Multinational firms, intellectual property and corporate income taxes

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In 2012 Starbucks became a target for public protests

Starbucks tax bill

- Starbucks had paid very little corporate income tax since it entered the UK market in 1998
  - Starbucks had declared zero profits (and therefore made zero tax payments) in the UK in most years
  - The Economist, "Wake up and smell the coffee", Dec. 15th 2012
- Reuters article 6 July 2015
  - "An examination of Starbucks's company accounts in Germany and France shows the firm employed the same tactics there ... used in the UK: reporting losses to the tax man while boasting healthy cashflows to investors."
  - "accounts for its European units show it paid around $1.2 million in Dutch taxes and racked up millions of dollars worth of accounting losses it can use to reduce future German, French or British tax bills."

Not just Starbucks

OH YES, THEY'RE THE GREAT AVOIDERS

Company	Revenues*	Tax Paid	Rate
Starbucks	£398m	Zero	Zero
Amazon	£3.3bn	£1.8m	0.0545pc
Apple	£10bn (est)	£11.4m	0.114pc
Facebook	£175m (est)	£238,000	0.136pc
Google	£2.6bn	£6m	0.23pc
EADS	£3bn	£10.5m	0.35pc
IBM	£3.8bn	£21.7m	0.57pc

UK Tax Gap: **£32bn** | Corporation Tax Gap: **£4.1bn** | *latest figures available

Sources: HMRC, company accounts, analyst estimates and forecasts.

Wider concern that corporations, in particular multinational corporations, are not paying a “fair share” of tax

- The media has called for companies to pay more tax and has reported heavily on the strategies that companies employee to avoid tax
  - Bloomberg “The Great Corporate Tax Dodge”
  - The New York Times “But Nobody Pays That” (for which the author received the Pulitzer prize)
  - The Times “Secrets of Tax Avoiders”
  - The Guardian “Tax Gap”
- It’s not only the media
  - The Organisation for Economic Co-operation and Development (OECD) has formed a committee to consider *Base Erosion and Profit Shifting (BEPS)*

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What are the issues?

- Do Starbucks (and other firms) pay enough tax?
- What determines how much tax they pay
  - tax structures and reforms to taxes
  - avoidance activities
    - what evidence is there for Base Erosion and Profit Shifting (BEPS)?
- How much should they pay?
  - and where should they pay it?
- What do corporate income taxes tax? Why do we have a corporation tax?

Outline

- Recent trends
  - mobility of assets
  - growth in intangible assets
  - tax reforms
- Base Erosion and Profit Shifting (BEPS)
  - what evidence?
- Revenue from corporate income taxes
- Let's not confuse whether pay tax, with where pay tax
  - two prominent examples: Starbucks and Apple
  - where should a firm pay tax?
- What are taxable profits?
  - what impact do capital taxes have on real behaviour?
- Concluding remarks

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Mobility of capital

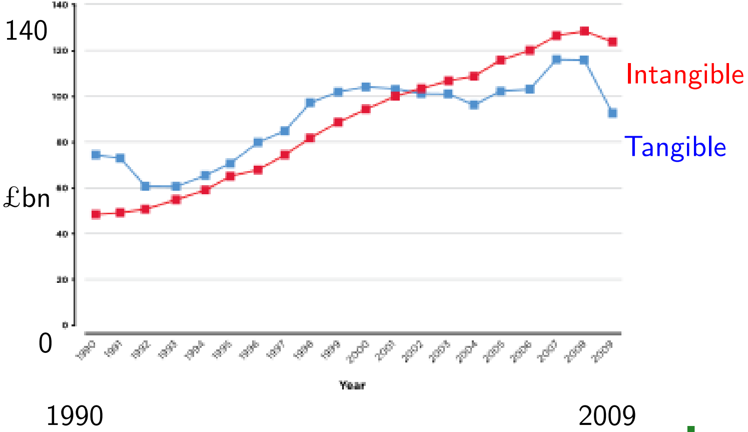
- A large number of papers document and study the changes in the global economy that have lead to
  - increased international trade in goods
  - rise of global value networks
  - the relocation of production activities across national borders
  - fragmentation of production activities across the boundaries of the firm
  - linked to the increases in trade and offshoring of production
- e.g. Bernard and Fort (2015) "Factoryless Goods Producing Firms" AER P&P

