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User Participation in Value Creation

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User Participation in Value Creation Itai Grinberg

Abstract

This article examines HM Treasury's proposal to account for the active participation of users in value creation in certain digital platforms. The first key question is whether there is any reason to believe, as HM Treasury suggests, that users only meaningfully or actively contribute to value creation in the context of certain digital platforms. The article accordingly explores the factors HM Treasury sets out for the attribution of income to active user participation, including features such as network effects, multisided business models, and a lack of physical presence in the jurisdiction of the user. It concludes that if a user participation concept were adopted into international tax norms, it is unlikely to be limited to digital businesses or to the business models particularly highlighted in the proposal issued by HM Treasury. The analysis proceeds by considering the factors set out by HM Treasury for the attribution of income to active of pharmaceuticals and biologics, the financial sector, and the "internet of things". For example, the article concludes that under HM Treasury's user participation theory, returns from certain London-based financial intermediation businesses would need to be reallocated to other jurisdictions. Moreover, as the internet of things develops, one would expect the range of business affected by the active user participation concept to constantly expand.

In two recent and influential position papers, HM Treasury proposed reforming the international tax framework to take into account the active participation of users in determining how the taxable profits of multinational businesses are allocated between governments for tax purposes.¹

In HM Treasury's view

"user-generated value is not captured under the existing international tax framework, which focuses exclusively on the physical activities of a business itself in determining where profits should be allocated for corporate tax purposes".²

The European Commission has largely adopted HM Treasury's view in its proposals to tax the digital economy.³ Moreover, the user participation concept introduced in HM Treasury's

^{*} Professor of Law, Georgetown University Law Center. The author thanks Julie Roin and anonymous reviewers for their comments on an earlier draft. Paul Nabhan and Brian Fiske provided excellent research assistance. Any errors are the author's own.

¹HM Treasury, *Corporate tax and the digital economy: position paper* (HM Treasury Position Paper) (November 2017), available at: *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/661458/corporate_tax_and_the_digital_economy_position_paper.pdf* [Accessed 18 September 2018]; HM Treasury, *Corporate tax and the digital economy: position paper update* (HM Treasury Position Paper Update) (March 2018), available at: *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/689240 /corporate_tax_and_the_digital_economy_update_web.pdf* [Accessed 18 September 2018], para.3.7.

²HM Treasury Position Paper, above fn.1, 8–9, para.3.21.

³See, e.g. M.P. Devereux and J. Vella, "Debate: Implications of Digitalization for International Corporate Tax Reform" (June/July 2018) 46(6/7) *Intertax* 550; European Commission, *Commission Proposal for a Council Directive, Laying Down Rules Relating to the Corporate Taxation of a Significant Digital Presence* (European Commission Proposal)

position paper also features prominently in the discussion in the OECD's recently released interim report: *Tax Challenges Arising from Digitalisation.*⁴

HM Treasury and the Commission both focus on the example of a user uploading data to a social media platform to illustrate the importance of user participation to value creation. HM Treasury writes that

"the success of that business is...dependent on the collection of user data from intensive monitoring of [their] engagement and contribution, which can be sold to third parties or used to generate increased revenues through more precisely targeted adverts".⁵

The Commission points out that user participation contributes to value creation because users'

"data will later be used and monetised for targeted advertising. The profits are not necessarily taxed in the country of the user (and viewer of the advert), but rather in the country where the advertising algorithms has been developed, for example. This means that the user contribution to the profits is not taken into account when the company is taxed."⁶

HM Treasury and the Commission are also interested in any online marketplace that generates

"revenue through matching suppliers and purchasers of a good in return for a commission, or a collaborative platform that charges a commission for bringing together supply and demand for assets and possessions owned by individuals. The success of those businesses is reliant on the active involvement of users on either side of the intermediated market and the expansion of that user base to allow the business to benefit from network effects, economies of scale and market power."⁷

The Commission focuses on this same model and emphasises that it "uses reputational currency mechanisms to underpin consumption".⁸

⁵HM Treasury Position Paper, above fn.1, 2 at para.3.17.

⁷HM Treasury Position Paper, above fn.1, para.3.18.

⁸ European Commission, *Communication from the Commission to the European Parliament and the Council, A Fair and Efficient Tax System in the European Union for the Digital Single Market* (21 September 2017, COM(2017) 547 final), 5.

⁽²¹ March 2018, COM(2018) 147 final), available at: https://ec.europa.eu/taxation_customs/sites/taxation/files /proposal_significant_digital_presence_21032018_en.pdf [Accessed 18 September 2018].

⁴OECD/G20 Base Erosion and Profit Shifting Project, *Tax Challenges Arising from Digitalisation – Interim Report 2018: Inclusive Framework on BEPS* (OECD Interim Report 2018) (Paris: OECD Publishing, 2018), available at: *https://doi.org/10.1787/9789264293083-en* [Accessed 18 September 2018]. HM Treasury and the Commission both contemplate long-term reform of the international tax system to address the issues they identify as well as interim measures to address what they consider to be systematic under-taxation of the digital sector. As has been discussed elsewhere, the interim measures considered by HM Treasury and the Commission are likely to function in practice much like a tariff targeted predominantly at large US-headquartered multinationals. The OECD Interim Report 2018 also describes a series of problems raised by these so-called interim measures. OECD Interim Report 2018, above, paras 438, 448. In the interest of focusing on questions of principle, this short article sets aside any discussion of interim measures and focuses entirely on the questions associated with long-term reform of the international tax system to account for user participation.

