

Economics and Taxation of Multisided Platforms

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**Taxation and the digitalization of the economy:
state of the art and perspectives**

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1 Outline

1. **IO and Microeconomics of MP:** productivity, competition, taxation ...
2. **The mechanics of platforms:** many sides platforms, network externalities, pricing structure, elasticity, etc.
1. **Why and How to tax the digital economy?**
 2. profits tax allocation, but also **revenue tax, tax on transactions, advertising, on data**, unit and ad valorem taxes, etc.
1. International issues: OECD, EU and the US Tax Reform

2 Main issues

- Strong **dematerialization of economies**; DE lead to a **new chain value**
- **digital economy is essentially immaterial**: firms have a huge capacity to supply digital good and services without physical *nexus*
- **key role of intangibles** (patents, intellectual property, algorithms, etc.). Investments essentially in **intangibles**: macro and micro effects
- **DE is leading to a vanishing of tax bases?**

2 Capitalism without Capital Haskel-Westlake (2018)

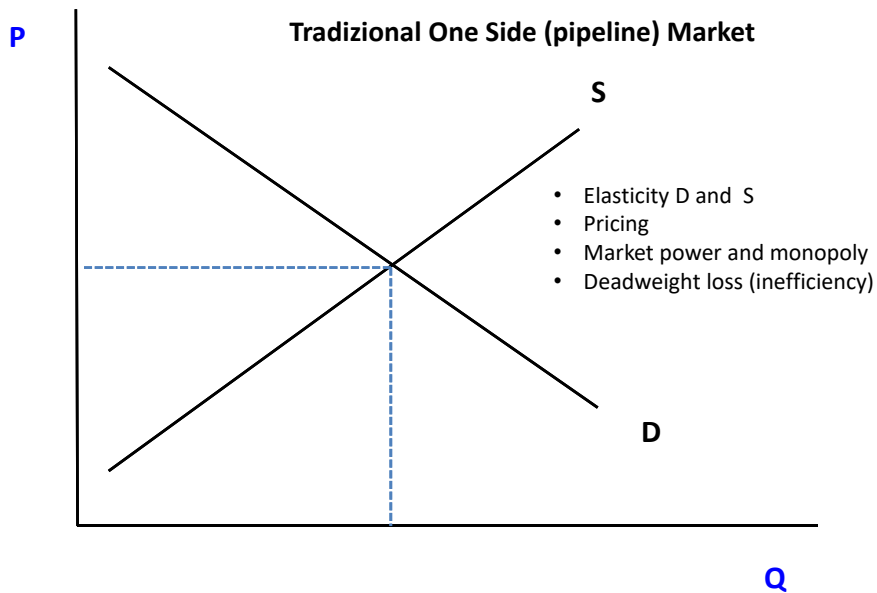
For centuries, when people wanted to **measure the value** of a firm, they counted and measured **physical stuffs**. Investments were all in **tangible assets**

Digital firms: market value is a large multiple (40-60?) of asset valuation from balance sheet. This is "**Capitalism without capital**"

Investment in intangible are deeply different: effects on **innovation & growth, productivity, inequality, financial policy, taxation**

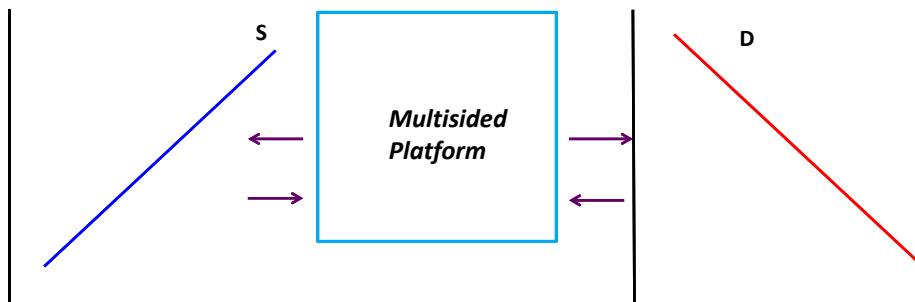
Intangibles: a) presents sunk costs; b) generate spillovers; c) are more likely to be scalable (ex. brands, licensing agreements, etc.) d) synergies

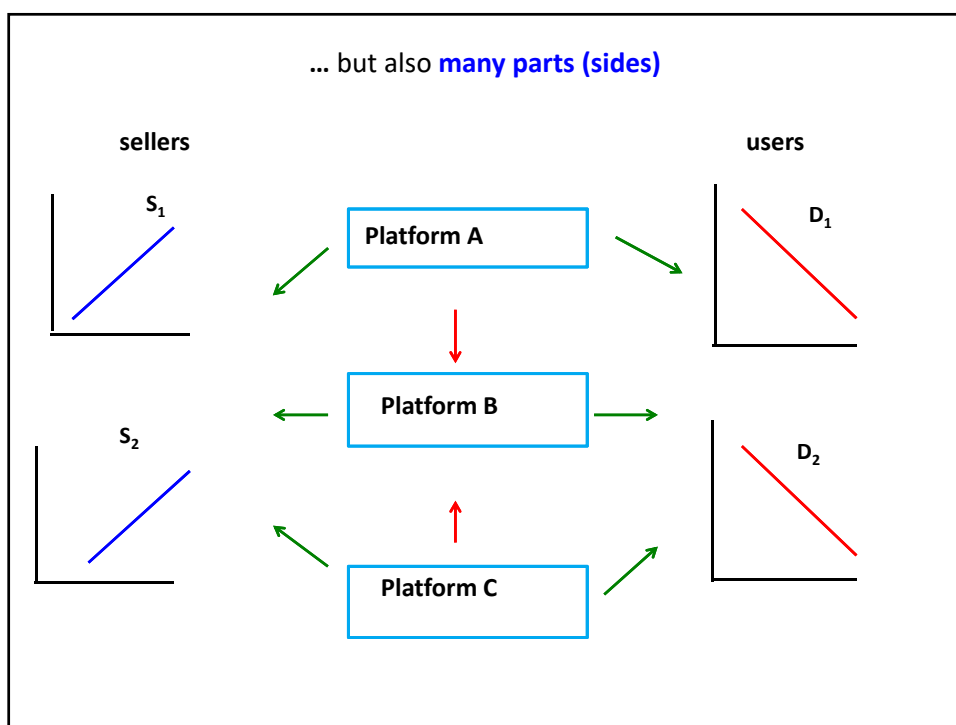
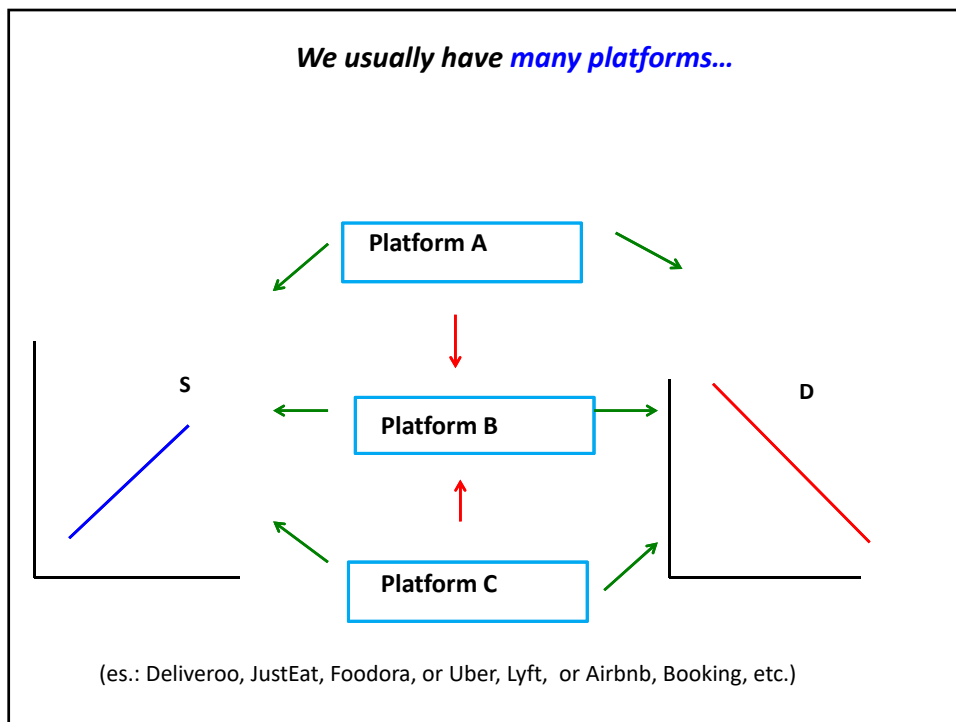
3 micro of multisided platforms