Intangible capital is more mobile

- OECD: the growing significance of intellectual property and its simultaneous use by many different parts of a firm as
  - *"one of the most important commercial developments in recent decades."*
- If different firms have access to different types of intangible capital, and if these are treated differently by the tax system, then taxes might distort cross-country patterns of ownership
  - this has been of particular concern in the US and UK, where fears that corporate income taxes have led large firms to relocate their entire business offshore, taking important intangible capital with them

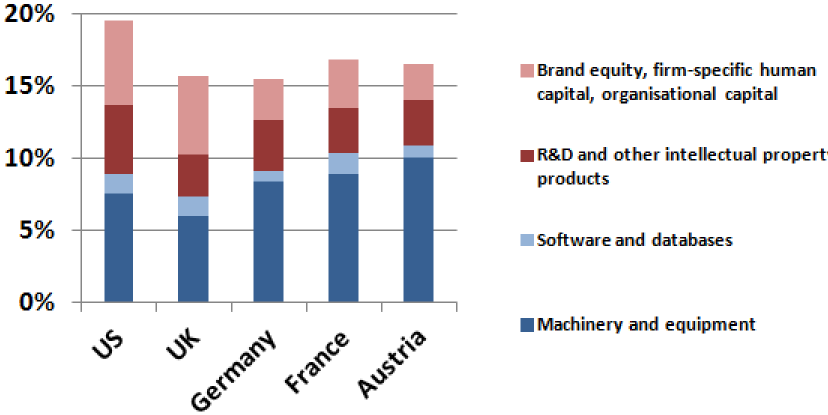
Investment in intangible assets is growing

- UK investment in intangible assets now greater than tangible



Investment in Fixed and Intangible Assets, 2006

- Investment in intangible capital, as share of GDP, varies by country



The **income** from intangible capital is more mobile

- Firms can and do separate income from real activity
  - offshore holdings can be used to reduce tax
- A tax lawyer quoted in the New York Times noted:
  - *"...most of the assets that are going to be reallocated as part of a global repositioning are intellectual property - that is where most of the profit is."*

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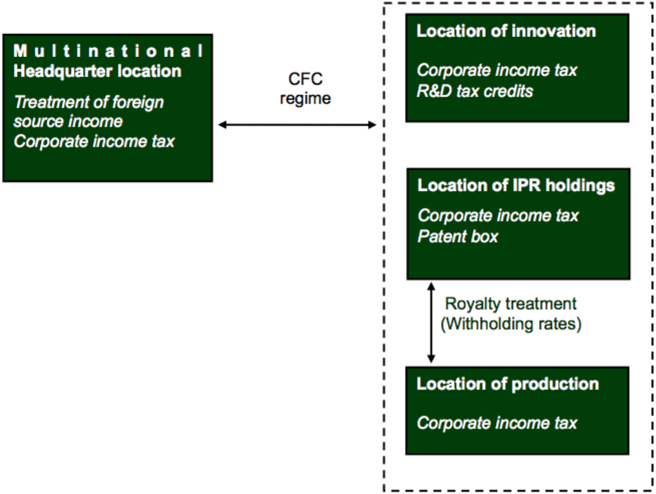
Location and taxes



Tax reforms

- Economists and policy makers have predicted a "race to the bottom" in corporate income taxes
  - due to competition between countries to attract mobile capital
- Recent reforms to corporate income tax systems have reduced taxes:
  - large reductions in headline tax rates
  - lower taxes on foreign source income
  - introduction of preferential tax rates on income from intellectual property

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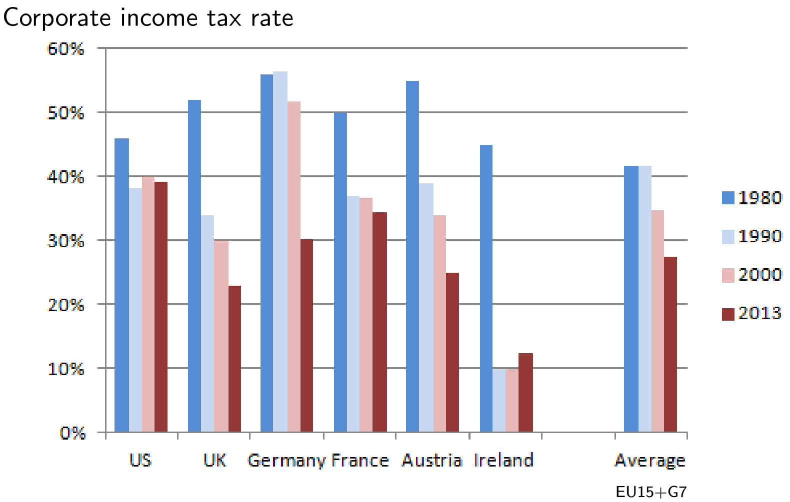
Governments have reduced corporate income tax rates



