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The Spatial Methodology: A Test

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THE SPATIAL method was adopted for this study because it is the most direct approach to calculating the value of land. The reliability of this method of assessment was tested against the results produced by the residual method, which is used by valuers and property developers. We selected industrial and commercial land for this part of our investigation because it is the sector with the least precise land value estimates. The spatial method concluded that commercial and industrial land was worth about £143 bn in 1985 (Chapter 7), and the residual method produced a figure of £135 bn.

For reasons given below, we believe the spatial method of assessment is the more reliable and offers the greater potential for further refinement for the purposes of constructing an inventory of the value of the nation's land in its various uses.

The arithmetic of the residual method is as follows. Multiply the floorspace of commercial and industrial properties by their rental values. Apply the appropriate yields (years purchase) to convert the rents to capital values. From the capital values subtract the net replacement costs of the buildings to leave the properties' residual land values. The data sources are the rating authorities' floorspace returns (DoE 1986a; Welsh Office 1986), professional opinions of the general level of rents and yields for each type of property, and the net capital stock estimates of the National Accounts, supplemented by the Royal Institution of Chartered Surveyors' guidelines on building costs (BCIS February 1986).

An immediate problem with this approach is that it assumes that all properties are developed to their full potential. Any property which is not must yield an annual rent which depresses its capital-

ised value, and hence (despite the lower net replacement cost) its residual land value. But, as asset strippers know, land value cannot be depressed in this way. Its open market value depends on the best alternative permitted use of the land, not its current use. At the extreme, vacant land, which probably accounts for over 5% of the urban area of Britain, has no value at all according to this methodology. One would therefore expect aggregate land value to be considerably under-estimated.

Land Values in the UK Balance Sheet

The CSO's modest attempt to calculate the capital value of UK land involved the subtraction of capital (buildings) stock estimates for the major sectors of the economy, which appear in the Blue Book, from its balance sheet estimates of the market value of buildings and civil engineering works. The former represent the replacement cost of buildings, the latter include the land the buildings stand on, valued at current use. The construction industry's land banks were included, but the 100,000 or more hectares of vacant urban land were not.

Bryant noted the major methodological weaknesses of the exercise: 'First capital stock estimates are extremely dependent on assumptions about asset lives which must often be rough. Secondly the question arises whether comparison should be made between market values of land and buildings in the balance sheets and gross capital stock or net (i.e. depreciated) capital stock' (Bryant 1987: 100).

The CSO elected to use gross capital stock for housing, where depreciation does not appear to be very significant, 'at least not until the older dwellings are nearing the end of their useful life.' Even so this would tend to overstate the buildings component of the housing stock. Five per cent of it is 'unfit for habitation' and 15% is over 100 years old. Given that older houses tend to be in higher value locations, it would not seem unreasonable to suggest that most of the value of, say, a fifth of the housing stock resides in the land occupied, and that subtracting the costs to replace the buildings anew almost wipes out that land value.

For commercial and industrial properties, where depreciation is

important, the CSO chose to use net figures. Bryant cited the College of Estate Management's 1986 report *Depreciation of Commercial Property* as indicating heavy depreciation of capital values in the first 10 years of the life of such properties: 'They suggest for example that 20 year old office blocks may be worth only one-third of the value of similar brand new buildings. This includes site values which, if excluded, would reduce the value of some 20-year-old office blocks to close to zero.' Bryant added that market commentators believe that property values have been particularly affected since 1980 because 'technological changes have changed tenants' requirements faster and the impact of depreciation is likely to be greater when the property market is weak.'

In view of these developments it is noteworthy that the net capital stock estimates in the Blue Book are arrived at by straight-line depreciation assuming 80-year asset lives for commercial buildings and 60-year lives for industrial buildings built since 1930 (CSO 1985: 201). They must, therefore, overstate the value of the buildings. The structure of the obsolete 20-year-old office block would be recorded in the national accounts as worth three-quarters of its real original cost when in fact it has virtually no economic value at all. The whole of that over-estimate would then be subtracted from the site value which would become a negative quantity.

The CSO did not publish its land calculations for public sector residential and other buildings, but noted that its balance sheet valuation of the former barely covered the Blue Book building stock, and that the latter exhibited lower land values than in the private sector. It is even clearer here, therefore, that the methodology loses much of what it is supposed to measure. The land value of the public sector must be a substantial proportion of the total. Publicly-owned land was estimated by Dowrick (1974) as covering almost 16% of the area of Britain. We estimate publicly-owned land as constituting about 45% of urban land (Chapter 4). The government spent 45% of the nation's gross domestic product (at market prices) in 1985. It is inconceivable that all the land occupied by the public sector should have a negative value, as implied by the CSO study.

