

Office Space Supply Restrictions in Britain: The political economy of market revenge





Background

- Planning is motivated by other concerns: allocates scarce resource – without concern for prices
- The economic effects of land use regulation important and growing:
 - not just in UK - around the world
- Distinguish between regulation in sense of
 - 1) offsetting for problems of market failure
 - 2) regulation as restriction of supply (but supply of what?)
- Creating major problems of price distortions – but land prices discontinuities could in certain circumstance provide useful signals

Land Market Regulation:

‘Planning’, ‘Zoning’, ‘Growth Boundaries’....

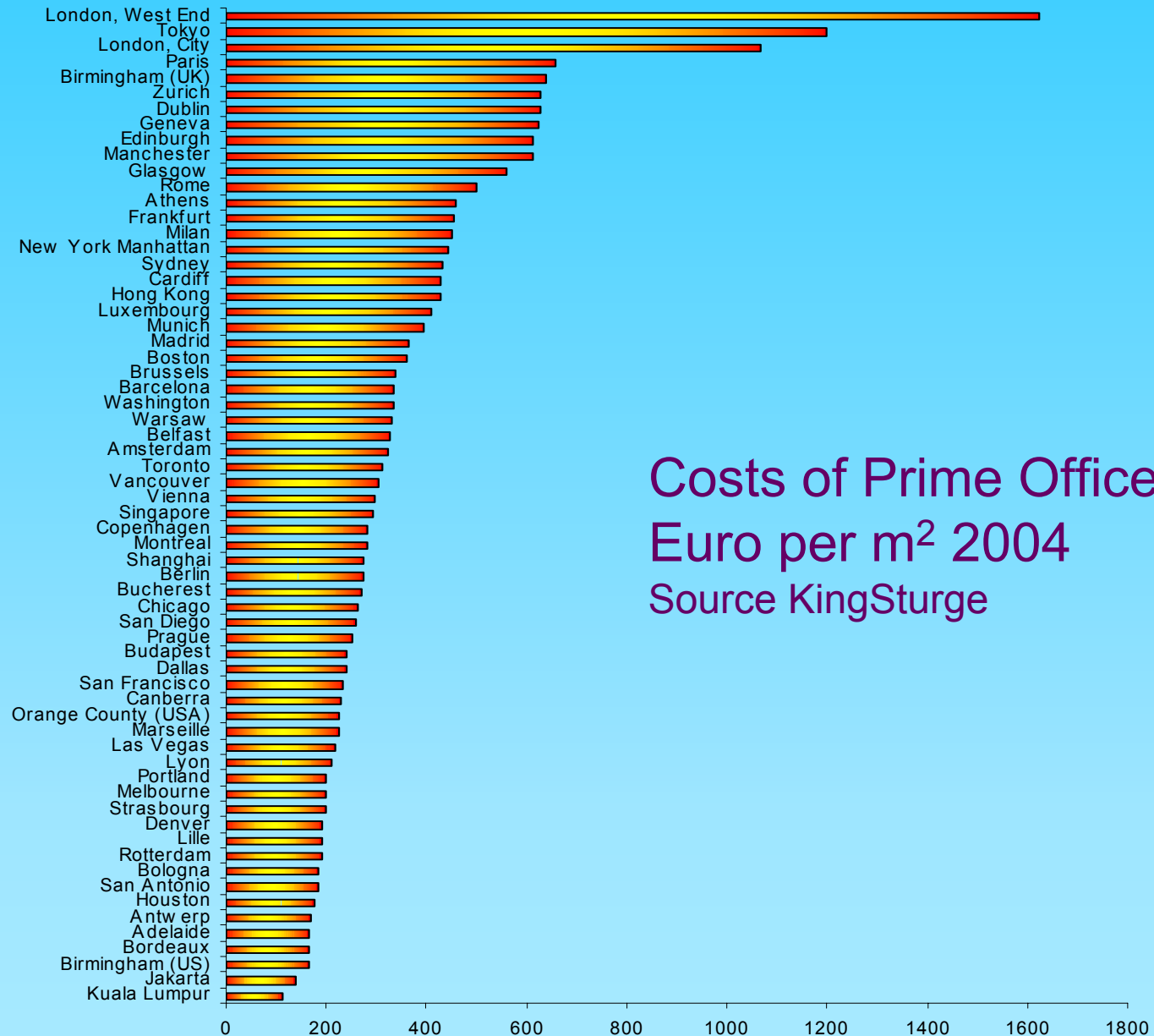
- Increasing realisation has significant economic impacts – e.g. Brueckner; Cheshire & Sheppard; Glaeser & Gyourko (& Saks); Barker;
- Planning about many things – but ultimately about allocation of a scarce resource other than by markets
- In most rich – OECD – countries – once planning determines supply (zones) – markets allocate
- But increasingly planning restricts supply – UK, South Korea, USA, Netherlands & China:
- Increasing price distortions \Rightarrow welfare effects and distributional impacts and – increasing evidence – mobility
- However - nearly all work on Residential sector

