

Wealth Making in Nineteenth- and Early Twentieth-Century Britain: Industry v. Commerce and Finance

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According to W.D. Rubinstein, the British economy became more oriented towards commerce and finance from the late nineteenth century onwards, with only a 'brief interruption of factory capitalism in the first half of the nineteenth century'.¹ Consequently, Britain's economic performance appears fundamentally different from traditional 'declinist' allegations. In the context of a commercial and financial nation, Britain was historically superior to other countries. Industrial retardation was not symptomatic of an economy in decline.²

Rubinstein's account is based on a variety of data including the numbers, geography and income tax returns of the middle class and the occupational distribution of the employed population. Wealth data taken from probate records identify a disproportionately large share of the country's wealth holders as either Londoners or individuals active in commercial and financial pursuits. The British middle class, according to this view, was divided along occupational lines. Of top wealth leavers between 1809 and 1939, a larger share were engaged in commerce and finance than in industry or manufacturing. London was the centre of wealth making in nineteenth- and early twentieth-century Britain, and there was a general subordination of industrial to commercial and financial wealth.³

This paper presents an alternative view of wealth holding in Britain in this period. We analyse the distribution of wealth for a group of 790 businessmen born between 1800 and 1880 and find no general pattern of inferior provincial to London, or industrial to commercial and financial wealth. Using location estimators and tests which match data to particular distributions, we reject the hypothesis that the distribution of wealth for businessmen active in various occupational and regional categories was significantly different. It was not on the commercial or financial side, or in London that fortunes were to be disproportionately made. Wealth was equally generated by business magnates active elsewhere.

II

Rubinstein's analysis of the British wealth structure uses data on non-landed estates of over £500,000 documented by probate or grant of administration between 1809 and 1939.⁴ Of the millionaires in the sample, the majority were active in the City of London, where the most lucrative financial and commercial trades were to be found; 97 millionaires could be linked with City occupations, compared with 30, 28 and 19 active in the respective industrial regions of Clydeside, Merseyside and West Yorkshire. Similar shares of half-millionaires could be associated with these regions and occupations.⁵

That wealth should be clustered at high thresholds is not unusual. For much of the nineteenth century, region was as much a line of division in British society as class. Inner London was the domain of City institutions where the bulk of fortunes were made by financiers engaged in bond transactions or commodity merchanting. The outer districts of London were characterised by more numerous trades such as brewing and retailing, but industrial activity was in the minority. In provincial Britain, there were bankers and merchants, but industrial or manufacturing fortunes predominated. If wealth making reflected the opportunities available in these regions and occupations, wealth would be clustered rather than randomly distributed throughout the population.

Metropolitan and provincial society were also separate in terms of key political positions, gentleman's clubs and social networks. London bankers and merchants were closer to the landed elite than northern industrialists. The City community was well integrated into the upper echelons of society in the late nineteenth and early twentieth centuries. Through nepotism, patronage and dynastic closure, this assimilation was also reinforced through generations.⁶ By contrast, provincial industrial magnates were less well integrated into high society, its values and way of life. Industrialists rarely became aristocrats, though the wealthy districts of the provinces did provide some avenues of gentrification.

How widespread was this pattern of wealth holding in the late nineteenth and early twentieth centuries, and what are the implications for Britain's economic and social development? A number of Rubinstein's critics have questioned the view that British history should be reinterpreted as a conflict between a dominantly gentlemanly capitalism and a subordinate industrial capitalism.⁷ Wealth holding is just one determinant of status and power. According to Daunton, 'it does not necessarily follow that the financial and commercial middle classes dominated the formation of economic policy because they left larger fortunes and paid more income tax'.⁸ Moreover, even if the very wealthy British businessman earned his fortune

disproportionately in commerce and finance this need not constitute evidence of a general dichotomy in the British wealth structure.

Rubinstein's data do apply to only a limited strata of British wealth holders and cannot be used to justify a more generalised pattern of regional and occupational wealth stratification. Estates valued at over £500,000 accounted for just three per cent in 1858, ten per cent in 1900–1901 and six per cent in 1938–39 of the aggregate amount of wealth bequeathed.⁹ At least 90 per cent of bequests, by value, are not covered by Rubinstein's sample. Without a properly stratified sample we cannot accurately determine whether the chances of making a large fortune were significantly lower in the provinces than in London. At lower thresholds the British wealth structure may well have been more eclectic, reflecting fortune makers in industry as well as in commerce and finance. Or perhaps commerce and finance still maintained a lead at these levels too.

Berghoff has joined the Rubinstein critics with a study of British wealth holders which questions whether commerce and finance had a lead even at the upper ranges. Berghoff identifies roughly equal shares of big industrialists and elite City bankers at wealth ranges including the millionaire class. 'Big' industrialists are defined as the owners and top managers of firms with 1,000 or more employees, while the 'City elite' is drawn from Cassis' sample of the City banking community. Berghoff shows that the Industrial Revolution had created a new breed of wealthy men in the provincial districts, which did dethrone London from pre-eminence in the regional distribution of wealth. Although they were probably set apart by social standing, and prestige, in terms of wealth alone there was a striking correspondence.¹⁰

At lower threshold levels, Berghoff's results are less informative. Combining big industrialists and businessmen with enterprises smaller in size and significance does reveal London bankers as leading fortune holders – just two per cent of Berghoff's full sample left estates valued at over £1 million compared with over seven per cent of City bankers.¹¹ However, as Cassis documents only the City elite, comprising partners and directors of leading financial institutions, this finding may well be the result of sample selection bias. Managers and little known bankers, who were likely to be lower down the wealth scale, are excluded from the sample of financiers. The samples are not compatible with a broader comparison of industrial and commercial and financial wealth holding.