Foreign source income

- Lower taxes on foreign source income
- Move to exemption of foreign source income from taxation when repatriated
- Introduction and reform of Controlled Foreign Company (CFC) rules, in general relaxing them

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Preferential tax rates on income from intellectual property

Country	Year Introduced	Preferential rate	Main rate
Malta	2010	0	35
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UK	2013	10	23
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Base Erosion and Profit Shifting (BEPS)

- The OECD has been tasked with considering whether multinationals are eroding the tax base by shifting profits
  - BEPS report (Addressing Base Erosion and Profit Shifting)
  - original focus of international coordination of tax system was to **avoid double taxation**
  - now the concern is that firms might pay too little tax
- But it hasn't just been firms that use the rules to reduce tax
  - Governments want to:
    - lower tax in their country to attract real investment
    - lower tax on "their" firms to generate competitive advantage when they compete abroad
  - Yet they also want to raise tax revenue

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What evidence is there for Base Erosion and Profit Shifting (BEPS)?

- Hines (2014) "How Serious Is the Problem of Base Erosion and Profit Shifting?" *Canadian Tax Journal*
  - This paper discusses the (lack of) evidence
  - There is considerable evidence that multinational firms arrange their affairs in a tax-sensitive manner
    - from this people infer that BEPS is a serious problem
    - journalistic accounts of spectacular international tax-avoidance schemes used by multinationals
  - How important is the problem of BEPS from the standpoint of tax collections?
    - evidence suggests that multinational firms earning profits in high-tax countries find ways to reallocate 2 percent of those profits to low-tax foreign jurisdictions
    - this is pretty modest
    - and is probably an overstatement of the potential gains from eradicating BEPS

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Tax revenues

- Despite the long running concerns and the claims that companies do not pay enough tax
  - revenues from corporate income taxes have remained fairly constant
- This is mainly because corporate profits have increased as a share of GDP
  - share of activity that is in corporations has increased
  - profitability of corporations has increased

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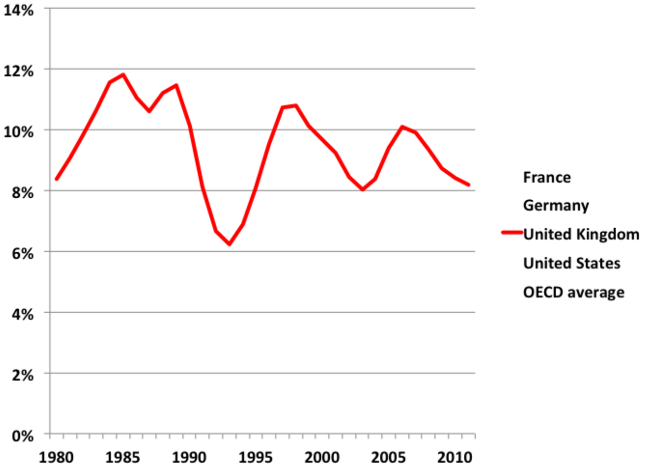
Revenue from corporate income taxes has not fallen