Nearly all Research for Residential

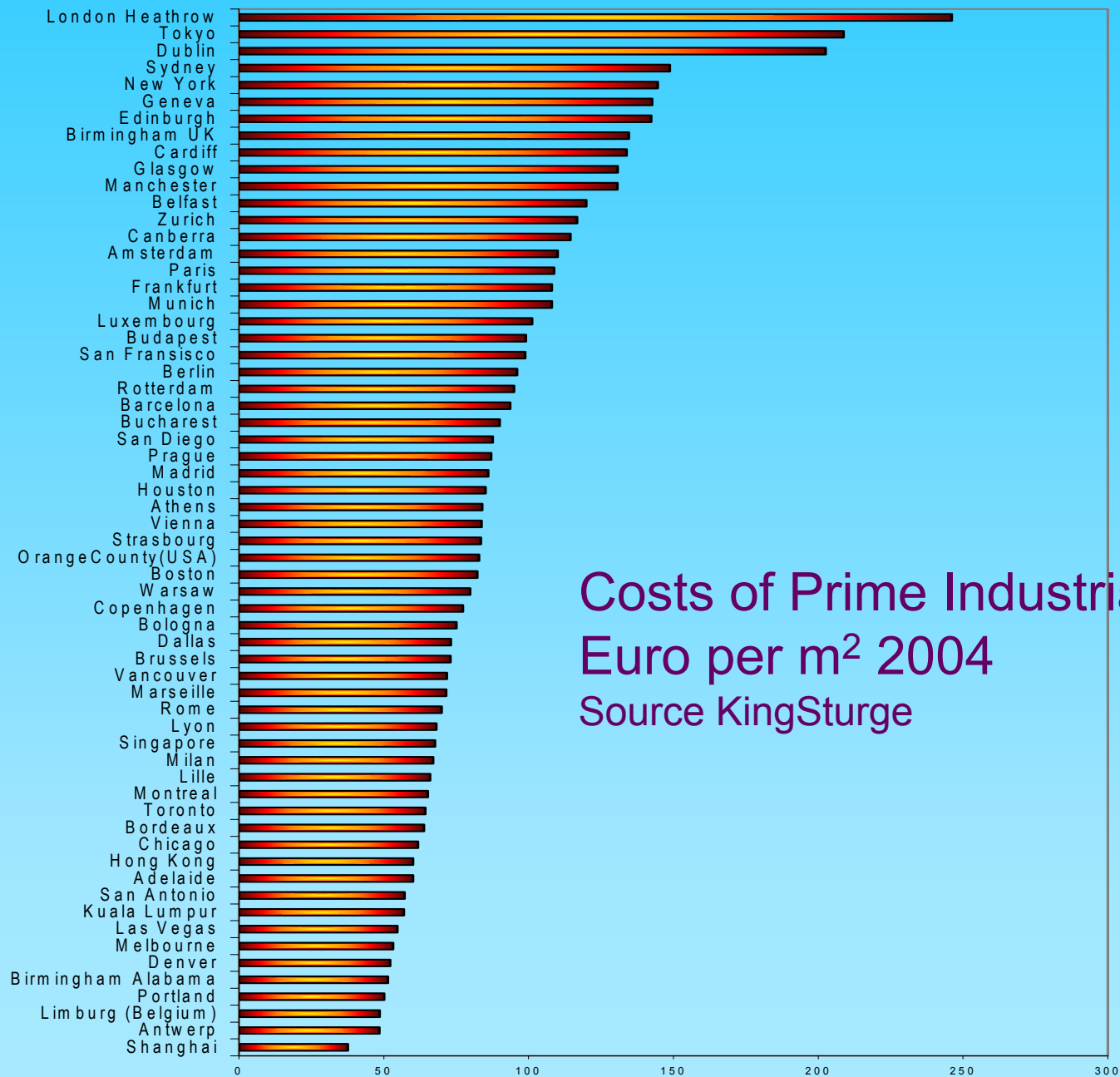
- But in UK (& other countries) supply of land for **each** use is individually regulated
- So can be restrictions on space available for office, industrial, retail use + hotels, estate agencies etc – the ‘needs’ test....
- Also height restrictions via ‘plot ratios’ (= FARs)
- Results in control of space for **each** use
- And in UK a centralised fiscal system – since 1990 has eliminated **any** fiscal incentive for local communities to allow commercial development – except City of London: the Uniform Business Rate
- This paper → non-residential sector: Offices
- Particular relevance for London

British Office Costs – take Birmingham

- Take Birmingham – medium sized city (2.5m), declining industrial economy, situated on flat plain
- Construction costs for offices about 50% of costs in Manhattan – no surprise
- What fundamentals determine costs of space? City size, income level, construction costs, growth, transport systems....
- In Birmingham office space costs 44% **more** than Manhattan (2004)
- That is some surprise: something must be going on
- Land use planning constraints seem plausible candidate
- Work on UK residential sector suggests land supply restrictions impose about 4% income equivalent net welfare loss



