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A STATE WITHOUT OWNERSHIP: THE WELFARE IMPACT OF BRITISH PRIVATISATIONS 1979-1997

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(Draft, not for quotation, comments are welcome)

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Introduction

This paper draws from of a wider research (Florio 2001b, forthcoming)[1] on the largest experiment in public divestitures among developed capitalist economies: the privatisation policy pursued in the UK by Mrs Thatcher's government (1979-1990) and subsequently by Mr Major's government (1990-1997).

The study aims to give a comprehensive evaluation of the welfare impact of a policy usually regarded as highly successful and vastly imitated worldwide.

Under this angle, the British case history is particularly relevant for several reasons: Britain was the first developed country to embark on large scale public divestitures; the time span is long enough to see some long run effects; British governments enjoyed a confortable majority in Parliament, so they were able to consistently implement their policy with limited effective opposition; and there is already a wide body of scholarly literature and good data sources on company performances, price trends and other relevant variables.

The main conclusion of our study is that British privatisations, carried out on a large scale and over a long period of time, had more modest effects on the efficiency of production and consumption than those anticipated by the theory of property rights and other orthodox privatisation theories, or by other mainstream views. On the other hand, privatisations did have important effects on the distribution of incomes and wealth.

We have considered the impact of privatisations on five types of agents: firms, employees, shareholders, consumers and tax-payers. Our results are presented here, in this same order in a very sketchy form, for more details see Florio (2001b, forthcoming).[2]

1. Background

A convinced Thatcher supporter, Sir Keith Joseph, Secretary of State for Industry, wrote:

> "We came to office convinced that the structure of the nationalised industry contributed to the national malaise... in all too many cases, particularly when the nationalised industry commanded

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[1]   We started to study British privatisations and public investment trends in the late '80s (when the author was a visiting scholar the LSE), but we decided to embark on a major research project much later, when the Conservative era came to its end. This offered us a convenient time horizon for the research, that thus comprises around 18 years. This is not to say that some aspects of the privatisation policy were not continued by the New Labour government, but it seems helpful to fix the observations when a major change occurred in the political orientation of the government.

[2]   Florio (2001b) comprises a chapter on the historical background, on privatisation theories, on macroeconomic trends, a chapter for each of the agent cathegories, and a detailed case study for the most important divestiture: British Telecom. For the latter see Florio (2001a).

a monopoly, those concerned did not see themselves as living under the healthy necessity of satisfying the customer in order to survive; they had no incentive to cut costs to beat competitors; they were free of risk of liquidation.... Such was our diagnosis; what was our aim? our aim (was) to abate inflation and to create a prospering social market economy - that is, a mainly free enterprise economy".[3]

In October 1979, only a few months after coming into power in May, the Thatcher government inaugurated its privatisation programme with the sale of 5% of the shares in British Petroleum. Between 1979 and 1983, the Conservatives' first term in office, 12 public firms were partially or totally privatised and the sale of Council Houses was launched. The Thatcher government's second term, 1983-1987, saw the privatisation of 24 state companies. The third term, 1987-1991 (the last for Mrs Thatcher who resigned in November 1990), saw the privatisation of 40 firms, including the 12 Regional Electricity Companies and the 10 Water and Sewerage Companies. The two successive terms of Conservative government, under John Major, saw the virtually integral completion of the programme. A chronological table of British privatisations summarises the principal events for the period that interests us, see Tab. 1.

The methods of privatisation practised in Great Britain, and subsequently widely copied abroad, can be summarised into four types:

- first, stock exchange placing with an initial fixed price public offering or with a minimum price tender. A combination of the two methods was also tried, keeping the fixed price for the public and the tender for institutional investors. About 40% of privatisation operations, including those with the highest receipts, were managed in this way;

- second, employee or management buy outs accounted for less than a quarter of the operations;

- third, trade sales were used in 30% of cases: the firm was sold directly to a group of purchasers or to a single buyer;

- fourth, in less than 10% of cases the system was one of private placement in favour of institutional investors.

In some cases there was a bulk sale of 100% of the shares (for example British Airways), in other cases the operation was split into tranches (British Telecom). In other cases the government remained a shareholder with special powers through the "golden share" formula: (British Aerospace, British Airports Authority, British Gas, British Telecom). In turn the golden shares were formulated differently from case to case, in general awarding the Treasury the power to block hostile take-overs or acquisitions by foreign investors in some sectors, usually only for a limited period.

Ex-post, the privatisation programme could be said by its supporters to have achieved the following:

a) The large majority of state-owned enterprises (SOE) were sold off. Around a million employees were transferred to the private sector (in 1979 public firms employed around 1.5 million people). The percentage of GDP attributed to SOEs, which was originally over 9% (or more than 11% of fixed investments), fell to less than 3.5% in 1990 (investments dropped below 3%). The percentage of the workforce employed in the public sector was 7.2% in 1979, just 1.9% in 1992, and presumably less than 1% in 1997. As Foreman-Peck and Millward (1994) wrote:

"At the beginning of the decade the proportion of state ownership in Britain was among the highest of any advanced industrial country. By the end, Britain was recognized as the fountainhead of industrial privatisation showering the alleged benefits over the rest of the world"

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[3]   Quoted from Miller, 1995.

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Table 1 – Main privatised companies in the UK 1979-97 (million current pounds)

Year	Amount (£ Mn)	Main Contributors		
1979-80	377	BP		276
		National Enterprise Board holdings		37
1980-81	210	National Enterprise Board holdings		83
		British Aerospace		43
1981-82	493	Cable and Wireless		181
		Amersham International		64
1982-83	455	Britoil		334
		Associated British Ports		46
1983-84	1139	BP		543
		Britoil	2nd instalment:	293
		Cable and Wireless		263
1984-85	2050	BT		1358
		Enterprise Oil		384
		National Enterprise Board holdings		168
1985-86	2706	BT	2nd instalment:	1246
		Cable and Wireless		577
		Britoil		426
		British Aerospace		347
1986-87	4458	British Gas	including debentures	2570
		BT	3rd instalment:	1081
		British Airways		435
1987-88	5140	British Gas	2nd instalment:	1758
		Rolls Royce		1029
		BP		863
		BAA		534
		British Airways		419
1988-89	7069	BP	2nd instalment:	3000
		British Gas	3rd instalment:	1555
		British Steel		1138
		BAA	2nd instalment:	689
1989-90	4225	BP	3rd instalment:	1363
		British Steel	2nd instalment:	1287
		British Gas	debentures	800
		Water		423
1990-91	5345	Electricity England and Wales		3628
		Water	2nd instalment:	1750
1991-92	5347	Regional electricity	2nd instalment:	1447
		Generating companies	2nd instalment:	882
		Electricity debt		1106
		Water	3rd instalment:	1485
		Scottish electricity		1112
		BT2		1666
1992-93	8189	BT2	2nd instalment:	1856
			3rd instalment:	1631
		Regional electricity	3rd instalment:	1465
		Scottish electricity	2nd instalment:	907
		Debt Sale		1337
		British Gas debenture		350
		Northern Ireland electricity		350
1993-94	5453	BT3		1866
			2nd instalment:	1778
		Scottish electricity		703
		Electricity debt		654
		Northern Ireland electricity		218
1994-95	6429	Gencos		1707
		Debt Sale		1617
		BT3		1519
		British Coal		811
		Electricity debt		390
		Northern Ireland Electricity		187
1995-96	2439	Debt sale		517
		Residual Equity sale		750
		Gencos		1029
1996-97	4502	Railtrack		1433
		AEA		215
		Debt Sale		422
		British Coal		111
		Gencos		796
		Nuclear Electric/Scottish Nuclear		688
		BT Loanstock		140
		Residual Shares		559
1997-98	1707	Railtrack		929
		Residual Shares		670
		Debt Sale		108

Sources: our elaboration on HM Treasury (1997), ONS (2000) and other sources.

b) Some main macrosectors were involved:

- first, energy (British Petroleum, Britoil, Enterprise Oil, British Gas, Electricity, Coal, Nuclear energy);

- second, transport goods and services (British Aerospace, National Freight Corporation, Associated British Ports, British Leyland, Sealink, British Shipbuilders, National Bus Company, Rolls Royce Engines, British Airports Authority, British Airways, Trust Ports, Railways);

- third, telecommunications (Cable & Wireless, British Telecom);

- fourth, some other specific sectors such as steel (British Steel) and water.

Finally there was a hotchpotch of particular firms, operating in sectors in which the State had a fairly marginal presence due to historic factors or connections with other activities (for example hotels belonging to the railways, some factories producing arms, etc.).

c) an estimate of the Inland Revenue's gross receipts from public corporations divestment is in the region of £70 billion in costant sterling (1997). We shall discuss later the economic value of the goods transferred (which is certainly higher than the substantial figure mentioned above). In one particular year, 1989, receipts from privatisations were the equivalent of 4% of the British public debt and on the whole receipts contributed considerably to reducing the debt. While in 1979 the government had to provide for the financial requirements of public firms by way of loans, to the tune of £3 billion per year, privatisations greatly reduced those requirements. Furthermore, while the return on equity in the nationalised sector was close to zero in 1979, privatised firms would have had a higher average profitability than the average company listed on the London Stock Exchange. Higher profits would in turn have generated additional tax receipts for the government through corporate taxes.

d) Privatisations should have facilitated liberalisation in some sectors previously in a public monopoly regime. Some of the principal laws were: *Telecommunication Act* (1984), *Gas Act* (1985 and 1986), *Airports Act* (1986), *Electricity Act* (1989), *Water Industry Act* (1989 and 1991), *Railways Act* (1993). Perhaps 10% of GDP came under the control of the regulators, who were given broad powers in areas such as the formation of prices, transfer of ownership, determination of the obligations for services and qualitative standards, etc.