% total tax revenue



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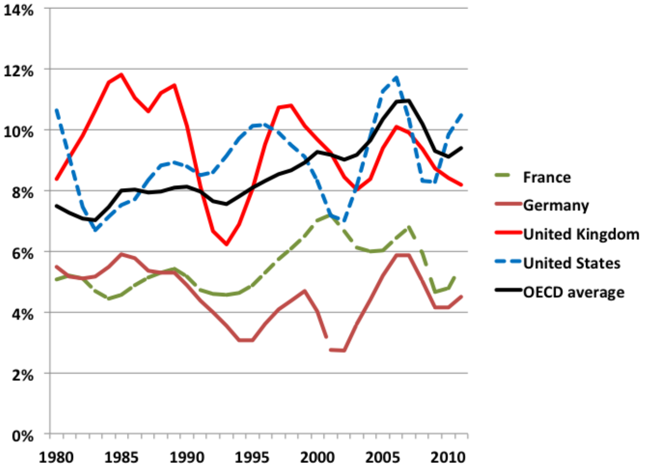
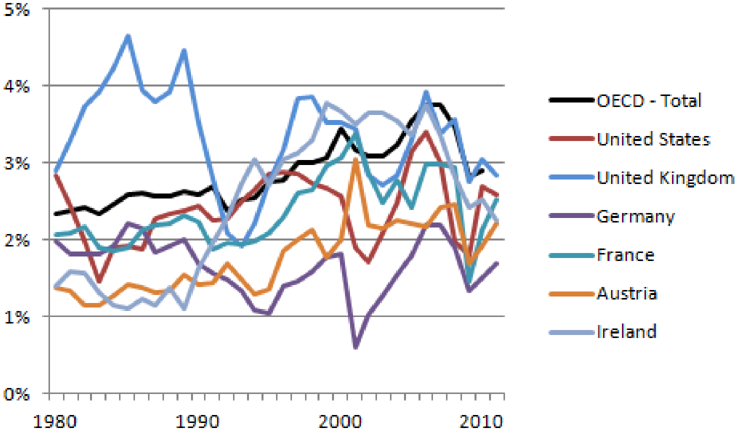


Corporate income tax revenues as a share of GDP

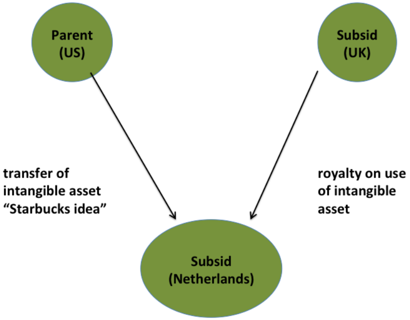


So what is going on?

- So what is going on?
  - we read in the newspapers that firms are not paying their “fair share” of tax
  - policymakers fear that increased mobility of capital will lead corporations to move away
  - the academic literature has emphasised a race to the bottom
- But we’re still collecting revenue from corporate profits

Why doesn't Starbucks pay tax in the UK?

- Starbucks doesn't pay tax in the UK because it pays it in other countries
  - the UK subsidiary makes royalty payments to another Starbucks subsidiary in the Netherlands
  - the payment is for use of the brand and other intellectual property
  - the subsidiary in the Netherlands pays tax



How much tax does Starbucks pay?

- In 2011 Starbucks paid 31% tax rate worldwide
  - but paid 13% on it's overseas activities
- Is this fair?
  - given that we have international agreement that firms should pay tax in the location that the profit arose
- Where did the profits arise?
  - when I buy a cappuccino in Starbucks what am I paying for?
  - the machines?
  - the fact they ask my name and write it on the cup, the music they play, that they give me the free iTunes download?
  - those things were "created" at headquarters in the US, not in the UK branch

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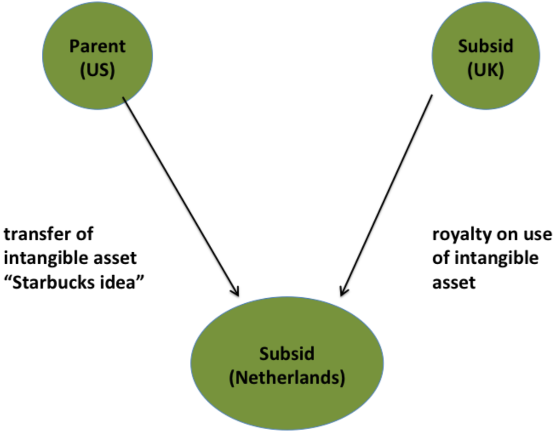
What should Starbucks UK pay Starbucks US?

- It is difficult to know what is the fair price of these intangible assets, they are not traded on the market, and because they are intangible it is difficult to pinpoint where they arose



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Firms can use international rules to **avoid** paying any tax

- Apple has an Irish subsidiary, no employees (until last year)
  - it has rights to Apple's intellectual property outside of the US
  - it receives 60% of Apple's worldwide sales outside the US
  - Ireland's tax rules means that the firm should be taxed in the US
  - US tax rules mean that the firm should be taxed in Ireland
  - so the firm is not taxed (on approx $ 10bn a year)
  - but this is because the rules that the US and Ireland have chosen to implement
- For fairness we might want to ensure that these profits are taxed somewhere
  - though this might be through other parts of the tax system, such as income taxes or consumption taxes

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Where should a firm pay tax?