Costs of Prime Office Space
Euro per m² 2004
Source KingSturge

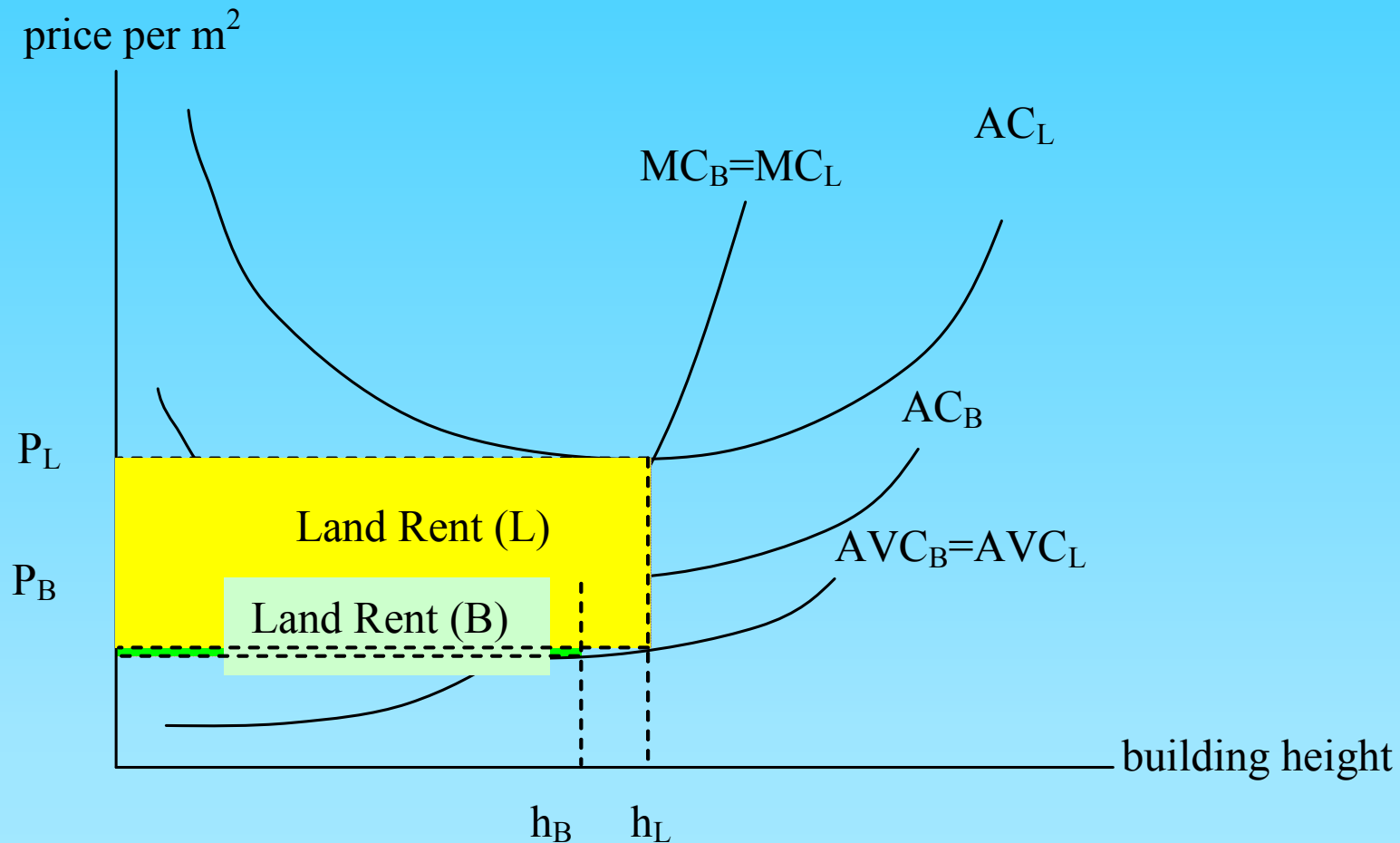


But just circumstantial: how estimate?

- Adapt Cheshire & Sheppard methods for residential sector?
 - Can we assume demand for commercial space is generated internally in closed urban economy??
 - Can we estimate a production function including space as an input??
 - Do we have enough observations??
- If these conditions are not met cannot estimate either economic costs or benefits?
- If restrictions raise prices, space can be substituted out of production – but unless perfectly substitutable will be efficiency losses
- But benefits from height restrictions, historic designation etc – would London or Paris be the tourist attractions they are?
- But the '**Regulatory Tax**' measure (Glaeser *et al* 2005)
- Measure of **gross** cost??