At the end of the process the regulated industries accounted for capital of £80 billion and 400,000 employees. Gas and electricity between them employed 175,000 workers with £39 billion capital.

e) Despite the initial doubts as to the capacity of the stock exchange to absorb the share placements of the privatised firms, private investors were to show themselves to be more than willing to absorb the issue of shares, in fact generally they were oversubscribed. This created an army of millions of new, small shareholders. Between 1979 and 1993 the number of individual shareholders rose from 3 million to over 11 million, or from 7% to 22% of the total adult population. Moreover, perhaps 90% of the employees of privatised firms purchased shares of the firms they worked with.

f) There were significant reductions in prices in real terms and improvements in the quality of the service in telecommunications, gas, electricity, air transport, etc.. In contrast there were sizeable increases in the case of water, railways, bus and other sectors.

To the promoter of privatisations, this record of achievements was beyond doubt a success story, and a major chance in the pattern of British economic history to reverse a long debated productivity gap with other Western economies. Let us give a closer look.

2. Firms' productivity trends: the missing shock.

2.1 Aggregate productivity

We start our discussion with a broad macroeconomic view. The OECD (1998) observed that the annual rate of growth of GDP in the UK in the 90's, which was 2.5%, was not that different from the average for the last 150 years.

At the end of the 1970s the per capita GDP of the UK was 10% higher than the average for OECD countries, but in 1996 it was 8% lower. The OECD survey[4] shows that the gap between the UK and the US between 1960 and 1996 was virtually unchanged (in fact, on average the gap was smaller in the first 20 years than after 1979). However, if we take the British per capita income in 1960 to be 100, the other countries in the European Union that recorded a level of around 80 in 1960 were recording over 100 in 1980 and, after some distancing in the following years, had overtaken the UK again in the 1990s, see fig. 1.

**Figure 1 – United kingdom GDP per capita *vis-a-vis* other OECD Countries**
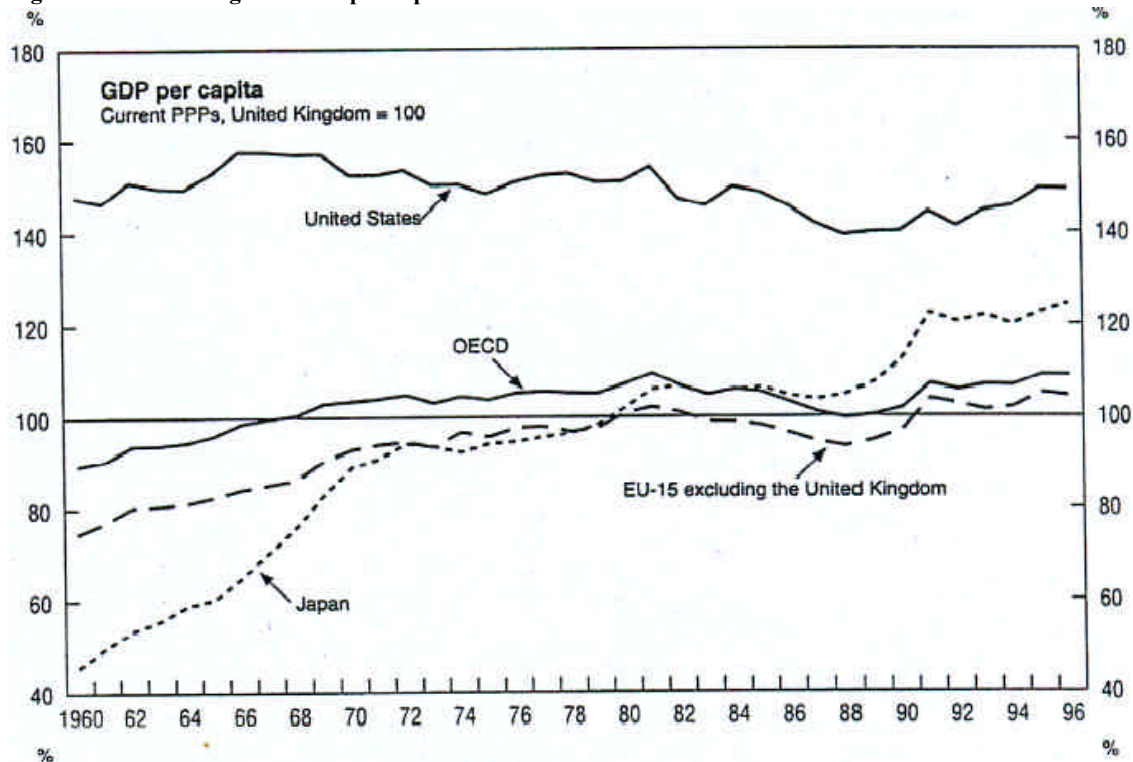
Source: OECD, National Accontunts

We tried some preliminary tests to detect the macroeconomic impact of privatisations. First we studied long run correlation between privatisations (represented by a time series of privatisation proceeds at constant 1995 price, fig. 2 and output growth (and a number of other macroeconomic variables, not discussed here). Second, we tested for structural breaks in GDP growth before and after privatisations (with different lag structures and spoecifications), see tab 2. Both these exercises (for details see Florio, 2001b forthcoming) fails to reject the null hypothesis that the growth rate of real output in the long term before and after privatisations was unchanged.

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[4]   OECD (1998, fig. 11, page 55)

Figure 2 – Privatization proceeds and macroeconomic variables
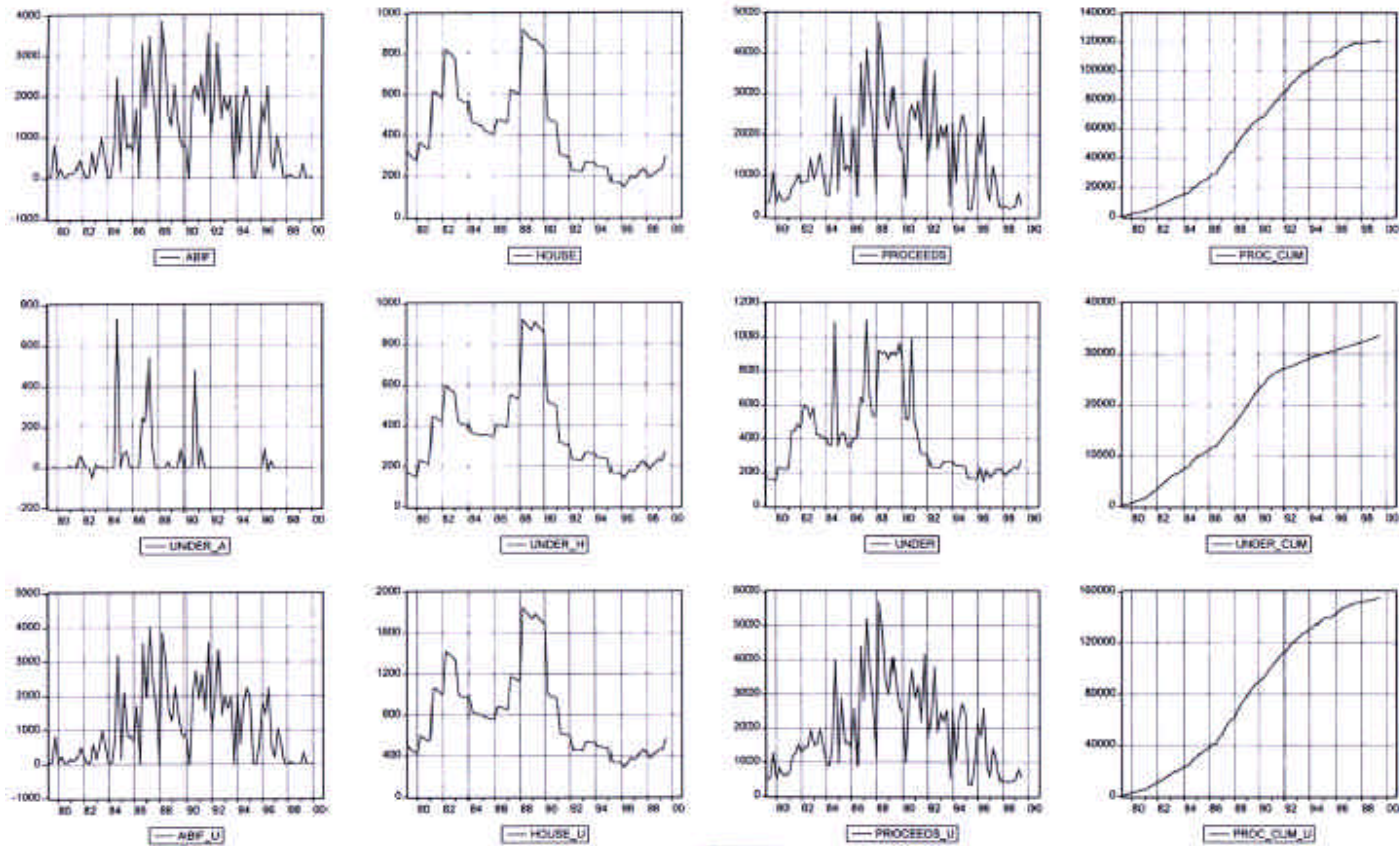
ABIF	=	Net proceeds for sales of public corporations (HM Treasury, 1997), at 1995 prices	
HOUSE	=	Net proceeds for sales of dwellings (Detr, 1999)	
PROCEEDS	=	Sum of ABIF + HOUSE	
PROC_CUM	=	Cumulated value	
UNDER_A	=	Underpricing public corporations (see chapter 5)	
UNDER_H	=	Underpricing houses (Detr, 1999)	