The problem is partly one of definition. Bryant stated that 'In the case of non-residential buildings the lower land values in the

public sector than in the private sector reflect Valuation Office advice that land values for community assets are much lower than values for housing and commercial use' (1987:101). This advice once again amounts to a current use definition of land value rather than the true economic definition which is the land's value in its highest permitted alternative use (its 'opportunity cost'). If government wishes to assess the efficiency to which land under its control is put, then that is the value which it should put on its holdings.

In the case of residential buildings Bryant commented that 'it would appear that the cost of construction . . . is not reflected in the values which these buildings might fetch on the open market.' In fact, it is probably the value of the land which has been lost. But there is a conceptual problem here. The site value of any individual house on a council estate is clearly reduced by its presence within the estate. However, were the whole estate to be sold to its tenants it is likely that the 'magic of ownership' would transform land values. So the question arises: to what extent does the opportunity cost principle apply to whole areas as opposed to individual sites? Does 27% of the housing stock of the nation occupy land of negative economic value? Do not the vast council estates near the centres of our cities occupy some of the prime sites of Britain?

Additionally, the points made above with regard to the depreciation of buildings apply forcibly to local authority dwellings, especially of the high rise variety.

CSO Data: The Statistical Accuracy

The foregoing are reasons for arguing that the CSO has underestimated the value of UK land. But the unadjusted estimate itself is also fairly imprecise. The CSO makes an assessment of the quality of its statistics and those involved in the land value calculation are among the poorest that they publish. The national accounts data gathering process means that 'It is not possible to calculate statistical margins of error in a scientific way' (CSO 1985: 21). However, a subjective judgment is made of the range within which estimates have roughly a 90% chance of being correct. For both the balance sheet and the capital stock estimates the three

grades generally used have to be extended by the addition of a fourth, D, 'used for errors of more than 20%' (CSO 1985: 201).

Taking the balance sheet first, the estimate for the tangible assets of the UK as a whole, 75% of which is buildings and works, is believed to be 'in the range of $\pm 3\%$ to 10%, i.e. grade B (Bryant 1987: 94). This means that there may be about a 10% chance that the tangible assets of the UK in 1985, put at £1,444.5bn, were either more than £1,589bn or less than £1,300bn.

Individual components are generally less reliably estimated than aggregates. The figure for the tangible assets of industrial and commercial companies has a D rating. The financial sector's tangible assets are more accurately assessed, but they are only worth one-fifth as much. It is not surprising that this sector should be ranked alongside local authorities as the least accurately assessed. According to Bryant, 'the value of land and buildings owned by industrial and commercial companies had to be obtained as a residual of estimates for all the other sectors' (1987: 101).

The same problem afflicts land values: they are estimated as residuals. And the second set of data used in their calculation appears to be as unreliable as the first. The gross capital stock estimates of the Blue Book are thought to be mostly of grade C quality, 'but some of them are much less reliable than others.' The capital consumption figures used to obtain from these the net figures are regarded as having the same margin of error (i.e. a 90% probability of being correct within a range of $\pm 10\text{-}20\%$).

Given these accuracies, and adopting the narrowest possible ranges of reliability, the CSO's land value calculations may be set out as in Table 8:I.

Land Values in the CSO/District Valuer's Survey

The method by which the balance sheet market values were obtained may be used to check part of Table 8:I. The Inland Revenue Valuation Office was commissioned to carry out a sample survey of 2,600 commercial and industrial properties in England and Wales. For each property in the sample District Valuers were asked to record its 1973 rateable value and its 31 December 1985 gross rental value, capital value and existing use site value. The

Table 8 : I
CSO estimate of UK non-agricultural, non-mineral,
non-waste, existing use land value (end-1985, £bn)

Sector	Estimate	Approx. confidence limits	
		90%	99.5%
(A) Private sector residential			
Buildings and land	563.7	547-581	
Buildings only	376.8	365-388	
Implied land value	186.9		159-216
(B) Other private sector buildings and civil engineering works			
Buildings and land	237.8	190-285	
Buildings only	153.7	131-177	
Implied land value	84.6		13-154
(C) Public sector residential and other buildings and works		Either negligible or imponderable	
(D) Total land value (with approx. 99.9% confidence limits)	271.5		(172-370)

average ratio of end-1985 capital value to rateable value for the observations in each class of hereditament was then applied to each class's rateable value (1973 rental value) to produce its end-1985 capital value. The results were summarised in the *Property Market Report, (PMR) No. 44* for Spring 1987, and the aggregate findings are presented in Table 8 : II.

