

Taxation of the digital economy

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The main features of the digital economy are the lack of a precise location for its activities, the key role played by the platforms, the importance of network effects and the processing of the collected data – which differentiate it from the non-digital economy, particularly in their effects on the value chains.

Such characteristics make it difficult to apply the standard taxation framework. Adjusting this framework requires an insight into the economic rationale of the digital companies and how they work. France Stratégie commissioned a research from high-level economists who carried out the study: ‘Taxing the digital economy: what lessons from theoretical models?’ that provides such analysis.

In the short term, it suggests that specific new taxation tools could be considered at a European level, or for a small core of countries, whilst waiting for an overhaul of the international tax framework. Such taxation could be based on an ad valorem tax on advertising revenue or on the collection of personal data, more easily linked to a specific territory. Because of its impacts, it would be necessary to ensure that no distortions would be introduced by applying it – an increase of data collection, the introduction of chargeable services, the exclusion of certain users, or a brake on innovation. Applying a relatively low tax rate and a threshold below which a company would not be taxed could avoid this.

Market value, turnover, profits and taxes: A comparison between US digital companies (GAFA) and non-digital companies (2013)

	Stock market capitalisation (February 2015)	Global turnover	Global profit	Tax / Turnover (USA)	Tax / Turnover (outside USA)	Tax / Profit (USA)	Tax / Profit (outside USA)
	Billion\$	Billion\$	Billion\$	%	%	%	%
Google	370	59,8	14,5	5,7	2,2	26,4	8,6
Apple	748	170,9	50,2	19,1	1	61	3,7
Facebook	223	7,9	2,8	32,9	1,5	31,2	(losses)
Amazon	175	74,5	0,5	0	0,5	1,6	(losses)
Coca-Cola	183	46,9	11,5	5,8	6,3	47,2	18,8
Pfizer	216	51,6	15,7	10,5	7	(losses)	12,5
GE Company	223	146,0	16,2	-2,8	3,4	-31,9	26,1
Procter & Gamble	203	84,2	14,8	7,7	2	28,1	16,9

Sources: Report from the European Commission's High Level Expert Group on Taxation of the Digital Economy, 28th May, 2014; *Les Échos*, 22nd February, 2015; Yahoo Finance.

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English version of « Fiscalité du numérique », *La Note d'analyse* n°26, March 2015.

INTRODUCTION

The main features of the digital economy are the lack of a precise location for its activities, the key role played by the platforms, the importance of network effects and the processing of the data collected – which differentiate it from the non-digital economy. These characteristics modify the value chains, thus reducing the effectiveness of traditional taxation, which argues for a new, specific, taxation model. In addition, digital companies resort to aggressive tax optimization techniques, similar to the practices of many multinational companies. Therefore, it is necessary to modify the current taxation framework.

France has been particularly involved in this debate with the Pierre Collin and Nicolas Colin's report – presented in January 2013 to the Minister of Economy and Finance and to the Minister of Industrial Renewal¹ –, the National Digital Council's report in September 2013, and the release of several innovative proposals for a new taxation. These proposals have not, however, been implemented, both because of the complexity of the subject and because no serious study of their effects has been carried out. There has been very little academic investigation into the concept of a taxation policy designed to take into account the characteristics of the digital economy.

France Stratégie has thus sought to foster academic research on this topic, as suggested by the 2013 National Digital Council's report, asking for experts to make an appropriate investigation into the subject. After explaining why taxation needs to adjust to the digital era, the current *Note d'analyse* gives an overview of ongoing research addressing the weaknesses of the taxation system and how to tackle it; it also highlights the main results of the study commissioned by France Stratégie² regarding the business models of digital companies and it examines the implications for adjusting current taxation rules to the digital economy.

THE NEED TO ADAPT TAXATION TO THE DIGITAL ERA

The four main characteristics of the digital economy

Digital companies run on business models that set them apart from the 'classical' companies, their characteristics being the source of the difficulties in applying the existing regulations, in particular as regards taxation.