The debate on wealth making in this period is, therefore, unresolved. At the upper end of the wealth scale there is evidence both for and against commercial and financial fortunes overshadowing industrial ones. However, these data apply to only a narrow division of fortune makers and are not sufficient to contrast London wealth with provincial wealth more

generally. The remainder of this paper extends the analysis to include a broader stratum of business wealth holders within regional and occupational categories. This provides a guide to fortune making in nineteenth- and early twentieth-century Britain at wider and more representative wealth ranges.

III

The sample comprises 790 businessmen taken from the *Dictionary of Business Biography (DBB)*, a biographical dictionary of businessmen active in a variety of industries and occupations over the last century and a half.¹² Excluded from the database are agriculturists, trade unionists, politicians and civil servants, so the sample is restricted to industrial and financial fortune makers. The *DBB* does favour industry rather than commerce and finance, but it is, nonetheless, a database of businessmen active across all sectors of the British economy. The criterion for selection in the *DBB* is contribution to a particular field rather than wealth or social standing. There is a bias in favour of leading personalities on whom information is available, but the coverage is broad. The *DBB* documents a range of wealth makers active in a variety of fields and occupations which can be used to analyse patterns of wealth making among Britain's business leaders.

For each individual in the sample an estimate of wealth at death has been obtained from probate records, which document the gross value of an estate on death of individuals leaving property in Britain. Estate valuation applied to individuals leaving a will or dying intestate. From 1858 the records are comprehensive and systematic because of centralisation at the Principal Probate Registry. Prior to that probate was granted under one of the many ecclesiastical courts, complicating the process of data collection.

Before 1898 probate records exclude the value of unsettled land and, until 1926, the value of settled land. No adjustment has been made for this because businessmen rarely purchased land on a large scale. We have checked the landholdings of the businessmen in the sample active in the late nineteenth century using John Bateman's *Great Landowners of Great Britain and Ireland*.¹³ We found no evidence of large-scale land purchase, or land holdings which, by market value estimate, comprised a large share of total wealth. The individuals in the sample overwhelmingly made their fortunes in business pursuits, and there is no need to compensate for the absence of land in the probate records before 1926.¹⁴ Landed wealth is, however, included for deaths occurring after 1926 because probate provides no method for distinguishing different types of assets.

We cannot remove any bias in the wealth data caused by the evasion and avoidance of death duties, which will reduce the amount bequeathed. We can, however, separate businessmen active in different periods using a date

of birth 'control' so their bequests are liable to different taxation regimes. We capture individuals born between 1800 and 1840 and 1841–80 to facilitate comparisons between periods. If evasion and avoidance was randomly distributed throughout the population, this should not bias measured differences between individuals. Legal provisions relating to death duty administration were well documented, so this last condition is not implausible. Separating individuals according to liability to death duty is then a reasonable basis on which to filter out the effect of higher death duties over time.¹⁵

In the late nineteenth and early twentieth centuries, a series of legislative changes were made affecting the duty payable on certain types of property passing on death. Rates of duty also varied according to the relationship between donor and donee and gifts made in the period prior to death.¹⁶ Death duties before 1894 took the form of a stamp duty varying with the size of an estate. Duty was payable on non-landed property passing on death and on gifts passed on up to one year before death (instituted in 1881 and known as Account Duty). In 1894 estate duty was introduced to provide a more comprehensive system for duty liability assessment. All property, other than settled land, in which any person held an interest was liable for a charge. Estate duty was levied on the whole estate at a flat rate which varied according to the value of the estate. In 1894 the top rate for large estates was eight per cent. By 1914 the rate was 15 per cent, by 1939 50 per cent and by 1969, 80 per cent.¹⁷

Our first 'control' captures individuals dying before the onset of heavy death duty charges. The second control applies to the higher death duties thereafter and likely increased evasion and avoidance. The average individual active in the first of our cohorts died in 1900, with 95 per cent of individuals dying before 1922.¹⁸ The average individual active in the second of our cohorts died in 1936, with 95 per cent dying before 1961. Taxation was an important factor in the disposition of assets, and our period 'control' distinguishes, as far as is possible, between individuals who were charged different rates. We also correct for price changes by indexing the wealth data using a GDP deflator. Probate wealth is given in constant 1900 and 1938 prices respectively.¹⁹

The database is composed of individuals leaving comparatively small fortunes on their death in addition to those who bequeathed large, sometimes phenomenal, estates. In that sense the sample is not directly comparable to Rubinstein's cohorts of millionaires and half-millionaires. However, Rubinstein has argued from the occupational and regional distribution of the super-rich to the general wealth structure of the British economy. Rubinstein suggests that, 'if it was on the commercial or financial side of the Victorian business world that the great fortunes were to be

disproportionately found, it would seem to be a corollary that the centre of wealth making in nineteenth century Britain was London rather than the industrial towns of the north'.²⁰ Using our sample of leading figures in British business we show that such inferences are highly misleading.