UNDER	=	Sum of UNDER_A + UNDER_H
UNDER_CUM	=	Cumulated value
ABIF_U	=	Net proceeds for public corporations, corrected by underpricing
HOUSE_U	=	Net proceeds for sales of dwellings, corrected by underpricing
PROCEEDS_U	=	Sum of ABIF_U + HOUSE_U
PROC_CUM_U	=	Cumulated value

Figure 3 – Privatization proceeds and macroeconomic variables
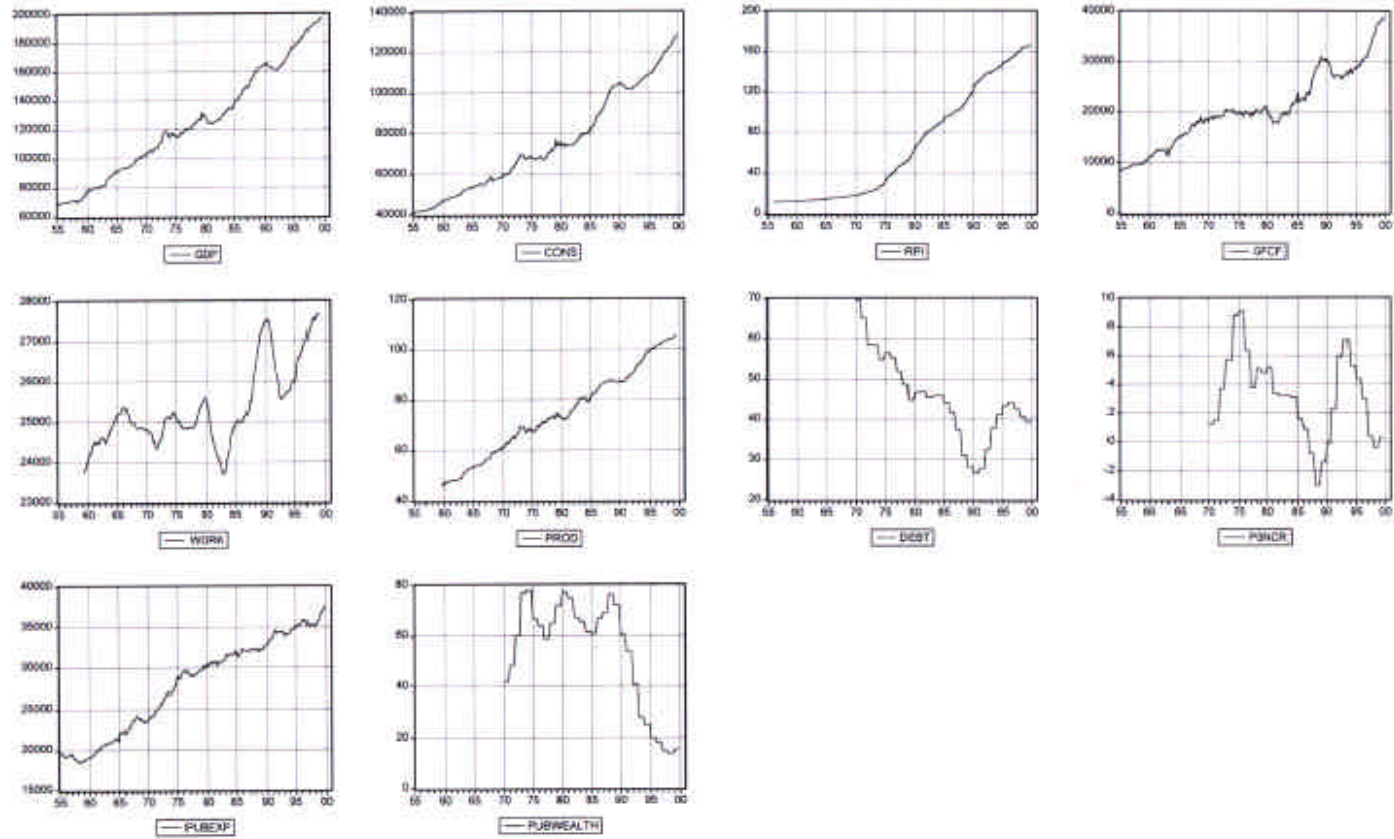
GDP	=	GDP at market prices	
CONS	=	Household consumption	
RPI	=	Retail Price Index	
GFCF	=	Gross domestic fixed capital formation	
WORK	=	Workforce Jobs	

PROD	=	Output per head index
DEBT	=	Public Sector Net Debt (% GDP)
PSNCR	=	Public Sector Net Cash Requirement (% GDP)
PUBEXP	=	General Government Expenditure
PUBWEALTH	=	Public Sector Net Wealth (% GDP)

Table 2 - Estimation results

Dependent variable	C	C_79_98	TIME	T_79_98	TIME^2	T_79_98^2	R²
GDP annual differece	**94.6** (19.7)	35.8 (31.2)					0.03
GDP % annual growth rate	**2.4** (0.4)	-0.4 (0.6)					0.01
GDP	**-1816.6** (181.3)	**-3769.7** (520.5)	**94.1** (2.8)	**46.2** (6.2)			0.99
GDP	1629.8 (1332.3)	-6444.4 (8077.8)	-17.5 (42.9)	140.4 (185.6)	**0.9** (0.3)	-0.8 (1.1)	0.99

Source: our elaboration on OECD data

Notes: standard errors are given in parenthesis. Coefficients signicantly different from zero are printed in bold.

2.2 Labour productivity

Productivity per employee and per hour worked increased between 1985 and 1996 at a higher rate than that of other G7 countries, enabling the UK to reduce the gap from the US:

> "The wide-reaching programme of structural reform over the past couple of decades has probably helped UK productivity levels to catch-up with best practices although a substantial gap remains" (OECD, 1998, p. 54).

An illustration of this conjecture is given by the following: if we take 100 to be the value added per hour worked (or per worker) in the manufacturing sector in the US, in the UK it was 45.0 in 1960; 53.6 in 1973; 59.7 in 1985; and 69.7 in 1995.

The 'structural reforms' to which economists of the OECD refer are privatisations, liberalisations and the deregulation of the labour market.

This interpretation, however, does not appear to be totally convincing:

a) the relative gain in productivity was 16% in the last ten years of the period considered, during which the policies of the Conservative governments were fully unfurled; but it was 19% in the 13 years prior to the first oil shock, years in which the political situation was quite different, with powerful trade unions and a large nationalised sector (in the intervening period, between 1973 and 1985, the relative increase in productivity was 11%). In short there does not appear to be a discernible trend that clearly indicates that the 'structural reform' policies, including privatisations, had a positive effect on productivity.

b) secondly, an international comparison with other European countries does not confirm that the policies pursued in the UK generated greater productivity dynamics. In 1960 France, a country often considered interventionist, had a similar gap from the USA to that of the United Kingdom, but by 1995 it had increased its index of relative productivity by almost 90% (the cumulated increase for the UK was just over 55%). Also Germany, Belgium, Finland and Sweden, countries that pursued a mix of structural policies different from the UK (and each one different from the others) closed their gaps with the USA more than the UK over the period considered. It is true that in the last decade productivity dynamics in the UK were greater than in other countries, but looking at it over the longer term it doesn't appear to be any more than a partial recovery of the gap accumulated in the past.

c) If we look at tab. 3, it is clear that in the long run (1960-1997) when we consider TFP and labour productivity of the UK, their trends do not show a better performance than most EU countries. The result was much better for capital productivity, but so it was also in 1960-1973, and 1973-1979, a result probably to be explained by low investment (an issue we cannot discuss here).

In the end, from the point of view of productivity privatisations seem to have achieved the best results where the productive base was reduced, and paradoxically poorer results where there has been an expansion, in both cases due to exogenous conditions.

Moreover, much of the support for growth in national income and for stabilising employment (cf. *infra*) came from sectors such as finance and tourism, and others not directly involved in privatisations.

As a whole the macroeconomic performance appears to be less sparkling than one could have expected if the transfer of about a million workers and 10% of GDP to the private sector had generated a strong positive shock on the supply side.

Obviously one could argue that without privatisations and the other reforms of the Tory governments the British productivity performance would have been worse, but it seems to be rather difficult to prove this counterfactual.