- Lots of corporate activity takes place across many different countries (tax jurisdictions)
- In the 1980s governments were concerned that large corporations paid **too much tax**, because they faced tax on the same activities in several countries
- International agreement at the time that
  - individuals should pay tax in the location that they resided
  - firms should pay tax in the location "that the profits arise"
    - but how do we know where a firm's profits arise?
    - especially when the firm operates in many countries and makes it's money from the application of an idea

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Are firms paying their "fair share" of tax?

- The answer to this question depends in part on who is paying corporate income tax
- We have objectives over revenue and redistribution for the tax system as a whole
  - but not for corporate income tax in isolation
- We want to minimise distortions that the tax system creates, subject to desire to raise revenue (to provide public goods) and potential concerns about an equitable distribution of taxes (and benefits)
- What affects do different taxes have on economic activity?
  - OECD study concluded that corporate income taxes are the least efficient way to raise revenue

Incidence

- In considering how corporate income tax distorts decision, it is important to remember:
- Corporate income tax is ultimately paid by people:
  - owners of capital, through lower dividends or lower capital gains
  - workers, through lower wages
  - consumers, through higher prices
- There is considerable disagreement over which of these groups bear the burden of corporate income tax

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What are corporate income taxes?

- Corporate income taxes are taxes on the profit a firm earns
- e.g. countries that operate exemption, like the UK and Germany, we tax profits earned in the country
  - a **shareholder** invests in a firm
  - the **manager** buys equipment, materials and hires **workers**
  - the manager and workers produces something and sells to **consumers**
  - the profits of the firm are the revenue (price times quantity) earned from selling the product, minus the costs of equipment, materials and wages paid to workers and the manager
  - these profits are owned by the shareholders, who get them in the form of dividends or capital gains

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Who bears the burden of the corporate income tax?

- **Legal incidence**:
  - legally "the firm" pays the corporate income tax bil
  - but firms write the cheque for most taxes
- **Economic incidence**:
  - who is made worse off because of the tax?
  - a "firm" can not bear the economic incidence of a tax, the "firm" can not be made worse off, only people can be made worse off
- Who is potentially made worse off by the corporate tax?
  - Shareholders: if the impact of tax is to reduce profits
  - Workers: if the impact of tax is to reduce wages
  - Consumers: if the impact of tax is to increase prices
- Economic incidence is usually very different from legal incidence

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Incidence

- Original work by Harberger suggested that owners of capital (corporate and non-corporate) bore the entire incidence of corporate income taxes
- A large body of theoretical and empirical work considered open economy models, with capital more mobile than labour, and where countries operate source-based taxes (where governments tax the income of firms operating in that country)
  - the burden of corporate income tax is shifted to workers, because capital moves out of the country, lowering the level of productivity, which reduces wages; it might also change the bargaining between firms and workers
  - an empirical literature suggests that a half to three-quarters of corporate income taxes are shifted to workers

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Who bears the burden of the corporate income tax?

- Example: why workers might bear the economic burden of corporate incomes taxes
- Capital is more mobile than workers
  - a firms can move it's investment to another country, most people won't move to another country to work
  - if corporate income taxes are high in the UK then a firm will move to another country with lower taxes
  - this means workers in the UK have less capital to work with
  - this reduces their marginal product (they produce less in each hour that they work)
  - this lowers their wages
  - meaning that some of the economic incidence of the tax has been shifted to workers

Incidence

- However, several recent papers argue that this conclusion is incorrect, and that the owners of capital might bear more of the burden than this literature suggests
- First, if firms are intermediaries in global capital markets then tax will affect patterns of ownership and financing choices, but would have little impact on overall investment in a specific location
- Second, if firms can separate reported taxable income from the real location of activity then in practice taxes will not affect the location of real activity
    - some firms might not be able to engage in income shifting, but they will most likely not be able to shift real capital either

What are taxable profits?