Rubinstein documents two groups of 'top' and 'lesser' wealthy comprising individuals leaving estates of £500,000 or more between 1809 and 1939 and £100,000 or more between 1809 and 1899.²¹ Our sample imposes no wealth thresholds. All individuals on whom information was available in the *DBB* and from probate records are included. By not imposing a wealth constraint on inclusion, we can analyse the British wealth structure by regional and occupational groups at much more representative levels than Rubinstein. In 1900–1901, just 26 estates of between £500,000 and £1 million were granted by probate out of a total of 62,523. In 1938–1939, 34 such estates were proved out of 152,712.²² Nonetheless, most of the individuals included in our sample left large amounts on their death. The median bequest for the first cohort is £154,471, with 82 per cent of individuals in the sample leaving more than £40,000. For the second cohort the same statistics are £134,275 and 77 per cent respectively.²³

TABLE I
THE PERCENTAGE OF ESTATES AT DIFFERENT WEALTH THRESHOLDS

Probate in £'000s	Businessmen Born 1800–1840	Businessmen Born 1814–1880
Under 50	23%	26%
50–100	17%	17%
100–250	25%	22%
250–1,000	25%	25%
1,000+	10%	10%

The distribution of estates in our sample is given at various levels in Table 1. If we compare these figures with all estates in the UK by probate or grant of administration, we can determine how representative the sample is by number of estates and the aggregate amount of wealth bequeathed. In terms of numbers alone, the overwhelming majority of UK estates were small in size. In 1900–1901, 98 per cent, and in 1938–39, 99 per cent of UK estates did not exceed £50,000. Yet by value those leaving over £50,000 account for 42 per cent of the total amount of wealth bequeathed in

1900–1901 and 33 per cent of the total in 1938–39.²⁴ Table 1 shows approximately three-quarters of the individuals in the present sample left estates in this wealth range. The inclusion of individuals with bequests less than £50,000 provides some representation at lower levels.

IV

The sample includes entrepreneurial businessmen active in new firm foundation, either on their own or with a partner (43 per cent), those who entered a firm owned or controlled by a family member (34 per cent) and salaried managers (22 per cent), who may or may not have held an equity stake in the business. Some individuals inherited great wealth while others came from more humble beginnings. For those on whom wealth data were available, the median inheritance is £12,631 for individuals in the cohort born 1800–1840 and £89,285 for those in the cohort born 1841–80. However, the variance is large. In the lower quartile are individuals inheriting less than £2,200 in the cohort born 1800–1840 and less than £11,000 in the cohort born 1841–80. In the upper quartile are those inheriting more than £83,000 and more than £435,000 respectively. There are self-made men, individuals who inherited wealth only to run it down, and those who made fortunes over and above the value of what they were bequeathed.

All the major industrial groups and regions are represented. A summary of the data are given in Tables 2 and 3. Occupational groupings are based on the Standard Industrial Classification, while region is where the business activity was undertaken. A problem does arise in allocation by occupation and region with the emergence of multi-plant organisations and multinational enterprises. An example is Alfred Beit, who set up a number of London-based diamond mining companies, but whose wealth derived from mineral exploitation in the South African province of the Transvaal. Numerous individuals were active in firms with various domestic and overseas branch units, and it is difficult to be precise about the occupational and regional sources of their wealth. Nevertheless, the categories in Tables 2 and 3, although imperfect, do reflect the criteria established by Rubinstein. In that sense they can be used for testing the hypothesis of occupational and regional based wealth concentrations.

London was the centre of wealth making according to Rubinstein, and it was based largely on commercial and financial occupations. Although London was a centre for banking names like the Rothschilds, Barings and Sterns, entries in the *DBB* show there were other important trades located there too. Department store owners like William Whiteley, property developers like Phillip Hill, and newspaper proprietors like Alfred

TABLE 2
OCCUPATIONAL CLASSIFICATION OF WEALTH HOLDERS

Occupation	Group	Businessmen Born 1800–1840 Probate Wealth Constant 1900 Prices	Businessmen Born 1840–1880 Probate Wealth Constant 1938 Prices
Banking	Commerce and Finance	640,287	968,394
Commerce/Finance		(251,507)	(455,520)
Shipping		[n=47]	[n=94]
Textiles	Staple Industries	454,029	298,238
Coal		(77,132)	(42,620)
Iron and Steel Shipbuilding		[n=67]	[n=99]
Heavy and Light Manufacturing	Other Manufacturing	312,042 (43,094) [n=99]	478,564 (122,800) [n=131]
Engineering	New Technology Industries	291,827	300,297
Chemicals		(72,745)	(67,671)
Electric Car		[n=31]	[n=84]
Construction	Miscellaneous Industries	261,575	616,221
Retailing		(50,707)	(164,059)
Miscellaneous		[n=58]	[n=132]
Professional			

Notes: Wealth estimates are at the mean for each group. Standard errors in parentheses. 'Electric', and 'Car' apply to the cohort born 1841–80 data only.

Harmsworth all made their fortunes in London. As we show in Tables 6 and 7, these individuals were among the top business wealth holders in the sample. Commerce and finance was pursued in the provinces. Sir Robert Houston was a shipowner in the north-west and Rupert Beckett a banker active in Yorkshire. Sir John Ellerman maintained shipping lines in Liverpool and Hull in addition to central offices in London. A brief survey of the categories in Tables 2 and 3 gives further evidence of the diversity in wealth holding.

The occupational group 'commerce and finance' includes individuals active in a range of pursuits including banking, shipping, stockbroking and company promotion. Bankers, or, more specifically, merchant bankers, were likely to be enormously wealthy. They derived from high social status backgrounds and were seldom self-made men. Generations of Hambros, Grenfells and Lubbocks entered into leading London-based banks. Shipping magnates, on the other hand, tended to be different in profile. They were

TABLE 3
REGIONAL CLASSIFICATION OF WEALTH HOLDERS

Region	Businessmen Born 1800-1840 Probate Wealth Constant 1900 Prices	Businessmen Born 1840-1880 Probate Wealth Constant 1938 Prices
London	406,218 (132,308) [n=86]	616,221 (230,370) [n=175]
Midlands	320,337 (81,411) [n=38]	322,491 (59,626) [n=69]
North-East	354,381 (70,213) [n=44]	373,347 (92,258) [n=43]
North-West	373,718 (77,855) [n=54]	555,272 (157,033) [n=79]
Yorkshire	439,801 (106,848) [n=31]	405,233 (156,383) [n=25]
Other	378,159 (87,778) [n=45]	452,715 (161,568) [n=64]

Note : Wealth estimates are at the mean for each group. Standard errors in parentheses.

upwardly mobile socially. For example, Sir Donald Currie was the son of a barber, and the hugely successful Sir John Ellerman was the son of an immigrant corn broker who left just £600 when he died in 1871. Some were located in London, but several dynasties could be found in the ports of the north-east and north-west.

