

Internet Taxation

Francis Bloch

Université Paris 1 and PSE

Toulouse, Postal Conference, April 16, 2016

Taxation of Internet Platforms

- Internet platforms (Google, Amazon, Facebook, Twitter..) pay very low corporate income taxes outside the U.S.
- Google (2015): effective tax rate in the US: 19 %, outside the US 6%
- Facebook (2015): global effective tax rate: 4 %
- "Double Irish" "Dutch sandwich": incorporate companies in Ireland, Luxembourg, Netherlands ; pay royalties in Bahamas, Cayman Islands
- Benefit from tax deductions in IP, loans within the company, etc..

General Framework of Taxation of Multinationals

- The framework for taxation of multinationals (and avoidance of double taxation) dates from the League of Nations in 1928.
- It relies on notions of "permanent establishment" and transfer pricing at arm's length
- It is based on bilateral tax treaties
- The framework is based on a vision of the firm as a manufacturing entity. It is clearly not adapted to the digital age.

The OECD BEPS

- The OECD is currently (since 2013) working on a 'Base Erosion and Profit Shifting" (BEPS) project
- This is a general project but the first action is to "address the tax challenges in the digital economy"
- One main result has been the country-by-country reporting, forcing firms to disclose the profits they make in every country.
- There are also parallel initiatives at the level of the European Commission and in various European countries

Various proposals for internet taxation

- in Italy, Spain, Hungary, France, various (sometimes exotic) proposals have been made to develop industry-based taxes:
 - A tax levied on ISP, either as a flat tax per user, or a tax based on the flow of downloaded data
 - A tax paid by the user on access to platforms, based on the flo of downloaded/uploaded data
 - A tax paid by the internet platform, as a function of the number of users, or flow of downloaded/uploaded data, or clicks on ads

What is internet taxation?

- Many difficulties to tax internet platforms are the same as the difficulties to tax multinational companies: fiscal optimization, use of tax havens, rules for transfer pricing, negotiations between firms and countries resulting in specific arrangements...
- The problems in the digital economy are worse because rules attaching profits to countries are harder to define
- In addition, marginal costs are low, transfer of goods and services very quick and inexpensive..
- Internet firms are often two-sided platforms, with complementarities which may change the classical effects of commodity taxation
- New phenomenon: data collection and exploitation at a very large scale which may be affected by taxation
- Large network effects: the industry can change very quickly, taxation may affect the dynamics of the industry and competition among firms..

VAT and indirect taxation issues

- Principle of origin or of destination?
- In the EU, switch from origin to destination for goods and digital services (the latter since January 1, 2015)
- On peer-to-peer platforms, thresholds for VAT liability.
- Difficulties of enforcement on e-bay, Air BnB..

A study on internet taxation for the French Prime Minister's Think Tank

- A group of French economists (including some in the room..) was commissioned by France Strategie, a think tank linked to the Prime Minister's office to offer a theoretical framework for internet taxation
- This led to five papers (two on e-commerce and VAT, three on corporate income taxation) which were presented to the French Minister for the Digital Economy (Axelle Lemaire) in March 2015
- This also led to specific recommendations on internet taxation in France
- The same group of economists is now involved in a follow-up study, in relation with the BEPS program of the OECD.

Kind, Koethenburger Schjelderup (2008, 2010)

- Consider ad valorem taxes and unit taxes in standard two-sided markets (no explicit mention of digital platforms)
- Main point: complementarities in demand may change traditional insights from one-sided markets
- Consider inverse demand functions $p^A(x^A, x^B)$ where p^A is decreasing in x^A but increasing in x^B
- Show that an increase in the ad valorem tax on side A may make the monopoly platform want to switch revenues to side B.
- In order to achieve it, the platform may increase output on side A, and on side B
- Hence an increase in ad valorem tax on side A may result in an increase in output on both sides of the market
- A unit tax will never have this effect: it acts as an increase in marginal cost and always results in a decrease in the output being taxed.