3 Multisided Platforms

- MPs create new (non-existing) markets in many sectors, with two or more parts. **Direct and indirect network effects (NE), pricing strategy on multisided**





3 Multisided Platforms

- **MPs interconnect various types of supply and demand** and each platform provides goods and services to many clients and users
- **Monopoly or some degree of competition among platforms?**
- degrees of **congestion/rivalry** between various S and D may occur
- **Key points: price structure** and **fees allocation** among the parts of the platform

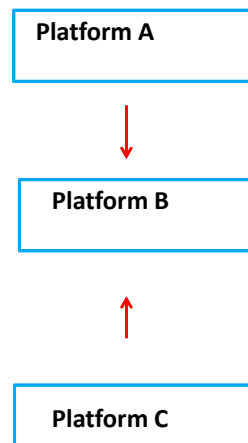
3 Multisided Platforms: *degree of market power*

Monopolistic platform

Platform A

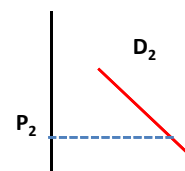
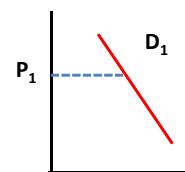
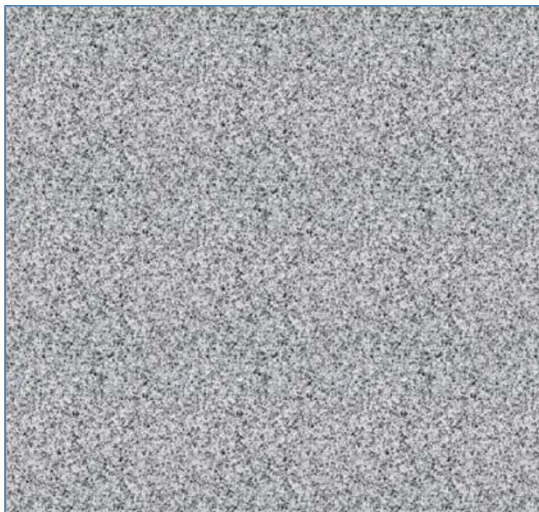
3 Multisided Platforms: *degree of market power*

Competition among platforms (competing platforms)



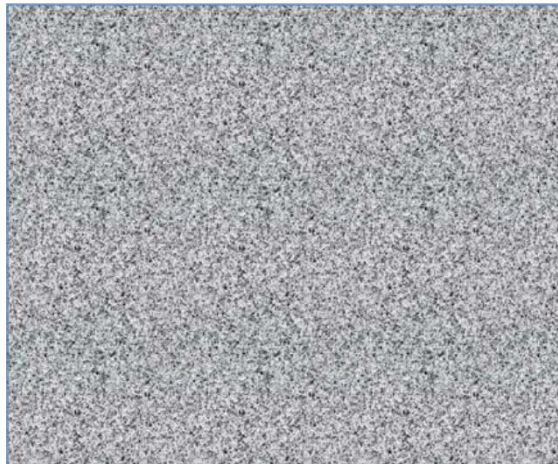
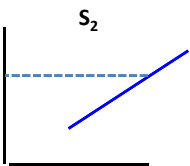
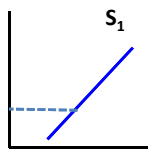
3 Multisided Platforms: *Competition among users*

Different price structure, competition among users, elasticity of demand, NE ...

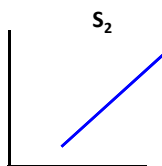
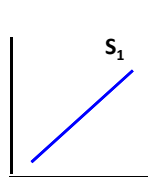


3 and competition among sellers

Different price structure, competition among sellers, elasticity of supply, NE...