Table 3 – Productivity trends in the business sector (1960-1997). Percentage changes at annual rates

	Total factor productivity			Labour productivity			Capital productiviy		
	1960-73	1973-79	1979-97	1960-73	1973-79	1979-97	1960-73	1973-79	1979-97
United Kingdom	2.6	0.5	1.1	4.0	1.6	2.0	1.7	-0.3	0.6
United States	1.9	0.1	0.7	2.6	0.3	0.9	0.4	-0.5	0.1
Japan	4.9	0.7	0.9	8.4	2.8	2.3	-2.3	-3.6	-2.0
Germany	2.6	1.8	1.2	4.5	3.1	2.2	-1.4	-1.0	-0.5
France	3.7	1.6	1.3	5.3	2.9	2.2	0.6	-1.0	-0.5
Italy	4.4	2.0	1.1	6.4	2.8	2.0	0.5	0.3	-0.6
Canada	1.1	-0.1	-0.5	2.5	1.1	1.0	-1.9	-2.6	-3.6
Total of the above countries	*2.9*	*0.5*	*0.8*	*4.5*	*1.4*	*1.6*	*-0.2*	*-1.2*	*-0.6*
Austria	3.3	1.1	0.9	5.9	3.1	2.3	-1.7	-2.9	-1.9
Belgium	3.8	1.3	1.0	5.2	2.7	1.9	0.6	-1.8	-1.1
Denmark	2.1	0.6	1.2	3.9	2.3	2.1	-1.5	-2.6	-0.7
Finland	4.0	1.9	2.6	5.0	3.2	3.5	1.4	-1.6	0.2
Greece	2.7	0.8	-0.2	9.0	3.4	0.7	-8.8	-4.2	-1.9
Ireland	4.5	3.8	3.7	4.8	4.3	4.1	3.4	1.8	1.9
Netherlands	3.5	1.7	1.0	4.8	2.6	1.5	1.0	-0.1	0.1
Portugal	2.6	-1.0	1.0	7.5	0.5	2.4	-6.0	-3.8	-1.6
Spain	3.1	0.6	1.6	5.9	2.8	2.7	-4.4	-5.4	-1.6
Sweden	1.9	0.0	1.1	3.7	1.4	2.0	-2.2	-3.2	-1.0
Total of above EU countries	*3.2*	*1.2*	*1.4*	*5.4*	*2.6*	*2.3*	*-1.2*	*-1.8*	*-0.6*

Source: our elaboration on OECD (1998)

Figure 4 – Productivity in the business sector

Source: our elaboration on OECD data

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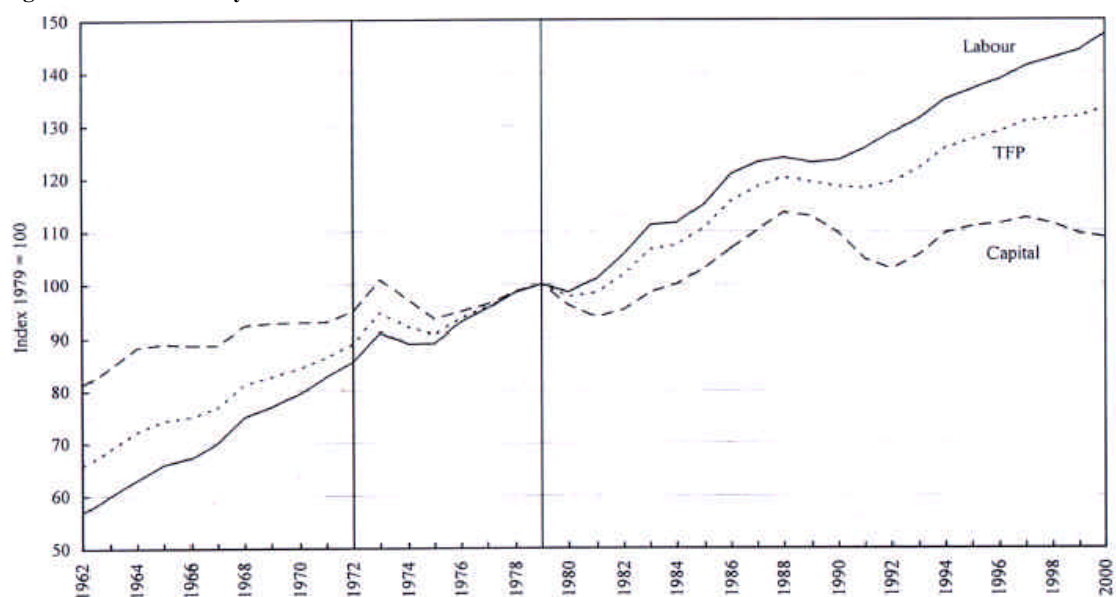
2.3 Firms' performance

There is a substantial amount of empirical literature on the performance of individual privatized companies in the UK, and it is impossible here to review it.[5]

We limit here to discuss one of the best study available, the one by Martin, Parker (1997). Based on the study of 11 cases[6] and on the previous literature, they conclude that:

"Privatisation, especially the run-up to privatisation, tends to be associated with a marked improvement in performance... But at the same time, the fact that performance improved... *before* privatisation suggests that performance improvement is possible in the public sector when the incentive and the will exist (as has happened, for example, in both the Post Office and the coal industry since the mid-1980s)".

The authors also observe that there is no clear pattern in the available data that allows one to establish a correlation between performance, ownership, degree of competition and regulation. The indicators considered at company level are:

- the rate of growth in labour productivity

- the rate of growth in TFP

- the rate of growth in value added

- the rate of profit.

This time span is sufficiently long to identify five different sub-periods:

- the period in which the company operated as a nationalised company

- the years between the announcement of the intended privatisation and the actual divestment, in order to isolate any possible "announcement" effect

- the early post-privatisation years

- the recessive cycle of 1988-92

- the more recent past.

The results[7] are tested also by checking the national trend for labour and capital productivity. The picture that emerges by this study does not enable us to deduce that privatisation as such had any clearly positive effect on performance variables.[8]

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[5]   This literature in general does not find strong statistical evidence of an increase in total factor productivity due to privatisations: Burns, Weyman Jones (1994a, 1994b, 1994c) for the electricity sector; for gas, Price and Weyman Jones (1993); Bishop and Thompson (1992, 1993) observe improvements in productivity in 9 firms during the 1980s compared to the 1970s, both in privatised and public companies; Foreman-Peck (1989) and Foreman-Peck, Manning (1988) do not observe any improvements in productivity in the case of BT; the results vary from case to case for Vickers, Yarrow (1988) and for Yarrow (1986, 1989). Burns, Weyman-Jones (1994) use mathematical programming techniques to study the increase in productivity in the distribution of electricity. The results were the following: *"In one company, East Midlands, productivity regressed after privatisation, in 5 others productivity has risen at a lower rate than before privatisation and in the remaining 6 companies productivity growth increased after privatisation ... In other words after allowing for underlying secular changes in productivity we can say that the aggregate industry level efficiency did not improve significantly after privatisation".* A totally different result was showed by a similar study of the 12 regional sub-divisions of British Gas, where productivity appears to have doubled after privatisation and the result is statistically significant (Price, Weyman-Jones, 1993). Taken together the two case studies show on the one hand that the management conditions of two public monopolies can be quite different, and on the other that the effects of privatisation on the productivity trend can vary from insignificant, as in the case of electricity supply, to enormous as in the case of gas. This points to the regulatory regime as a best candidate as an explanatory variable.

[6]   The companies studied were British Airways, BAA, Britoil, British Gas, British Steel, British Aerospace, Jaguar, Rolls Royce, NFC, ABP and BT. For each of these companies the figures considered were taken from balance sheets or other company sources, examined over a time span that covers both the years before and after nationalisation and subsequent years, usually until between 1992 and 1995.

[7]   Summarised in tables 10.1 and foll. of MP.

[8]   Some examples of the main results are the following ones: a) British Airways: by far the best period from the point of view of all four indicators was the one before privatisation, thanks to the huge cuts in personnel, already begun in the period 1979-1983 (-30% in total). Subsequently the results were not as good, although profitability and TFP were better than the period prior to the announcement of privatisation; b) British Airports Authority: a comparison between the periods of nationalised and privatised management is unfavourable to the latter for all four indicators, even if we compare other pairs of periods in general the results are not those expected; c) for Britoil there was generally an improvement in performance with privatisation, thanks also to the fact that employment was reduced by a third after divestment; d) British Gas showed a fairly clear improvement after the

The authors attempt a summary of these results proposing to count for each company in how many cases there was an increase or a reduction in the performance indicator and in each of the four indicators when comparing each pair of periods (nationalisation versus the other four).

The four periods compared were:
- nationalisation vs. pre-privatisation
- nationalisation vs. post-privatisation
- nationalisation vs. the recession
- nationalisation vs. the latest period.

In total there were 159 comparisons which showed the following:
- privatisation does not appear to have had significant effects on the increase in labour productivity, it had mainly negative effects on TFP, and mainly positive effects on value added per worker and on profitability.
- when comparing the periods the indicators are somewhat better in the nationalisation period compared to post-privatisation period or the recession, while they were worse in the pre-privatisation period and more recently.

The results of the summary show that overall, of the 159 comparisons, 82 showed improvements compared to the period of nationalisation and 77 deteriorations.

The method of counting these comparisons is open to obvious criticism, a fact the authors seemed to be fairly conscious of. But, overall, it is undeniable that the time series of balance sheet data for these 11 firms support the conclusions of the authors: the cases where there is evidence of an improvement in company performance after privatisation or after the announcement are offset by the other cases of deterioration, hence we cannot reject the null hypothesis, that is that privatisation in itself did not have a statistically detectable effect on the variables examined.

This conclusion is compatible with most of the empirical studies mentioned previously (see footnote, *supra*). The MP data was tested by us with a different approach: we have 11 firms and 6 periods (the duration varies from company to company) for a total of 66 observations. We also have different series: a first series of the rates of growth in labour productivity, capital and TFP, not controlled according to economic cycle, and a second series, just for labour productivity and TFP, in which the figure is the ratio between the growth rate of the company and that of the whole economy. We also have a series of data on the value added per worker in relative terms compared to the economy as a whole.