⁶ European Commission Memorandum MEMO/18/2141, *Questions and Answers on a Fair and Efficient Tax System in the EU for the Digital Single Market* (European Commission Memorandum) (Brussels: 21 March 2018), available at: *http://europa.eu/rapid/press-release_MEMO-18-2141_en.htm* [Accessed 18 September 2018], under "Value Creation in the Digital Economy".

However, as the OECD has pointed out repeatedly, one "cannot ringfence the digital economy".⁹ One consequence of this reality is that the principles espoused by HM Treasury and the Commission with respect to the value of user participation have implications for other sectors. Thus, if a user participation concept is adopted into international tax norms, it is highly unlikely to be limited to certain digital businesses or to the business models specifically targeted in the proposals issued by HM Treasury and the Commission.

Accordingly, this article considers the relationship between HM Treasury's income tax proposals for the so-called "digital economy" and academic ideas regarding broader reform of the international corporate income tax system. It then begins the inevitable process of analysing what the application of HM Treasury's user participation theory to other sectors of the economy could entail.

Part I asks whether "user participation" represents anything new in the economy. Part II analyses HM Treasury's model for attribution of the income of businesses with active user participation. The author observes that the residual profit allocation proposed by HM Treasury resembles the profit allocation in a destination-based income tax regime proposed by an academic group in 2016 at conferences at the University of Oxford and the Brookings Institution.¹⁰ However, HM Treasury's proposal makes its destination-based residual profit allocation contingent on three criteria: a prolonged period of active participation by users, often in exchange for free services; the existence of excess returns; and a large number of users. Part III considers the application of the user participation theory of value attribution to two non-digital sectors noted for excess returns: pharmaceuticals and biologics and the financial sector. Part III first describes the contribution of patients to value creation in the pharmaceutical and biologic sector, and compares it with the contributions made by users in the "digital economy". It then highlights that the medical economy includes the prolonged period of active participation in exchange for free services and the excess returns that HM Treasury considers necessary for a destination-basis allocation. Finally Part III explores the contributions to value creation made by users in financial platforms involving network effects, multisided business models, and a lack of physical presence in the jurisdiction of the user. Part IV then expands the analysis by considering active user participation in the "internet of things". Part V circles back to the de minimis thresholds proposed by HM Treasury and the Commission for allocating profits based on user participation, and queries whether those thresholds impose any meaningful limits or have any meaningful content.

Part I: past as prologue

One way to ask whether user participation represents a new economic phenomenon is to look to the past. Consider a now nearly-defunct technology: the fax machine. No user would have valued owning the only fax machine on Earth. Users made fax machines valuable by sending data-filled faxes to one another. So was "user participation" in the fax machine network a source of value creation?

⁹OECD/G20 Base Erosion and Profit Shifting Project, *Addressing the Tax Challenges of the Digital Economy, Action 1—2015 Final Report* (Paris: OECD Publishing, 2015), available at: *https://doi.org/10.1787/9789264241046-en* [Accessed 18 September 2018].

¹⁰ Please see fn.12 and accompanying text, below.

As with the fax machine network, the value of a social media network to users comes from communicating with one another. However, presumably HM Treasury would seek to differentiate communicating via a social network with communicating via the fax machine network. In its position papers, the central distinction focused upon by HM Treasury in relation to the "old economy" versus the "digital economy" relates to "passive participation" versus "active participation". In this story, buying a fax machine would presumably be "passive" participation, whereas contributing to a social network would involve "active" participation.

But whoever bought a fax machine without expecting that they would use it to send faxes that included user-generated content? Why is the use of the fax machine and the data embedded in the faxes not "active participation"? Perhaps there is a story about degree of participation? Even that seems unpersuasive in the fax machine case; fax machines have no value without user contributions (in other words, the content of the faxes).

A second (to this author more interesting) idea focused upon by HM Treasury relates to the importance of network effects in the digital economy. Here, the theory is that social media platforms are special because the value of the platform is in large measure due to network effects. Of course, fax machines were also a technology whose value relied primarily on network effects. Again, no one would have wanted to own the only fax machine on Earth. Owners of fax machines found their machines valuable only because others with whom they wished to communicate bought (compatible) fax machines.

The key difference between the fax machine business and the social media platform business is that sending faxes did not itself create additional profits for the fax machine maker. If anything, fax transmissions created a new source of profits for the telephone networks along which the faxes were sent. In contrast, social media platforms are able to analyse the data sent through their platform and create an additional source of value from that data that they monetise via advertising.

So, for policy purposes, the question is whether the ability to monetise a network effect should result in some special regulatory treatment. Maybe? Arguably, the key difference is that in the case of the fax machine the interoperability of fax machines made by different manufacturers and the further interoperability between various telephony providers meant that the network effect did not lead to a monopolistic result.¹¹ In contrast, social media platforms are not interoperable. But of course that competition policy concern suggests a non-tax regulatory approach to digital platforms, and not a tax answer.

Thus, the fax machine example helps illustrate that the idea of "user participation", that is now referenced to justify a special profit allocation rule for the digital economy, is not new. And it shows that tax regulatory and non-tax regulatory questions could be getting mixed together inappropriately in the so-called "digital economy" debate.