- If incidence falls on the owners of capital, to understand what impact corporate income taxes will have on behaviour and efficiency it becomes important to understand what are taxable profits (who claims them)
- What might they be?
  - normal return on capital, including risk
  - return on labour or entrepreneurial effort taken in the form of stock compensation rather than wages
  - profit from exploitation of market power
- Have changes to the structure of economic activity (mobility, intangibles) changed what taxable profits represent? or the ways we think taxes distort incentives?
- This discussion based on Griffith and Miller (2015) *Fiscal Studies*)

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Normal rate of return

- Traditional focus of the literature was on distortions arising from taxing the normal rate of return
  - taxes on the normal rate of return will discourage investment by increasing the required rate of return
- Most tax systems treat debt more generously than equity
  - debt payments are deductible, return on equity is taxed
- Firms with greater share of investment in intangibles will
  - probably be more risky, and so have a higher required rate of return to compensate for this
  - rely more on equity, because it is difficult to borrow against intangible investments

Normal rate of return

- Some of the increase in taxable profits might reflect the fact that shifting towards greater use of intangible assets means investment is more risky, and it relies more on equity finance
- If this is the case then we would prefer a tax system that allowed deductions for the normal return on equity, and for risk; such systems exist in theory but have not been implemented in many countries

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Return on entrepreneurial effort

- Some part of taxable income represents a return on labour, entrepreneurial or managerial efforts that are compensated with stocks
  - anecdotal evidence suggests this is more common in firms with higher intangible assets; e.g. it is likely that effort is more difficult to observe and contract over in these firms
  - if effort is not easily monitored then firms might use stock options to provide incentives to workers to exert effort
- If the increase in taxable profits is mainly due to a shift from wage to stock compensation
  - this could in part be driven by the tax system itself
  - we do not want to distort the choice between taking compensation as wages or stock
  - this would suggest that we should tax corporate income at the same rate as the (higher) personal income tax

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Profits from exploitation of market power

- Taxable profits could represent the returns from market power
  - for example, due to restrictions to entry or the control of a scare resource
  - ownership of intangible assets can be a source of market power
- In an oligopoly setting some of taxes will be passed through onto prices
  - the tax can be fully shifted, undershift, or even overshifted
  - the overall impact will depend on the nature and extent of oligopolistic competition

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Profits from exploitation of market power

- If the increase in taxable profit is largely due to an increase in market power
  - the impact of taxing these profits depends on how firms will respond to the tax
  - if firms have monopoly power arising from location specific factors, then taxing part of their monopoly rents will be unlikely to affect their behaviour
  - however, if firms operate in oligopoly markets, where prices and quantities might already be distorted from the optimal level, then taxes on those profits could end up exacerbating an existing market distortion
  - to know how corporate taxes will distort behaviour in these markets we need to know more about the strategic behaviour of firms
  - and the impact will vary across markets

What effect of reforms?

- So what have been the impacts of reforms in the light of these considerations?
- We don't really know what we're taxing
  - normal return on capital, including risk
  - return on labour or entrepreneurial effort taken in the form of stock compensation rather than wages
  - profit from exploitation of market power
- So what can we say?

Rate cutting base broadening reforms

- Rate cutting shifts taxes away from more profitable projects
  - empirical evidence suggests that profitable firms are more mobile
  - so reduces the tax on internationally mobile capital
- If taxable profits are normal return on capital (risk adjusted), then rate cutting reduces the distortion between firms with lower and higher intangible assets
- If taxable profits are mainly labour compensation, then rate reduction increases the distortions with respect to wage compensation
- If taxable profits are returns to market power, then it depends on how firms respond, and how taxes are passed through

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Move to exempt foreign source income from taxation

- Theory suggested that countries should tax foreign source income using foreign tax credit system
  - idea: firms pay same amount where ever they are located, so location choices not distorted by corporate tax differences
  - capital export neutrality (CEN)
- Desai and Hines (2003, 2004)
  - international investment are mostly mergers and acquisitions
  - this is change in ownership, rather than in location of physical capital
  - ownership of assets is distorted if different potential owners, located in different countries, are taxed differently
  - an exemption system achieves capital ownership neutrality (CON), because all potential owners of an asset face the same tax burden, irrespective of their country of residence

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Patent Boxes

- One of the biggest recent developments in ta
- Reduced rate of corporate income tax
  - for "income from patents"

Preferential tax rates on income from intellectual property

Country	Year Introduced	Preferential rate	Main rate
Malta	2010	0	35
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Patent Boxes

- One of the biggest recent developments in ta
- Reduced rate of corporate income tax
  - for "income from patents"
- What effect do taxes have on the location of intellectual property? what effect will patent box have on tax revenue?
  - Griffith, Miller and O'Connell (2014) "Ownership of intellectual property and corporation taxation" *Journal of Public Economics*