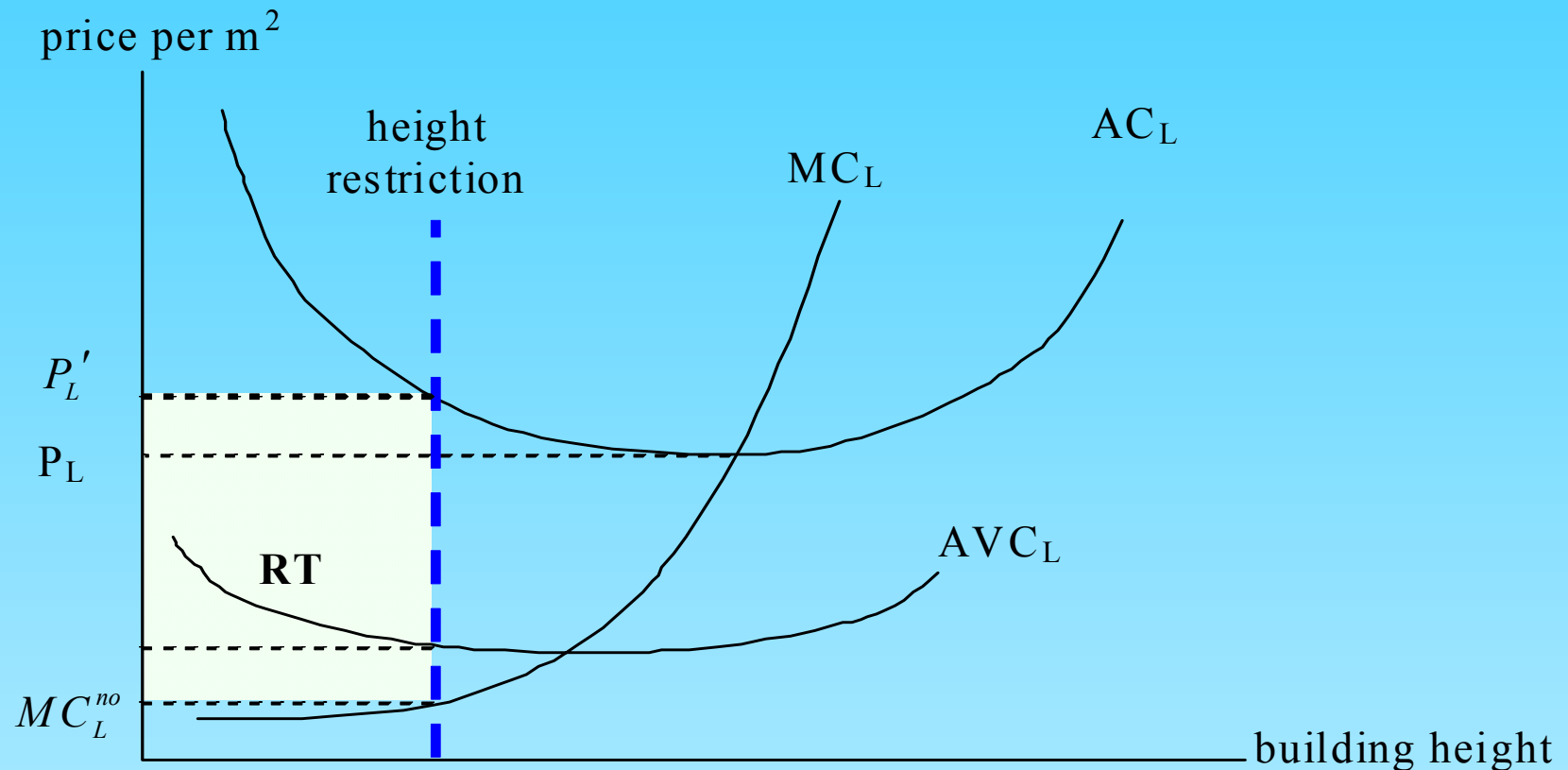
Space Price, Costs & Land Rent:

no restrictions; high demand (L), low demand (B) cities



Competitive development industry so in equilibrium $P = AC = MC$

A Developer's Cost Curves with Height Restrictions – The 'Regulatory Tax'



But if no height restriction??
Regulation via compliance costs??

So – what the RT measures...

- The RT a reasonable lower bound estimate of gross costs of regulation if height constraints
- Advantages - theoretically based, modest data requirements, abstracts from urban land prices
- But compliance costs & costs of delay capitalised into land prices – still a cost but not visible in RT
- May impact on construction costs e.g. no height restrictions: more realistically – a ‘trophy’ architect to push ‘plot ratios’ & build higher – so endogeneity issue?
- But in UK universal height & land supply restrictions + extensive historical designation (e.g. London City 8 x 55 metre sight lines to St Pauls; West End no external or internal alterations
- RT expressed as quasi-tax rate on construction costs;₁₂
 - not as Glaeser *et al* 2005 – ratio of price to costs

Estimating the Regulatory Tax (RT)

- For 14 UK office marginal costs of construction: per m² in hypothetical additional floor – estimated by Davis Langdon back to 1960 from actual projects: common spec (+ not used yet – standard office park boxes – investigate endogeneity issue).
- For Continental locations (+ Manhattan) Gardiner & Theobald *Average Cost* data, converted to 'MC' using ratio to Davis Langdon for common locations
- UK prices via CBRE: m² prime rentals + yields from 1973 (1960) converted to capital values using 'Equivalent Yield Model' allowing for voids, rent frees etc (see paper); + CBRE data on total Occupation Costs (2004 & 2005 only)
- For Continental prices - JLL rental & yield data from 1990: used common locations to cross check

UK Office Markets & Data Availability

Office Market	Years with Available Data	14 Market Sample (Unbalanced)	11 Market Sample (Balanced)
City of London	1961-2005	Yes	Yes
London West End	1961-2005	Yes	Yes
London Docklands (Canary Wharf Tower)	1998-2005	Yes	No
London Hammersmith (Inner Suburban London)	1991-2005	Yes	No
Manchester (North West)	1973-2005	Yes	Yes
Newcastle (Upon Tyne)	1965-2005	Yes	Yes
Croydon (Sub London)	1965-2005	Yes	Yes
Edinburgh (Scotland)	1965-2005	Yes	Yes
Glasgow (Scotland)	1965-2005	Yes	Yes
Maidenhead (South East)	1984-2005	Yes	No
Reading (South East)	1965-2005	Yes	Yes
Bristol (South West)	1973-2005	Yes	Yes
Birmingham (W Mids)	1965-2005	Yes	Yes
Leeds (Yorks & Humb)	1973-2005	Yes	Yes

Summary Statistics:

Regulatory Tax as Quasi-tax rate

Variable: Ratio: Regulatory Tax / MCC	Obs	Mean	Std. Dev.	Min	Max
Specification:					
Based on prime rent (<i>no adjustment</i>)	480	3.70	2.92	0.13	22.06
Prime rent <i>partially adjusted</i> for rent-free periods	480	3.03	2.66	-0.05	19.81
Prime rent <i>fully adjusted</i> for rent-free periods and vacancy rates (central estimate)	480	2.64	2.37	-0.14	17.55
<u>Upper bound</u> : Assume 10% premium for top floor plus 50% of fully adjusted total occupation cost markup	480	3.88	3.10	0.15	23.95
Based on fully adjusted prime rent plus 10% premium for top floor	480	3.01	2.60	-0.05	19.41
<u>Lower bound</u> : As central estimate but assume 0.5 percentage point higher yield	480	2.37	2.15	-0.18	15.78

Data Sources: CBRE (prime rent, yield and total occupation cost information), Davis Langdon (marginal construction cost information), IPD (national void rate index) and ODPM (regional vacancy rates).