Let us consider the sub-periods as dummy variables and we test whether by linearly regressing productivity with these dummies we can obtain statistically significant parameters with the anticipated sign. See Table 4.[9]

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announcement of privatisation and also later, compared to the period of nationalisation; e) with the exception of profitability, the results for British Steel were surprisingly worse after privatisation compared to the preceding phase; f) the data for British Aerospace, Jaguar and Rolls Royce show a deterioration in productivity after privatisation and in some cases an improvement in profitability; g) NFC and BPA show an overall improvement after privatisation; h) BT: the results were generally better in the pre-privatisation and subsequent periods compared to the period of nationalisation, except for the growth in TFP.

[9] In order to re-assess the conclusions of Martin-Parker (1997), we pooled the data contained in tables 5.1, 5.2, 5.3, 5.4, 6.1, 6.2 of their book, in a single sample of 66 observations (6 periods x 11 organisations), thus obtaining 7 series corresponding to the following performance variables: labour productivity (also relative to the manufacturing sector or the whole economy, where appropriate), total factor productivity (also relative), rate of profit (also relative), value added (relative). For each of the 7 variables, we estimated a simple linear regression on a constant term (capturing the average value of the dependent variable during nationalisation period) and five dummy variables, constructed so as to represent the effect of each period with respect to the nationalisation period (i.e. our baseline period). Table 4 summarises estimation results: nearly all of the estimated dummy variable coefficients fail to pass the conventional significance test, so that we have to accept the null hypothesis of the coefficient being equal to zero. Remarkable exceptions are the strong decrease in total factor productivity during recession period, the growth of rate of profit during post-announcement period and the changes in value added during recession and latest period. These parameters have the expected sign.

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Table 4 - Firms' performance. Estimation results

Dependent Variable	NAT	PRE	ANN	PRI	REC	LAT	R^2
Labour productivity	**7.3** (2.3)	0.3 (3.3)	-0.2 (3.3)	-3.5 (3.3)	-4.2 (3.4)	0.7 (3.5)	0.06
Labour productivity (relative)	**4.5** (2.2)	-0.1 (3.1)	0.0 (3.1)	-3.6 (3.1)	-3.3 (3.1)	0.0 (3.2)	0.05
Total factor productivity	3.9 (1.7)	0.2 (2.4)	-1.6 (2.4)	-2.0 (2.4)	**-6.3** (2.4)	-1.1 (2.5)	0.14
Total factor productivity (relative)	3.0 (1.6)	-1.0 (2.3)	-2.7 (2.3)	-3.5 (2.3)	**-6.4** (2.4)	-2.7 (2.5)	0.13
Rate of profit	9.0 (5.1)	8.4 (7.2)	**15.4** (7.2)	10.8 (7.2)	-4.2 (7.4)	0.7 (7.6)	0.15
Rate of profit (relative)	1.7 (0.9)	1.3 (1.2)	2.1 (1.2)	0.9 (1.2)	-1.2 (1.3)	-0.6 (1.3)	0.14
Value added (relative)	1.5 (2.5)	1.3 (3.6)	3.1 (3.5)	-3.2 (3.5)	**-7.2** (3.6)	**8.7** (3.8)	0.28

Sources: our elaboration on Martin-Parker (1997 dataset).

Notes: standard errors are given in parenthesis; coefficients significantly different from zero are printed in bold.

NAT=Nationalisation period; PRE=Pre-privatisation period; ANN=Post-announcement period; PRI=Post-privatisation perdiod; REC=Recession period; LAT=Latest period; R^2

In fact, dummy variables for sub-periods have generally an estimated coefficient not statistically different from zero, with the following (reasonable) exceptions:

a) TFP decline in recession years, which is compatible with faster slow-down of output than of productivity factors;

b) Return on capital: post-announcement there is an increase, probably an increase of profits was showed to make easier privatisation;

c) Added value: a positive impact of the dummies for the last period and negative for the recession period.

These results are statistically significant and have the expected sign. Thus they confirm that while the business cycle (and restructuring while under public ownership) has a discernible effect on performance, privatisation *per se* has no visible impact.

Our own detailed study on BT data for over 40 years (1960-2000) confirm that privatisation had negligible impact on productivity trends (that were rather affected by subsequent changes in the regulatory regime and market structure), see Florio 2001a.

2.4 Summing-up

We have been unable to find sufficient statistical evidence that the productivity of labour, of capital or TFP in the UK showed any increase as a consequence of privatisations compared to the long term trend, except perhaps in specific sectors. Productivity is essentially a physical concept, quite different from profitability. The lack of an increase in productivity belies any simplistic theory of property rights and perhaps may suggest that when private ownership of firms is on the one hand dispersed, and, on the other, represented by financial investors who do not feel themselves involved in the running of the firm, the management does not have a clear incentive to exploit all the possible strategies to save on production factors. In keeping with the theory of the managerial firm, the management will probably be more interested in guaranteeing shareholders satisfactory profitability than in reducing costs as much as possible. In the case of regulated firms the best investment for top managers is to influence the regulator so that he or she allows high profit margins. Conversely, reducing investments or personnel could even be

counterproductive, creating conflict or making the regulator think that there may be further margins for increases in productivity.

3. Workers and managers

3.1 Employement trends

Table 5 shows some evidence on employment trends in selected privatised companies since 1979.

Some remarks on these data may be helpful:

a) British Airways made considerable cuts in personnel between 1979 and 1984, laying off 20,000 workers out of a total of almost 58,000. Thus the response of the management of the public company to the financial crisis was large scale redundancies. Recovery in employment began in 1985 and continued (since 1988 the figure includes the 7,000 employees acquired with British Caledonian, a move which reinforced the dominating market position of British Airways);

Table 5 – Employment changes in selected companies 1979-1995

Firm	1979	At privatisation date	1995
Associated British Ports	11,571	9,085 (1983)	2,253*
British Gas	101,600	91,900 (1986)	69,971*
British Telecom	233,447	244,592 (1984)	148,900
Rolls Royce	57,800	42,000 (1987)	43,500*
British Steel	191,500	53,720 (1988)	39,800
British Coal	183,000	17,000 (1993)	11,000
British Rail	244,084	122,100 (1996)	130,600
British Airways	57,741	40,440 (1987)	53,060
British Airports Authority	7,298	7,462 (1987)	8,171
Cable & Wireless	n.a.	10,750	39,636
National Freight Corporation	35,922	24,305 (1982)	33,989*
Water Companies	63,221	46,728 (1989)	54,200*
RECs	95,800	82,485 (1990)	74,457*
Electricity Generators (°)	n.a	24,553 (1991)	11,737*
Post Office	178,397	not privatized	155,000*

Source: Boyfield (1997), Martin, Parker (1997), Pendleton (1997) and others
(*) 1994
(°) PowerGen and National Power only.

b) British Airports Authority recorded little change in employment during the final years of public ownership: subsequently employment increased, both through the activities acquired and the need to improve security standard;

c) for Britoil employment was stable both before and after privatisation and it fell only as a result of the drop in oil prices;

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d) British Gas witnessed a sharp reduction in employment over the period considered, but privatisation did not mark a structural break in the long term trend: the drastic fall in recent years coincided with the liberalisation of the sector;

e) British Steel lost 15,000 workers over the period studied, equivalent to 79% of its workforce in 1979, but a large part of this downsizing was carried out under public ownership following the structural crisis in the sector;

f) for British Aerospace, the series is difficult to interpret because of the numerous acquisitions, but overall there is no evidence that privatisation had a significant influence on employment;

g) in the cases of Jaguar, Rolls Royce and NF employment increased after privatisation;

h) in the case of Associated British Ports employment clearly decreased, basically as a result of the liberalisation of the labour market in the 19 ports previously under the monopoly system;

i) the experience of British Telecom shows that employment did not change after privatisation for several years, but it fell drastically as a result of the liberalisation and more severe regulation by OFTEL;

j) huge decrease of employment are recorded for firms under public ownership: for example British Rail decreased employment of more 50%, around 120 thousend employee; British Steel and British Coal are other obvious examples. But Britisg Gas, NFC, the Water and electricities companies as well, all recorded substantial downsizing under public ownership.

The picture appears to be quite clear. For the sample of firms examined privatisation does not denote a structural break in employment trends, except in specific cases. In general whenever there are drastic changes these are the result of exogenous factors, such as changes in regulations (British Telecom, British Gas, British Ports Authority), demand conditions or industrial organisation (e.g. Britoil, British Steel).

At the end of the period, in about 1996, employment in the firms in the table, excluding British Rail, the Electricity Generators and Cable & Wireless for whom the data are incomplete, and the Post Office, never privatized, was roughly 517,000. In these same firms employment in 1979 stood at around 1320 thousend: this is therefore a case of gargantuan downsizing with over 800,000 jobs lost.

But at the time of privatisation (which varied from firm to firm, and therefore the total has a purely indicative significance), employment had fallen to 638,000, consequently 7/8 of the jobs were already lost under state ownership.[10]

A more complete picture is given by looking at long term data Fig. 5 show long-term employment trends, in some cases since 1960. Table 6 show some average rates of change of employment by subperiods. Lastly, Table 7 shows the results of a simple statistical test.

The available evidence is fragmentary, but on the whole it appears to reject the hypothesis that the change in ownership has, in itself, brought about a univocal trend towards reduced employment[11].

Following the same approach used in the elaboration of Martin-Parker (1997) data (*supra*), we constructed a series of the average annual growth rate of employment for 15 organisations, covering the period 1960-1997.

We estimated a simple linear regression on a constant term (capturing the average value of the dependent variable during the nationalisation period) and five dummy variables, constructed so as to represent the effect of each period with respect to the nationalisation period (i.e. our baseline period).