Optimal taxation in two-sided platforms (KKS)

- In a two-sided market, a monopoly may over-produce compared to the social optimum (as in the case of complements)
- Taxes can be used to reduce the output of the monopoly.
- These taxes could be positive unit taxes or *negative* ad valorem taxes.
- In two-sided markets, the traditional argument showing that ad valorem taxes are less distortive and dominate unit taxes is no longer true: unit taxes may be preferable to ad valorem taxes

Bourreau, Caillaud and De Nijs (2015)

- Analyze the effects of taxation on two-sided platforms when data play a role
- The platform connects users and advertisers. It collects revenues only on one side
- Collection of data increases the quality of service to users and the value of advertisers.
- The analysis shows that taxes on data collection may reduce the volume of sales (and hence lower VAT revenues)
- It may also lead platforms to switch business models and start collecting subscription fees from users.
- An ad valorem tax on advertising revenues is superior to a tax on data.

BCD model: Users

- Users choose the quantity of data x they upload on the platform.
- The value they get is increasing and concave in x , $v(x)$.
- Data also increase the relevance of ads sent by advertisers, $\lambda(x)$ increasing and concave.
- A transaction associated with a relevant ad generates a surplus σ
- Users have a cost of privacy θ with density f on $[0, 1]$.

BCD Model: Sellers

- Online sellers play the platform on a pay-for-click basis at a unit price a
- The seller's profit in a transaction depends on a cost $\pi(c)$.
- Costs are distributed according to a density g .
- The expected profit per relevant ad is $\frac{\pi(c)-a}{1+t}$ where t is the VAT rate.

BCD Model: The platform

- Users and sellers choose whether to participate in the platform.
- The platform collects two revenues: A subscription price A from users and a per-click price a from advertisers.
- A and a both affect the participation of users and sellers... (higher A reduces the number of users, thereby reducing the value of the platform to sellers, higher a reduces the number of relevant ads, thereby reducing the value of the platform to users...)

BCD Model: Tax revenues

- Fiscal revenues come from
 - The VAT on sales
 - A tax proportional to the flow of data uploaded by users
 - An ad valorem tax on advertising revenues of the platform

BCD: Main results

- **The introduction of a small tax on data increases fiscal revenues if the VAT rate is small enough.**
- **The introduction of a small tax on data leads the platform to increase both its prices A and a .**
- **A small ad valorem tax on advertising revenues increases tax revenues but reduces participation on the platform.**

Bloch and Demange (2015)

- The platform selects the amount of data collected/stored x (different from BCD where the user chooses x)
- How does taxation affect the choice of x by the platform?
- Can Pigovian taxation reduce the amount of data collection when it is excessive?
- Ad valorem taxes have no effect on the choice of x
- A tax per user increases the amount of data collection
- A differentiated tax, with higher unit tax rates on data stored or sold, reduces data collection
- A tax levied on users has ambiguous effects on data collection.

BD: Advertisers and users

- The value of a user to the platform (through ads) is $v_0 + v(x)$ where v is increasing and concave
- The value of the service to users is $u_0 + u(x)$ where u is increasing and concave
- Users have privacy cost θx where θ is distributed according to a cdf F .
- We focus on the participation of users on the platform (no two-sided effects)
- The user with highest cost is given by

$$T(x) = \frac{u_0 + u(x)}{x}.$$

BD: Platform profit and welfare

- The profit of the platform is

$$\Pi(x) = [v_0 + v(x)]F\left(\frac{u_0 + u(x)}{x}\right).$$

- Total surplus of users is

$$W(x) = [u_0 + u(x)]F\left(\frac{u_0 + u(x)}{x}\right) - \frac{x}{2}F\left(\frac{u_0 + u(x)}{x}\right)^2.$$

Optimal behavior of the platform and welfare

- Suppose that $v(x) = bx^\beta$ and $u(x) = ax^\alpha$ with $a, b > 0$ and $\alpha, \beta \in [0, 1]$. In addition, let the distribution $F(\theta)$ be uniform over $[0, 1]$
- The coverage level $\xi(u_0)$ is the solution to the equation:

$$u_0 + ax^\alpha - x = 0. \quad (1)$$

- The platform optimally chooses a degree of data exploitation $x \in \{\xi(u_0), 1\}$. It chooses $\xi(u_0)$ if and only if $\frac{v_0}{b} \geq \nu(u_0) \equiv \frac{u_0 + a - \xi(u_0)^\beta}{1 - u_0 - a}$.
- This level of data exploitation is excessive when v_0 is small and α low.