For the sake of comparison with section (B) of Table 8 : I the differences of coverage must be noted. Table 8 : II does not include Scotland and Northern Ireland, nor certain types of property, principally North Sea oil and gas installations and the properties of non profit making bodies. The inclusion of the first might be expected to lower the overall ratio of land value to property value slightly, as northern regions have lower than average ratios. The second might also be expected to lower the ratio slightly, as it has

Table 8 : II
Valuation Office estimate of the value of
industrial and commercial properties in England and Wales
(end-1985, £bn)

<i>Asset</i>	<i>Estimate</i>	<i>Approx. 90% confidence limits</i>
Buildings and land	173	167-179
Existing use site values	54	43-65
Implied building values	119	107-131

no land element at all. The effect of the third should be neutral as the survey found little variation in ratios between different types of buildings. Table 8 : II, therefore, suggests a land to property value ratio for GB of perhaps 29%, whereas Table 8 : I, section (B), has a ratio of around 36%.

This result is rather surprising. As the figures for land and buildings are linked the difference in ratios must be due either to under-valuation of sites by District Valuers or under-valuation of the building stock by the CSO. If the earlier argument is correct, the CSO has actually over-valued buildings, so the conclusion would seem to be that the District Valuers under-valued sites considerably. Alternatively, the wide margins of error in both statistical exercises may have been to blame.

Further enquiry of the CSO has revealed that the site value question in the DV survey was indeed the one that posed the most problems. Framing it was difficult, so a straightforward question was put, leaving the District Valuers to interpret it. The consistency of the replies was not investigated, but in view of the findings of the College of Estate Management the degree of uniformity in the site value percentages came as a surprise. It may have been that the buildings component of properties was sometimes over-valued due to the lack of site transactions available for comparison. Direct market evidence of site values is scarce compared with that for developed properties, so we would expect the site value question to be the least accurately answered. The CSO itself does not accord a

high degree of reliability to the site value aggregate, which it puts at 'D', as opposed to 'B' for the overall valuation of land and buildings. Random sampling of the rating valuation lists was not possible because of the way they are framed, so confidence limits could not be estimated. The rough accuracy gradings are applied in Table 8: II with the narrowest possible margins of error (i.e. 3% for grade B, 10% for C and 20% for D).

Further very broad checks may be made on certain aspects of the problem. First, the balance sheet estimates. Taken in conjunction with floorspace data these imply rental levels for different types of property. *PMR 44* listed the average yields for the classes of property surveyed. These are applied in Table 8: III to the total capital values of those classes to find their total gross rental values (landlords having responsibility for repairs and insurance). The floorspace areas of those classes (DOE 1986a, Welsh Office 1986) are then used to ascertain the implied average gross rents per square metre for each class.

The *PMR* classes had to be harmonised with the floorspace classes. Restaurants were taken as 0.134 of 'Hotels, Restaurants and Public Houses' as that was their proportion of that class's rateable value in 1985. Hotels, public houses and 'other commercial and industrial buildings' had to be omitted from the calculations as their areas are not published. Neither does the floorspace data include certain mainly large-scale manufacturing establishments, such as iron and steel works and refineries, for which floorspace measurements are inappropriate. However, rateable plant and equipment, which forms the bulk of the value of such properties, and about one-tenth of the industrial total according to Bryant, has been excluded from the figures.

Housing had to be treated separately. Its total capital value, including tenants' 'intangible' interests, had to be deduced from the tables in the balance sheets. The average yield was assumed to be 8%, on the advice of those surveyors who could be prevailed upon to make educated guesses despite the lack of market evidence. The floorspace area was calculated by multiplying the number of rateable hereditaments by 70 square metres. This was taken as a conservative average of the representative dwellings described in the appendixes of the *PMR*. It also represents the average floor area

of new council houses in the mid-1970s (DoE/SDD/WO 1986 : 82). Finally, it was decided to work with the UK figures rather than attempt to deduct estimates for Scotland and N. Ireland, which anyway would not lower the final outcome by more than 2%.