Figure 1: Regulatory Tax(Central Estimate)
London Office Markets

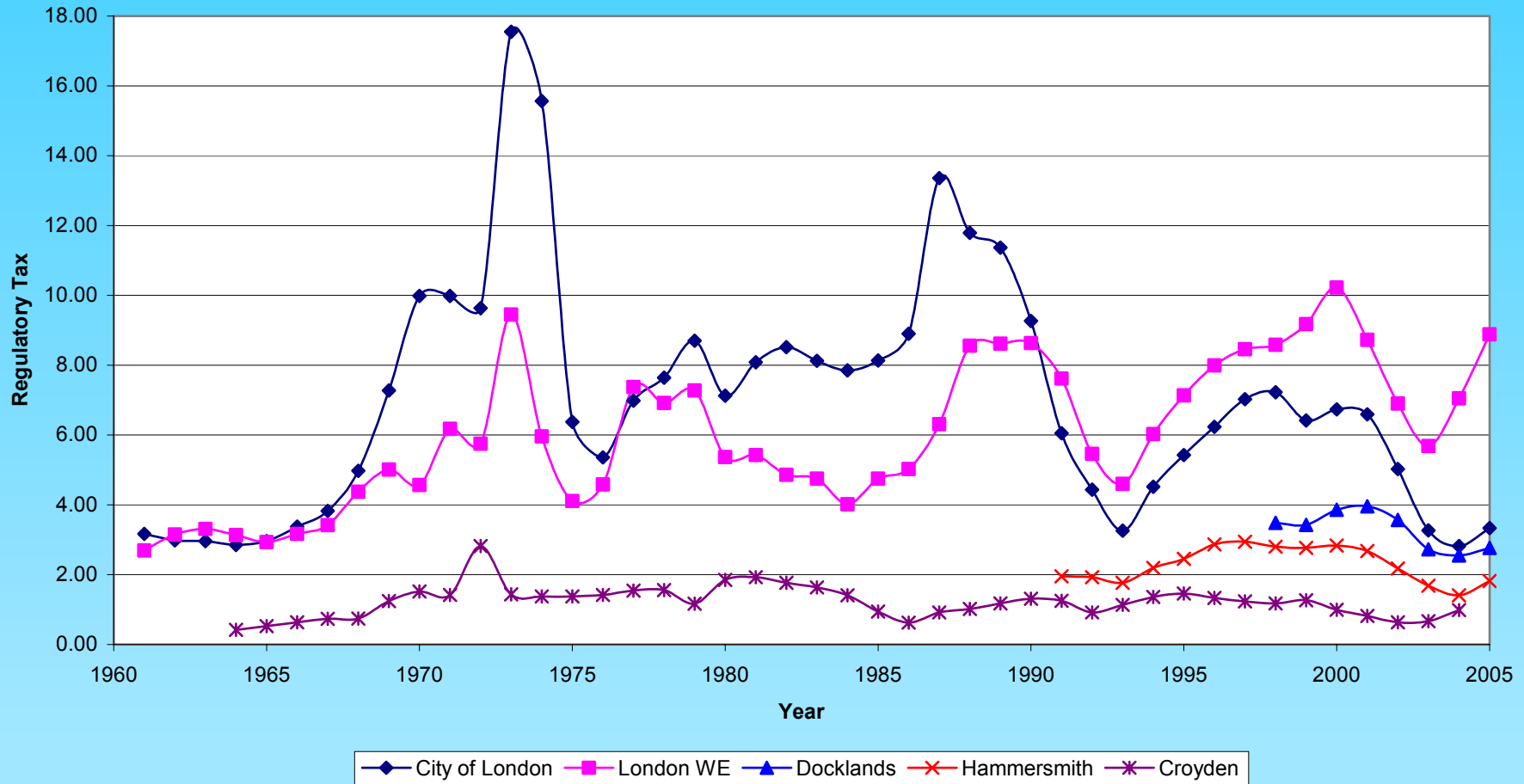


Figure 2: Regulatory