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[10]   To this one should add around 120,000 jobs lost by British Rail, etc.
[11]   This result is confirmed by the survey by Pendleton (1997).

Estimation results lead to the conclusion of no significant change in the dependent varible with respect to all identified periods, except for the latest period, that shows a remarkable decrease in employment.

Table 6 - Employment in public corporations: average percentage annual growth rate

	C[1]	PRE	ANN	PRI	REC	LAT
Energy[a)]	4.7	-0.8	-6.6	-7.8	-6.1	-14.5
Transport services[b)]	-2.1	-6.3	-6.3	-0.9	0.4	-3.3
Transport goods[c)]	-0.3	0.3	6.1	6.7	5.2	-16.2
British Telecom	2.1	0.5	-0.2	-0.9	0.1	-10.9
British Steel	-6.9	-7.9	0.0	-0.8	1.3	-8.7
PO (Posts)	0.4	na	na	na	-1.2	-2.3

Sources: our elaboration on NEDO (1976), Martin Parker (1997), Eurostat, ONS.
1) *Periods differ for each organisation, except for recession period (1988-1992) and latest period (1993-1997). For details see the Appendix.*
a) *British Gas, CEGB, National Coal Board, British Oil*
b) *British Airways, British Airport Authority, Associated British Ports, British Railways, National Freight*
c) *British Aerospace, Jaguar, Rolls-Royce*

Table 7 - Estimation results. Annual % rate

Dependent Variable	C	PRE	ANN	PRI	REC	LAT	R^2
Employment	0.4	-3.3	-3.2	-1.6	-0.4	**-9.1**	0.10
	(2.5)	(3.5)	(3.5)	(3.5)	(3.5)	(3.6)	

Sources: our elaboration on NEDO (1976), Martin Parker (1997), Eurostat, ONS.
Notes: standard errors are given in parenthesis; coefficients significantly different from 0 are printed in bold.

Figure 5- Employment. Thousand units

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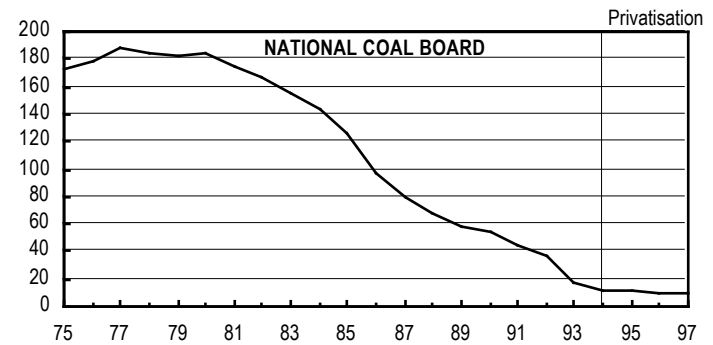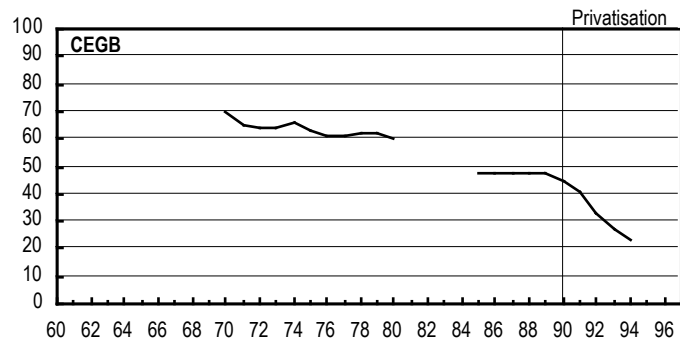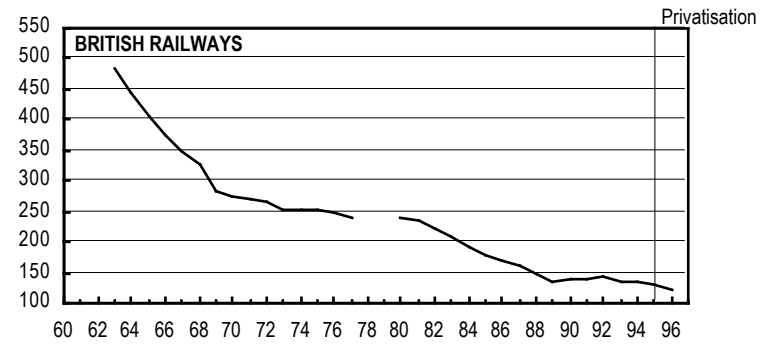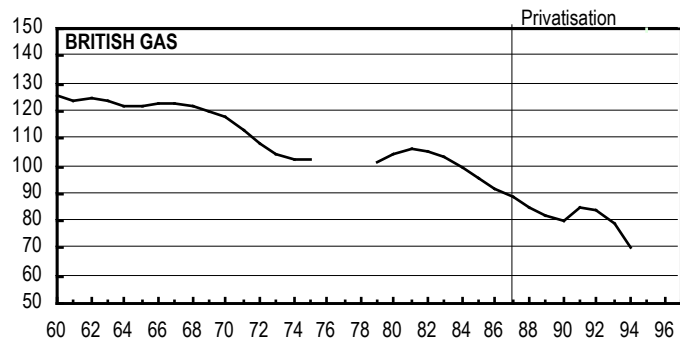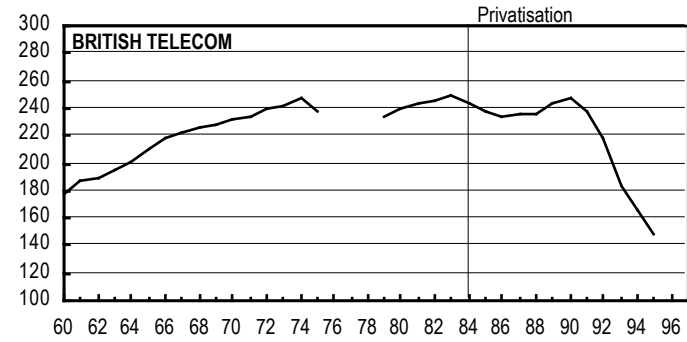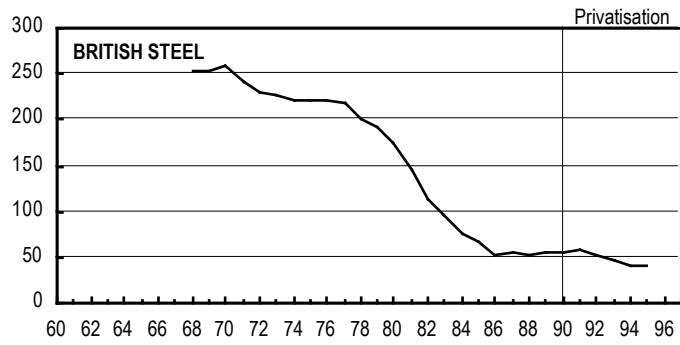
3.2 Wages

Between 1970 and 1983 wage increases in nationalised firms were higher than those in the private sector, but without a corresponding increase in productivity Salama (1995).

This dynamic would appear to be confirmed looking at the period 1979-1988, and its effects would appear to extend also to the workers and not only to the top management (see following section). Several studies confirm this evidence: for a survey see Pendleton (1997).

Table 8 - Wage increases in selected companies 1980- 1988

Privatised company	Wages
British Airports Authorities	+68.6%
British Airways	+79.0
British Gas	+62.3
British Coal	+82.1
British Rail	+85.4
British Steel	+120,1
British Telecom	+114,4
Electricity generators	+89,5
London Regional Trasport	+101,6
Post Office	+42,4
Water Authorities	+81,0
Scottish Transport Group	+64,8
Average Privatised *	+67.1
Average Public Sector*	+31.6
Average Private Sector*	+25.3

Source: Salama (1995), average data (*)1979-88
Haskel, Szymanski (1992), company data 1980-88

Detailed data on eleven companies can be found in Martin, Parker (1997), where they show wage levels in the periods before and after privatisation, standardised with the wages of the manufacturing sector or with the averages for the economy as a whole. With the single notable exception of British Steel, privatisation did not alter the relative position of the average wages of workers employed in the firms considered. Wages in the majority of cases are higher at the end of the period than they were under public ownership. This may partly be attributed to the reshuffling of positions (of which there is some anedoctal evidence) among different layers of the workforce.

Table 9 - Wages per employee relative to those in the economy as a whole[12]

Organisation	C	PRE	ANN	PRI	REC	LAT
Energy[a]	166	166	169	165	112	135
Transport services[b]	135	136	135	138	137	141
Transport goods[c]	124	125	124	122	118	123
British Steel	130	126	118	111	113	115
British Telecom	141	144	143	141	142	154

Sources: our calculations based on Martin-Parker (1997) data
a) British Gas, Britoil
b) British Airways, British Airports Authority, National Freight, Associated British Ports
c) Jaguar, Rolls Royce, British Aerospace

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[12] The data are for wages per employee in each organisation relative to wages per capita in the UK economy or manufacturing industry expressed as a percentage (for example, a figure of 154 means that wages were 54 percent higher in the organisation than in the economy or manufacturing in the period studied). For British Gas, British Steel, British Aerospace, Jaguar and Rolls-Royce wages are expressed in relation to wages in manufacturing. For the other organisations, the comparison is with wages in the whole economy.