The lack of a precise location for their activities

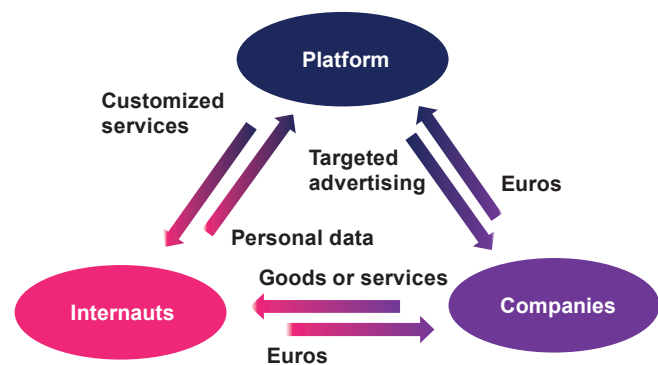
Digital companies offer their services remotely using Internet, with significant use of intellectual property (algorithms, etc.). Assigning a business location thus becomes complex. It is easy for a digital company to declare its business activity in the countries where the regulations are the most advantageous, notably in tax matters, but also concerning the handling of personal data.

The platform's role

Digital companies often act as intermediaries by providing a platform whereby the two parties to a market transaction come together – the Internet users on the one hand and companies on the other – a so-called two-sided market. A part of their added value lies in this ability to bring together these two parties who would not otherwise easily meet.

Companies such as Google or Facebook collect information from their users and offer space where that information can be used by advertisers for fine-tuning their offers to target audiences. Their revenue streams come from this targeting ability. To improve the service, they aim to attract the maximum number of users to their platform, in particular by providing free access.

The business model of internet platforms



The network effect

The success of digital companies lies in their capacity to attract a critical mass of users which creates a networking effect whereby the greater the number of users, the greater is the value for users to be on that network. Once this critical mass is obtained, the snowball effect increases the network's popularity.

The two-sided aspect of digital companies adds to this network effect a sort of crossover network effect whereby

1. Collin P. and Colin N. (2013), *Expert mission on taxing the digital economy*, report, January.

2. Bloch F., Caillaud B., Demange G., De Nijs R. and Gauthier S. (PSE), Cremer J., Cremer H. and Lozachmeur J.-M. (TSE), Bacache M. and Bourreau M. (Mines-Télécom) (2015), *Taxation and the digital economy: A survey of theoretical models*, France Stratégie, March.



the more the number of users from side A increases, the greater is the interest from users on side B for the network and *vice versa*.

Thus the social networks bring together large numbers of users and offer a central point for social interaction (photos, messages, etc.). Blessed with the presence of these user communities, the advertisers take advantage of the platform to increase their visibility and to target their advertising message.

Making use of the information

Modern technological capabilities enable ever-increasing quantities of data to be processed and value to be extracted from such information.

Digital companies seek personal information from users so as to ascertain their preferences. And they use this information to offer customized services, often free of charge. This personal data is monetized, for example through targeted advertisement.

How does the digital economy challenge the current taxation framework?

Tax optimization

Just like any multinational company, the giants of the digital economy take advantage of the loopholes in national taxation laws and of bilateral agreements to optimize their liabilities and drastically reduce their tax rate. With a large part of their activities involving non-physical assets and the tax authorities having great difficulty in pinning down exactly where production takes place, they are able to exploit the loopholes in the system more easily than the traditional industry, especially for operations handled outside the United States (see table p. 1).

Such optimization concerns the tax on profits but also tax on transactions. Digital transactions, being difficult to localize accurately, raise the question of what VAT rate to apply. In the European Union, whereas in general the VAT rate follows the destination (the rate prevailing in the country of the purchasing entity), electronic service provision to consumers was covered by an exception (the rate in force in the country of the selling entity) prior to 1st January 2015. Thus a number of digital companies located their sales operations in Luxembourg to benefit from the lower VAT rate there (standard rate of 15% at the time, compared with 20% in France).

Lower tax revenues

The business models in the digital economy are radically different from those of the non-digital businesses and completely change the added value chain. The increase in the digital companies' activities and the disintermediation that they operate in a growing number of sectors, where they create value at different stages in the production chain (for example, the commission charged by Booking in the hotel sector can be as high as 30% of the booking fee), highlight the problem of an erosion of the tax base.

Not only do states receive little tax revenue from these companies, but the latter also absorb each day an increasing part of the added value, depriving the departments of the Treasury of the associated tax revenue streams.