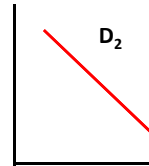
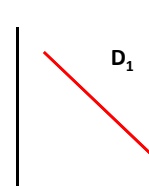
Third-part providers (eg: apps developers)



Platform A

Platform B

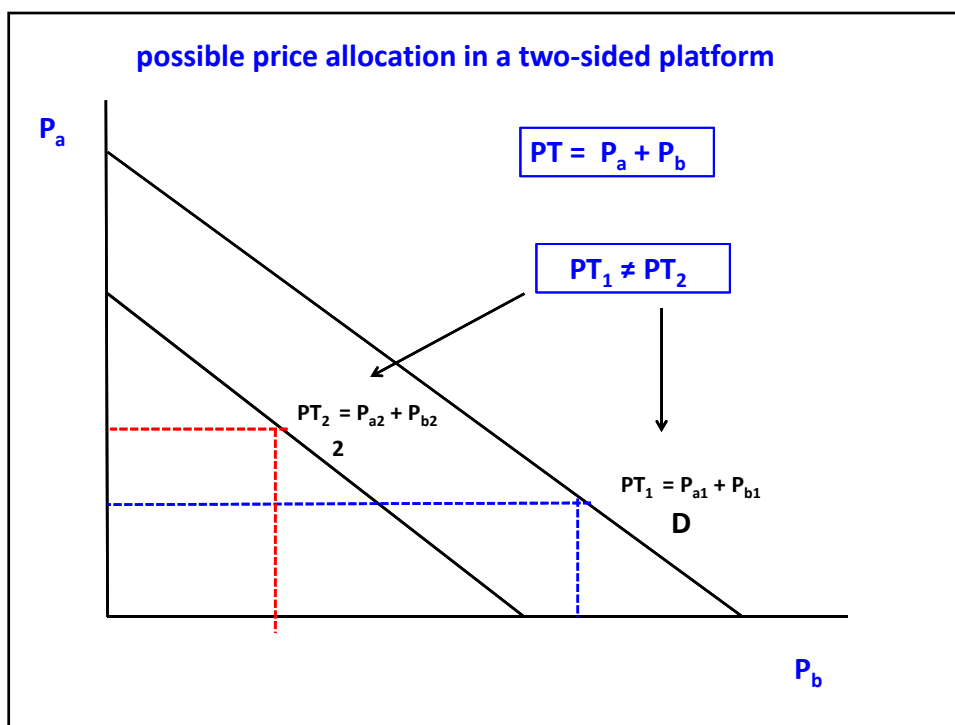
Platform C



Sectors	Examples
Media	YouTube, Netfix, Wikipedia, Huffington, Kindle
operating systems	iOS, Android; MacOS, Microsoft windows
food	Foodora, OpenTable, Justeat, Deliveroo
communication & networking	Facebook, Twitter, LinkedIn, Snapchat Instagram, Skype
transport	Uber, Lyft, BlaBlacar, GrabTaxi
Travel	Airbnb, Tripadvisor, Booking.com, Hotel.com Roomster
retail & delivery	Amazon, Alibaba, Walgreen, Wholefoods Ubereats, Glovo, Ebay
logistic	Munchery, Foodpanda
gaming	Xbox, Nintendo, Playstation
education	Udemy, Skillshare
energy	Nest, Tesla,
health	SimplyInsured, Kaiser, EuropeAssistance, Beurer
personal matters	Tinder
banking & financial	Bitcoin, Litecoin, Ethereum, Nem, Ripple, Libra

4 Key Issues of Multisided Platforms

- a. to define **critical mass** (on both sides of the market); **ignition level** to launch the market
- b. What is **MPs optimal size**? Define **number of users & sellers** on two parts of the platform
- c. **How to build a platform**: there is **no a general/universal method** that may change according to the different markets
 - a. **Direct and indirect network effects**
 - b. **pricing structure** (on the two parts of the platform); **pricing strategies** on the different sides of MP are **interdependent**
 - a. **Dynamic aspects**: fees changes, parts size, participation



5 Network effects

- **network effects**: key aspect of MP: effect that **number of users has on the value created for each user of the platform**
- NE (externalities) can be **direct and indirect**
- NE can be **negative and positive**
- NE may exist only **on one side or on two side simultaneously**
- two sided effects turn out in **4 possible NE** (see table)

Two sides Network effects		
side	sign of NE	
same side (users-users)	positive	negative
users-users	Xbox	Justeat
sellers-sellers	Adobe	Covisint
cross-side effects	positive	negative
users-sellers	Visa, AE, Apple apps. Uber, Twitter	some digital media platform Uber
sellers-users	Visa, AE, Apple apps. Uber	some digital media platform Uber

6 Building up a platform and pricing structure

How to **get economic value from a platform** (monetize)

- a. **charging a transaction fee** (Uber, Airbnb, etc.)
- b. **charging for access** (LinkedIn)
- c. **charging for enhanced access** (Yelp, Google, etc.)
- d. **charging for enhanced curation** (Sittercity)
- e. **no fee and free access** (many platforms, Facebook, Twitter, Google)
- f. **Whom one should charge?**
 - ① Charging all users
 - ② Charging one side while subsidizing another
 - ③ charging most users full price while subsidizing stars
 - ④ charging some users full price while subsidizing users who are price sensitive

7 New IO of MP

- **Micro and IO we learned and teach does not exist anymore!**
- Effect on market, competition, consumer welfare, value and tax base depend on platform structure, role of two (more) parts, elasticities, etc.

7 Competition and antitrust of MPs

- Digital giants **do not compete for the market... they are the market itself!** (“sovereign states” # users > people of China, India, ...)
- **Size begets size, MPs provide key infrastructure on which the market works**
- **“Personal data are the currency in which customers buy services”**. But “a giant-killing startup is just a click away.”
- **Reduce entry barriers; mergers monitoring; foster competition between MPs**, new property rights law and data exchange; data sharing is crucial to reduce monopoly power

8 Taxation of MP

- Goods & services of DE are essentially **intangible assets; but tax systems are still based on physical production!** MP's business is largely done without any **physical presence**. **A key rationale of traditional taxes system disappears.....**

- Notion of **“permanent establishment”** and **“place of income production”** have largely faded away

- National fiscal authorities want to reduce tax avoidance of multinationals and ask digital companies to pay a **“fair share of taxation”**

8 National (unilateral) or Multilateral solutions?

- a. **Taxing MPs only in one country is suboptimal and distorting;** we need a **common multilateral approach**

- a. **Need to define general criteria on the international setting** (at OECD/EU level)

- a. **Cooperative solution**, as far as possible... (but we are not going in this direction...)