Nevertheless, using examples from prior generations of technology in order to address the important questions raised by the user participation theory for profit allocation simply does not suffice. Instead, one should consider what applying the theory to the modern economy might mean. Before undertaking that analysis, it helps to see the relationship between the user

¹¹ The author intends to use the term "monopolistic result" here as Silicon Valley would use it colloquially, not in the technical economic sense. For the distinction, see well-known technologist J. Lanier, *Who Owns the Future*? Export edn (Simon & Schuster, 2013).

participation theory and broader proposals for moving the international tax system towards a destination-basis.

Part II: relationship between destination-based income taxation and HM Treasury's proposal

At a 2016 conference at the University of Oxford, an academic group consisting of Michael Devereux, Michael Graetz, Michael Keen, Paul Oosterhuis, Wolfgang Schön, Alan Auerbach and John Vella presented a proposal to reform the international tax system by moving to a destination-based residual profit allocation (DBRPA).¹² The proposal was animated by the insight that the location of consumers is less mobile than the location of booked profits, intellectual property, corporate assets, corporate employees, or any other element of value creation. In effect, the DBRPA is an attempt to fight base erosion and salvage the current corporate income tax system (including preserving an entity-level tax on the normal return to capital) by means that can at least be described as conforming to the historic principles of the current "arm's length" transfer pricing architecture.

The key difference between a DBRPA and sales-based formulary apportionment is that a DBRPA would modify transfer pricing methodologies so as to allocate only "excess" or "supranormal" profits to the jurisdiction of sale.¹³ Affiliates of a multinational enterprise would be compensated for their functions on a cost plus or return-on-assets basis.¹⁴ The proposal thereby maintains the existing arm's length allocation of routine returns as among jurisdictions. The DBRPA then deems the country in which customer sales take place to be the "entrepreneurial" affiliate with respect to any relevant subset of sales and ascribes all "non-routine" profits to the affiliate in the market jurisdiction.¹⁵ The DBRPA thus imposes deemed arrangements to which transfer pricing methods are applied. In that sense, it both overrides intercompany contractual

¹³ See Devereux, above fn.12.

¹⁵ See Devereux, above fn.12.

¹² See P. Oosterhuis, Skadden Arps LLP, *Residual Profit Allocation Proposal* at the Oxford University Centre for Business Taxation Summer conference 2016: Corporation tax for the 21st century (27 June 2016), available at: *https:* //www.youtube.com/watch?v=AjSxfUBMHnY&list=PLtXf43N26Zids6PowkWDV7oQo7HwoNspy&index=8&t=0s [Accessed 19 September 2018]; M. Devereux, *Residual Profit Allocation Proposal* at Brookings/Tax Policy Center Conference on "A Corporate Tax for the 21st Century" (14 July 2016), available at: *https://www.taxpolicycenter.org* /sites/default/files/residual-profit-allocation-proposal_2.pdf [Accessed 19 September 2018]; see also J. Andrus and P. Oosterhuis, "Transfer Pricing After BEPS: Where Are We and Where Should We Be Going" (2017) 95 Taxes Tax Mag. 89.

¹⁴ The authors of the proposal have suggested that routine profits could alternatively be determined based on a fixed mark-up in a manner similar to the mechanism that Durst and co-authors proposed for a residual profit formulary allocation system. M. Durst, R.S. Avi-Yonah and K. Clausing, "Allocating Business Profits for Tax Purposes: A Proposal to Adopt a Formulary Profit Split" (2009) 9(5) Fla. Tax Rev 497. If this modification were adopted, the only essential difference between the DBRPA and the Durst proposal that would remain is that the DBRPA applies its allocation key on a product line by product line basis rather than a business unit by business unit basis. In other words, product revenues and product-related costs would be determined on a separate accounting basis (tracing revenues to specific countries and costs to specific products) rather than using any more generalised formulaic apportionment. Nevertheless, the Durst proposal remains an important precursor for the DBRPA proposal. For the record, however, the DBRPA is to this author's mind superior to the Durst proposal. The Devereux group effectively articulated the DBRPA's advantages relative to single factor formulary apportionment in presentations at Oxford and the Brookings Institution in 2016.

arrangements and reforms current transfer pricing practice for purposes of determining where excess or "supranormal" returns are deemed to arise.

In its updated position paper on the digital economy, HM Treasury has suggested that when "active user participation" is present, "jurisdictions in which users are located should be entitled to tax a portion of those businesses' profits".¹⁶ HM Treasury explained that it might be necessary to reward this

"user created value through a percentage share of the residual profit realized by principal companies in the group i.e. a share of the profits of the principal companies after routine functions in the group have been remunerated with an arm's length return".¹⁷

HM Treasury goes on to suggest that

"an allocation key would need to account for those variations in individual user value, which might mean looking at active users (a definition that several digital businesses report) or looking at revenues attributable to users in a jurisdiction, which the UK thinks would be best suited [to provide the allocation key]".¹⁸

Finally, HM Treasury suggests administrative options for its proposed tax.¹⁹ It considers granting the user jurisdiction the option to tax a foreign principal company directly or in effect allocating part of the excess return to a local affiliate.

HM Treasury's allocation proposal is thus quite similar to—one might even say inspired by—the DBRPA proposal presented at Oxford. But, of course, there are two key differences. First, HM Treasury wishes to allocate some, not all, of the excess profits to the destination jurisdiction. Secondly, HM Treasury has suggested narrowly limiting the scope of activities to which this allocation would be applied.