Distorted competition

These practices and circumventions have given the international digital companies an undeniable competitive advantage which enables them to win against national competitors.

Being able to operate with substantially higher margins, such companies can consolidate their dominant position. This can be achieved by buying up new innovative companies likely to be competitors in the future (for example the purchase of WhatsApp by Facebook for \$19 billion) – or by extending their activities into different markets (for example investments by Google and Apple in the automobile industry). This should incite us to consider the best way for encouraging competition and innovation over the long term.

Faced with these difficulties, how do public authorities react?

There have already been plenty of political reactions to tackle the difficulties in collecting taxes from digital companies, notably involving taxes specifically designed to intercept the circumventions. At the same time, the OECD, at the request of the G20, and the European Commission, have started to carry out research on how to plug the gaps in the European and international taxation systems.

In the long term, reforms are required in the international taxation systems. Taxing company profits at national level is based on the presence of a stable entity, defined in the OECD's taxation conventions as "a fixed company location from which a company carries out all or part of its business". Such a criterion, based on a physical presence, is not appropriate for the digital economy. Thus a modification of the

rules concerning the split of profits between the various physical locations is required. But such modification to taxing profits means a complete rethink of international taxation conventions, with some 140 bilateral treaties concerning just France. Therefore this can only be a long term objective.

WORKING GROUP ON BEPS (BASE EROSION AND PROFIT SHIFTING)

The OECD has identified four broad challenges for taxing the digital economy:

- *redefine the link between a company and a country (adapt the "nexus" concept): by modifying the definition of a permanent establishment, by using the concept of significant digital business presence, by the definition of a permanent virtual establishment, or by deduction at source by the country where the transaction takes place;*
- *attribute a value to data and characterize the "free" provision of information or, more precisely, the exchange of services between clients, from a taxation point of view;*
- *characterize transactions in the digital world – by purchase, location, royalties –, for which, in international law, taxation mechanisms are different;*
- *arrange to collect VAT – and, more generally, consumption taxes – by using the principle of the place where consumption takes place, and also limiting its complexity.*

Competition law may find a way to outlaw certain practices used by tax authorities

The European Commission has launched a new offensive in the fight against aggressive tax optimization, using competition law as its argument. On 11th June 2014, the Commission announced the opening of state aid inquiry, likely to have led to competitive distortions, provided to Apple in Ireland, Starbucks in the Netherlands and Fiat Finance and Trade in Luxembourg. The procedure, widened since October to the case of Amazon in Luxembourg, concerns the transfer prices on which the national tax authorities base their calculations for corporate tax. This has since been extended to tax practices other than transfer prices³.

The new criteria for applying VAT should reduce tax competition

In 2008, in order to fight tax competition between Member States, the European Union has begun to take into account

the destination principle and to think about how to apply it to the electronic services provided to consumers. This principle is in force since 1st January 2015, but the corresponding financial transfers –between Member States– will only be totally effective in 2019. This underlines the time-scales required to align the tax rules to control digital companies which have no difficulty about changing the location of their activities.

THE ECONOMIC ANALYSIS OF THE DIGITAL ECONOMY: LESSONS FOR ADJUSTING THE CURRENT TAXATION RULES

The features of the digital economy suggest that introducing specific tax rules for digital companies needs to be done with great care. To address this issue, France Stratégie commissioned a study carried out by economists attached to the Paris School of Economics, the Toulouse School of Economics and the Institut Mines-Télécom⁴, the results of which are briefly overviewed below.

The economics of the digital economy⁵

How digital companies work

In order to analyse the impacts of taxation on the digital economy, this study examines the four main characteristics mentioned above, relying on theoretical models using an original approach.

- The first model, taking its lead from the social network platforms, considers the network externalities, the coordination of users and competition faced with specific taxation.
- The second model, focusing on two-sided markets, analyses the effect of taxation on a platform which brings together users and advertising providers, and compares taxation from each side of the market.
- The third model deals with the collection and use of personal data and estimates the impact of different taxes on the level of the data processing.
- The last two models deal with the effects on trade to be expected from the removal of national boundaries, and analyse how the emergence of electronic commerce affects tax competition between states which set consumption taxes. One model focuses on the absence of geographic discrimination operated by platforms such as eBay. The other model highlights the substitution effects between electronic commerce and cross-border purchases.