Company promoters, and to a lesser extent stockbrokers, were a different breed still. There were the enterprising, like Henry Panmure Gordon, who made his fortune out of floating industrial companies, and the enterprising, but dishonest, personalities like Ernest Terah Hooley and Horatio Bottomley. They were less likely to leave large fortunes on their death, either because of elaborate patterns of conspicuous consumption, or because they were bankrupted. Nevertheless, they were mostly significant wealth makers. Albert Zachariah Grant had estimated publicly that he was a half-millionaire in 1867, but after instances of share rigging and dubious company promotions, later appeared in court with liabilities of £217,000 and assets of £74,000. Clarence Hatry, the insurance broker, financier and company promoter, famous for industrial rationalisation schemes that generated him wealth, left an estate of £828 gross, net nil. He was put on trial in 1930 for his illegal activities.

Individuals active in the staple industries did not share the same notoriety. These industries were at the heart of the Industrial Revolution and among them were some great wealth makers. The Gregs retained the entrepreneurial drive into and beyond the third generation as cotton manufacturers. Henry Bolckow, in partnership with John Vaughan, founded a major iron and steel manufacturers and left over three-quarters of a million pounds when he died in 1878. John Bagnall took over the iron foundry business established by his grandfather, converted it into a limited liability company and maintained his personal wealth when the company experienced adverse conditions in the early twentieth century. Sir Edward Harland trained as an engineer, and with a partner, Gustav Wolff, founded Harland & Wolff the shipbuilders. His estate was proved at £67,438 in England and £226,638 in Ireland.

'Other Manufacturing' is the broadest group in Table 2. Included are heavy manufacturers like the Pilkington glass manufacturers active in the north-west, as well as light manufacturers like the Barrow-Cadbury clan of Quaker businessmen which maintained enormous wealth and influence in Birmingham. Manufacturing industry was prevalent in all regions. Jeremiah Coleman made over £1m as a mustard manufacturer in East Anglia in the late nineteenth century; Henry Broadwood made almost £100,000 as a piano manufacturer in London; William Adam, a west Midlands carpet manufacturer, bequeathed £211,291 in 1898; Robert Fowler, an agricultural machinery manufacturer from Yorkshire left an estate proved at £202,108 in 1919. Manufacturing wealth was diverse in both a regional and occupational context.

New technology industries comprise chemicals, engineering, electricity and car manufacturing, which required skill-based knowledge. For example, Henry Dreyfus held a chemistry doctorate from the University of Basle. In 1916 he founded, with his brother, the British Cellulose & Chemical Manufacturing Co. Ltd. Alfred Mond, the chemicals manufacturer and industrialist, read natural sciences at St John's College Cambridge. Gerard Mann, an electrical contractor and motor vehicle building specialist, was educated at Marlborough and Trinity College Cambridge, where he read engineering. New technology industries were technologically dynamic, and produced wealth makers such as Sir Henry Wellcome, who made his millions in pharmaceuticals, Sebastian De Ferranti in engineering and electricals, and numerous wealthy car manufacturers, of which the most significant was Lord Nuffield, who left around £3.5 million on his death in 1963. These industrial activities were geographically concentrated outside London. Merseyside was a centre for chemical manufacturers, while the car manufacturers were generally located in the south-east and west Midlands. Engineering and electricity were more widespread.

'Miscellaneous' is a catch-all residual category. Included are professionals, an important group in themselves, but in numbers too small to allow separate study. More generally, there are estate developers, property speculators, publishers, advertisers and art dealers, who made a significant contribution to their industry and to the economy. Edward Lloyd was a London newspaper proprietor responsible for *Lloyd's News* and the *Daily Chronicle*. He left a personal fortune of £563,022 on his death in 1890. Under his son Frank, the two papers flourished, reaching a circulation of one million by 1896. He left an estate of over £700,000 in 1927. Harry Clifford-Turner set up as a solicitor in 1900, and later acted on the floatation of Imperial Airways and the incorporation of ICI. Numerous accountants, like Sir William Peat, Sir George Touche and Sir Francis D'Arcy Cooper quickly established a reputation in their field and entertained leading industrial clients.

Individual case studies suggest a much more heterogeneous pattern of wealth making in this period. Commerce and finance was not the sole domain of great fortunes. Those active in industrial trades and outside London also possessed wealth in abundance. In the next section we extend the analysis with the more rigorous scrutiny of quantitative methods. We test the hypothesis that a disproportionately large share of wealth made in business was held by Londoners or individuals active in commerce or finance.