As a matter of first impression, HM Treasury appears to be trying to "ring-fence" the digital economy. However, on further inspection, its approach includes principles that have obvious application beyond the so-called "GAFA"²⁰ companies and also function as a limit on the taxing rights of "user jurisdictions". HM Treasury's proposal effectively creates a three-part test for a destination-based allocation, which focuses on active user participation, a large number of users, and sufficient business revenues generated within a given jurisdiction.²¹

HM Treasury and the European Commission share the intuition that the more important a user's decision to use a good or service may be to a business, the more the user in effect provides a service in return to the business, or the more extensive and personal the information provided to a company by a user for free, the more value should be attributed to the jurisdiction where the user resides.²² Indeed, if users do not have this sort of contributing relationship with a business,

¹⁶ See HM Treasury Position Paper Update, above fn.1, para.3.7.

¹⁷ HM Treasury Position Paper Update, above fn.1, para.3.18.

¹⁸ HM Treasury Position Paper Update, above fn.1, para.3.26.

¹⁹ HM Treasury Position Paper Update, above fn.1, paras 3.28–3.40.

²⁰ Google, Apple, Facebook, and Amazon.

²¹ HM Treasury Position Paper Update, above fn.1, para.3.44.

²² See generally HM Treasury Position Paper Update, above fn.1, paras 2.29–2.30. But see Position Paper Update, above fn.1, paras 2.37–2.40 (walking a tightrope to try to explain why non-digital businesses collecting data are different from digital businesses collecting data, and avoiding discussion of cases where data collected from users goes to the core of a non-digital business, as is the case in medical advances requiring clinical trials).

HM Treasury's papers generally suggest that no allocation should be given to the jurisdiction of destination.

The Commission summarises these ideas by arguing that taxation and value creation are misaligned when it comes to digital companies because digital value is generated from "a combination of algorithms, user data, sales functions and knowledge".²³ The Commission adopts HM Treasury's lexicon in describing this phenomenon as value creation via user participation.²⁴

The "structural solution" proposed by the Commission to reform the international tax system starts from the same principles as HM Treasury's proposal, but adds criteria to operationalise these ideas. The Commission proposes to establish a "significant digital presence" as a form of permanent establishment (PE). The Commission then proposes criteria for attributing profits to a PE. Under the Commission's proposal, Member States would have a right to tax a business if it has a "significant digital presence", triggered by meeting any one of three thresholds: 1. revenues from supplying digital services exceeding ϵ 7 million; 2. number of users exceeding 100,000; or 3. number of online business contracts exceeding 3,000.²⁵ In effect, the Commission took HM Treasury's three-part test, made it disjunctive, and added some quantitative thresholds.²⁶

The question is then: what sectors meet the conceptual and specific tests articulated by HM Treasury and the Commission? Part III of this article therefore begins the inevitable analytical process of applying these concepts to other sectors. It is clear that multiple sectors would need to be analysed. For demonstrative purposes this article begins that process by looking at two sectors with well-known excess returns: the pharmaceutical and biologics industry; and the financial services industry. For the sake of clarity, although these examples help highlight the issues, many other examples are also available. Indeed, Part IV of this article focuses on the "internet of things" and the digitalisation of everything.

Part III: user participation beyond the digital economy

Comparing the digital economy and the medical economy

From a user participation perspective, what is a clinical trial? It is a corporation giving thousands of individuals free medicine over a period of years in exchange for those users providing deeply personal medical data, as well as a service to the company—the use of their bodies for purposes of experimentation. The collected medical data is then aggregated and used to perfect a product and get regulatory approval for selling a drug. The service provided by these users and the data collected from them in these trials are absolutely essential to the business; indeed, nothing can be sold without it.

²³ European Commission Memorandum, above fn.6.

²⁴ European Commission Proposal, above fn.3, 12.

²⁵ European Commission, press release IP/18/2041, *Digital Taxation: Commission Proposes New Measures to Ensure That All Companies Pay Fair Tax in the EU* (Brussels: 21 March 2018), available at: *http://europa.eu/rapid/press -release_IP-18-2041_en.htm* [Accessed 19 September 2018].

²⁶European Commission Proposal, above fn.3, 8. The Commission's proposal is limited to so-called "digital services". For purposes of the Commission proposal, digital services are defined as services that are, "delivered over the internet or an electronic network and the nature of which renders their supply essentially automated and involving minimal human intervention", European Commission Proposal, above fn.3, 7. However, the rationale for ring-fencing such services is unclear.

In the pharmaceutical and biologics industries (the "medical economy"), value is often created from a combination of scientific research, patient data, sales functions and knowledge. Most notably, patients contribute to value creation by sharing their medical data via clinical studies. These users receive medical care in exchange for agreeing to share medical data about their disease prognosis and progression under a particular care protocol. That data is then used and monetised by obtaining a patent and customising products to specific diseases and patient populations. This user data is also required for regulatory approval, without which the company may not sell anything at all. Nevertheless, the profits are not necessarily taxed in the country of the patient and instead are generally taxed in the country where the product has been developed.²⁷

The data provided by patients is not basic information about their interests or consumer preferences, but instead contains deeply private biometric and health information. In this sense, the data they provide in exchange for free products is often substantially more extensive and personal than the data that a digital user provides. Moreover, patients' engagement with the providers of their treatment is often more sustained than the engagement of a digital user with a social media platform. After all, in some cases disengaging from the company (ceasing to supply data in exchange for treatment) might fundamentally impact a drug user's health. In sum, both active user participation and data contribution appear to be part of the medical economy.