- a. It is also in the **interest of MPs** to find a cooperative solution. Otherwise, States will act: **unilateral assessments, national/domestic taxes, etc.**

9 OECD proposals

After **BEPS Report** (2018), **Public Consultation Document** (6 March 2019) and "Programme of Work to develop a Consensus Solution" (28th May): **Two pillars:**

Pillar 1: revised profit allocation and nexus rules

- focuses on the allocation of taxing rights, by suggesting modifications to the rules on profit allocation and nexus based on the concept of user contribution, marketing intangibles and/or concept of significant economic presence

Pillar2: global anti-base erosion proposals

- Give jurisdictions a remedy in cases where income is subject to no or only low taxation the right to **"tax back" profits**

9 OECD proposals

Pillar 1: revised profit allocation and nexus rules

- "to recognise value created by a business's activity or participation in user/market jurisdictions that is not recognised in the current rule for allocating profits."
- Digital business models may "solicit substantial contributions to, and active utilization of, a MP by a jurisdiction's residents, generating substantial value for a business but, under the current tax rules, that jurisdiction may not have a taxing right over any of that business's income".

3 proposals/areas:

- a) "user participation"
- b) "marketing intangibles"
- c) "significant economic presence"

9 OECD proposals

“user participation” is considered a material driver of value

- the sustained engagement and active participation of users is a critical component of value creation for certain highly digitalized businesses, especially for the following business models:
 - a. **Social media platforms:** are populated by **user-generated content**, volume and quality of that content a key factor in their ability to generate revenue from those users or from paid-for advertising targeted at those users
 - b. **Search engines:** much of the **content** of a search engine is **delivered**, directly or indirectly, **by users of that platform**. The intensive monitoring of user data also allows the platform to tailor experiences to individual users, and to earn revenue by selling advertising targeted at users
 - c. **Online marketplaces:** The success of an online marketplace is dependent on the size of the user network on either side of the platform, and the quality and diversity of goods/services those users are offering

9 OECD proposals

- **The value generated by user participation is not captured in user jurisdictions under the existing international tax framework,**
- **businesses being able to generate significant value from a jurisdiction with a significant and engaged user base (user jurisdiction) without the profits they derive from that value being subject to local tax.**
- To better align profit allocation outcomes with value creation, the proposal seeks **to revise profit allocation rules to accommodate the value creating activities of an active and engaged user base. The user jurisdictions would have the right to tax the additional profit allocable to them.**

9 OECD proposals

- **Public consultation:** very interesting exercise in political economy terms...
- list and type of people/organizations (**200 docs, 2000 pages**) who answer to public consultation: major stakeholders and law firms...
- An incredible number of pages of consultations: but **what is the opinion of different governments?**
- **Attribution of a proportion of profits tied to user activities**, through a simple pre-agreed percentage (p.11).

9 EU Commission proposal

2 directives proposals: establish new rules for attributing profits to digital businesses and a interim measure for a digital service tax (DST)

a) significant digital presence

- The Eu Directives proposes that businesses would have to pay tax in Member States where they have a significant digital presence. This would be defined according to revenues received from the supply of digital services, number of online users or number of business contracts for digital services.

b) digital service tax (DST)

- 3% on revenue of digital firms with some thresholds, allocation according the number of users

10 Some simple principles...

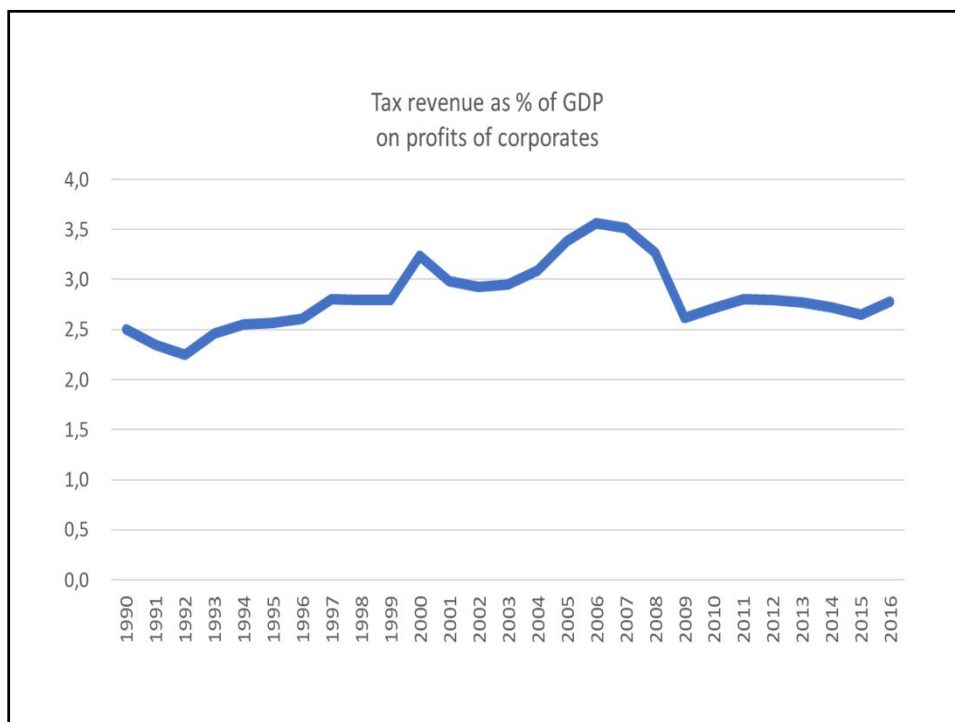
- In a world of MPs, **corporate taxation alone is not sufficient to capture the new digital value creation**
- **OECD/EU proposals move in the right direction**; to define a significant digital tax presence. This is a challenging task; therefore, the real issue is:
- **Do we need some forms of ad hoc taxation of MPs?**
- Even if the **“no ring fence” principle is correct** (all is digital), the answer tends to be **positive**, even if it is difficult to find a workable solution