Effect of taxation

Proposition

The imposition of a tax has the following effects on the degree of data exploitation by the platform:

- *An ad valorem tax τ on the profits or revenues of the platform has no effect on the degree of data exploitation*
- *A tax paid by the platform per user τ_P results in an increase in the degree of data exploitation*
- *In a differentiated revenues tax system, a tax τ_1 on the access revenues results in an increase in the degree of data exploitation, whereas a tax τ_2 on the revenues generated by data exploitation results in a decrease in the degree of data exploitation*
- *A tax paid by users for accessing the platform τ_U has ambiguous effects on the degree of data collection but increases the probability that exclusion occurs.*

Specificities of taxation in the digital economy

- Large network effects
- Two-sided platforms
- Low marginal costs, business model where only one side of the market pays
- Importance of data, barter between the platform and users 'data for service'
- Territorial lines are blurred

Taxation of network rents

Internet platforms collect network rents because of their positions as intermediaries between users or between the two sides of the market. Taxation of profits (or revenues) of internet platforms is just a transfer from the platforms to the government, with no distortive effects on productive and allocative efficiency. In the presence of fixed costs, taxation may generate negative effects on the platforms incentives to develop new services or improve the quality of existing services.

Exclusion on two-sided markets

On two-sided markets, taxation on one side may lead the platform to shift revenues to the other side. This explains why, contrary to classical markets, ad valorem commodity taxation may be worse than unit taxation. Charging a tax on advertising revenues may induce the platform to charge a subscription price to users, resulting in exclusion of users with the lowest values. A tax on data flows may lead the platform to start charging a subscription price in order to limit the amount of data voluntarily uploaded by users. Taxes per user, whether charged to the platform or directly to the user, also result in exclusion of users with the lowest values.

Taxation and privacy protection

The revenues of internet platforms can be decomposed into revenues linked to one-time access and revenues generated by data collection. Data collection by platforms is excessive from the point of view of users. Taxes based on the platforms revenues are ineffective, and taxes based on the number of users or accesses result in an increase rather than a decrease in data collection. A tax differentiating between the sources of the revenues of the platform, and imposing a higher tax level on revenues generated by data collection, could lower the level of data collection. Giving the user the possibility to opt out may actually harm the average user by inducing the platform to increase data collection on all other users. A pricing policy by which users are paid for data collection improves the welfare of users and of the platform, whereas a pricing policy by which users pay to opt out increases the profit of the platform at the expense of users.

Interaction of fiscal instruments

Taxation of data or online advertising or new privacy regulation may result in a shift in the business models of the platforms. Taxation reduces the volume of activity on the platform, lowering revenues from VAT. However, for small levels of taxation on data or online advertising, the direct effect of the tax dominates the indirect effect on VAT, and fiscal revenues are increased. Taxes on data and advertising are not perfect substitutes, and a tax on advertising results in more distortions than a tax on data. If the platform pays users for uploading personal data, part of the platforms profits can be taxed as additional income received by resident users.

Taxation and competition

Taxation also affects the market structure and competition among internet platforms. If platforms invest in quality to attract users, taxation may increase the joint profit of the platforms by preventing unproductive investments, but will result in lower quality for users. On two-sided markets, when two platforms compete to attract users on one side of the market, taxation has no effect on the market structure when the platforms are symmetric, but may distort the sizes of the platforms when the platforms are initially asymmetric.

E-commerce

The development of e-commerce has changed the conditions for fiscal competition between countries setting their rate of VAT. E-commerce leads to a decrease in cross-border transaction costs and a possibility of evading taxation, which strengthens competition between countries under the destination principle, resulting in a decrease in VAT rates. On the other hand, e-commerce platforms prevent sellers from price discriminating among buyers according to their country of residence. When price discrimination is banned, and buyers have a bias in favor of domestic goods, tax competition between the two countries is mitigated and tax rates are higher than when sellers can adjust their prices to buyers according to their geographical location.

Open questions..

- Redefine permanent establishment: how?
- Sharing profits among countries: how and which rule for transfer pricing? How should one divide profits among countries?
- What do we expect from information sharing among fiscal authorities?
- Imposing a withholding tax on internet transactions: at which level?
- How do we quantify likely effects of industry-based taxation on fiscal revenues and welfare?
- What are the effects of the switch from origin to destination on (indirect) tax competition?