The most important objection to the above analogy between user participation in the digital economy and user participation in the medical economy relates to the fact that the medical economy generally does not benefit from either network effects or "multisided business models". Indeed, the Commission's impact assessment of its digital tax proposals seems to emphasise that, in addition to the ability to more easily conduct business remotely, network effects are the key differentiator between traditional and "digital" businesses.²⁸ The OECD's interim report on the digital economy similarly highlights that

"the concepts of indirect network effects and multi-sided markets are crucial for understanding the success of several of the most innovative digitalised businesses".²⁹

The fact that neither the Commission nor HM Treasury ever explain exactly why (or even definitively state whether) network effects or multisided business models should matter in determining tax treatment highlights either: 1. the intellectual vagueness; or 2. the results-oriented nature of the user participation theory. Nevertheless, assuming network effects and multisided business models do represent the relevant source of differentiation, the next step in the analysis is to consider "non-digital" industries, where multisided business models and network effects are present and business can be conducted remotely.

²⁷ This paragraph intentionally mirrors the Commission's description of why user participation creates value in the digital economy. See European Commission, Fair Taxation of the Digital Economy (March 2018), available at: https:// //ec.europa.eu/taxation_customs/business/company-tax/fair-taxation-digital-economy_en [Accessed 19 September 2018].

²⁸ European Commission, Commission Staff Working Document, Impact Assessment, Accompanying the document "Proposal for a Council Directive laving down rules relating to the corporate taxation of a significant digital presence" 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" {COM(2018) 147 final} - {COM(2018) 148 final} - {SWD(2018) 82 final} (Brussels: 21 March 2018, SWD(2018) 81 final/2), available at: https://ec.europa.eu/taxation customs/sites/taxation *files/fair_taxation_digital_economy_ia_21032018.pdf* [Accessed 19 September 2018], 12–13. ²⁹ OECD Interim Report 2018, above fn.4, 29, para.47.

Comparing the digital economy with financial intermediation

Multisided platform businesses are generally defined as businesses that: 1. offer distinct products or services; 2. to different groups of customers; 3. whom a "platform" connects; 4. in simultaneous transactions. In simpler terms, they are businesses that help unrelated parties get together to exchange value. Before the advent of the internet, the classic example of multisided business models with network effects used in economics discussions involved financial intermediation.

To begin the analysis of such multisided business models, let us again start with a "pre-internet" technology: credit cards. A credit card company can sell its services only if both a merchant and a cardholder simultaneously choose to use the card. Because a credit card company cannot complete a sale unless both sides of the platform (the consumer and the merchant) simultaneously agree to use its services, credit cards represent a "multisided business model". On one side consumers are offered convenience and financing, and on the other side merchants obtain a mechanism to receive payment other than in cash. Credit card businesses also exhibit network effects. Simply put, the greater the number of merchants that accept a credit card, the more attractive the card is to consumers; similarly, the greater the number of consumers holding a credit card, the more willing merchants are to accept the card and its related interconnection fee.³⁰

Credit cards are not the only "non-digital" multisided business model. Other examples include newspapers, traditional broadcast television, video game consoles, and financial exchanges. So, what is special about these multisided business models? Arguably nothing. As Justice Stephen Breyer wrote in a recent US Supreme Court opinion about the credit card business:

"It cannot be the first two features [of multisided platform businesses that are distinctive]...Companies that sell multiple products to multiple types of customers are commonplace. A firm might mine for gold, which it refines and sells both to dentists in the form of fillings and to investors in the form of ingots. Or, a firm might drill for both oil and natural gas."³¹

And:

"What about the last two features—that the company connects the two groups of customers to each other, in simultaneous transactions? That, too, is commonplace. Consider a farmers' market [that charges rent to sellers, and allows shoppers to enter the market for free]. It brings local farmers and local shoppers together, and transactions will occur only if a farmer and a shopper simultaneously agree to engage in one."³²

³¹Ohio et al. v American Express Co et al., 138 S.Ct. 2274, 2298 (2018) (Breyer J., dissenting).

³⁰ Two-sided platforms like credit cards routinely exhibit what economists call "indirect network effects". D. Evans and R. Schmalensee, *Matchmakers: The New Economics of Multisided Platforms* (Harvard Business Review Press, 2016). Indirect network effects exist where the value of the two-sided platform to one group of participants depends on how many members of a different group participate. Evans and Schmalensee, above, 25. Airbnb, Uber, and other businesses that intermediate transactions between groups of buyers of goods and services and groups of sellers of goods and services also share this feature that the value they provide increases as the number of participants on both sides of the platform increases.

³² *Ohio et al. v American Express Co et al.*, above fn.31, 138 S.Ct. 2274, 2299 (2018).