Tax (Central Estimate)
South East Office Markets

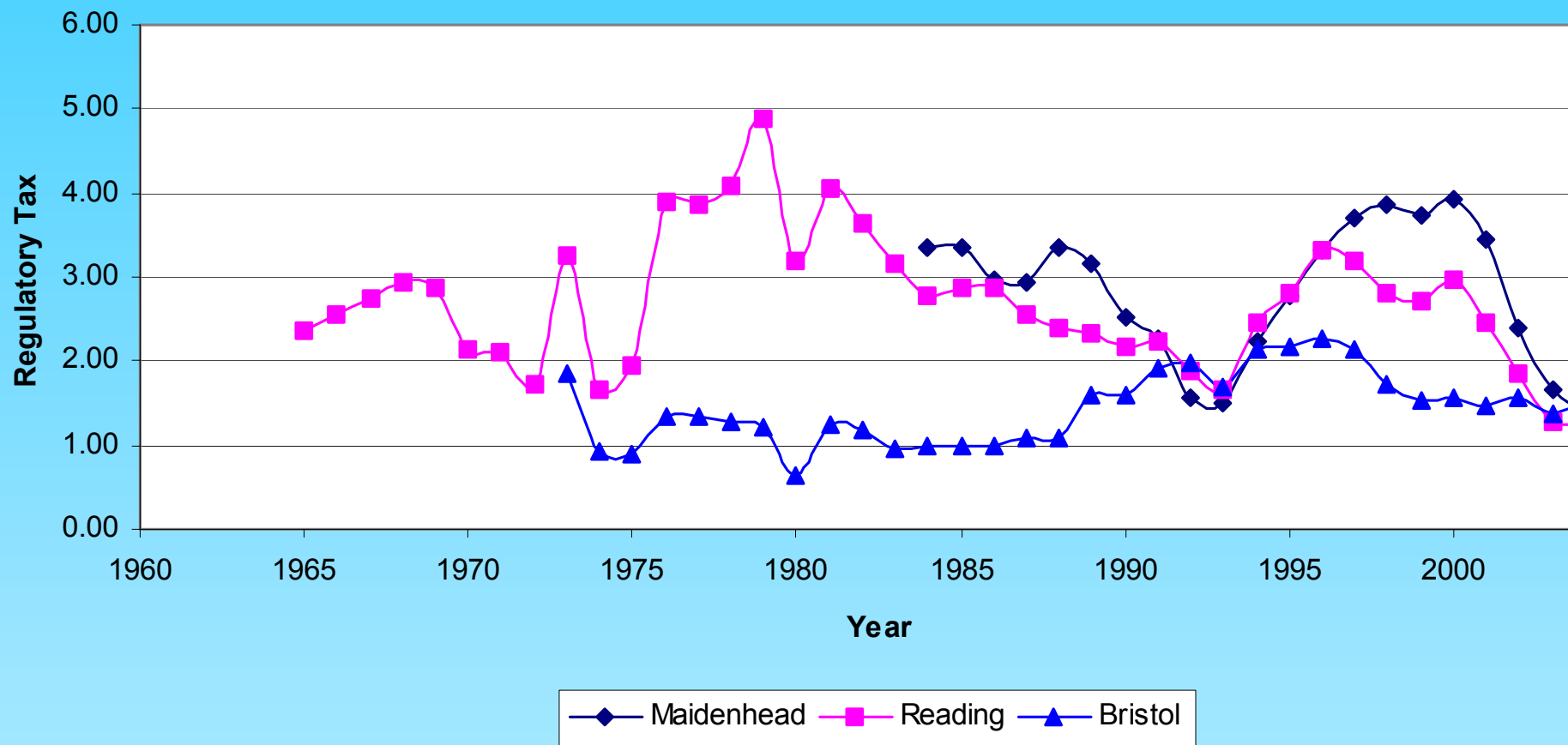
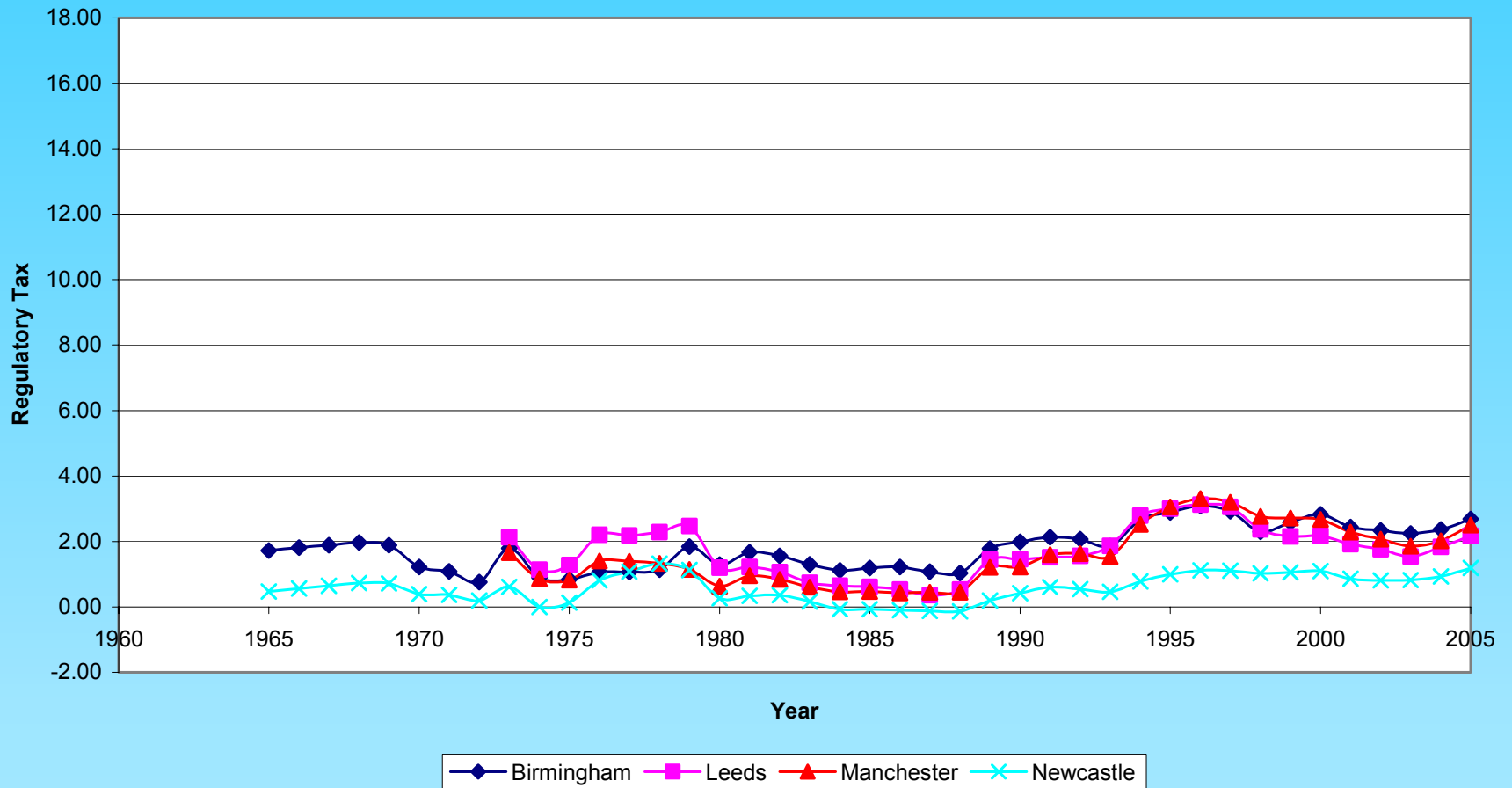