3. See the adoption by the European Commission, in January 2015, of the measures for combating tax optimization between Member States http://europa.eu/rapid/pressrelease_STATEMENT-15-3720_fr.htm.

4. Francis Bloch, Bernard Caillaud, Gabrielle Demange, Romain De Nijs and Stéphane Gauthier (PSE), Jacques Cremer, Helmut Cremer and Jean-Marie Lozachmeur (TSE) and Maya Bacache and Marc Bourreau (Mines-Télécom).

5. This section is taken from the summary of this study (see footnote 2).



The lessons learned from each model and the trade-offs that they imply can be briefly summarized as follow.

Taxing the rent generated by the network effect

Internet platforms benefit from a rent resulting from their position as an intermediary between the users. The difficulties of coordinating users give platforms a form of monopoly power. A tax on profits (or on revenue, which would amount to the same as costs are negligible) would tap into this rent by transferring it to the tax authorities without any allocative or productive distortion. Where fixed costs exist, any taxation may have a negative effect on the platform's ability to continue to develop new offerings or to improve the quality of existing services.

Taxing two-sided markets

In two-sided markets, taxing one side of the market may induce the platform to shift revenues to the other side. This phenomenon explains why, contrary to what happens in a classical market situation, an *ad valorem* tax (on turnover) could be worse than a unit tax (a tax on the person or on the volume of data). Setting a tax on advertising revenue may incite the platform to charge a subscription for the service which would have the effect of excluding those users who have least interest in the platform. A tax on data flows could also drive the platform to charge for access to the service in order to limit the quantity of data downloaded by users. Taxes per user, whether that be on the platform or directly on the user, would equally result in the exclusion of those users with the least interest in the platform.

Taxation and personal data protection

Internet platform revenue streams can be divided into revenue linked to access to the platform and revenue generated by collecting information. If users consider the collection of personal data by the platform being excessive, this could lead to introducing a tax in order to reduce such collection. Taxes based on the platform's revenue have no effect on the collection of data, and taxes based on the number of users or the number of clicks would tend to increase rather than diminish the collection of data. A tax that differentiates between the sources of the platform's revenue, and taxing revenue from data collection at a higher rate, could reduce the level of collection. Allowing the user to choose a service without personal data collection could be disadvantageous to users on average, because such a process could lead the platform to increase the level of data collection from other users. A pricing policy that remunerates users for data collection

improves the well-being of the platform and its users, whereas a pricing policy that makes users pay for a service without personal data collection would increase the platform's profits to the detriment of its users.

Taxing platforms and fiscal interactions

Taxing data or on-line advertising could lead to platforms changing their business model. Such targeted taxation reduces the platform's volume of business and thereby reduces VAT receipts. However, with a very low rate of tax on data collection or on-line advertising, the direct effect of the tax would outweigh the indirect effect on VAT, and tax receipts would increase. Taxes on data collection and those on advertising are not perfect substitutes, and taxing online advertising affects the behaviour of the advertisers and creates more distortions than a tax on data collection. If the platform remunerates users for uploading personal data, a part of the platform's profits can be taxed as a form of additional revenue received by the users.

Taxation and competition between platforms

Taxation affects the market structure and competition between Internet platforms. If platforms invest to attract users, this investment may become excessive. Taxing profits may then have a positive effect on the platform's profits by reducing unproductive investment, at the cost of a reduction in quality for the users. In two-sided markets, when two platforms compete for users on the same market side, taxation has no effect on the market structure if the platforms are symmetric, but may distort the size of platforms when they are initially asymmetric.

Tax competition and electronic commerce

The rise of electronic commerce has changed the conditions for fiscal competition between countries when setting their rates of VAT. Electronic commerce reduces the cost of cross-border transactions and enables platforms to avoid taxation, which intensifies the competition between countries when the origin principle is applied, thereby reducing VAT rates. As electronic commerce serves as a substitute for cross-border purchases, when the destination principle is applied, competition between countries diminishes, which enables VAT rates to rise. Electronic commerce platforms like eBay allow no discrimination between buyers on the basis of their country of residence. When price differentiation is impossible and potential purchasers have a preference for domestic goods, tax competition between countries is lower and the rates are higher than when sellers can adjust their prices according to the geographic residence of the buyer.

