

Multinational firms, intellectual property and taxation

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- Economists and policy makers have long predicted a “race to the bottom” in corporate income taxes
 - as capital becomes more mobile and countries compete to attract capital
- Recent reforms to corporate income tax systems seem to support this
 - large reductions in headline tax rates
 - preferential tax rates on income from intangible assets
 - reduction in taxes on domestic multinational firms offshore income

- Policy and media concern
- Headlines in US and European media that some firms are not paying their “fair share” of taxes
 - The Guardian has run a series on the Tax Gap, website allows you to look up how much tax large firms pay
 - The Times has reported on deals between large firms and HM Revenue
 - A New York Times reporter won the Pulitzer Prize for work looking at how corporations exploited loopholes and avoided taxes
- OECD: Addressing Base Erosion and Profit Shifting (BEPS)
 - concern that moves to reduce international **double taxation** (taxation of corporate profits by more than one country), have led to **double non-taxation**
 - proposals to reform agreements on international taxation

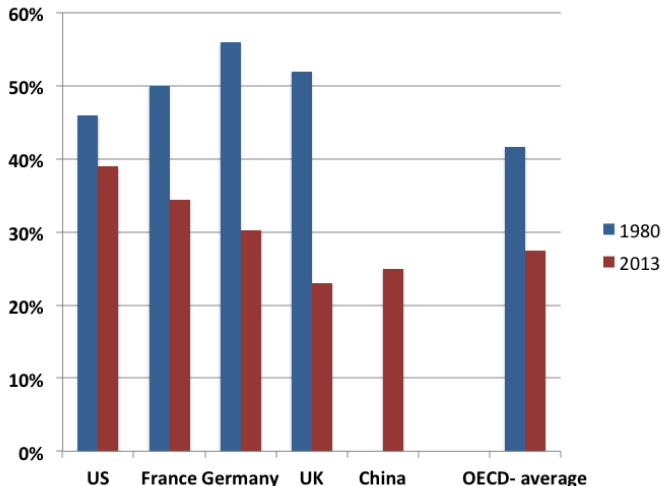
- However, tax revenue from corporate income taxes in OECD have been surprisingly buoyant
 - taxable profits as a share of GDP have increased
- What are these taxable profits? What affect do these taxes and proposed reforms have on economic activity?
- Important changes to the structure of economic activity:
 - Business increasingly takes place across many tax jurisdictions
 - Intangible assets are a more important input into production

Major changes to corporate tax and economic activity

1. Statutory corporate income tax rates have fallen in most OECD countries
2. Intangible assets
 - have increased in importance
 - are taxed lower
 - are more mobile
3. Foreign activities of domestic multinationals
 - have increased, and are used to reduce tax
 - are taxed lower
4. Corporate income tax revenues have increased

Corporate income tax rates have fallen in most OECD countries

Corporate income
tax rate

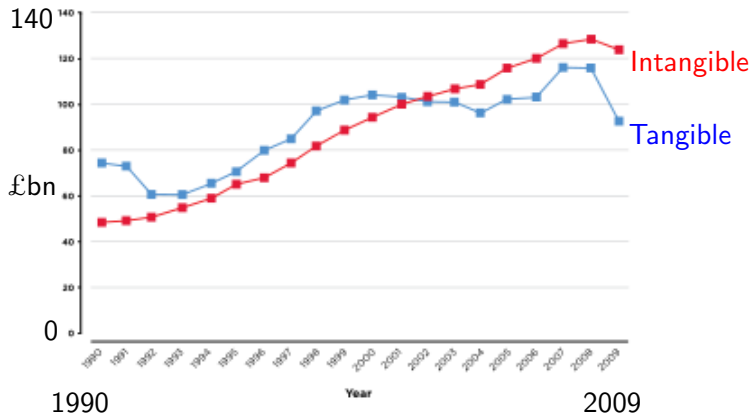


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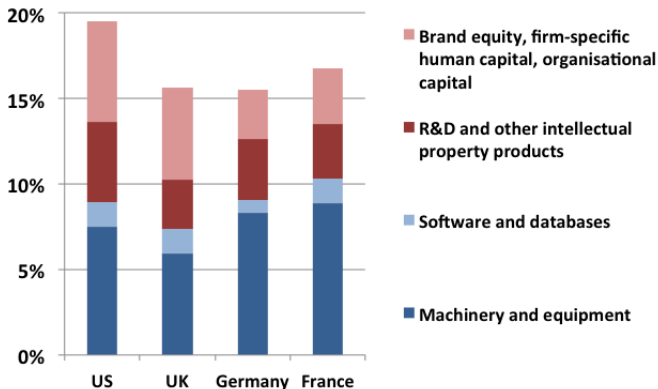
Investment in intangible assets is growing