Justice Breyer's example highlights the broader point—"multisided platform business" is just a fancy term for a market maker.³³

One feature that may distinguish the concerns of HM Treasury and the Commission from the farmers' markets discussed by Justice Breyer relates to the magnitude of the network effects at issue. Of course, a farmer's market is more valuable to buyers and sellers, respectively, to the extent that there are more famers and more local shoppers participating. However, the magnitude of the network effect is much greater, and potentially more salient for tax purposes, when the "platform" (the marketplace) involved can intermediate transactions globally. As HM Treasury correctly points out

"the development of a user network is highly relevant to platforms that provide a marketplace for third-party buyers and sellers, where user utility is a function of the number of users on the other side of the intermediated market".³⁴

The Commission and HM Treasury would also highlight another distinction: the businesses with which they are concerned take advantage of network effects to intermediate multisided businesses without any physical presence in the jurisdiction of the user (what the OECD calls "cross-jurisdictional scale without mass").³⁵

Both of these issues—network effects and cross-jurisdictional scale without mass—bring us back to the classic pre-internet example of a multisided business model with network effects: a financial exchange. The network effects in financial exchanges arise at one level because for transactions to take place there must be both buyers and sellers. More fundamentally, market liquidity is an important feature in determining transaction costs and making a market attractive to participants, and the number of participants is what determines liquidity. As the number of buyers and sellers on a given exchange increases, liquidity increases, and transaction costs fall. This feature makes the exchange more attractive to its users, thereby generating a classic network effect.

Consider the Lloyd's insurance marketplace. The vast majority of Lloyd's business involves insuring non-UK risks, often without any physical presence in the jurisdictions where the covered risk exists on behalf of either Lloyd's or the underwriters and syndicates that form the Lloyd's marketplace.³⁶ Moreover, the majority of the capital in the Lloyd's market does not come from

³³See also generally Evans and Schmalensee, above fn.30.

³⁴ See HM Treasury Position Paper Update, above fn.1, para.2.21.

³⁵ Another issue that arises is that in markets where indirect network effects are present and the value of the network effect can be internalised by a platform, pricing structures may be "non-neutral", meaning that the optimal price charged by the platform can be below the marginal cost of provision on one market side while being higher on the other side of the business model. As the OECD points out "end-users with lower price elasticities will typically be overcharged and vice versa": OECD Interim Report 2018, above fn.4, para.53. This again is not unique to digital economy businesses. The classic paper presenting these issues, "Platform Competition in Two-Sided Markets", by Jean-Charles Rochet and Nobel Prize winning economist Jean Tirole, used video games, credit cards, and operating systems as the paradigmatic examples: J-C. Rochet and J. Tirole, "Platform Competition in Two-Sided Markets" (June 2003) 1(4) *Journal of the European Economic Association* 990.

³⁶ Lloyd's, *Annual Report 2017* (Lloyd's Annual Report 2017), available at: *https://www.lloyds.com/~/media/files /lloyds/investor-relations/results/2017ar/ar2017_annual-report-2017.pdf* [Accessed 11 October 2018], 3 (approximately 85% of the risks insured by Lloyd's are non-UK risks).

the UK, either.³⁷ But, as Lloyd's itself explains, insureds from around the world seek out Lloyd's exchange because of network effects. It is Lloyd's global network of insurance companies, brokers, and coverholders, and the resultant "capacity, combined with the choice, flexibility and financial certainty of the market, [that] makes Lloyd's the world's leading (re)insurance platform".³⁸

Thus, if multisided businesses with network effects require special rules where a nexus should be attributed to the jurisdiction of the users and tax revenues allocated thereto, it would appear that one category of business that fits this description is globalised financial platforms.

This result begs the question of whether users participate differently in online "digital" marketplaces that intermediate exchanges in specific goods and services (Uber, Airbnb) than in "traditional" financial marketplaces, which are increasingly intermediated online. Is it correct that users participate less "actively" in traditional financial marketplaces when they enter into transactions than they do in online sharing marketplaces? The key participation features of online marketplaces are reviews and ratings of sellers and buyers.

Much more complex data is shared among the specialist syndicates, brokers, and coverholders participating in the Lloyd's insurance market than is shared by short-term renters on a vacation rentals platform.³⁹ And these market participants interact in more complicated ways than do renters and owners. Moreover, Lloyd's has now created a mandate that syndicates enter into many of their contracts electronically over a new digital platform.⁴⁰ So, using Lloyd's as an example, it becomes difficult to see the clear distinction between an insurance intermediation platform and, for instance, the accommodation intermediation platform represented by Airbnb. It is true that historically one business (reinsurance) was globalised before the advent of the internet while the other (home rentals) was not. And historically underwriters sometimes exchanged views offline, while renters often found it hard to exchange views at all. However, now both businesses are globalised, users on both the buy side and the sell side share their views with one another in both industries, and one industry is fully digitalised while the other is moving in that direction. So, what exactly is the difference between these two platforms? Or, between the accommodation traded on Airbnb and the more bespoke products traded electronically in financial markets more generally?

Part IV: the internet of things and the digitalisation of everything

The Internet of Things (IoT) is the network of physical objects or "things" embedded with sensors and network connectivity that enables these objects to collect and exchange data. These sensors are becoming ubiquitous in the devices we encounter in our daily environment. A large number of IoT applications are being developed in various domains by start-ups, small and medium-sized

³⁷ See Lloyd's Annual Report 2017, above fn.36 (only 13% of the capital in the Lloyd's market comes from the UK insurance industry).

³⁸ Lloyd's, *About Lloyd's in the US* (2016), available at: *https://www.lloyds.com/lloyds-around-the-world/americas /us-homepage/about-us* [Accessed 19 September 2018], 2.

³⁹ Or, as HM Treasury puts it user participation in reviewing and rating "services provided by third parties is crucial in regulating what appears on the platform and establishing an important trust mechanism for other users": HM Treasury Position Paper Update, above fn.1, para.2.24.