A strategy for adapting taxation to the digital world

Taxing the profits of digital companies

The current mechanisms, whereby the profits are split between the various geographic locations of a multinational corporation, based on the transfer prices adopted between these different locations, are completely obsolete for digital companies.

Drafting new rules, currently under way within international bodies, must rely on the number of users within the jurisdiction of a particular tax authority, as that is a necessary condition for digital companies to make a profit and, to a certain extent, this reflects the rent generated by the network.

Whilst waiting for new rules, public tax authorities could put in place an *ad valorem* tax on the companies' revenue, a figure that could be used as a good approximation of profits generated within its jurisdiction.

In the absence of such a tax, a unitary levy could be suggested, based on the platform activity, measured by the number of users on national territory – users or advertisers – or even on the flow of data exchanged. Such a tax would, however, have a distorting effect and a significant impact, especially concerning the exclusion of certain users and the use of personal information.

Making use of personal data

The business models of Internet companies are based on using personal data, and many users consider this use to be excessive. Taxation could be a way of encouraging a reduction in this activity. In this case it would be necessary to differentiate the tax rate as a function of the origin of the revenue: a lower rate for revenue derived from simple access to the site (sales, advertising revenue generated by a key search argument) compared with the rate applied to revenue generated by the use of stored personal information (third party sales of personal search

information, storage of sales data for subsequent pricing or targeted advertising).

Moreover, the regulators could encourage companies to offer menus with differing degrees of data use which would lead them to offer rewards for using personal information, rewards that could be financial or access to higher quality services. This possible monetization of transactions could be used as the basis for taxation.

Taxing transactions (VAT) using the destination principle

Applying VAT using the destination principle significantly reduces the need for companies to establish themselves in the country with the lowest tax rates, and therefore the competition between countries.

The change that came into effect on 1st January 2015 could be the opportunity to collect data on its effects: trends in transaction tax rates⁶, tax receipts collected and the split across Europe.

Market knowledge

This study also provides qualitative results which should enable having a view of the choices that companies might make when confronted with changes in taxation rules. These theoretical results cannot be quantified because of the lack of suitable data on how digital companies work and their markets. This makes it difficult to propose taxation strategies that are appropriate for the digital companies' business models.

It would therefore seem appropriate to develop tools that would help create statistical systems that public authorities could use, having gathered the required data to measure company activity, in particular the flow of information (flows between the main players, data collected from users) and the various monetary flows (electronic commerce, advertising revenue and customs information, etc.).

6. Luxembourg raised its standard rate of VAT to 17% from 1st January 2015.



CONCLUSION

In the short term, specific new taxation tools could be considered at a European level, or with a small core of countries, whilst waiting for an overhaul of the international tax framework. Such taxation, which could be based on an *ad valorem* tax on advertising revenue or on the collection of personal data, more easily attributable to a particular territory, would not however be without consequences. Public authorities should ensure that no distortion would be introduced by applying it – a more in-depth collection of data, the shift from free to chargeable services, the exclusion of a section of users, or a brake on innovation. To avoid this, it would seem advisable to use a relatively low rate of tax and to apply a threshold, below which a company would not be taxed.

The changes in business model, induced particularly by the arrival of Internet platforms, raise questions that go well beyond the issue of taxation: innovation, competition, cyber security, data management, financing cultural creation are all concerned. The current frameworks need to be adjusted to the digital world in a coordinated manner. Thus, the theoretical models developed for the study briefly summarized in this paper, although focused on taxation of the digital economy, have underlined the interactions between taxation and the competitive environment, as well as the issues surrounding the collection and use of personal information.

Keywords: Digital, taxation, economic model, business model, platform.

17. The investments linked to the low carbon transition are mostly grid investments, which have a spillover effect on the total factor productivity of all the sectors in the economy. Moreover, the new technologies developed thanks to the transition process represent new knowledge which can then be exported to the rest of the world. See Aglietta M. and Espagne É., “Financing energy and low-carbon investment, public guarantees and the ECB”, *CEPII Policy Brief*, forthcoming, for a sectoral analysis of the potential non price productivity effects.

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