and reward the locations in which that MNE has foreign direct investments (FDIs) too little (Vann, 2010) becomes important. One can transfer this finding to so-called "low risk entities" which only receive minimum returns for their activities. An MNE can structure its investments in a way that its economic allegiance (Langbein & Fuss, 2018) is very limited in the source country, which leads to a very small taxable return in this country. Digitization could support this way of structuring investments and lead to an increase in transfer pricing disputes. However, further investigation of this topic would be valuable as, for instance, the use of "fair" safe harbors could reduce the amount of transfer pricing disputes that arise. On the other hand, our findings also suggest that tax experts acknowledge a considerably higher attribution of profits to the algorithm than to user data.

Since fairness considerations play an important role in the current public discussions regarding the fair taxation of the digital economy, more experimental research is needed in order to understand them. Our paper is, therefore, a first attempt at understanding these fairness considerations in the context of the allocation of business profits and digital business models.

DISCLOSURE

The authors have no financial arrangements that might give rise to conflicts of interest with respect to the research reported in this paper.

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APPENDIX

Survey translated

Welcome!

You are participating in a survey in the context of empirical economic research. First of all: thank you for participating!

You are in the role of an independent expert. In the following questionnaire, you assess the taxation of digital business models. In different hypothetical scenarios, various forms of tax bases are presented in a two-country setting. In your role as an independent expert, you should indicate, based on your judgement, how fair the given allocation of profits is and propose a fair distribution of the total profit.

A) General description of the decision situation

Company A runs a social network in country A. For this, company A has developed an algorithm that analyses the member data of the social network. The expenditures for the development of the algorithm were borne in country A. The use of the social network is free for members. Members accept, however, that company A may disclose and use the information disclosed during registration. For this, the algorithm developed by company A is used.

The more data that is made available to the algorithm, the more accurate the analyses that can be made about the members, which will eventually be commercially exploited, will be. This means that, in addition to the algorithm, the number of members represents a value driver of the digital business model.

Company A is now expanding its business activities into country B. After an introductory phase, the number of members is the same in both countries.

B) Scenarios

Scenario 1 – Direct Business: Company A operates its economic activity through a direct business. The profit is expected to be 100 million euros. In both countries A and B, the tax rate is 20%. **There is no taxation of company A in country B for direct business activities.**

How fair is the allocation of profits? Please mark your assessment:

Unfair								**Fair**
1	2	3	4	5	6	7	8	9

How should the profits between country A and B be divided, so that you consider the distribution as fair? Please mark your personal assessment:

Profit in country A in million euros	100	90	80	70	60	50	40	30	20	10	0
Profit in country B in million euros	0	10	20	30	40	50	60	70	80	90	100
Fair Distribution of Profits											

Variation Scenario 1:

Now assume that the tax rate in country A is 5% and the tax rate in country B is still 20%.

How fair is the allocation of profits? Please mark your assessment:

Unfair								**Fair**
1	2	3	4	5	6	7	8	9

How should the profits between country A and B be divided, so that you consider the distribution as fair? Please mark your personal assessment:

Profit in country A in million euros	100	90	80	70	60	50	40	30	20	10	0
Profit in country B in million euros	0	10	20	30	40	50	60	70	80	90	100
Fair Distribution of Profits											

Scenario 2 – Direct Investment: Company A carries out its economic activities through a **direct investment and therefore uses a subsidiary B in country B**. Company B is responsible for the marketing and the internet presence in country B, whereby it is bound by the instructions of A. B is subject to taxation in country B. In both countries, the tax rate is 20%. **An established transfer pricing method results in profit sharing between the two companies of EUR 10 million profit for B and EUR 90 million profit for A.**

How fair is the allocation of profits? Please mark your assessment:

Unfair								**Fair**
1	2	3	4	5	6	7	8	9

How should the profits between country A and B be divided, so that you consider the distribution as fair? Please mark your personal assessment:

Profit in country A in million euros	100	90	80	70	60	50	40	30	20	10	0
Profit in country B in million euros	0	10	20	30	40	50	60	70	80	90	100
Fair Distribution of Profits											

Variation Scenario 2: Now assume that the tax rate in country A is 5% and the tax rate in country B is still 20%.

How fair is the allocation of profits? Please mark your assessment:

Unfair								**Fair**
1	2	3	4	5	6	7	8	9

How should the profits between country A and B be divided, so that you consider the distribution as fair? Please mark your personal assessment:

Profit in country A in million euros	100	90	80	70	60	50	40	30	20	10	0
Profit in country B in million euros	0	10	20	30	40	50	60	70	80	90	100
Fair Distribution of Profits											

Scenario 3 – Direct Investment: Suppose you look again at the previous scenario (scenario 2). In both countries, the tax rate is 20%. Only the profit distribution changes. **An established transfer pricing method results in profit sharing between the two companies of EUR 40 million profit for B and EUR 60 million profit for A.**

How fair is the allocation of profits? Please mark your assessment:

Unfair								**Fair**
1	2	3	4	5	6	7	8	9

How should the profits between country A and B be divided, so that you consider the distribution as fair? Please mark your personal assessment:

Profit in country A in million euros	100	90	80	70	60	50	40	30	20	10	0
Profit in country B in million euros	0	10	20	30	40	50	60	70	80	90	100
Fair Distribution of Profits											

Variation Scenario 3: Now assume that the tax rate in country A is 5% and the tax rate in country B is still 20%.

How fair is the allocation of profits? Please mark your assessment:

Unfair								**Fair**
1	2	3	4	5	6	7	8	9

How should the profits between country A and B be divided, so that you consider the distribution as fair? Please mark your personal assessment:

Profit in country A in million euros	100	90	80	70	60	50	40	30	20	10	0
Profit in country B in million euros	0	10	20	30	40	50	60	70	80	90	100
Fair Distribution of Profits											

C) Other

To what extent do the following statements apply to you? Please mark accordingly.

Statement	**Does not apply at all**	**Rather not true**	**Neither nor**	**Rather true**	**Completely right**
I am reserved.					
I easily trust others.					
I'm comfortable, tend to laziness.					
I am relaxed, cannot be disturbed.					
I have little artistic interest.					
I am outgoing.					
I tend to criticize others.					
I do tasks thoroughly.					
I get a bit nervous and insecure.					
I have an active imagination					

How do you personally assess yourself? Are you generally a risk-taker or do you try to avoid risks? Please mark accordingly.

Risk-taker								**Avoid risks**
1	2	3	4	5	6	7	8	9

Please briefly describe the basis on which you have made your fairness considerations.

Questions	**Yes**	**No**
Have you already gained experience in the evaluation of digital business models from a transfer pricing perspective?		
Are you estimating that digital business models will become more important in the transfer pricing practice?		

Please provide your gender, age, and profession.

Gender	
Age	
Profession	