Table 8 : III indicates a clear rent structure. It is perhaps surprising that dwellings precisely bisect commerce and industry, which is no doubt a testimony to their vastly superior tax position.

Table 8 : III
Valuation Office estimates of gross rental values
of property classes in England and Wales (late 1985)

<i>Class</i>	<i>Total gross rent (£bn)</i>	<i>Floorspace (million metres²)</i>	<i>Gross rent per metre²</i>
Commercial offices	3.45	50.81	67.9
Shops and restaurants	4.20	81.25	51.7
Warehouses and open storage	2.47	160.53	15.4
Industry	2.65	232.22	11.4
Dwellings (UK)	55.50	1,540.00	36.0

The Residual Method: Retail Property

The levels at which the rents are pitched in Table 8 : III, however, cannot be independently checked until further work has been done on the property market as a whole. Research is needed

1. on the distribution of rental values from the prime sites to the marginal sites, and
2. on the distribution of floorspace along the rental gradients between the prime and the marginal sites.

Existing data, such as in the *Property Market Reports*, relates only to the investment property markets, not the rump of tertiary shops and old industrial sheds. Peak rents are the focus of attention

and generalised rent assessments are limited to prime areas and the best secondary areas. Shops in Newcastle, for example, are the subject of a special article in *PMR 44*, but heroic assumptions are necessary to convert the exceptional detail made available in that article into figures to compare with Table 8: III. The article, 'Focus on Retailing in Newcastle', by the District Valuer, provides the following information. The 1985 peak was £1,300/m² Zone A. City centre rents graded down to about £300/m². Secondary centres commanded about £100-200/m². The City centre contained 1,075 shopping units and 375,000m², and the fringes and suburbs 'more than 2,000 units' (2,500, occupying 430,300m² by deduction from DoE 1986a: 30).

What we do not know is how the Zone A rents relate to the average rents for the whole floor areas of the shops, the distribution of floorspace and rents within the City centre and within the outer area, and how representative Newcastle as a whole is of the whole of the Northern Region. We must hazard some guesses.

The average shop size in the City centre was about 350m². Such a shop with a 10m frontage would have an average floorspace value of about one-third the Zone A value if the standard procedure of 'halving back' the rent every 6.1m and zero rating a small staff/storage area is applied. Outside the centre, the average floor area was about 170m² and halving back, assuming a 6.1m frontage, produces an average rent per square metre of just less than half the Zone A rent. The suburbs of Newcastle may in fact be fairly representative of England and Wales as a whole in which the average shop size is 137m². 140m² is the size used in the Investor's Chronicle/Hillier Parker shop rent index.

On this basis, and taking £500 as the average Zone A rent for the City centre, the overall average central rent may have been £165/m². As for the suburbs, we are not told how low the shop rents reached. But we may assume that they would not have fallen below housing levels, which at three-quarters of the national average, would have been about £25/m². Overall suburban rents must therefore have varied from about £100/m² to £25/m², with a straight average of about £65/m². The average, weighted by floorspace, for Newcastle becomes £109, or about one-quarter of the peak level.

We are still in the dark as to the levels of shop rents outside

Newcastle. There were about 4.2m m² of floorspace in the rest of the Northern Region. If we take the average for outer Newcastle as representative, the average for the region becomes £68/m².

There are two ways of extending this benchmark analysis to the rest of the nation. First, by assuming that the relationship between aggregate shop rental income and aggregate personal disposable income in the North (the former was 2.8% of the latter) held good for all the other standard economic regions. Second, as a check, by assuming that the relationship between prime shop rents and the average in the North (the latter being about 14.5% of the former — 'prime levels', not the peak rent) also held good for all the regions.

Table 8: IV takes 2.8% of the personal disposable income in each region (from *Regional Trends 22 1987: 128*) and divides it by the amount of retail floorspace to estimate the region's average shop rent. This is compared with 14.5% of the prime regional rent. The former is a much more dependable statistic than the latter. It is based on an exhaustive database, whereas the latter depends on impressionistic evidence gleaned from *PMR 44*. In compiling the latter, exceptional peaks in Newcastle, Edinburgh, Liverpool and Cardiff have been rounded down to £1,000/m² Zone A, which it is believed was more comparable with the 'prime levels' figure given for most other centres. Another problem was choosing a representative shop shape and size for converting Zone A rents into overall rents. For this purpose the 140m² (6.1m by 18.3m plus 28m² of staff/storage area) of the Investor's Chronicle/Hillier Parker shop rent index was chosen. This accounts for the low average/prime ratio for the Northern Region used in calculating this rent statistic.