V

To analyse wealth in the occupations or regions given in Tables 2 and 3, we use four statistical tests. First, we compare the means of two samples, say commercial and financial wealth and manufacturing wealth, using a t-test to determine if the mean difference differs from zero. This is under the null, to use our example, that individuals active in commerce and finance were not wealthier than individuals active in manufacturing. Although the samples all come from the same population of leading British businessmen, we would expect to find a difference according to the Rubinstein hypothesis. This postulates a story of occupational and geographical wealth superiority for commerce and finance and London over other industries and regions. The sample mean is the point estimator of the population mean. Let $\bar{x}_1 - \bar{x}_2$ be the difference of the sample means from the two sets of n_1 and n_2 observations $\hat{\sigma}_1^2$ and $\hat{\sigma}_2^2$ and their respective variances.²⁵ The test statistic is as follows.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{\hat{\sigma}_1^2}{n_1} + \frac{\hat{\sigma}_2^2}{n_2}}}$$

Because populations with identical sample means can differ in other characteristics, second, an F-ratio statistic is employed to test whether two population variances are equal. The population will be more spread out with a larger variance. Thus we can determine if wealth was clustered *within* occupations and regions in addition to testing for a significant difference *between* them. The F-ratio statistic can be given by:

$$F = \hat{\sigma}_1^2 / \hat{\sigma}_2^2$$

Third, the hypothesis that two samples come from the same distribution can be tested against the null hypothesis that the distributions have different cumulative distribution functions. The Kolmogorov-Smirnov test compares the two cumulative distributions (F_{X_1}) and (F_{X_2}), and the test statistic is the difference of greatest magnitude between the two functions. This can be compared with a tabulated value to see if a significant difference is indicated. For example, if commerce and finance was dominated by individuals at a higher wealth level than individuals active in other occupations, the difference would be significant along the cumulative distribution schedule under the Kolmogorov-Smirnov test where:

$$KS = \max_x \left| \hat{F}_{X_1}(x) - \hat{F}_{X_2}(x) \right|$$

The fourth test extends the analysis to focus on a specific wealth threshold – individuals leaving £500,000 or more. This group of top wealth holders are at the hub of the Rubinstein hypothesis. They supposedly made their fortunes disproportionately in City commerce and finance rather than provincial manufacturing and industry.²⁰ If there was an association between occupation and region and wealth holding at the upper level, this can be represented in a 2x2 matrix and a Pearson chi-square statistic used for testing the null of no dependence between row and column categories. The expected number m in cell with row i and column j with n counts and sample size N is given by

$$m_{ij} = n_i + n_j / N \quad \text{so} \quad (m_{ij} - n_{ij})^2$$

is a measure of departure from expectation under the null. The statistic for a test of association is then:

$$\chi^2 = \sum_{i,j} (n_{ij}^2 / m_{ij}) - N$$

Tables 4 and 5 report the results of these tests for each cohort. In the upper half of the tables the reference group is individuals active in commerce and finance and in the lower half individuals active in London. In other words we compare commercial and financial wealth with all industries grouped and then disaggregated according to the categories outlined above. Similarly London wealth is compared with all other wealth and then with wealth in separate regions.

In the second column of Tables 4 and 5 we see that none of the t-tests clear the critical region at the required significance levels. There is no significant difference between the mean of commercial and financial wealth and London wealth and the other categories included. We fail to reject the null under a t-test because the variance of wealth in the groups included is large and therefore the confidence interval of the mean is broad. The mean level of wealth for each category and its standard error are included in

TABLE 4
TEST STATISTICS FOR THE SAMPLE COHORT BORN 1800-1840

Occupation or Region	t-test	F-test	Kolmogorov Smirnov test	Chi-Square test
All Industries	1.26	12.31* (44, 249)	0.60	0.048
Staple Industries	0.71	7.14* (44, 66)	0.23	0.350
Other Manufacturing	1.29	15.64* (44, 97)	0.37	0.009
New Technology Industries	1.33	17.93* (44, 29)	0.53	0.180
Miscellaneous Industries	1.48	20.13* (44, 54)	0.25	1.047
All Regions	0.26	5.40* (85, 201)	0.22	2.873
Midlands	0.55	5.98* (85, 37)	0.76	0.389
North-East	0.35	6.94* (85, 43)	0.71	1.737
North-West	0.21	4.60* (85, 53)	0.70	0.910
Yorkshire	-0.20	4.25* (85, 30)	0.30	2.720
Other	0.18	5.58* (85, 34)	0.32	2.752

Note: * indicates significance at better than the 5% level.

TABLE 5
TEST STATISTICS FOR THE SAMPLE COHORT BORN 1841–80

Occupation or Region	t-test	F-test	Kolmogorov Smirnov test	Chi-Square test
All Industries	1.161	10.77* (87, 422)	0.58	2.245
Staple Industries	1.46	110.47* (87, 90)	0.23	1.530
Other Manufacturing	1.04	9.69* (87, 124)	0.25	1.267
New Technology Industries	1.45	49.84* (87, 79)	0.09	5.331*
Miscellaneous Industries	0.73	5.34* (87, 126)	0.70	0.208
All Regions	0.77	8.46* (174, 279)	0.97	0.208
Midlands	1.23	37.86* (174, 68)	0.94	0.008
North-East	0.98	25.38* (174, 42)	0.72	0.081
North-West	0.22	4.77* (174, 78)	0.22	0.350
Yorkshire	0.76	15.19* (174, 24)	0.93	0.008
Other	0.58	5.56* (174, 63)	0.48	0.439

Note: * indicates significance at better than the 5% level.

Tables 2 and 3. The mean of commercial and financial wealth in the cohort born 1800–1840, for example, is £640,287, which is higher than the other groups. The standard error, however, is £251,507, so the mean could fall between £133,407 and £1,147,167 at the 95 per cent confidence interval.