- UK investment in intangible assets now greater than tangible



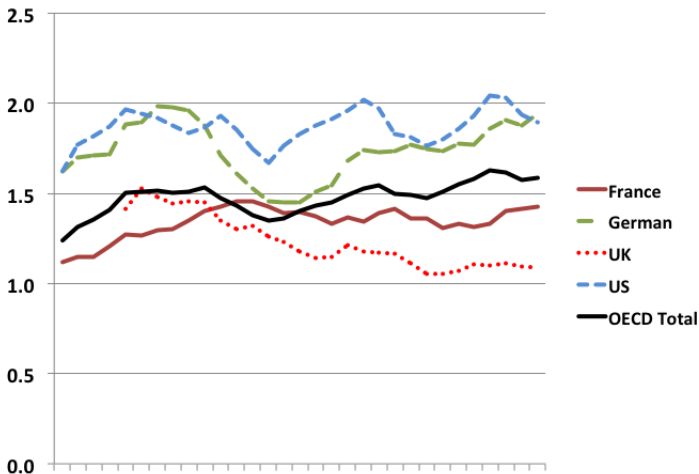
Investment in Fixed and Intangible Assets, 2006

- Investment in intangible capital, as share of GDP



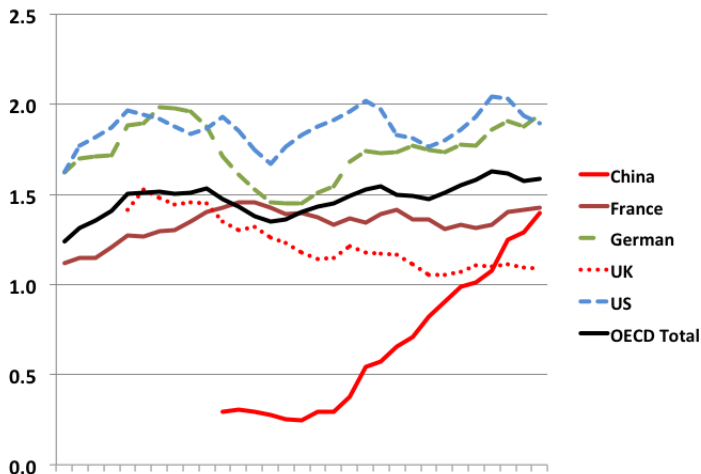
Business Expenditure on R&D

- Investment in business R&D, as share of GDP



Business Expenditure on R&D

- Investment in business R&D, as share of GDP



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Preferential tax rates on income from intellectual property

Country	Year Introduced	Preferential rate	Main rate
France	2000	15.5	34
Belgium	2007	6.8	34
Netherlands	2007	5	25
Luxembourg	2008	5.8	29
Spain	2008	15	30
Malta	2010	0	35
Liechtenstein	2011	2.5	12.5
Switzerland	2011	8.8	13
Cyprus	2012	2	10
Hungary	2003	9.5	19
UK	2013	10	23

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Intangible assets are more mobile

- OECD described 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.”*
- 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.”*

Intangible assets more mobile

- 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
 - fears that corporate income taxes have led domestic multinationals to relocate their entire business offshore
 - taking important intangible capital with them

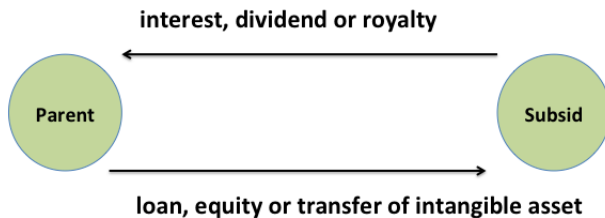
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Taxes on foreign activities of domestic multinationals (foreign source income)