Figure 2: Regulatory Tax (Central Estimate)
Midlands and North Office Markets



Comparisons with Continental European Locations

City	Estimated Regulatory Tax		
	1999	2005	Average
London West End	7.62	8.37	8.00*
London City	4.68	4.31	4.49*
Frankfurt	5.44	3.31	4.37
Stockholm	4.28	3.30	3.79
Milan	2.07	4.11	3.09
Paris: City	2.35	3.75	3.05
Barcelona	2.23	3.16	2.69
Amsterdam	2.12	1.92	2.02
Paris: La Defense	1.41	1.93	1.67
Brussels	0.52	0.84	0.68

Data from JonesLangLasalle and Gardiner Theobald adjusted to CBRE & Davis Langdon norms

*9.0 and 4.9 respectively using Davis Langdon & CBRE data

Explaining the Regulatory Tax

- Very high costs of land use planning in UK
- Planning policies controlled by residents - Homevoter hypothesis + benefits widespread & costs of development very local
- Except – helpfully in City of London + Docklands
- Planning authorities small (Districts, Boroughs)
- Strong negative fiscal incentive to allow any commercial development: reinforced post 1989 – Uniform Business Rate
- Except – helpfully – City of London: retained 15%
- For resident controlled only incentive - fear of unemployment?

Explaining the Regulatory Tax

- Need to measure unemployment rate in relevant local government unit (Local Planning Authority- LPA)
- Surprisingly difficult!
- Survey-based unemployment from 1973 on (fairly) common basis: but sample too small for LPA estimates till 1999
- 'Registration' data for varying local areas from early 20th Century but over 100 rule changes 1977-1990: all making apparent unemployment lower!
- Done the best we can
 - Ratio of 'Survey-based' : 'Registration-based' regional unemployment to adjust local 'Registration-based' unemployment rate to quasi-survey standard:
- Done this in various ways – no real difference to results
- But - 'relevant' area for Business-controlled LPAs?

Hypotheses/questions

1. As unemployment rises, planning becomes less restrictive
Accept potential problem of identification but....
2. Elasticity of response to unemployment much stronger in Business compared to Resident-controlled LPAs
3. City of London becomes less restrictive relative to all other locations following Uniform Business Rate (UBR) - 1990
4. UBR introduced to prevent leftist local governments damaging business with punitive property taxes to redistribute: but what impact on business costs indirectly via increased fiscal disincentive to LPAs to permit development?

Explaining the Regulatory Tax

Unbalanced Sample - Year & Location Fixed Effects: 1961-2005

<i>Explanatory Variable</i>	<i>Dependent Variable: Regulatory Tax</i>		
	(1)	(2)	(3)
Unemployment rate in local office market	-14.989 (3.599)***		
Unemployment rate (measure 1) * business controlled (b_{B1})		-29.646 (5.274)***	
Unemployment rate (measure 1) * resident controlled (b_{R1})		-12.392 (3.612)***	
Unemployment rate (measure 2) * business controlled (b_{B2})			-29.223 (5.301)***
Unemployment rate (measure 2) * resident controlled (b_{R2})			-12.121 (3.752)***
Location Fixed Effects	Yes	Yes	Yes
Year fixed Effects	Yes	Yes	Yes

Location Fixed Effects: Unbalanced Sample

City of London	6.407 (0.267)***	7.520 (0.396)***	7.516 (0.399)***
London West End	5.500 (0.267)***	5.596 (0.264)***	5.601 (0.265)***
London Docklands (Canary Wharf)	2.561 (0.467)***	3.928 (0.586)***	3.931 (0.587)***
London Hammersmith (Inner Suburban)	1.523 (0.362)***	1.451 (0.357)***	1.548 (0.360)***
Manchester (North West)	0.504 (0.289)*	0.537 (0.284)*	0.547 (0.285)*
Croydon (Outer Suburban	0.326 (0.269)	0.380 (0.266)	0.235 (0.284)
Edinburgh (Scotland)	1.086 (0.278)***	1.158 (0.274)***	1.166 (0.276)***
Glasgow (Scotland)	0.960 (0.259)***	0.953 (0.255)***	0.952 (0.256)***
Maidenhead (South East)	1.138 (0.386)***	1.242 (0.381)***	1.267 (0.385)***
Reading (South East)	1.332 (0.317)***	1.464 (0.314)***	1.477 (0.319)***
Bristol (South West)	0.151 (0.310)	0.224 (0.306)	0.239 (0.308)
Birmingham (West Midlands)	1.062 (0.262)***	1.088 (0.258)***	1.091 (0.258)***
Leeds (Yorks & Humbs)	0.513 (0.298)*	0.566 (0.294)*	0.579 (0.296)*