⁴⁰ See Lloyd's, Market Bulletin Y5170, *Electronic Placement Mandate* (20 March 2018), available at: *www.lloyds* .com/~/media/files/the-market/communications/market-bulletins/2018/03/y5170.pdf [Accessed 11 October 2018].

enterprises, and large multinational corporations alike.⁴¹ The increasing utilisation of IoT sensors plus the advent of more advanced data analytics is allowing more businesses to use sensor data both to track consumers' behaviour and to anticipate their needs or preferences. Furthermore, smart sensors allow businesses of all sorts to interact with their customers without physical presence. One consequence is that smart sensors allow a variety of businesses to launch multisided business models.

One widely discussed IoT example is the idea of the "connected car". Automotive makers around the world are now building out this concept. Trends in automotive research and development involve navigation and entertainment display screens built into the dashboard to offer internet-based information and media, as well as sensors intended to pick up information from networked roads and other networked cars. Autonomous cars are likely to feature seats that face a windshield that has become akin to a computer screen.⁴² On one model of what constitutes "active user participation", a connected car would have all the components for user participation in place. The user would provide geo-proximity data by driving, financial information by leasing, and be in a car that acts as a channel to deliver advertising to a "captive" recipient of any message.

On another model, use of a connected car would not constitute "active user participation" because the user would not be actively writing a message or rating a product or service. In that case, however, clicks on a social media platform would also constitute "passive" user participation. Or at least it seems inconceivable that "going" to a website or "searching" virtually constitutes active user participation, but going somewhere physically is passive activity.

Nor is the automotive sector the only sector where these questions will arise. Home automation devices (for example, smart refrigerators and ovens) as well as wearable devices each raise numerous such issues. Any distinction between active and passive user participation quickly becomes difficult to maintain. Since this distinction—the distinction between active and passive user participation—lies at the heart of the user participation concept, if the distinction cannot be maintained, the user participation concept falls apart.

Part V: do numerical user thresholds change the analysis?

In the interests of administrative ease, HM Treasury suggests imposing certain de minimis thresholds before allocating residual profits to a destination jurisdiction as a result of user participation in that jurisdiction.⁴³ The Commission similarly suggests that the criteria for a significant digital presence should include a user threshold. Under the Commission's proposal, a significant digital presence in a Member State would be deemed to exist only if one or more

⁴¹ See, e.g. T. Degrande, F. Vannieuwenborg, S. Verbrugge and D. Colle, "Multi-sided Platforms for the Internet of Things" in B. Shishkov (ed.), *Business Modeling and Software Design* (Springer International Publishing AG, BMSD, 2018), part of the *Lecture Notes in Business Information Processing* book series, Vol.319, 372–381.

⁴² For high-level discussion, see, e.g. PricewaterhouseCoopers, 2017 Automotive Industry Trends: The future depends on improving returns on capital (2017), available at: https://www.strategyand.pwc.com/trend/2017-automotive-industry -trends [Accessed 19 September 2018].

⁴³ HM Treasury Position Paper Update, above fn.1, para.3.43 (it would "be important to ensure that there was some threshold above which the presence of users in a jurisdiction entitled that jurisdiction a right to a share in user-generated profits i.e. a permanent establishment threshold set at a higher level than just the presence of local users").

of the following criteria are met: if the number of users in a Member State exceeds 100,000; if the number of business contracts exceeds 3,000; or if revenues exceed €7,000,000 in a tax period.⁴⁴

So, do these thresholds differentiate the digital economy from other sectors? Start with the 3,000 contracts threshold. Would that threshold differentiate most digital "intermediation platforms" from traditional financial intermediation? Here the answer is obviously no. Again, taking Lloyd's as an example, thousands of insurance contracts are entered into each month. Moreover, the gross written premiums for the Lloyd's platform in 2017 exceeded £33 billion.

Now consider a seemingly more substantive threshold, the 100,000 user threshold suggested by the Commission, as an alternative qualification for a user participation based PE. Would the 100,000 user threshold differentiate the "digital economy" from the "medical economy"? No, at least not in the US.⁴⁵

Using a narrow definition of clinical trials and a conservative methodology, approximately 25 different organisations enrolled more than 100,000 Americans in clinical studies in at least one of the years 2014 to 2016.⁴⁶ A number of large European-headquartered multinationals, including two prominent UK-headquartered firms, are in this group. A less conservative approach (including trials where companies are collaborators and individuals provide personal medical data through "observational" rather than just "interventional" trials) leads to the result that since 2014, seven large European pharmaceutical companies have collected medical data from more than 3 million Americans.⁴⁷

⁴⁴ See European Commission Proposal, above fn.3, 8. In the proposal, the application of this test and these thresholds is limited to so-called "digital services". For purposes of the Commission proposal, digital services are defined as services that are, "delivered over the internet or an electronic network and the nature of which renders their supply essentially automated and involving minimal human intervention". However, the rationale for ring-fencing such services is unclear.