Patent Boxes

- Griffith, Miller and O'Connell (2014) model firm location decisions over where to hold *income from patents*
    - use responses to past variation in corporate income tax rates to model how European firms will respond to Patent Boxes
    - allow rich heterogeneity in responses along observed and *unobserved* dimensions using mixed logit (random coefficients) model, this allows for more realistic responses to tax
    - firms respond to tax changes by locating legal ownership of new patents in lower tax jurisdictions (all else equal)
    - and they respond more for higher value patents (those that are expected to earn more income)

- We use the model to simulate the impact of Patent Boxes introduced in Benelux countries and the UK on the location of income from patents and tax revenue

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Model

- Firm has a successful discovery, decides which subsidiary should apply for the patent
  - the location of the subsidiary determines how the income will be taxed
- Discrete choice model; firms choose location where value is highest
  - Value to firm of holding patent in a location depends on:
    - value (expected taxable income) from patent
    - costs of holding patent in that subsidiary:
    - those related to earning income there, (taxes)
    - fixed costs of locating
  - any benefits that arise from holding patent in that location

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Heterogeneity in firm behaviour

- We allow for heterogeneity in firm behaviour along three important dimensions:
  - all coefficients vary across three broad industry classifications
  - all coefficients vary across two broad firm size categories
  - the income earned by a patent to vary with **unobserved** patent characteristics through including a random coefficient on tax
    - the distribution of the random coefficients varies across industry and firm size

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Data: Firms and Patents

- Data on European parent firms and their patent applications held in European and US subsidiaries
- Firms headquartered in 13 European countries
  - Belgium, Denmark, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland and UK
- Choose from 15 locations
  - above plus Germany, and US
- Location of Intellectual Property
  - European Patent Office patent applications; address of subsidiary that made application measures the location of the IPR
- Matched to multinational firm ownership structure
  - Amadeus and other sources

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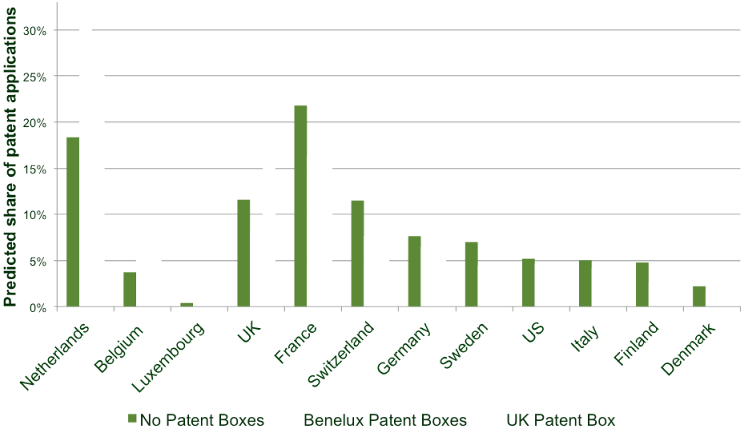
Elasticities

- standard logit: cross tax elasticities are the same across countries
  - cross-tax elasticity is a function of only the tax rate in the country that is adjusting its tax rate, the share of that country and the coefficient on the tax rate, which is constant across countries
- random coefficients model: cross tax elasticities vary across countries
  - they depend on the countries' characteristics and how close they are to each other; countries that have more similar characteristics will be seen as closer substitutes by firms, and therefore the cross tax elasticity will be higher

Counterfactual policy analysis

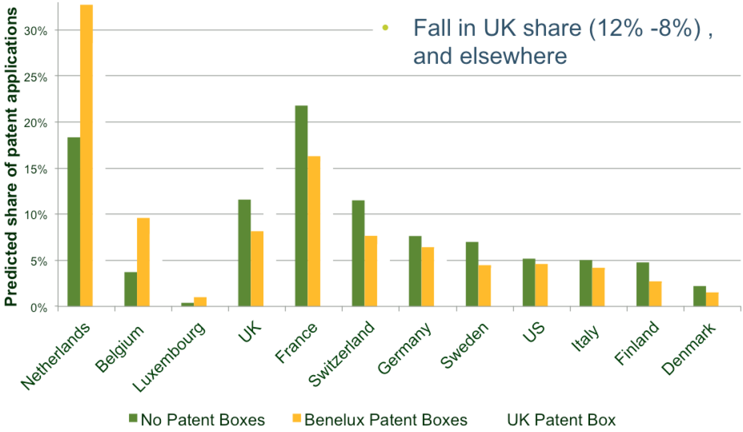
- We use estimated elasticities to simulate potential policy reform of introducing Patent Boxes
- Benelux countries: Belgium (6.8%) Netherlands (10%) Luxembourg (5.9%)
- UK (10%)