The larger variance of commercial and financial and London wealth is indicated under the F-test for homogeneity of variances. All the F statistics reported exceed the tabulated value at better than the five per cent significance level. This suggests a more diverse pattern of wealth making than implied by the Rubinstein hypothesis. There were big fortunes in London's commercial and financial districts, but there were also those lower down the wealth scale. Even among the top banking families there were considerable variations in the value of an estate. For example, Sir Everard Hambro, a fourth-generation descendant of the Danish Hambro bankers, left £2,323,711 in 1925. Edward Grenfell of the Morgan Grenfell banking liaison and a director of the Bank of England between 1905 and 1940, bequeathed much less, at £880,332 in 1941.

This result is robust to the exclusion of the company promoters and stockbrokers who generated wealth over their careers but also engaged in

elaborate patterns of consumption (or illegal activities), sometimes ending life penniless. Henry Panmure Gordon, of Panmure Gordon & Co., the London stockbrokers, was excessive in his consumption. He left £86,995 in his will, which should be contrasted with the will of the more conservative William Knock de Gooreynd, the next senior partner of Panmure Gordon, who left a reported £750,000 on his death in 1919. However, although excluding the company promoters and stockbrokers from the commerce and finance category in Table 2 increases the mean level of wealth in the cohort born 1800–1840 from £640,287 to £949,933, the standard errors are still large. We achieve the same substantive results under the t-test and F-test.

We also have insufficient evidence to reject the null of no difference between occupational and regional groupings under the Kolmogorov-Smirnov test. We would expect to find, according to the divisions suggested by Rubinstein, a positive difference along the cumulative distribution schedule for individuals active in commerce and finance and in London relative to the other categories. Although the test is less powerful at distinguishing gaps in the tails of the specified distributions, it is applicable for any continuous distribution with specified mean and standard deviation. The differences suggested by the Kolmogorov-Smirnov test are small, which implies no pattern of superior commercial and financial and London wealth.

Our fourth test considers the distribution of wealth makers leaving £500,000 or more under a chi-square test. For the cohort born 1800–1840 data 23 per cent and for the cohort born 1841–80 data 21 per cent of individuals leave estates valued at £500,000 or more. The results in the final column of Tables 4 and 5 show that the observed χ^2 values are too low in 21 of the 22 cases to reject the null hypothesis of no dependence at the customary five per cent significance level. There were significantly more half-millionaires in commerce and finance than in the new technology industries (the reasons for which are unclear), but more generally no systematic association between this wealth cohort and regional and occupational characteristics of the sample can be discerned.²⁷ Thus our chi-square test procedure does not concede to the Rubinstein hypothesis even in respect of the very largest fortunes.

So is there any level at which a lead for commerce and finance and London wealth can be distinguished? So far we have shown that the distribution of wealth in these categories was not significantly different from the distribution of wealth in other regions and occupations. In Tables 6 and 7 we report, as a final measure of wealth standing, the top 20 wealth makers in each cohort as defined by the value of their estates on death. These individuals were among the leading wealth holders in this period. Charles Morisson, the merchant banker and warehouseman, left an estate

TABLE 6
TOP 20 WEALTH HOLDERS THE COHORT BORN 1800-1840

Name	Occupation	Region	Wealth £m's (1900 Prices)
Charles Morrison	Merchant Banker	London	10.939
William Fitzwilliam <i>(Irish and English Earl Fitzwilliam)</i>	Colliery Owner	Yorkshire	2.940
John Rylands	Textile Manufacturer	North West	2.798
William Orme Foster	Ironmaster	West Midlands	2.753
William Henry Wills <i>(Lord Winterstoke of Bladon)</i>	Tobacco Manufacturer	South West	2.498
Sir Donald Currie	Shipping Magnate	North West	2.432
Samuel Jones Loyd <i>(Lord Overstone)</i>	Merchant Banker	London	2.118
Nathan Meyer Rothschild <i>(Lord Rothschild of Tring)</i>	Merchant Banker	London	2.100
William Cavendish <i>(7th Duke of Devonshire)</i>	Estate Developer	North-West	1.961
Sir Robert Ropner	Shipowner	North East	1.844
Sir William Gray	Shipbuilder	North East	1.650
Nathaniel Clayton	Heavy Manufacturer	North East	1.452
William Whiteley	Department Store Owner	London	1.441
Ludwig Mond	Chemicals Manufacturer	North West	1.422
William George Armstrong <i>(Lord Armstrong of Cragside)</i>	Arms Manufacturer	North East	1.400
Thomas Henry Ismay	Shipowner	North West	1.380
James Crossley Eno	Chemist	North East	1.354
Sir Henry Tate	Sugar Refiner	North West	1.344
William Foster	Textile Manufacturer	Yorkshire	1.333
John Bullough	Textile Machine Manufacturer	North West	1.292

TABLE 7
TOP 20 WEALTH HOLDERS THE COHORT BORN 1841-80

Name	Occupation	Region	Wealth £m's (1938 Prices)
Sir John Reeves Ellerman	Shipowner	London	39.446
Alfred Beit	Diamond Merchant	S. Africa/London	14.907
Edward Cecil Guinness (<i>Earl of Iveagh</i>)	Brewer	Ireland (Dublin)	13.221
James Williamson	Linoleum Manufacturer	North West	10.501
Sir George Alfred Wills	Tobacco Manufacturer	South West	9.900
Sir Robert Paterson Houston	Shipowner	North West	6.517
Sir Ernest Joseph Cassel	Merchant Banker	London	5.275
Bernhard Baron	Tobacco Manufacturer	London	4.895
Alfred Harmsworth (<i>Viscount Northcliffe</i>)	Newspaper Proprietor	London	4.486
Weetman Dickinson Pearson (<i>Viscount Cowdray</i>)	Builder	Yorkshire	3.921
Marcus Samuel (<i>Viscount Bearsted</i>)	Oil	London	3.921
Christopher Furness (<i>Lord Furness of Grantley</i>)	Shipping	North East	3.235
Sir Henry Solomon Wellcome	Pharmaceuticals	London	3.206
Sir Richard Charles Garton	Brewer	London	2.871
Sir Alfred Edward Herbert	Machine Tools Manufacturer	West Midlands	2.565
John Baring (<i>Lord Peelstoke</i>)	Merchant Banker	London	2.533
James Lyle Mackay (<i>Earl of Inchcape</i>)	Shipping	London	2.260
Davison Alexander Dalziel (<i>Lord Dalziel of Wooler</i>)	Finance	London	2.251
Sir Everard Alexander Hambro	Merchant Banker	London	2.192
Philip Ernest Hill	Property Developer	London	2.089