The data we have cited seem to contradict the prediction by orthodox privatisation theories that the change of ownership implies a removal of possible "rents" attributed to the workers. Either these rents did not exist, in the sense that high salaries somehow reflected differences in productivity when the firm was publicly owned; or the rents existed and have been perpetuated under private ownership, despite the weakening of the trade unions. Papers by Haskel and Szymanski (1992, 1993) confirm in fact that market share does influence pay in privatized companies. Their conclusion, based on data on 14 companies between 1972 and 1988, however points to a more general shift in objectives as explanatory factor of employment change:

> "To summarize, our evidence suggests that the 'change-in-objectives effect' has served to reduce employment, controlling for other factors. Wages have not been greatly affected by this, but are significantly altered by market power. So our results support the following stylized general story: employment fell in many privatized firms as public - sectors objectives became more commercial; wages of the remaining workers also fell somewhat and fell further where there was liberalization".

3.3 Managers' compensation

The salaries of 215 Board members of the utilities (British Telecom, British GAS, RECS, Powergen, National Grid) amounted to £ 5,267,000 before privatisation and to £ 30,594,000 in 1996 (Boyfield, 1997). This is the equivalent of a nominal increase of 600%. According to the author, however, this simply shows that the average pre-privatisation salary of £ 24,500 p.a. for each board member, according to the above data, was below market rewards. This point was made also by Cragg, Dyck (1999) who find evidence of convergence of top executive pay in the privatized companies and in a matching sample of publicly traded firms.

According to Cragg and Dyck the boards of privatized companies were to a large extent formed by the same personnel that had been recruited under public ownership (at least for some years following privatisations). unlikely a positive answer to the question.

According to Kay-Bishop (1988) between 1979 and 1988 the dynamics of management salaries were noticeably more marked in the privatised firms than in the rest of the companies. Just one year after privatisation the salaries of top management had recorded sharp increases: British Airports Authorities +110%; British Airways +126%; British Gas +68%; British Telecom +32%. The average for 11 companies was 78% after one year.

This trend appears to be confirmed if we look at the period 1979-1988 (see table 10):

Table 10 – Compensation of top managers

Privatised company	Top management
British Airports Authorities	+308%
British Airways	+462
British Gas	+276
Average Privatised	+247
Average Public Sector	+111
Average Private Sector	+85

Source: Kay, Bishop (1998); Dunn, Smith (1990)

The figures show that top management did gain a lot from privatisation. However this may be only part of the story, because of generous stock options schemes they were able to approve. The evidence on executive's pay is reviewed by Pendleton (1997), and Cragg, Dyck (1999).

3.4 Summing up

Contrary to widespread expectations and perceptions, the "average employee" in privatised firms did not incur major costs specifically attributable to privatisations. This is, we suggest, the other side of the missing productivity shock. However this average impact conceals different trends.

The management of the privatised firms did not make any cuts in employment that were so different from the long term trends. If between the date of privatisation and 1997 employment in the larger privatised firms was reduced considerably, looking at the trends in the same firms prior to privatisations, or the employment trends for large firms in general, there are no significant differences. Neither were wages reduced in relative terms: the employees of the larger privatised firms continued to enjoy higher wages than workers in other sectors. Even in this case where there were clear divergences from the employment trend, they were due to moves from the regulators that tightened up the rules of the game, broadened competition or manipulated the RPI-x formula, in practice forcing prices down.

There were however changes in industrial relations which were unfavourable to trade unions, and among the lesser skilled workers there was greater uncertainty about job security, probably also a reduction of relative pay positions. The fact that employees held shares in the company had negligible effects on their behaviour at work.

On the other hand, top management, comprising to a large extent the same people who had run the nationalised firms, received enormous increases in their salaries, justified perhaps more by a change in the power relationship than from a different degree of effort.

4. Shareholders

4.1 The financial size of the programme

At the end of 1997 a total of 43 major firms had been privatised by fixed price offer or tender, with 55 separate sales transactions (due to some cases of placing in tranches). In fact the transactions were grouped into 30 offers (since in some cases, for example the RECs, placing occurred simultaneously). The estimated nominal proceeds from privatisation may have been over £70 billion (constant 1995 pounds) [Curwen, Hartley, 1997; Martin, Parker, 1997].

The individual participation varied from a minimum of 8,000 subscribers for ABP to a maximum of 4.5 million for British Gas (1986). Roughly half the proceeds for the Exchequer came from institutions and half from the public, with a claw-back mechanism which envisaged that if a certain threshold of subscriptions from the public were exceeded, then the quota reserved for institutions would be diminished. In 29 cases the public was allowed to pay in two or three instalments, the first being only £100. There was also in some cases a loyalty bonus of one free share for every 10 or 15 purchased for those who kept their shares for a year. The bonus for some utilities was doubled if the purchasers were their own customers.

Employees were frequently offered free shares in addition to those reserved for them, at times at reduced prices. This incentive was, on the other hand, rarely worth more than £500.

About 40 other firms were sold in the form of trade sales, without being placed on the stock exchange, but by means of direct negotiation. There were also over 200 buy outs, the majority of them management buy-outs, but there were also a number of employee buy-outs (the most famous case was that of the National Freight Corporation).

In the rest of this section we shall concentrate on public offerings.

4.2 Distribution of shareholding

One of the constitutive elements of Conservative policy during their 18 years office was undoubtedly the maximum possible diffusion of shareholding, presumably seen as a way to make capitalism "popular" and especially to increase support to the privatisations themselves.

The data available thanks to subsequent sample surveys[13] allow us to form a picture of the long term trends of share ownership in the UK.[14]

Table 11 - Ownership of UK listed equities (%)

	1963	1975	1981	1989	1997
Individuals	53.8	37.5	28.2	20.3	16.5
Pension funds	6.5	16.9	26.7	32	22.1
Insurance co.	10.1	15.9	20.5	20	23.5
Unit and Inv. Trusts	12.6	14.6	10.3	8.0	8.6
Public sector	1.5	2.6	3.0	2.0	0.1
Rest of world	7.0	5.6	3.6	12.8	24.0
Others	8.5	6.9	7.7	4.9	5.2
Total	100.0	100.0	100.0	100.0	100.0

Source: CSO 1999 and othe sources

In any case the basic trends are clear. Privatisations did not stop the decline in individual ownership of shares. In 1957 almost two-thirds of shares were owned by individuals. In the past thirty years the value of the stocks owned by individuals has fallen from over a half to just over a sixth of the total. Ownership became an indirect phenomenon, run by the management of insurance companies, pension funds and other financial institutions. Furthermore, beginning in the 80's, the foreign sector became the largest owner of shares, in relative terms, with ownership reaching a quarter of the value of the securities (we shall say more about the role of the foreign sector later).

The picture might appear a little different if we look at the number of owners. In 1979 there were 2.5 million individual shareholders, in 1992 11 million. This would appear to confirm the success of the policy of establishing "popular capitalism". But the assessment becomes more realistic when one considers that many of the new individual shareholders hold shares in just one company (usually one of the privatised utilities). The size of these share portfolios is only a few thousand pounds[15].

The holders of portfolios worth less than £100,000, almost all of whom were individuals, were very numerous, but represented just 10% of the value of the listed shares.

Moreover 54% of individual shareholders own shares in only one company, 20% have shares in two, 9% in three, and 17% in four or more[16]. The equity ownership of these small shareholders is basically limited to the privatised firms, and has yet to spread to other listed companies.

At the end of the first phase of mass placing, in 1990, the percentages of share ownership for certain social groups were the following[17]:

- unskilled manual workers   6%
- professionals   43%
- council tenants   7%
- home owners   53%

The majority of those who purchased shares on issue had sold them within the year.

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[13]   CSO, 1999, tab A, p 8
[14]   These figures should, however, be interpreted with caution since the companies' registration of the status of shareholders may be in indirect forms (nominee accounts) which do not always allow one to discover with any certainty the true owner.
[15]   CSO (1999, Annex G).
[16]   Stock Exchange Quarterly, Summer 1991, quoted by Gaved, Goodman (1992)
[17]   Connolly, Munro (1999) based on General Household Survey data

During the second half of the 80's a number of studies estimated that between 10% and 23% of the adult population owned shares. There were 2.4 million holders of British Gas shares alone, and 0.8 million BT shareholders, to name a few. Around 1.6 million people owned shares in the company for which they worked.[18]

Impressive as these figures may be, the phenomenon was not truly "popular". Of the over 40 million adults in the UK, we guess that at the end of 1997 less than two million individuals could be considered participating more or less actively in "popular capilalism": less than five per cent of British adults. The others became shareholders through initial issues, inheritence or distribution of shares to employees. There was far more growth in the weight of the foreign sector, insurance companies and pension funds, as the figures above show.

One also wonders whether the opening up of the market to the new marginal shareholders was beneficial from the point of view of efficiency. There are fewer studies of this aspect than there are of the IPOs. One test was carried out by Hayri, Ylmaz (1997), who found that the distribution of shareholding contributed to inefficiency in the market. The reason being that according to literature on the efficiency of the financial markets "individual investors with non-diversified and relatively small portfolios are best candidates to behave like 'noise-traders'...". This suggests to the authors that British privatisations by broadening this category of shareholders, determined a tendency for prices to diverge from their basic values to a greater degree than for other shares. Essentially the small shareholders with not very diversified portfolios have little access to quality information and react to pseudo-signals, such as an editorial in a newspaper, suggestions from acquaintances, etc. Basically they make their investment decisions based "on noise as if it were information". One of the consequences of this behaviour is the tendency to develop adaptive behaviour (e.g. "jump on the bandwagon" when there is news of an increase in prices). The result can be a tendency towards mispricing the shares most widely held by the noise traders.[19]

4.3 Transaction costs

Up to 1994 at least £780 million had been paid in fees and commissions to bankers, advisers, consultants involved in privatisation.[20]

For the period 1981-1987 the NAO indicated the following percentages of spending on promotion, advisory fees and underwriting fees, in relation to privatisation proceeds:[21]

- C&W   3.1%

- British Aerospace   3.8%

- Amersham   4.6%

- Britoil   3.2%

- ABP   11.2%

- Enterprise Oil   2.8%

- British Telecom   6.8%

- British Gas   6.4%

- British Airways   4.7%

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[18] Vickers, Yarrow (1988)
[19] On the basis of the efficient market hypothesis the divergence in price from the firm's intrinsic value, represented by the expected present value of future dividends, conditioned by the information available at any given moment, should not be systematic.
[20] Helm (1995) who quotes a study by the National Audit Office.
[21] Vickers, Yarrow, 1988.