Initial shares



Benelux Patent Boxes

- Increase share in Benelux countries
- Fall in UK share (12% -8%) , and elsewhere



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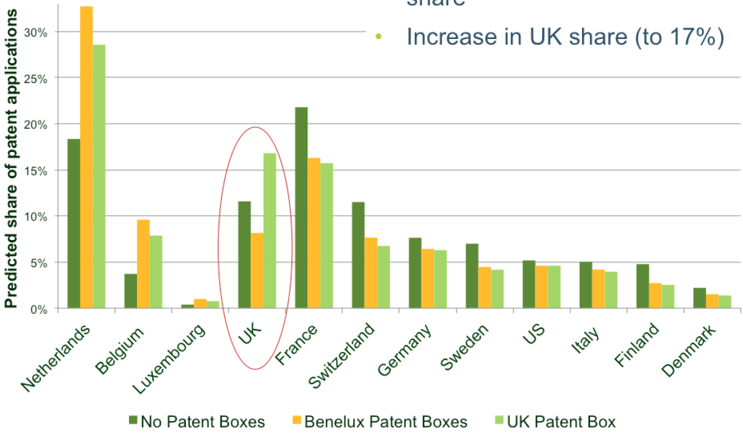
UK Patent Box

- Fall in Benelux countries' share
- Increase in UK share (to 17%)



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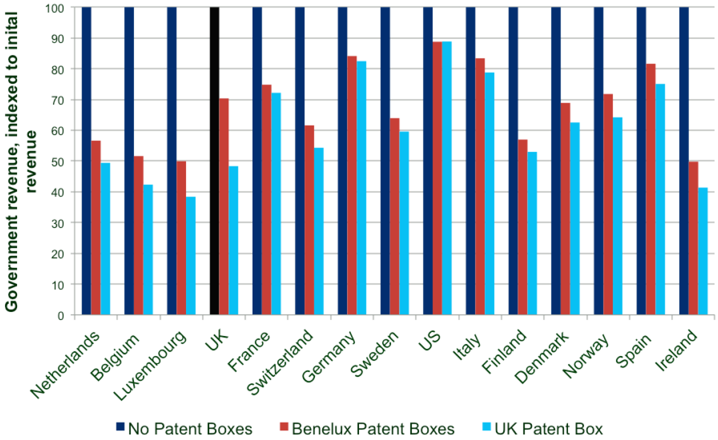
Tax revenue



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UK Tax revenues

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Patent Boxes

- How we evaluate Patent Boxes depends on what we think taxable profits associated with patents are:
    - if normal returns on equity (plus risky) then Patent Boxes remove a distortion between less and more risky investments
    - if labour compensation, then should be taxed as wages; it is possible that there are externalties associated with this type of labour (knowledge spillovers), but then an R&D tax credit would be a better targeted policy
    - if from exploitation of market power, then difficult to say in general as would depend on firms' response to tax

Concluding remarks

Why do we have a corporate income tax?

- Why have a corporate income tax
  - shareholders pay income tax on dividends, capital gains tax
  - workers pay income taxes, consumers pay VAT
  - if we want to tax this income higher, raise income or consumption taxes
- In 2002 the government reduced the rate of corporate income tax on small firms from 10% to 0%
  - they lost something like £1bn in tax revenue a very short time
  - taxi drivers and other self-employed people incorporated and become firms
- Corporate income taxes play an important role as a backstop to help ensure that we can collect other taxes

Concluding remarks

Summary

- There have been substantial reductions in taxes on corporate income
- However, taxable profits have increased faster, leading to steady or rising tax revenues
- How we view these tax reforms and the structure of corporate income taxes depends on:
  - who bears the burden of these taxes (incidence)
  - what we think taxable returns to corporate equity represent
- We know relatively little about the answers to these questions
  - there remains a lot of theoretical and empirical work to be done on this exciting and policy relevant topic!

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