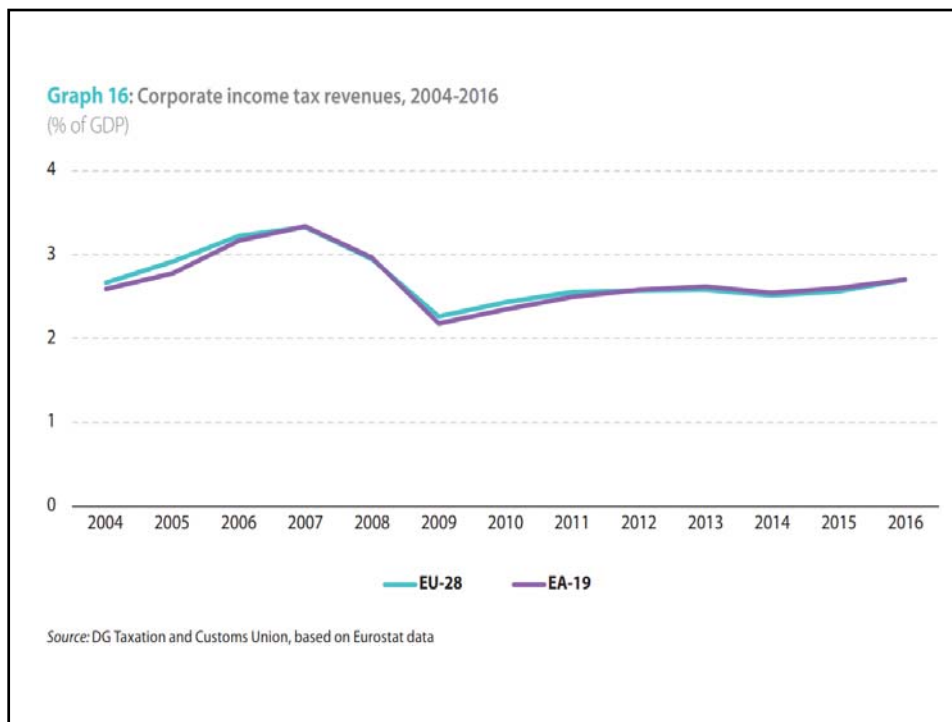
10 Some simple principles...

- **Is there any value creation from platforms and users participation?**
YES!
- **How to define user participation and value creation?** Pricing structures are interdependent, so the effects of taxation....
- Why some countries have decided, in the end, to make use of a DST (of a unilateral **approach**?)
- **Multiple equilibrium in political economy term**; Stackelberg game (leader, first mover, follower)
- **How much tax revenue is really at stake?**

11 Data on profit shifting and tax avoidance

- **Many forms of discontent** in some countries and by some national movements (populists...?): What reasons?
- Is **there a real issue** (clear evidence) **of tax avoidance at international level, tax evasion** in offshore center and **profit shifting** by multinationals? **YES**
- Many sources/studies on evidences of tax avoidance and profit shifting
- **Gabriel Zucman**, Berkeley (2015, 2017, 2018, 2019) built a **new big dataset** on profit shifting and tax avoidance of multinationals. Outcomes are really striking

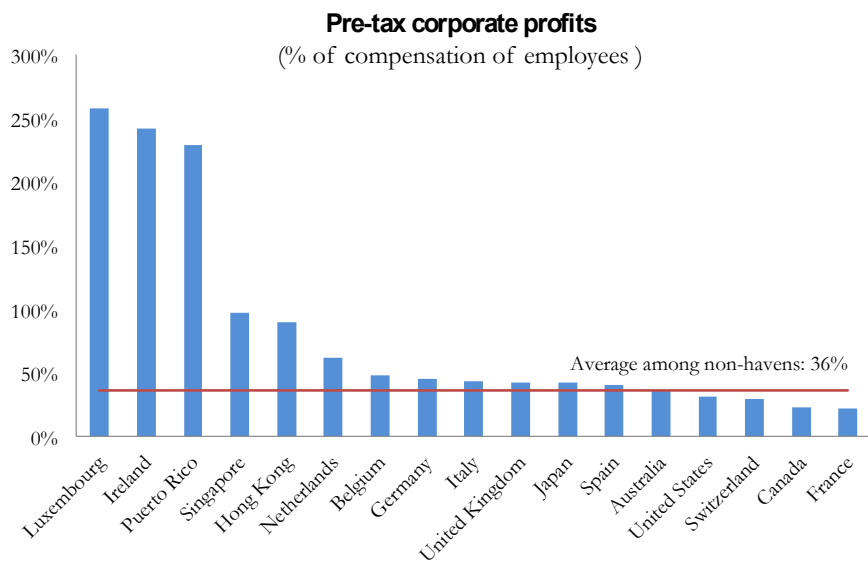


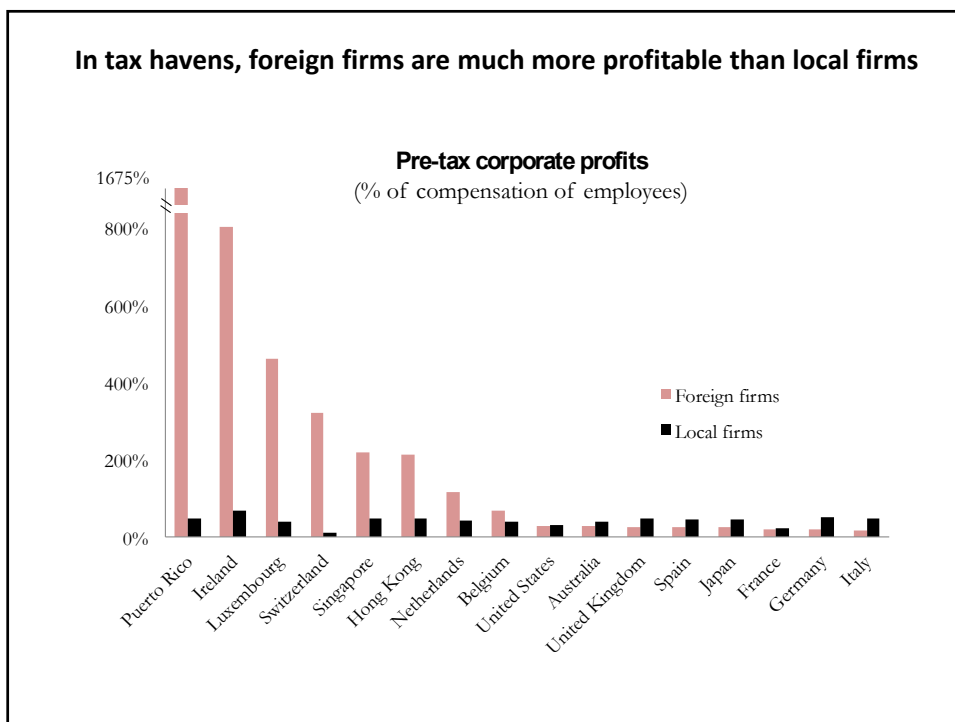
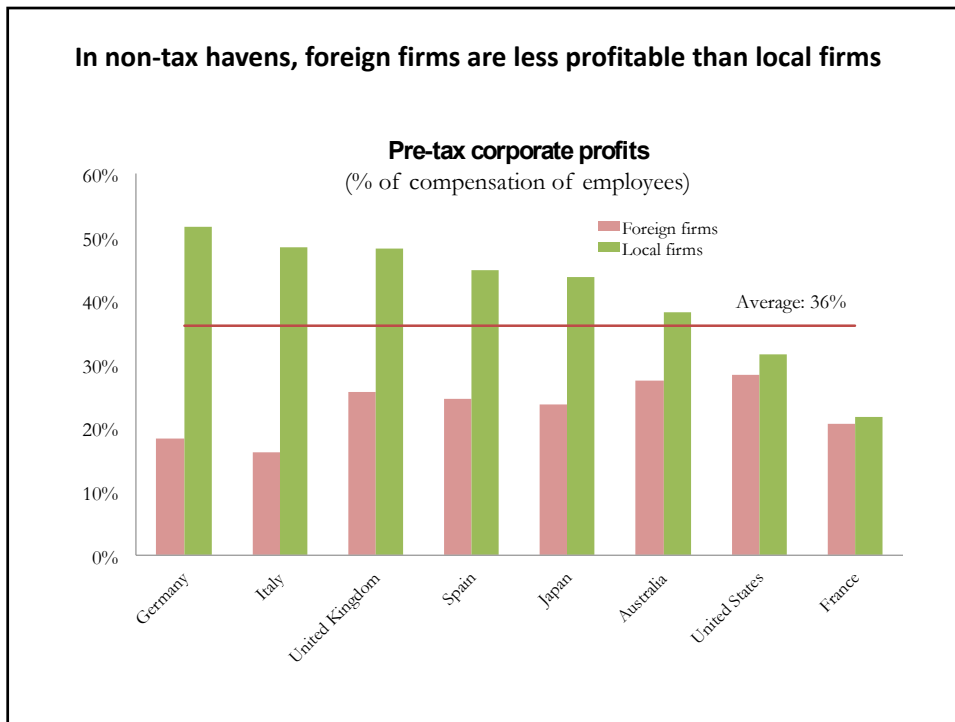