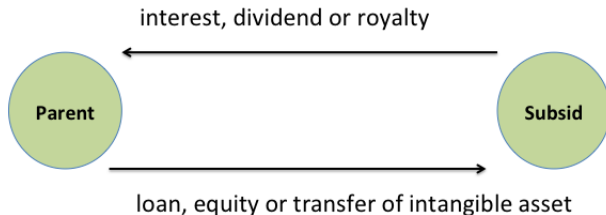
- Late 1980s concerns about **double taxation** of capital in more than one country
- OECD model tax convention
 - active income taxed at source
 - passive income (interest, dividends, royalties) taxed at residence

International taxation



International taxation

PASSIVE INCOME: taxed in residence country

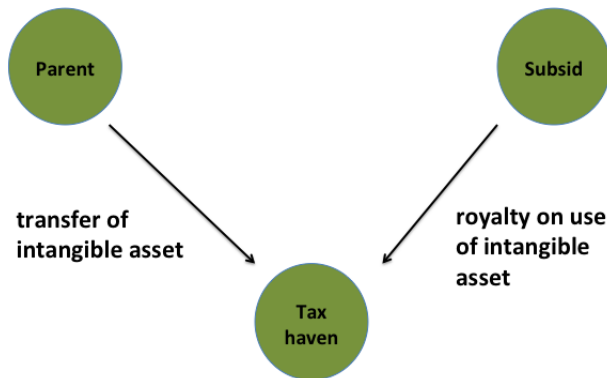


ACTIVE INCOME: taxed in source country

Lower taxes on foreign source income

- Move to exemption of foreign source income (UK in 2009)
 - US and China amongst the few countries that still attempt to tax foreign source income
 - and US taxes less now, e.g. "check the box" rules
- Reduction of taxes on foreign income
 - reluctance of residence countries (particularly US and UK) to tax multinationals headquartered in their jurisdiction on foreign activities
 - an attempt to create competitive advantage for domestic multinationals when operating abroad?

International taxation

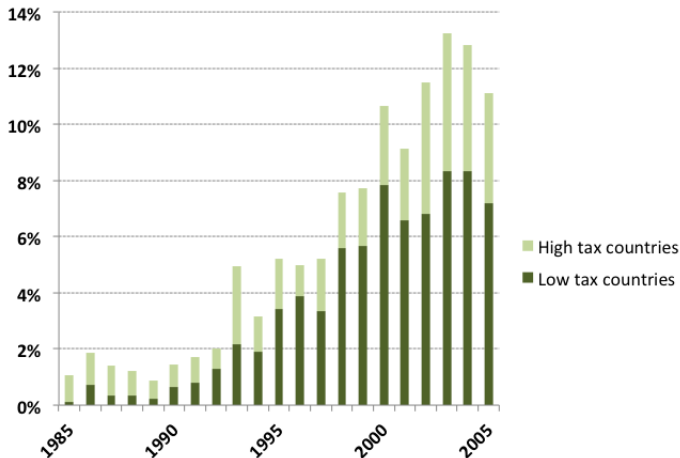


Apple in the US and Ireland

- Apple Sales International (ASI), an Irish company, is wholly owned subsidiary of Apple Inc (US)
- No employees in Ireland until 2012
- Taxation based on residence test
 - US residence test: place of incorporation and control, so ASI taxed in Ireland
 - Ireland residence test: place of central management and control, so ASI taxed in US
- ASI has rights to Apple's intellectual property outside of the US
- ASI receives 60% of Apple's worldwide sales outside the US
- No taxation on \$ 44 billion from 2009-2012