Explaining the RT: Balanced Sample - Year & Location Fixed Effects

<i>Explanatory Variable</i>	<i>Dependent Variable: Regulatory Tax</i>		
	(1)	(2)	(3)
Unemployment rate in local office market	-16.980 (3.997)***		
Unemployment rate (measure 1) * business controlled (b_{B1})		-53.896 (6.596)***	
Unemployment rate (measure 1) * resident controlled (b_{R1})		-11.289 (3.834)***	
Unemployment rate (measure 2) * business controlled (b_{B2})			-53.610 (6.611)***
Unemployment rate (measure 2) * resident controlled (b_{R2})			-11.196 (3.994)***

N=363

Explaining the RT: Uniform Business Rate

<i>Explanatory Variable</i>	Dependent Variable: RT	
	Non-City Dummy	Location Specific Post 1989 Dummies
Unemployment rate (measure 2)	-44.961	-13.497
*business controlled (b_{B2})	(5.956)***	(6.727)**
Unemployment rate (measure 2)	-4.930	-5.478
*resident controlled (b_{R2})	(1.928)**	(1.817)***
Dummy variable, Post-1989: except City of London	0.634 (0.128)***	
Dummy variable, Post-1989: City of London		-3.461 (0.456)***

N=363

Conclusions

- Gross costs of regulation for office space in UK seriously high *cf* US or most of Continental Europe
- High 'generalised' costs in London (location fixed effects)
- Sharp distinction between business and resident controlled authorities in responsiveness to local economic conditions (unemployment)
- Strong impact of changing business property tax to national tax (UBR post 1989) outside City of London
- Done to mitigate taxes on business from leftist local governments
- But impact for medium sized firm - 200 employees in 1500m²?
- Total Business rates £47,819: estimated change in space costs £76 360!
- More generally – reinforces view that RT is a useful measure of gross costs of regulation: 'It works'

Supply Restriction in China?

- Extraordinary rates of growth & urbanisation
 - Urban population from 20 to 40% 1978-2003
- Economic growth at 9.3% p.a. 1978-2003: World Bank forecast for 2006 is 9.5%
- Moving from centrally planned, highly regulated economy
- Aims of planning system to:
 - Promote rational land use
 - Guard 'public interest'
 - Protect natural resources – *de facto* strong protection of designated agriculture land
 - Mercantilist concern for agricultural production
- Sounds like space restriction...& rapidly rising incomes....
- Planning Shenzhen: 'Planned' population; 'Planned' land consumption: but outturn very different

Shanghai and Beijing – estimates of the Regulatory tax

- Tightening of regulatory restrictions in Shanghai since 2003
- Inheritance of significant supply of space for ‘economic’ uses (including workers’ housing) from State Enterprises + zoned urban land.
- But zoning rigid:
- Expect significant differential premiums for land in urban uses with mark up of residential over commercial (see Sheppard)
- Use ‘Regulatory tax’ measure expressed as quasi-tax rate – expect significant positive value – higher for residential cf commercial: higher for high income than low income housing
- + Significant generalised cost of regulation (compliance and delay burdens) not captured in RT

Data

- Thanks to Zhen Luo (Shanghai) and Wang Xiao (Beijing)
- Construction cost data from developers: relating to 14 residential projects and 10 office projects in Shanghai; 4 residential projects in Beijing
- Adjusted - but in less sophisticated way than Davis Langdon - to Marginal Cost
- Capital values from developers
- Data relate to projects constructed during 2005

Shanghai - 2005

Regulatory Tax - Residential

Type & Location	'Regulatory Tax' Range ¹
Highest quality - central	3.89 – 8.71
Upper middle quality - central	3.18 – 7.92
Average - near middle ring road	3.97 – 4.76
Basic plus – close to outer ring	3.58 – 3.65
Basic – near/outside outer ring	2.45 – 3.33

¹ 'Regulatory tax' as percent of marginal constructions costs

Shanghai – the outlier



Shanghai

Regulatory Tax - Offices

Type & Location	'Regulatory Tax' Range
Highest quality International Grade A Prime CBD	2.44 – 3.64
High quality Grade A edge CBD	2.27 – 3.25
Good quality: Central locations	2.00 – 2.79
Secondary/more peripheral	1.13 – 2.10

Beijing

Regulatory Tax - Residential

Type & Location	'Regulatory Tax' Range
Good quality apartments - central	6.88 – 9.17
Average quality – large development	3.03 – 3.56

Conclusions

- China – evidence of substantial cost of regulatory constraint (but cf RT values for London Offices of 3 -18)
- Some - generalised – compliance costs in addition
 - 130+ separate permissions needed to go from site to finished development!
- But - Space restrictions seem to apply particularly to:
 - Better quality residential (cf poorer)
 - Top quality office space
- Price distortions likely to get worse –

Conclusions

- Rising incomes more important demand drivers than urbanisation/population growth given evidence on income elasticity of demand for space in space constrained UK: likely reason for higher estimated RT values for top quality space
 - Less evidence of supply constraint on commercial space but higher for best quality/locations
 - Scope for using agricultural/residential zoned price differential as signal to release more land
 - But how reliable are available land price data?
 - Scope for relaxation of FAR controls (cf Hong Kong)