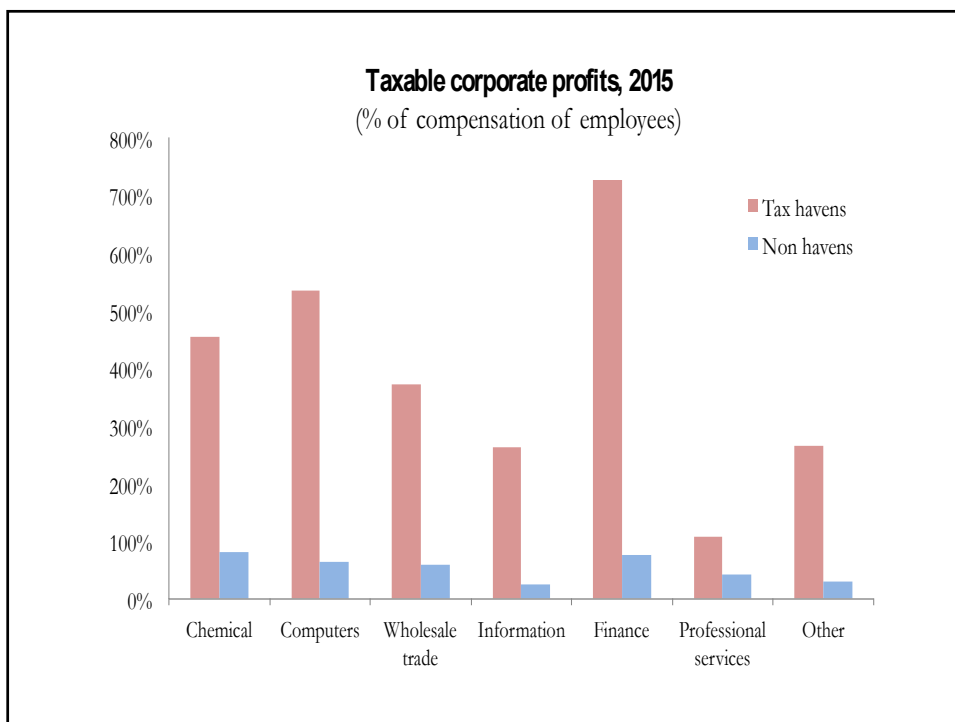
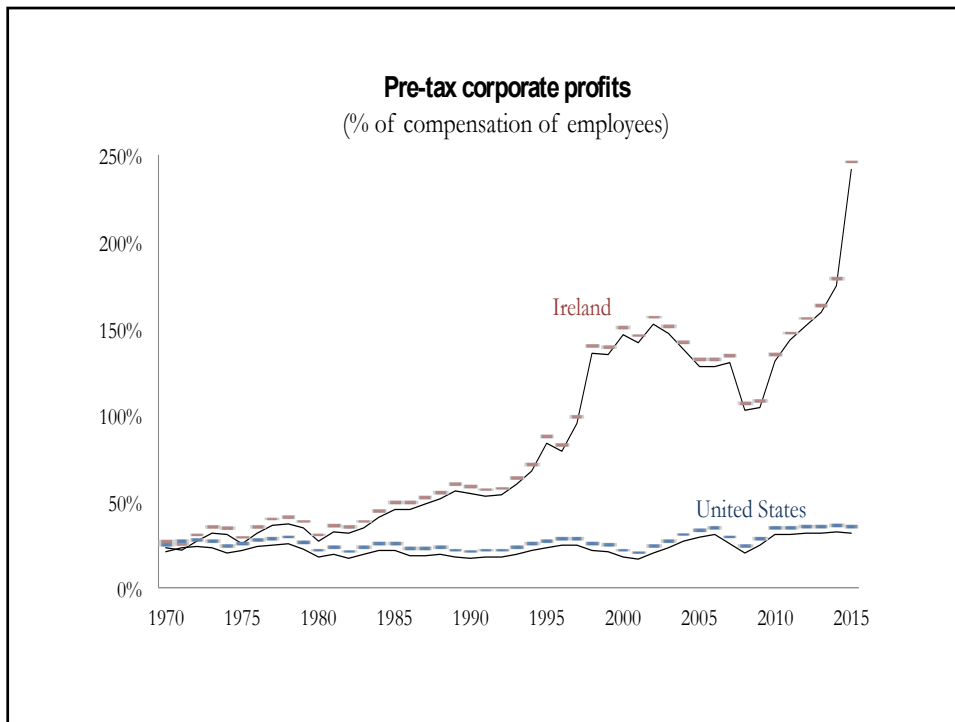
	Reported pre-tax profits	Of which: Local firms	Of which: Foreign firms	Shifted profits	Effective corporate tax rate	Corp. tax revenue loss/gain (% collected)
OECD countries						
Australia	179	151	28	12	30%	7%
Austria	48	37	11	4	18%	11%
Canada	143	96	47	17	35%	9%
Chile	68	58	10	5	15%	11%
Czech Republic	34	16	17	2	20%	5%
Denmark	52	47	5	3	15%	8%
Estonia	4	3	1	0	12%	10%
Finland	25	21	4	3	20%	11%
France	188	156	32	32	27%	21%
Germany	553	510	43	55	11%	28%
Greece	23	21	1	1	19%	7%
Hungary	21	11	10	2	11%	21%
Iceland	2	2	0	0	19%	22%
Israel	54	48	6	1	17%	2%
Italy	212	199	13	23	18%	19%
Japan	634	602	32	28	26%	6%
Korea	248	246	3	4	18%	2%
Latvia	4	3	1	0	10%	7%
Mexico	325	302	23	12	12%	10%
New Zealand	44	37	6	1	18%	5%
Norway	76	69	7	5	22%	8%
Poland	88	68	19	4	10%	8%
Portugal	27	22	5	3	23%	9%
Slovakia	12	6	5	1	25%	5%
Slovenia	3	2	1	0	18%	6%
Spain	159	138	21	14	18%	14%
Sweden	63	39	24	9	23%	13%
Turkey	213	209	4	5	6%	8%
United Kingdom	425	353	72	61	17%	18%
United States	1.889	1.737	153	142	21%	14%