Patents used to relocate income into low tax countries

- % of UK offshore patents located separately from other firm activity



Inward investment into China, 2011

- Investors (US?) are investing into China via a tax haven

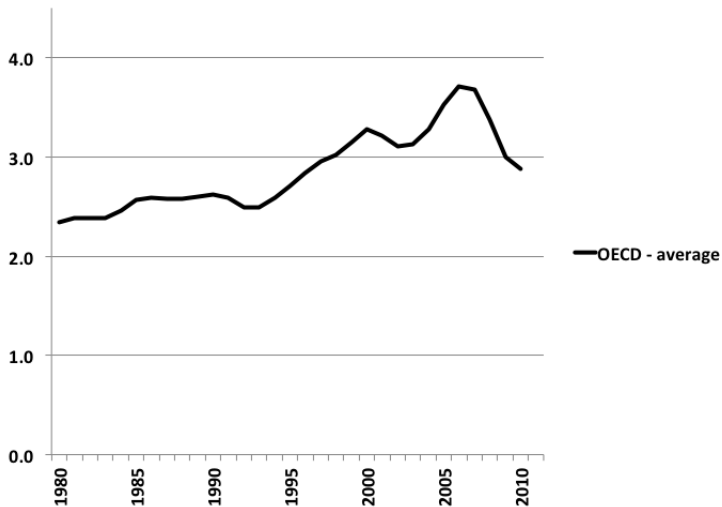
Residence country	\$ US million	%
Hong Kong	856,758	45%
British Virgin Islands	297,792	16%
Japan	121,999	6%
Total	1,906,908	

Source: IMF

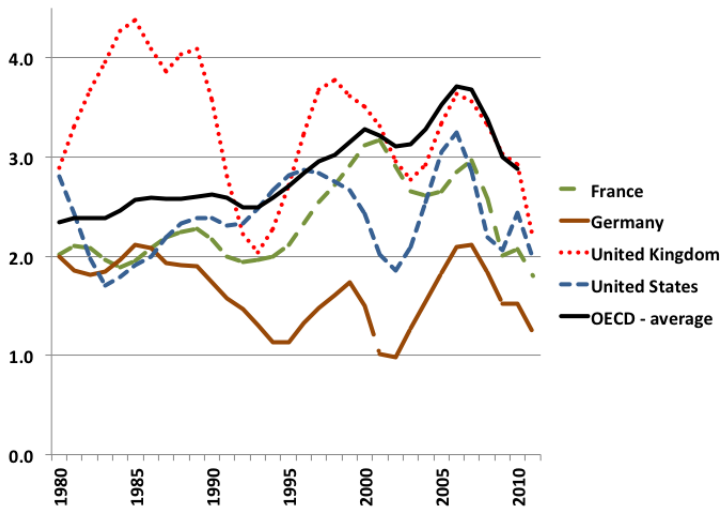
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4. Corporate income tax revenues have increased
 - surprisingly, given all this concern

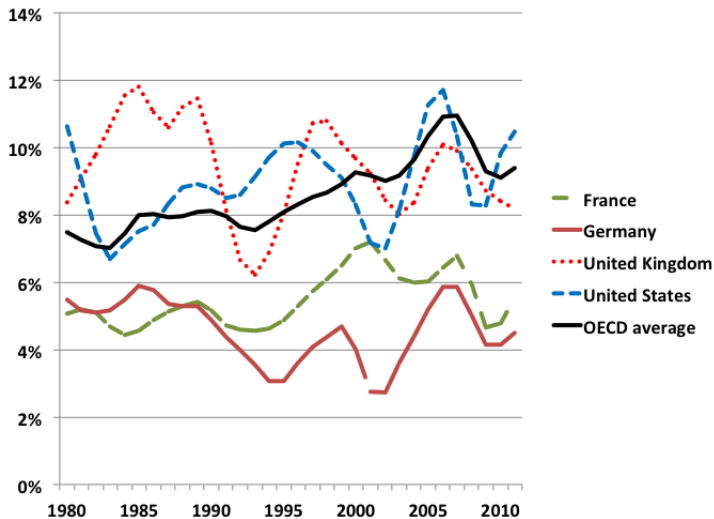
Corporate income tax revenues as a share of GDP



Corporate income tax revenues as a share of GDP



and as a share of total tax revenues

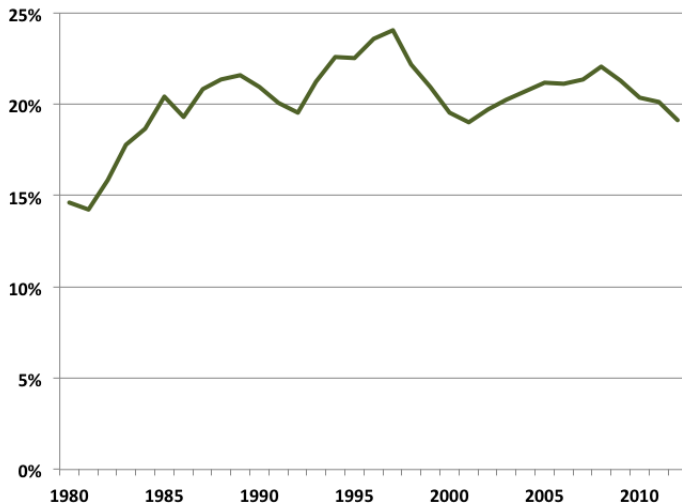


- Why have corporate income tax revenues increased?