valued at almost £11m in 1909, and was one of the wealthiest men in Britain on his death. Sir John Ellerman, the shipping magnate, left a fortune of £37 million in 1933, sufficient to place him at the top of the British wealth structure, even above the Duke of Westminster. Tables 6 and 7 comprise a sample subset of the super-rich, all of whom were millionaires.

Commerce and finance is represented at the very top of the wealth structure and does assume a position of dominance in Tables 6 and 7. Individuals active in commerce and finance account for 16 per cent of the total sample, but 30 per cent of top wealth leavers in the cohort born 1800–1840. In the cohort born 1841–80 the same statistics are 17 per cent and 40 per cent respectively. Regionally, the picture is somewhat different. A London lead can be discerned for the cohort born 1841–80, because individuals active in London account for 38 per cent of the total sample, but 65 per cent of the top wealth leavers in Table 7. However, in the cohort born 1800–1840 London accounts for 31 per cent of the total sample, but just 20 per cent of the top 20 wealth holders. London wealth makers were superseded by wealth makers active in the north-west, who account for 18 per cent of the total sample, but 35 per cent of the top 20 wealth holders, and those in the north-east, who account for 15 per cent and 25 per cent respectively.

The data in Tables 6 and 7 also reveal a diversity of wealth holding even within this subset of exceptional wealth makers. There are the hereditary aristocrats, William Fitzwilliam, and William Cavendish, who developed the family estates, and new men of wealth like the sugar refiner, Sir Henry Tate, son of a Unitarian minister. There are leading London banking families included in Tables 6 and 7, in addition to wealthy family dynasties active elsewhere. The Wills tobacco manufacturers in Bristol, and the Guinness family of brewers provide examples. Commercial and financial wealth is also represented outside the metropolis. Sir Donald Currie, the shipowner, was active in Liverpool rather than London, and Sir Robert Ropner in ports throughout the north-east.

Although some of the data in Tables 6 and 7 do accord with the Rubinstein hypothesis, there is no explicit wealth dichotomy along the lines of region and occupation. It should also be noted that these data document only the very largest fortune makers and not the structure of wealth making in British business more generally. All those included bequeathed at least double the £500,000 threshold imposed by Rubinstein for his group of 'top' wealth holders. A superiority of commercial and financial wealth and London wealth over manufacturing and industrial and provincial wealth is misleading even in the context of the super wealthy.

VI

Rubinstein's analysis fails to convey an accurate picture of wealth making in nineteenth- and early twentieth-century Britain. With most attention focusing on those leaving more than £500,000 between 1809 and 1939, a group of lesser wealth makers are overlooked. Accounting for this 'hidden' wealth suggests a more heterogeneous pattern of wealth, occupation and geography than supposed by Rubinstein. Moreover, even at upper threshold levels our quantitative evidence does not imply a pattern of superior commercial and financial to industrial and manufacturing wealth, or a dichotomy along the lines of London and provincial wealth.

This finding is based on an analysis of 790 leading British businessmen on whom wealth data were available. These individuals all made a significant contribution to their industry and were known for their success, or for their notoriety. They comprise a group of individuals who generated great wealth over their lifetimes, bequeathing estates of various sizes. More than half the sample left estates valued at £100,000 or more, while one-tenth were millionaires. Lesser estates are also included, providing a much broader level of wealth representation than in previous studies.

Our quantitative evidence shows that a large fortune in nineteenth- and twentieth-century Britain could be made in a variety of regions and occupations. Big industrialists were equally capable of generating wealth similar in size and significance to the City elite. Great fortunes were made in trades as diverse as textiles, property developing, newspaper proprietary, pharmaceuticals, retailing, in addition to commercial and financial sectors. Furthermore, the big conurbations outside London were host to thriving business activity. Shipping fortunes were made in the north-west and north-east, while Yorkshire the west Midlands and south-west were the domain of industrial and manufacturing wealth holders, in addition to fortunes made in commercial and financial pursuits.

In view of this diverse pattern of wealth holding in nineteenth- and early twentieth-century Britain, the Rubinstein hypothesis is rejected. As a commercial and financial nation, Britain may well have been historically superior to other countries, but this should not discount the contribution to wealth making of businessmen in industrial or manufacturing trades. Perhaps more importantly, this is not a certain foundation on which to refute allegations of British economic decline or restate British history as a conflict between commercial and industrial capitalism. According to our analysis of businessmen, Britain was not fundamentally a commercial or financial nation based on London wealth. The pattern of wealth holding was much more diverse, reflecting fortune makers in other regions and occupations as well.