This statistic does, however, pick up one important regional circumstance which should not be overlooked. Shops in Central London are uniquely dependent on tourists, whether of the foreign or the home-grown variety. Their rental levels would be expected to exceed those predicted by indigenous disposable income alone. The prime rents in Oxford Street in 1985 were around the £1,850/m² Zone A mark. It is difficult to translate that into overall rents per square metre, but at a factor of one-half the 14.5% equivalent would be more than double the national average. For Central London (2,528m m²), therefore, the aggregate rent has been doubled in finding the national total (Table 8: IV, column 1).

Table 8 : IV
Two estimates of average retail rental levels
in the standard economic regions of Britain in 1985

<i>Region</i>	(1) <i>2.8% of personal disposable income (£m)</i>	(2) <i>Retail floorspace (million m²)</i>	(3) <i>Average retail rent (£/m²)</i>	(4) <i>14.5% of prime rents (£/m²)</i>
North	338.6	4.982	68.0	68
North West	728.5	10.674	68.2	68
Yorks. and Humber.	538.6	7.657	70.3	56
East Midlands	443.6	5.946	74.6	34
West Midlands	580.0	7.859	73.8	63
East Anglia	233.5	3.210	72.7	58
South West	523.2	7.694	68.0	48
Greater London	988.5	13.674	72.3	59-161
South East (rest)	1286.2	15.162	84.8	68
Wales	297.5	4.397	68.0	68
Scotland	601.3	8.843*	68.0	87
Great Britain	6,926 (see text)	90.1	76.9 (see text)	

* Assumed

Factories and Warehouses

Turning to industry and warehousing the same problem confronts us: how do we convert the available data on the better quality properties into averages for all properties? The *Property Market Reports* provide us with an extensive coverage of non-High Tech buildings erected within the previous ten years, divided into five categories. Their yields correspond approximately with the *PMR* analyses of investment property yields and the Hillier Parker analyses of the same (*Average Yields*), both of which gave a UK average for late 1985 of about 10.5%, which confirms that the data does indeed represent the better end of the market.

Table 8 : V
Estimate of the industrial capital values
of the standard economic regions

<i>Region</i>	<i>Floorspace ('000m²)</i>	<i>Average capital values (£/m²)</i>	<i>Total capital values (£bn)</i>
North	23,499	100	2.350
North West	66,445	160	10.631
Yorks. and Humber.	46,042	200	9.208
East Midlands	36,732	175	6.428
West Midlands	54,317	160	8.691
East Anglia	17,439	180	3.139
South West	29,504	250	7.376
Greater London	40,636	510	20.724
South East (rest)	61,443	368	22.601
Wales	16,693	120	2.003
Scotland	30,000*	150	4.500
Great Britain	422,750	216	97.651

* Assumed

To partially offset this bias the category of building with the lowest economic value (though also the most extensive) may be taken as typical. 'Type 4 Industrial/Warehouse Units' are about 1,000m² in size and were therefore equal to the national average. They were generally about half the capital value per square metre of the most expensive units ('Small Starter Units') and about 85% of the 500m² units. Nevertheless, the total capital value in Table 8 : V, calculated on the basis of Type 4 values, must still overstate the position. The gross rental value at an average yield of 10.8% for better properties would have been about £10.5bn, or £25/m². Comparison with Table 8 : III suggests that the rent overstatement is exactly 100%, but that would be surprising. According to Hillier Parker's *Average Yields* report of November 1985 the average yield for British industrial investment (i.e., better quality) property was

10.43%, whilst the prime yield was 8%. As the average yield for all industrial property sampled in the District Valuer survey was only about 12%, this suggests that the rent difference between the better quality and the average would not have been as much as 100%. The implications of accelerating depreciation (see below) would also seem to suggest that a small over-valuation anyway would not lead to an overestimate of the site value residual.

Commercial Offices

With office property the lack of data on the spread of values does not at first sight seem such a problem. The location of offices is fairly restricted to central areas, so that the element of variability due to location is reduced. However, the variability due to the age of buildings may apply especially to offices, due to their increased rate of depreciation in the 1980s. This is highlighted in the *PMR* for Autumn 1986 (No. 46:32) in which a sharp increase over the previous year from 6.64% to 9.5% in the yields shown by office investments (excluding the City of London) is put down to this cause: 'There is some evidence to suggest that the refurbishment option is not resulting in any significantly increased capital values, and it is therefore felt that a number of purchases have been made with a view to acquiring in effect a short to medium term fixed interest security with the benefit of an opportunity to ultimately demolish and rebuild. If office obsolescence was never a serious consideration before, it must certainly now be a factor to tax the minds of investors.'