Why have corporate income tax revenues increased?

- Gross operating profit as a share of GDP has increased
- and corporate share of gross operating profit has increased

Increase in UK corporate share of GDP



Why have corporate income tax revenues increased?

- Gross operating profit as a share of GDP has increased
- and corporate share of gross operating profit has increased
- Timing and scale of increase varies across countries
- as does the reason for the increase
 - UK and France saw large increases over the 1980s
 - US and Germany have seen more recent increases

- What impact are these taxes having on economic incentives?
- What are taxable profits?

- In considering how corporate income tax affects incentives, 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

- 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

- 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 the impact on incentives it becomes important to understand what are taxable profits
- What might they be?
 - normal return on capital, including risk
 - return on labour or entrepreneurial effort
 - 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?

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 a higher required rate of return
- Current tax systems tax risky projects more heavily
 - rate cutting reduces this distortion and shifts taxes away from more profitable projects
 - empirical evidence suggests that profitable firms are more mobile
 - so also reduces the tax on internationally mobile capital
- We would prefer a tax system that allowed deductions for the normal return on equity, including risk
 - such systems exist in theory but have not been implemented in many countries

Return to labour and entrepreneurial effort

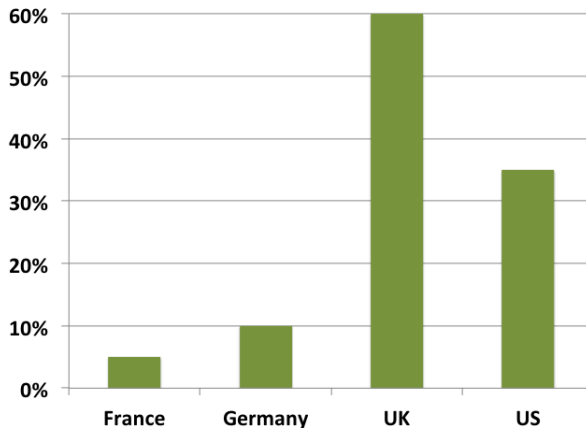
- Labour share of value-added has declined when measured by wages
- When measured by compensation it does not decline by much
 - in UK this is largely accounted for by funded pension schemes
 - reasons differ in other countries but also true in e.g. the US (see Pessoa and Van Reenen, 2012)
- Shift from State provided pensions to privately provided pensions has led to problems with measuring profits in National Accounts, but unlikely to be reason for higher taxable profits

Return to labour and entrepreneurial effort

- Part of taxable corporate income might represent a return on labour
- Gordon, Slemrod, Hausmann and others have argued this
- Entrepreneurial or managerial efforts are often compensated with stocks
 - if effort is not easily monitored then firms might use stock options to provide incentives to workers to exert effort
 - 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

Share of firms that offer performance related pay, 2005

- Use of stock options has increased since 2005 in US and UK
- but largely a US and UK story



- If the increase in taxable profits is mainly due to a shift from wage to stock compensation
 - which 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
- Rate reductions have increased the distortions with respect to wage compensation