Estimated profits shifted in each haven

	Reported pre-tax profits	Of which: Local firms	Of which: Foreign firms	Shifted profits
Belgium	80	48	32	-13
Ireland	174	58	116	-106
Luxembourg	91	40	51	-47
Malta	14	1	13	-12
Netherlands	195	106	89	-57
Caribbean	102	4	98	-97
Bermuda	25	1	25	-24
Singapore	120	30	90	-70
Puerto Rico	53	10	43	-42
Hong Kong	95	45	50	-39
Switzerland	95	35	60	-58
Other				-51

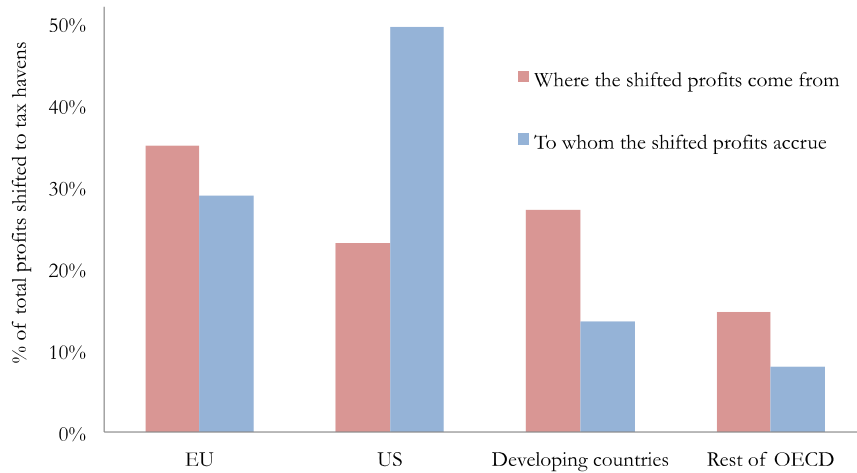




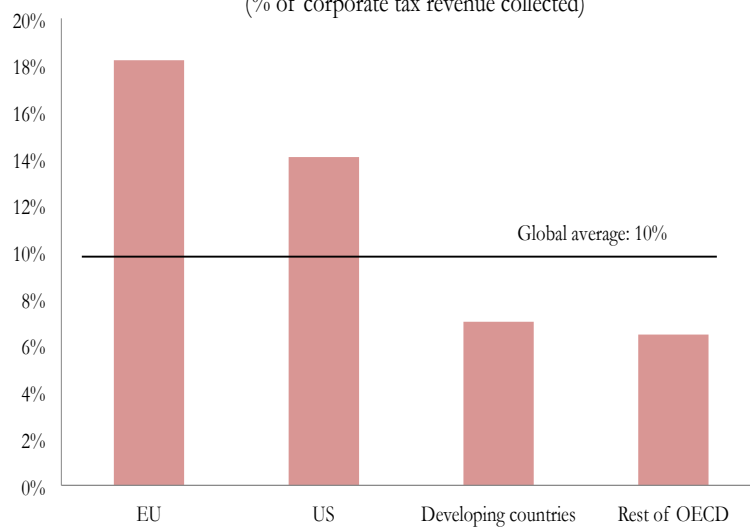


Who loses most? The EU.
Who shifts most? The US.

Allocating the profits shifted to tax havens

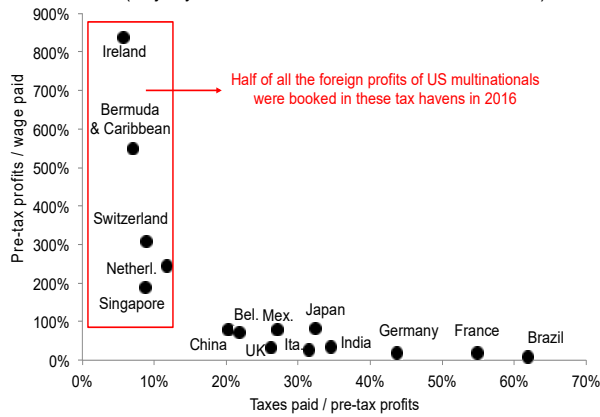


Tax revenue lost due to profit shifting
(% of corporate tax revenue collected)



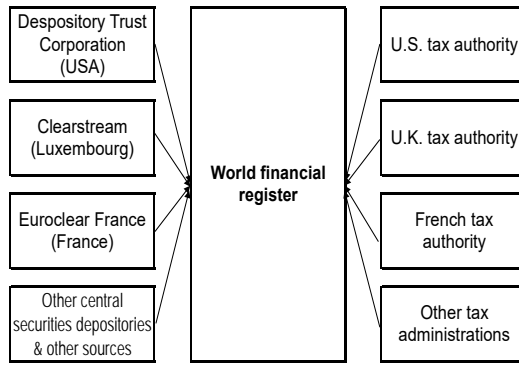
In 2016: 50% of profits in havens (taxed at 7%), 50% elsewhere (taxed at 27%)