The rental values current in the previous year must therefore have failed to reflect the rents attainable upon redevelopment, and therefore fail to reflect site values. Deducing the latter from those rents must therefore lead to under-estimates.

The same point is made with regard to the industrial sector: 'As with offices, the industrial investments are looking more like short to medium term opportunities backed by site value considerations ... It seems likely [to judge from increased market activity] that sellers have resigned themselves to accepting what they can get now rather than wait any longer for some improvement in the market.'

In both these sectors then it would appear that even if the spread

of property values to the bottom end of the market were known, too strict adherence to the recorded average would under-estimate the site value residual. Particularly in the case of offices, the *PMR* indicative data for good quality accommodation erected in the previous decade would appear to provide a reasonable basis for deducing underlying land values generally.

Table 8: VI applies this data, but for good measure reduces the rents quoted by one-fifth. The figures in *PMR 46* are used to supplement *PMR 44* (as for industry above), taking into account the year's growth which separated them. For further good measure an 8% yield is assumed rather than the 7% detected by the District

Table 8 : VI
Estimates of the aggregate commercial office rental values
of the standard economic regions

<i>Region</i>	<i>Office floorspace (million m²)</i>	<i>Average rent (£/m²)</i>	<i>Aggregate regional rent (£m)</i>	<i>Aggregate regional rent (%)</i>
North	1.883	42.1	79.3	1.9
North West	5.824	38.6	224.7	5.3
Yorks. and Humber.	3.421	29.9	102.2	2.4
East Midlands	2.341	21.8	51.1	1.2
West Midlands	3.833	32.6	124.8	2.9
East Anglia	1.434	44.0	63.1	1.5
South West	3.527	47.3	166.8	3.9
Greater London	18.252	143.1	2612.2	61.2
City	(3.372)	(270)	(910.4)	(21.3)
Inner	(10.228)	(130)	(1329.6)	(31.1)
Outer	(4.653)	(80)	(372.2)	(8.7)
South East (rest)	8.913	67.5	601.4	14.1
Wales	1.381	34.0	46.9	1.1
Scotland	4.900*	40.0	196.0	4.6
Great Britain	55.709	76.6	4268.5	100.0

* Assumed

Valuers' sample survey. This latter yield for all offices sampled is identical to the yield in the *PMR* for office investments, which confirms that their rent variability must be relatively low.

Total Commercial and Industrial Land Value

The resulting capital values for Britain's commercial and industrial properties are set out in Table 8: VII. The average national yields chosen reflect the advice of surveyors and are confirmed by the findings of the DV survey. For industry it was decided to take two-thirds of the £10.5bn aggregate rent calculated from the *PMR* indicative data, and apply the average yield to that. Column (2) suggests that the DV survey was a conservative one, but it cannot be said that the *Property Market Reports* used to compile it necessarily suggest the same, because many assumptions link their data to the results.

An attempt may be made to isolate the land value portion of column (2) using CSO data. However, to apply the net capital stock figure of £153.2bn for the UK given by Bryant (1987: 100) to these properties it is first necessary to form some idea of the components of land and buildings in Table 8: I, section (B). Northern Ireland, North Sea oil and gas installations, non-profit making bodies, public houses and hotels, and 'other commercial and industrial properties' are not included in Table 8: VII.

To begin with the North Sea installations, these may be taken to exhaust the private civil engineering works of the balance sheet (i.e. £17.4bn). Non profit making bodies may be deduced by making the following assumptions: that in the balance sheet's category 'commercial, industrial and other buildings', which is given for each sector, the public sector's entry (£80.5bn) contains only 'other buildings'; and that the overall asset category 'other buildings' (£100.7bn) contains only non-profit making bodies other than public sector buildings. The difference (£20.2bn) must therefore be the figure we are looking for. This leaves £31.6bn in the personal sector's 'commercial, industrial and other buildings' category, which in fact leaves the right amount of commercial and industrial buildings for the rest of the private sector.