Profits from exploitation of market power

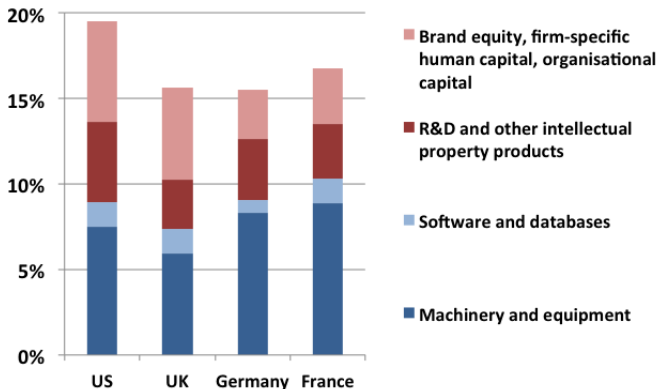
- Taxable profits could represent the returns from market power
- Paul Krugman in the New York Times
 - *“So what is really different about America in the 21st century? ... the growing importance of monopoly rents: profits that don't represent returns on investment, but instead reflect the value of market dominance. ... Since around 2000, the big story has, instead, been one of a sharp shift in the distribution of income away from wages in general, and toward profits. But here's the puzzle: Since profits are high while borrowing costs are low, why aren't we seeing a boom in business investment? Well, there's no puzzle here if rising profits reflect rents, not returns on investment. ”*

Profits from exploitation of market power

- Ownership of intangible assets can be a source of market power
- Robin Harding in the Financial Times
 - *“There are still many doubts, however, about whether intangibles really are a form of investment. If one company invests in a brand to boost profits, does that not mean another company will lose profits, with no change for the economy overall?”*

Investment in Fixed and Intangible Assets, 2006

- Investment in intangible capital, as share of GDP



Profits from exploitation of market power

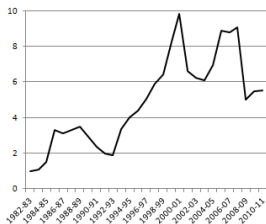
- If the increase in taxable profit due to an increase in market power
- the impact of taxing these profits depends on how firms will respond to the tax
- if firms operate in oligopoly markets, where prices and quantities already be distorted from the optimal level, then taxes on those profits likely to exacerbate an existing market distortion
- to know how corporate taxes will distort behaviour in these markets we need to know about the strategic behaviour of firms
- and the impact will vary across markets

What industries have been responsible for growth in taxable profits?

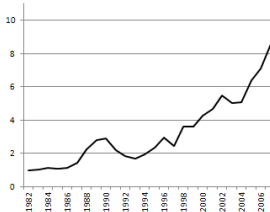
- In the UK four main industries
 - Banking, Finance and Insurance
 - Business Services
 - Energy and Water Supply
 - Retail, Distribution and Repairs

Tax liabilities, Capital and Profitability: UK Financial

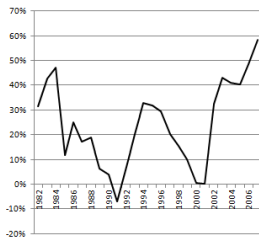
CT liabilities, Banking, finance and insurance



GFCF, Financial intermediation

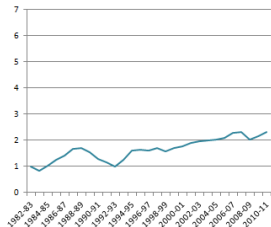


IRR, financial intermediation

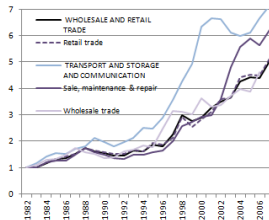


Tax liabilities, Capital and Profitability: UK Retail and Distribution

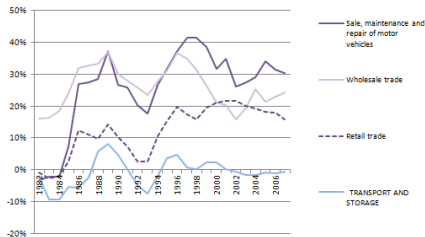
CT liabilities, Distribution and repairs



GFCF, Wholesale & Retail and Transport

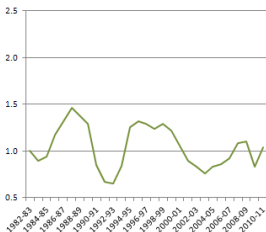


IRR, Wholesale & Retail and Transport

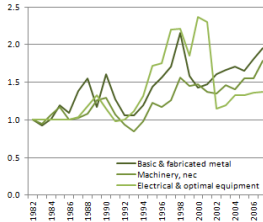


Tax liabilities, Capital and Profitability: UK Manufacturing

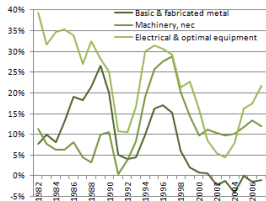
CT liabilities, Metal goods and engineering



GFCF, metal manufacturing industries



IRR, metal manufacturing industries



What industries have been responsible for growth in taxable profits?