NOTES

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1. W.D. Rubinstein, *Capitalism, Culture and Decline in Britain, 1750–1990* (London, 1994), p.35.
2. W.D. Rubinstein, 'The Victorian Middle Classes: Wealth, Occupation and Geography', *Economic History Review*, Vol.30 (1977); idem, *Men of Property: The Very Wealthy in Britain Since the Industrial Revolution* (London, 1981); idem, *Capitalism, Culture and Decline*. Of course such arguments have been made by others. See for example, G. Ingham, *Capitalism Divided? The City and Industry in British Social Development* (London, 1984); M. Wiener, *English Culture and the Decline of the Industrial Spirit, 1850–1980* (Cambridge, 1981).
3. Rubinstein's assertion about the dominance of London and of commerce is taken from income tax returns rather than probate records, but we are left in no doubt that the same inference is made on the basis of wealth data. See, for example, W.D. Rubinstein, 'British Businessmen as Wealth Holders, 1870–1914: A Response', *Business History*, Vol.34 No.2 (1992), pp.73–4.
4. Rubinstein's most recent research provides information on the occupation and geography of wealth holders leaving £100,000 or more in probate between 1809 and 1899. The results of this study, he suggests, mirror the results from his previous study of wealth holders leaving £500,000 or more. See, further, Rubinstein, 'British Businessmen as Wealth Holders: A Response', pp.75–6.
5. Rubinstein, *Men of Property*, pp.56–117.
6. Y. Cassis, 'Bankers in English Society in the Late Nineteenth Century', *Economic History Review*, Vol.38 (1985).
7. Among those who have taken issue with Rubinstein's findings are N.J. Morgan and M.S. Moss, 'Listing the Wealthy in Scotland', *Bulletin of the Institute of Historical Research* (London, 1986); M. Daunton, 'Gentlemanly Capitalism and British Industry, 1820–1914', *Past and Present*, No.122 (1989); R. Pahl, 'New Rich, Old Rich, Stinking Rich?', *Social History* Vol.15 No.2 (1990). Rubinstein has replied in 'British Businessmen as Wealth Holders: A Response'; 'Gentlemanly Capitalism and British Industry, 1820–1914: Debate', *Past and Present*, No.132 (1991); 'Stinking Rich: A Response', *Social History*, Vol.16 No.3 (1991).
8. M. Daunton and W.D. Rubinstein, 'Gentlemanly Capitalism and British Industry, 1820–1914: Debate', *Past and Present*, No.132 (1991), p.182.
9. Rubinstein, *Men of Property*, pp.29–32.
10. H. Berghoff, 'British Businessmen as Wealth Holders, 1870–1914: A Closer Look', *Business History*, Vol.33 No.2 (1991). See also idem, 'Regional Variations in Provincial Business Biography: The Case of Birmingham, Bristol and Manchester, 1870–1914', *Business History*, Vol.37 (1995).
11. Berghoff, 'British Businessmen', p.224.
12. D.J. Jeremy and C. Shaw (eds.), *The Dictionary of Business Biography*, 5 vols. (London, 1984–86). All those born between 1800 and 1880 on whom wealth data were available are included in the sample.
13. J. Bateman, *Great Landowners of Great Britain and Ireland*, 4 editions (London, 1876–83).
14. T. Nicholas, 'Businessmen and Landownership in the Late Nineteenth Century', *Economic History Review* (forthcoming Feb. 1999).
15. The extent of evasion and avoidance is difficult to judge because this varied with the rate of duty levied, in addition to the conditions imposed on *inter vivos* transfers. Lifetime giving was also likely to be motivated by other factors, such as philanthropy, age, family size, even occupation, which were not randomly distributed. See, further, Rubinstein, 'Gentlemanly Capitalism and British Industry: Debate', pp.156–8, for an exchange between Morgan and Moss and Daunton, who consider *inter vivos* gifts were more common among industrialists and manufacturers than among those engaged in commerce and finance, and Rubinstein, who

argues the reverse. Whoever is correct, it is impossible, using the available data, to make any adjustment for evasion and avoidance of death duties and *inter vivos* transfer anomalies other than we have done using our period control procedure.

16. D.J. Lawday and E.J. Mann, *Green's Death Duties* (London, 1971).
17. G. Miller, *The Machinery of Succession* (Aldershot, 1996).
18. Thus we are systematically excluding the value of land for the individuals born 1800–1840 because settled land was not included in probate until 1926. For the sample cohort born between 1840 and 1880 we include the value of land, because, as already mentioned probate does not provide a way of distinguishing the value of certain assets.
19. B.R. Mitchell, *British Historical Statistics* (Cambridge, 1988), pp.831–2, 837–8.
20. Rubinstein, 'The Victorian Middle Class', p.608. For other instances, see idem, *Men of Property* p.247; idem, 'Gentlemanly Capitalism and British Industry: Debate', p.154; idem (ed.), *Wealth and the Wealthy in the Modern World* (London, 1980), pp.22–3.
21. The latter are the subject of on-going research. See further, W.D. Rubinstein, 'The Structure of Wealth Holding in Britain: A Preliminary Anatomy', *Historical Research* (1992). Most of Rubinstein's attention has focused on wealth holders leaving £500,000 or more between 1809 and 1939, especially in the 1977 article, 'The Victorian Middle Class', in which the notion of occupational and geographical wealth differentials was first presented.
22. Rubinstein, *Men of Property*, pp.29–32.
23. £40,000 is the threshold level imposed by Berghoff.
24. Rubinstein, *Men of Property*, pp.29–32.
25. The test statistic used does not impose the restriction that $n_1 = n_2$ or that $\hat{\sigma}_1^2 = \hat{\sigma}_2^2$.
26. Rubinstein, 'The Victorian Middle Class'; idem, *Men of Property*.
27. Fewer wealth makers can be observed in new technology industries, probably because of the inclusion of contracting engineers. They were often self-made men, but operated in a sector not renowned for amassing large personal fortunes.