Only Scotland and Northern Ireland remain to be subtracted to

Table 8 : VII
Comparison with the District Valuers' estimate of the
capital value of Great Britain's industrial and commercial
property (end-1985)

<i>Sector</i>	(1) <i>District Valuers' sample survey with Scottish data from column (2) added (£bn)</i>	(2) <i>British capital values (£bn)</i>	(3) <i>Assumed average yield in column (2) (%)</i>
Shops and restaurants	61.5	86.6	8
Commercial offices	51.5	69.6	8
Industry and warehouses	48.5	57.8	12
Great Britain	161.5	214.0	

leave the grand total produced by the District Valuers' sample survey. Their land and buildings must therefore be the residual, which is £27.2bn. At 13.6% of the UK equivalent this seems rather high, as they contributed only 10.9% to the Gross Domestic Product. The Northern Ireland proportion will be taken as £5bn.

Finally, public houses and hotels in the UK, and 'other commercial and industrial buildings,' may be estimated by extending the DV survey of England and Wales results in proportion to population, that is to £16.7bn and £12.5bn, respectively.

The net capital stocks contained in these totals will be assumed to be equal to the DV survey's overall 69% share, except that the North Sea installations are all net capital. This means subtracting £54.9bn from the UK figure, which leaves £98.3bn as the net capital of the properties in Tables 8:IV to 8:VII.

Subtracting this figure from the total in column (2) of Table 8:VII leaves £115.7bn as the capital value of British industrial and commercial land at the end of 1985.

The Question of Depreciation

It should be recalled that the CSO net capital stock figure may be an over-estimate, and that in the DV survey the buildings may have been over-valued. These possibilities may be broadly checked by reference to the Royal Institution of Chartered Surveyors' Building Cost Information Service. In the *BCIS Quarterly Review of Building Prices* (February 1986) average UK building costs per square metre are given for various types of buildings in the 4th Quarter of 1985. These do not include site works, garages or professional fees, but such information is provided by the DoE for council houses (DoE/SDD/WO 1986: 82,84,88), where they appear to account for over one-third of the price. Neither do they apply to central London, where building costs are twice as high as the general level. The figures in Table 8:VIII have therefore been calculated using 160% of the BCIS averages and doubling the cost of 6m m² of office space.

Table 8 : VIII
Comparison of the gross replacement cost
of industrial and commercial floorspace
in England and Wales with the implied net
replacement cost of the District Valuers' survey

<i>Asset</i>	<i>UK average replacement cost (£/m²)</i>	<i>Total replacement cost (£bn)</i>	<i>DV survey building value (net replacement cost, £bn)</i>
Shops and restaurants	480	39	37
Commercial offices	768	44	34
Factories and warehouses (excl. open storage)	384	142	30
Total	n.a.	225	101

The figures are so rough that the only judgement that can be made from them is that the DV assessments of the net value of commercial buildings look too high if the gross replacement cost estimates are anywhere near the truth. As a check, applying the average cost of tenders for housing accepted by local authorities in England and Wales (£440/m²) to 1540m² of UK housing floorspace gives a gross replacement cost of £677.6bn. This compares with £526bn in the Blue Book's Table 11.9. From this it would seem that the gross estimates are unlikely to be an underestimate.

Vacant Land

Land which was not included in these calculations but which nevertheless has a value is vacant land. The floorspace statistics do not include properties which have been demolished (or 'deroofed', as the case may be in districts where a rate is levied on vacant properties).

The 'deindustrialisation' of the previous decade undoubtedly contributed a significant proportion of industrial land to Britain's 'wasting acres'. Between 1974 and 1985 manufacturing employment in the UK declined by 30%, manufacturing output by 10%, and industrial floorspace in England and Wales by 5%. Meanwhile, the whole economy grew by 17% (GDP at constant factor cost), and warehousing and commercial floorspace by 29%.

Between 1974 and 1985 the official figure for 'derelict land' in England (i.e. despoiled and in need of treatment before beneficial use) increased by about 6%, to reach a total of 45,683 ha, 46% of which was urban. For the seven major conurbations the tally increased by 28% to 14,746 ha, due notably to the run-down of industry (Chisholm and Kivell 1987: 16-19).

This data does not include land that is unused, vacant or waste, even though it is not severely damaged. In 1977 the Civic Trust estimated that there were an additional 100,000 ha of 'dormant' urban land in Britain which could be made useable with very little reclamation cost (Cantell 1977). Ten years later, Chisholm and Kivell reckoned that 'There is some measure of agreement among independent analysts that a figure of 210,000 ha represents a fair estimate of the combined total of derelict and vacant land in public

and private ownership.' This estimate was for England and it was implied (1987: 24) that perhaps three-quarters or more constituted urban land. Bruton and Gore identified a further 4,000ha of vacant urban land in South Wales in 1979, and the pro rata figure for Scotland would have been about 8,000 ha.