- Banking, Finance and Insurance
 - profits grew faster than investment
 - Gordon, Slemrod, Hausmann interpret this as returns to labour
 - Krugman interprets this as market power
 - could also be compensation for greater risk
- Retail, Distribution and Repairs
 - profits grew at about the same pace as investment
- Manufacturing
 - profits grew slower than investment

Patent Boxes

- Reduced rate of corporate income tax
 - for “income from patents”

Country	Preferential rate	Main rate
Netherlands	5	25
Luxembourg	5.8	29
Belgium	6.8	34
UK	10	23



- The UK Treasury estimates the annual revenue cost of £1.3bn from introducing the Patent Box

- Griffith, Miller and O'Connell (2012) 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
 - 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

Impact of Patent Boxes on location of new patents

All patents	Share before Patent Boxes	Share after Patent Boxes	% change
Belgium	2.39	3.42 (0.37)	43.0%
Luxembourg	0.33	0.56 (0.37)	70.9%
Netherlands	7.92	12.19 (0.41)	54.0%
UK	4.15	5.25 (0.35)	26.5%

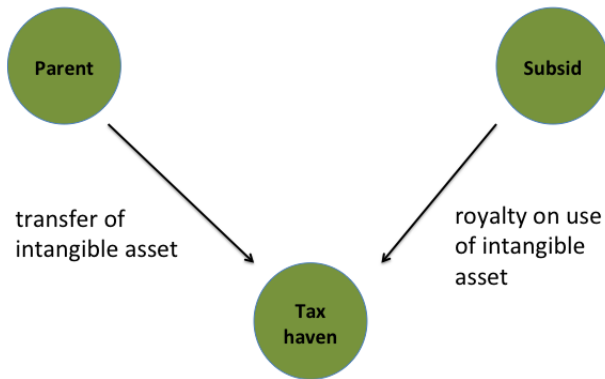
Impact of Patent Boxes on location of new patents

High quality patents	Share before Patent Boxes	Share after Patent Boxes	% change
Belgium	1.90	3.16 (0.38)	66.3%
Luxembourg	0.42	0.71 (0.38)	69.0%
Netherlands	7.00	12.14 (0.42)	73.5%
UK	4.89	5.64 (0.36)	15.3%

- How we evaluate Patent Boxes depends on what we think taxable profits associated with patents are:
 - if normal returns on equity (including risk) 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 externalities 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

- The OECD BEPS report (Addressing Base Erosion and Profit Shifting)
 - international tax system originally set out to **avoid** double taxation
 - now the concern is that firms are avoiding paying any tax
 - initial BEPS report sets out an action plan to ensure taxation where there is “economic substance”

BEPS proposal



**BEPS proposal: require
"economic substance" here**

- The OECD BEPS report (Addressing Base Erosion and Profit Shifting)
 - international tax system originally set out to **avoid** double taxation
 - now the concern is that firms are avoiding paying any tax
 - initial BEPS report sets out an action plan to ensure taxation where there is “economic substance”
- why?
 - if transfer of asset was taxed at a fair price when sold from the parent to the subsidiary (or tax haven) then we have single taxation
 - are residence countries (US and UK) deliberately avoiding taxing royalty income?

- What will BEPS do?
 - moves away from principle of taxation in the residence country of the supplier of finance or owner of intangible property
 - either agree to move to fully source based system, in which case seems likely there will be greater competition driving tax rates down
 - or potentially introduce greater distortion to the location of real economic activity, towards low tax countries

Where should income be taxed?

- The world is more complicated
- Example: journal article
 - I write an article with a French colleague
 - submit to a journal owned in Netherlands
 - Editor lives in Germany
 - production of manuscript in Philippines
 - computer servers in the US
 - software written in India
 - platform owned in Netherlands
 - sales operation in France
 - downloaded by an Italian who is visiting China
- where should the profits earned on this be taxed?

What do we want from a corporate income tax system?

- Attract real investment?
- Generate competitive advantage for domestic firms?
- Raise revenue?
- Ensure profits are taxed somewhere?

Concluding remarks

- 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