⁴⁵ Historically PE thresholds have never included the number of interactions as a relevant criterion both because one substantive interaction can be more valuable than 100,000 smaller ones, and because any set numerical interaction threshold tends to create PEs in larger market jurisdictions while preventing a nexus in smaller market jurisdictions. ⁴⁶ For purposes of reaching this figure the author used data on only interventional studies, and excluded data on all other types of clinical studies reported to the US Government. For further explanation see US National Library of Medicine, Glossary of Common Site Terms, ClinicalTrials.gov, available at: https://clinicaltrials.gov/ct2/about-studies /glossary [Accessed 19 September 2018]. The author and his research assistant estimated the number of interventional clinical study participants enrolled by a given organisation in the US by using the Food and Drug Administration's publicly available database on all clinical studies, reported by sponsoring organisation. The data was extracted from *ClinicalTrials.gov*, which provided, for each clinical study, data points including Country, Sponsor/Collaborators, Study Type, Enrollment, Study Start Date, and Primary Completion Date. Each study's "Study Start Date" and "Primary Completion Date" were then compared. Certain simplifying assumptions were made to reach the results: for instance for multi-country interventional studies the number of enrollees in the US was estimated by multiplying the total number of enrollees by the ratio of US-based research sites to total research sites, assuming that each research site would, on average, possess approximately equal numbers of study participants. Also, studies sponsored by wholly-owned subsidiaries were attributed to their parent. A table presenting the full list of organisations and approximately how many participants were enrolled by each organisation from 2014-2016 is available upon request from the author.

⁴⁷ Comprehensive data on the question is available because the Food and Drug Administration (FDA) Amendments Act of 2007 s.801 requires all clinical studies in the US to be registered, the National Institutes of Health (NIH) to be provided with certain information regarding participation and outcomes in those trials, and that information to be made publicly available by NIH. See Food and Drug Administration Amendments Act of 2007, Pub L. No. 110-85, 121 Stat. 823, 904.

Finally, projections suggest that there will be more than 30 billion IoT devices in use by 2020.⁴⁸ Moreover, commercial and industrial applications, driven largely by building automation, industrial automation, and lighting, are projected to account for nearly 50 per cent of new connected devices between 2018 and 2030.⁴⁹ If those projections come to pass, it is hard to imagine that user participation in historically non-digital sectors will not exceed any de minimis user threshold, at least in the larger market economies.

Conclusions

Under HM Treasury's proposal for the attribution of excess returns to a market jurisdiction, attribution to the market occurs only if enough individuals contribute their data for free, make contributions to a business model that are separate from their capacity as a paying customer, or create network effects the platform can internalise. Even if one applied the Commission's numerical threshold for attributing excess returns to a jurisdiction based on user participation, under this model significant returns from London-based financial services businesses would need to be reallocated to other European jurisdictions, and a number of European-headquartered pharmaceutical companies would be deemed to have income attributable to user participation in the US. Moreover, as the internet of things develops, one would expect the range of business affected by the user participation model to expand.

In contrast, under a pure destination-basis income tax, all of the excess profits associated with sales in a given jurisdiction would be allocated to that jurisdiction. Whether in the digital economy, the medical economy, or the financial sector, destination-basis treatment would apply without regard to how many users received services, whether data was provided, how the user interacted with the platform, or whether any goods or services were free. None of these factors would matter at all. Just like anything else, the excess return portion of the profits from a car that did not collect any user data at all and was invented and manufactured exclusively in Germany would be taxed in the market of use. But as the digital economy becomes the whole economy, the number of goods and services that involve no user participation is likely to decrease.

Speaking more generally, both a user participation allocation and a destination-based income tax writ large would likely shift revenue away from export-driven economies and towards larger market economies. However, as the examples in this article have shown, significant uncertainty arises as to whether user participation is present in a wide range of industries and business models. Furthermore, as technology evolves, the range of businesses that demonstrate user participation is likely to increase. No one country will have a monopoly on defining when user participation exists, and the boundaries of the concept (or when the concept should be expanded) will be difficult to discern. As a result, the user participation system would be difficult to administer for

⁴⁹ IHS Markit, above fn.48, 4 (2018).

⁴⁸C-L. Hsu and J. Chuan-Chuan Lin, "An empirical examination of consumer adoption of Internet of Things services: Network externalities and concern for information privacy perspectives" (2016) 62 *Computers in Human Behavior* 516. Additional projections suggest that 30 billion IoT devices by the year 2020 may be a conservative estimate. Global information firms estimate that the number of IoT devices connected worldwide already exceeds the 30 billion threshold, see IHS Markit, *IoT Trend Watch 2018* (2018), 4, and industry professionals have predicted that the number of devices "could approach 100 billion by the end of 2040": see K. Cave, *What will the internet look like in 2040?* (8 September 2015), *IDG Connect*, available at: *https://www.idgconnect.com/blog-abstract/10383/what-internet-look -2040* [Accessed 19 September 2018].

governments and would likely create significant uncertainty for business. A user participation-based allocation system could potentially also discourage businesses that are currently offline or do not collect data from their users from moving into a networked environment.

So, is HM Treasury's active user participation version of destination-based income taxation attractive? Intellectually defensible? Is it preferable to a destination-based income tax writ large? The standard tax policy questions would seem to apply. Would the user participation proposal be more likely to promote global growth than either the status quo or a full DBRPA? Would it be more administrable than a full DBRPA? Fairer (if that can even be evaluated)? Finally—and quite importantly at this point in the BEPS odyssey—we should perhaps ask what reforms would be "stable". Put another way, it may be time to seek out reforms to the international tax system that bring the current period of international tax chaos to a close, rather than perpetuating the churn. Definitive answers to these questions are left for another article. The key point of this piece was simply to begin the inevitable process of applying the principles of HM Treasury's active user proposal to the economy writ large in order to begin evaluating the real import of the proposal.

(J) Digital technology; Digitisation; Financial services; International taxation; Internet of things; Multinational companies; Pharmaceutical industry