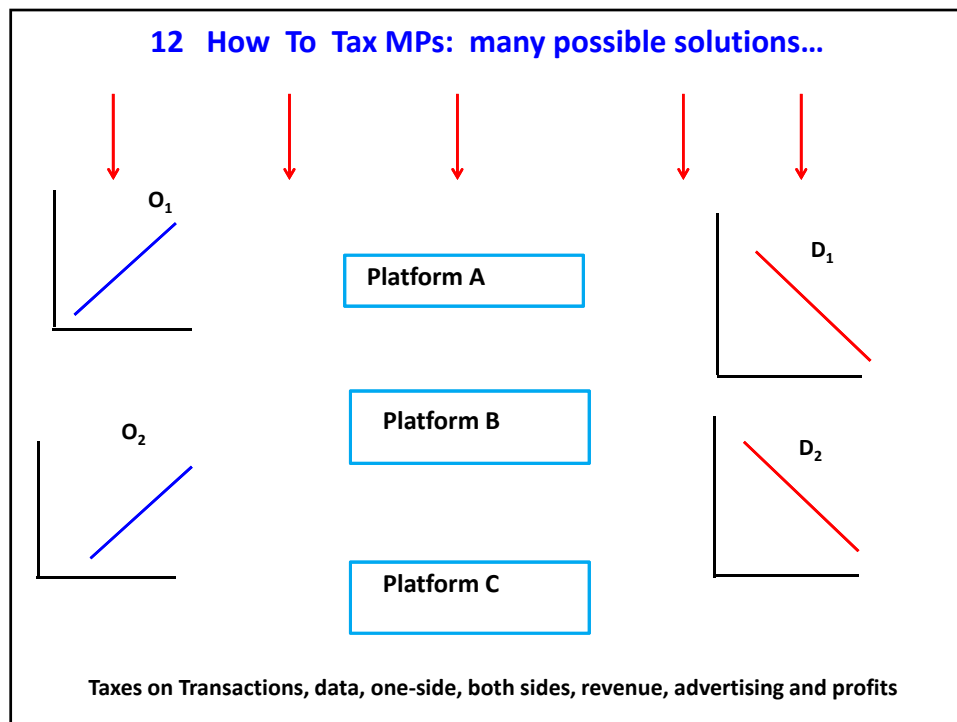
Where do US multinationals book their profits?
(majority-owned affiliates of US multinationals, 2016)



The case for a world financial register

The companies Clearstream, Euroclear, etc. feed the world financial register.
Tax authorities can verify that tax-payers indeed declare all the financial securities included in the register





- 12 What the economic theory says to us?**
- Taxation of two (many) sided digital markets: many theoretical papers
 - Kind-Koethenbuerger-Schjelderup (2006, 2008, 2009, 2010)
 - Bacache-Bloch-Bourreau-Caillaud-Cremer et al. (2015)
 - Bourreau- Caillaud-De Nijs (2016, 2018)
 - Kind-Koethenbuerger (2017) and (2018)
 - Belleflamme-Toulemonde (2016, 2018)
 - Tremblay (2017, 2018)
 - Mukherjee-Mukherjee (2017), Olbert-Spengel (2019)

12 tax incidence

Effects of MPs taxation and tax incidence depend on **some general factors**:

- a. **Market type** (monopoly, competition): if the MPs are **competing** or not
- a. **Type of taxes**: ad valorem or unit taxes, taxes on transactions, on data, on revenue, on access and usage, etc.
- a. **symmetric or asymmetric taxes** (only on one side of the platform?)
- a. **price structure, elasticities, NEs**, interdependency

difficult to draw general conclusions: is there an **optimal digital tax? NO!**

- a. Given network externalities between parts, **standard markets optimal taxation cannot be applied** to multisided platforms
- b. MPs have a **rent** given by more sides and NEs. Taxation of profits (revenues) therefore is a **transfer to the government** with no particular distortive effects on productive/allocative efficiency:
- c. **strong case for platform taxation** (data, revenue, transactions)
- d. taxation on **one side** may lead platform to **shift revenue to the other side**
- a. Therefore this explains that in some cases (monopoly), **unit taxes are preferable to ad valorem taxes** (+ revenue, + welfare)

- f. In welfare term, **ad valorem dominance is no more valid** (hold). In a monopoly MP, a move from VAT to a unit tax may increase tax revenue and welfare.
- f. In **competing platforms**, due to complementarities, it is **not clear what is preferable** between ad valorem or unit tax.
- f. Effect **on tax revenue** is not always clear, complementarities with VAT. Symmetric/asymmetric tax
- f. Some **room for data/transactions** and **usage** taxes
- g. In MPs with **negligible marginal cost and simpler routines** (no complex algorithms) (social networking), taxing **profits or revenue has the same effects on pricing and quality.**

13 possible solutions

To rely only on corporate taxes is simply impossible; we can replicate a profit tax also by taxing MPs

idea that **from users participation does not stem any value creation is clearly misplaced and wrong**

not only production, innovation and investment create MPs' value, but also **users participation**

the market is the entire platform; **value creation comes from all the three components of MPs**

13 possible solutions

- a. to tax only **platforms profits**? or also **access and usage (user side)**?
- a. Tax **one side or two (more) sides**?
- a. to tax **transactions** between MPs and sellers/users (**tax on physical transactions**), or a **tax on data**?
- b. **Revenue tax**: pros & cons (cascading, etc.)
- c. On quantity or ad valorem?

14 Current digital taxes

- a. **“equalization levy”** (India)
- b. **revenue tax** (IT, FR, UK)
- c. **flat (compensation) fee** (Germany, Spain) on distribution and use of digital contents
- d. **diverted profit tax** (UK): definition, enforcement and compliance
- a. **Data/bit tax on transactions** (Hungary)

15 Some additional ideas ...

- To use **satellite to monitoring exchange**, data flow and transactions
- Define shared mechanisms and official rules for a **statistical measuring of big data and platforms' transactions**
- **To allocate profits** by using **number of users and the data volume** (OECD, Eu)
- **Johnson-Johnson**: to avoid an interminable (credible?) process to set up a place of taxation, take a **fixed amount of global operating profits and allocate it to the local market companies**: eg. 20% return on sales allocated to local markets on the basis of local revenues or # of employees.
- **P&G**: use a sort of a **CFC minimum tax in destination markets** based on **domestic sales/user participation indicators**; pros & cons