In his survey of the area of publicly-owned land in Britain in early 1973 Dowrick (1974) included under municipal ownership a category of 'miscellaneous holdings' which covered the following: 'suburbs or rural areas, title to which has long been vested in the local authority or freeman, and overlapping them . . . such items as land acquired for planning and redevelopment, or for conservation, or reclamation, for markets, depots, lavatories, baths, car parks, even gypsy sites, as well as for magistrates courts and probation offices. Pro rata estimates for these residual holdings: at least 65,000ha, at most 121,400ha'. These land banks would in the main be classified as vacant land. Local authorities probably own at least one-third of all such land, so the figures cited are consistent with those above.

If we postulate 165,000ha of derelict and vacant urban land in Britain in 1985, that would have constituted 10% of the urban area (excluding transport land outside settlements). Burrows' estimate for metropolitan areas in the mid-1970s was 5%, and Bruton and Gore's for urban South Wales in 1979 'just over 5%'.

Not all of this land is developable. A survey conducted by the GLC in 1984 indicated a total of 3,000ha of 'developable land in London which was vacant, under-used or derelict.' Of this only 26% was judged as suitable for housing. An aerial survey in 1982, also for the GLC, identified 1,800 parcels of land over 0.25ha in size totalling 4,791ha which appeared to be 'vacant, under-used or derelict.' Of this area only 30% was judged 'developable' (Inner City Commission 1987: 11). Of the 40,235ha of publicly-owned vacant lots over 0.4ha in size on the Land Registers in 1987, 42.3% was classified as having 'high development potential' (Hall 1987: 14).

This assortment of evidence justifies us in taking 50,000ha as a round figure for vacant urban land with development potential in Britain in 1985. How this area is divided between potential commercial, industrial and residential uses is not of great consequence

for the final outcome of this study. Industrial and residential sites are of similar average values and they would account for nearly all of it. However, the division of the area by original use does matter for the purpose of this chapter, which is to test the estimates in the previous chapter. In that chapter the areas were taken from calculations which had been compiled without separating vacant land, and so they include land which has gone out of use and not yet been allocated to other uses. It is necessary, therefore, to add a valuation of vacant industrial and commercial sites to the results in this chapter. Assuming an equal split between industrial and residential uses prior to land becoming vacant, and the same commercial proportion as with land currently in use (i.e. 2.8% of urban land, excluding rural routeways), then the valuation is as in Table 8:IX, which comes to £10.1bn.

Table 8 : IX
Valuation of developable vacant land in Britain
in 1985 by previous use

<i>Previous use</i>	<i>Area (ha)</i>	<i>Value (£'000/ha)</i>	<i>Total value (£bn)</i>
Commerce	1,400	2,360	3.3
Industry	24,300	278	6.8
Housing	24,300	277	6.7
	50,000	n.a.	16.8

‘Other’ Commercial and Industrial Land

Public houses, hotels and boarding houses, commercial and lock-up garages, holiday camps, some mineral hereditaments, and sundry commercial properties are also not included in the DoE's floor-space statistics, though they are included in the area data used in Chapter 7. An estimate for these must therefore be made in this chapter. Though we have argued above that site values were considerably under-estimated by the District Valuers' survey we can do no better than rely on its findings in this instance. Pro rata

extension of the total value for these properties in that survey produces a figure of about £29bn for Britain. Applying the survey's general site value proportion of 31% gives a total land value of £9bn.

The Final Total For Britain

The estimated value of the commercial and industrial land relating to the DoE's floorspace statistics was £115.7bn. Adding the estimated values for vacant land (£10.1bn) and 'other' commercial and industrial properties (£9bn) produces a figure of £134.8bn. The method of calculation used in the previous chapter for the equivalent land produced a figure of £143.2bn.

It is only to be expected that the residual method of calculation should have produced a lower total than the spatial method of calculation. It measures existing use site values as opposed to full development site values. However, the application of the method in this chapter has been a compromise, for rental levels on fully developed sites, often in prime locations, have provided the foundation stones of our valuations. To what extent the assumed gradients of values from these sites have accurately reflected both existing under-use of sites and their inferior locations we cannot tell. Nevertheless it is a source of comfort that the final result should lie between this study's full development estimate and official estimates of existing use values.