These percentages refer purely to the costs incurred by HM Treasury and do not include the costs incurred directly by the company, not forgetting the consultancy costs and the time dedicated by the management to the privatisation plan. According to Vickers and Yarrow some of the costs incurred were particularly extravagant from the strictly economic point of view: for example given the degree of underpricing, and the consequent need to ration the shares up for sale, expenditure for advertising and underwriting were in fact superfluous.

We suggest that the overall transaction cost of British privatisations may be estimated to have been in the region of £3 billion for public offerings and tenders.

4.4 Underpricing

Boyfield (1997), in his apology of British privatisations, observes that a premium of 12% is typical for new private issues, and that in the case of British privatisations it even reached 45%, which was extremely high (on the other hand it is not totally clear how the author calculated this), but in some ways inevitable.

This point can be examined empirically. Here we shall confine ourselves to the question of underpricing, that is of the immediate capital gain, and we shall deal with the longer term gains in a subsequent section.

The subject of underpricing had already been raised by Vickers, Yarrow (1988) on the basis of their observations of the first privatisations of the Thatcher government.[22]

In the 15 cases they studied the unweighted average underpricing was in the region of 19%. The average weighted by the amount of undervaluation was higher, thanks to the considerable weight of BT, which recorded a price difference of 33% after the first trading day on the first tranche offered (subsequent tranches were less underpriced).

The same authors show that for privatisations based on tender offers (ABP, BAA, BP, Britoil, C&W, Enterprise Oil) underpricing was nil[23]: in these cases the operators were able to accurately assess the company value.

The same authors also use a calculation of the immediate profit in the case of sales by tranches, finding that in these cases the percentage gain was higher on the first tranche.

This calculation should then be integrated with a series of additional benefits reserved for certain categories of purchasers. For example in the case of BT and BG those purchasing shares also received a voucher (£40 for BG) for each 400 shares. We have already mentioned that in many cases there was one free share for every ten or fifteen purchased as a loyalty bonus, etc.

Not surprisingly at these conditions the price could not ration demand, which was in fact often a multiple of the value of the shares offered: e.g. 32 times for BA, 35 times for ABP, as an extreme case, but for the privatisations of the 80's in the form of offers for sale demand was typically 7-8 times greater than supply, having excluded extreme cases.[24]

Cawthron (1999) calculates the internal rate of return of 38 placements up to 1997.

Table 11 shows the return for the holder of a share at May 31st, 1997 assuming that the share was purchased at the issue price or on the secondary market 24 hours later. The difference between the two rates gives us an idea of the underpricing. The absolute difference in the real IRR varies from a minimum of 3-4 points to over 10 (on average 5.7 poimts). In percentage terms, compared to the IRR for those who purchased on the secondary market, the average unweighted difference between purchase on placement and purchase 24 hours later is 25% higher for those who did buy at placement.

When faced with such a sizeable underpricing phenomenon one must look into the causes and ask oneself whether this spread is specifically related to privatisations or to the

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[22] In Table 7.1 (page 174) of their book their references are the offer for sale price and the one recorded 24 hours later, at the end of the first day of trading.
[23] On the contrary there were two cases of overpricing.
[24] Other indications of the difference in price after the first day can be found in Hayri, Hilmaz (1997, tab 1-2).

fact that they were large IPOs, in sectors and at times that were particularly vulnerable to underpricing.

Levis (1993) examines 712 IPOs in the UK over the period 1980-88, roughly the same period as that studied by Vickers and Yarrow (1988) and finds that the average abnormal adjusted return after 24 hours is 14.3%.

The following measure was used:

"The first day adjusted return for issue is defined as the percentage change in price from the offering date to the close of the first day of trading (r_i) less the equivalent change in an appropriate benchmark (r_m)

$$ar_i = r_i\text{-}r_m."$$

Table 12 – Internal rate of return (IRRs) from shares held until 1st May 1997, and for shares bought on 1st May 1997

	Real * IRRs			
	a	b	c = b-a	c/a
Bought:	at initial sale	after 1 day's tradigne	difference	% difference
Sold:	On 1/5/97**	On 1/5/97**		
BT - tranche 1	14	10	-4	-29
- tranche 2	12	9	-3	-25
- tranche 3	8	5	-3	-38
British Gas	11	8	-3	-27
BAA	16	13	-3	-19
Anglian Water	21	16	-5	-24
Northumbrian	35	27	-8	-23
North West Water	22	17	-5	-23
Severn Trent	23	18	-5	-22
Southern Water	29	24	-5	-17
South West Water	22	17	-5	-23
Thames Water	21	17	-4	-19
Welsh Water	24	19	-5	-21
Wessex Water	23	17	-6	-26
Yorkshire Water	22	18	-4	-18
Eastern Electricity	42	34	-8	-19
East Mids Electricity	34	27	-7	-21
London Electricity	32	26	-6	-19
Manweb	38	29	-9	-24
Midlands Electricity	40	32	-8	-20
Northern Electricity	36	30	-6	-17
NORWEB	44	35	-9	-20
SEEBOARD	45	38	-7	-16
Southern Electric	32	25	-7	-22
SWALEC	40	31	-9	-23
SWEB	41	32	-9	-22
Yorkshire Electricity	35	27	-8	-23
PGen- tranche 1	29	23	-6	-21
- tranche 2	16	15	-1	-6
NPower- tranche 1	30	23	-7	-23
- tranche 2	23	21	-2	-9
ScottishPower	14	10	-4	-29
Scottish Hydro	14	10	-4	-29
N. Ireland Electricity	23	17	-6	-26
Railtrack	87	75	-12	-14
British Energy	25	31	6	24
AVERAGE (unweighted)	28	22	-6	-20

Source: Cawthron (1999) and our calculations

Notes:

*   the IRRs are calculated from "real" cash flows adhusted in line with the RPI. The IRRs shown are therefore the annual percentage returns received over and above the rate of inflation. The returns shown are gross. Investors may be liable for income tax and/or capital gains tax.

**   or at takeover, if earlier.

The benchmark used is the daily weighted FTA index. It should be noted that although not great in numerical terms, the 12 privatisations considered in the sample account for 76% of the total new equity capital collected through IPOs on the London market between 1980 and 1988.[25]

Compared to an average value of abnormal returns for IPOs of 14.3%, these privatisations recorded 37.25%. All the other sectors were well below 20%, with the sole exception of "publishing and printing" (24.63%).

We may therefore assume that *excess* underpricing specifically attributable to the first vintage of privatisations was in the region of 23%.

A recent work (Huang, Levich, 1999), allows us to corroborate these results and examine possible explanations. The study is an international one (36 countries), covering the period 1979-1996, and it deals with 330 IPOs and 177 seasoned public offerings, with an income for the sellers of US$ 352 billion. The sample includes 57 privatisations in the UK. The index for the return is not adjusted by the benchmark of the market, nor by the special conditions offered to certain categories of purchasers. This gross return is taken as the dependent variable, considered as a proxy for underpricing and then regressed on a set of possible explanatory variables, such as the volatility of prices prior to the offer, the price trends in the previous month, those of the offer, a dummy if the controlling share is sold (50% or more of capital), the percentage offered to the foreign sector, a Gini index of income distribution, and others. The attempt is to verify various possible hypotheses of the causes of underpricing.

Here we are less interested in this tentative explanation, than in determining the empirical values of underpricing. The international sample of 297 transactions related to privatised firms shows an immediate unadjusted return of 25.6% on average (with a median around 10%), which becomes 32.1% for the 220 IPOs, while the return on seasoned offerings is only 7.17%. The difference is statistically significant at the 95% level, which is seen as confirmation of the theories of "reputation building" and "information asymmetry" (even though the first interpretation seems more convincing).[26]

As regards the 42 cases of British IPOs of privatisation the authors find an immediate return of 17.7%, while for a sample of 2,133 IPOs in the UK the average is 12% (11.5% referring to another sample). The difference in return is between 5.7% and 6.2% and is 99% significant.

Basically, these results, at a completely different level from that calculated by other sources, confirm that there is a noticeable difference between underpricing for privatisations and ordinary underpricing in the case of the UK.[27]

Our own findings on short terms underpricing, based on a sample of 55 privatisation operations, are reported in Florio (2001b) We found evidence of unweighted average abnormal return on the first day of around 13%. This is somewhat lower than other findings we reported above, because of the smoothing effect of the placements of subsequent tranches. However a company-by-company examination confirms that underpricings of more than 20% were not uncommon for the main privatised companies.

4.5 Abnormal returns in the long term

International empirical literature shows that with ordinary IPOs, subsequent negative abnormal returns correct the excessive reaction of the market.

Levis (1993) observes that:

"The empirical evidence accumulated during recent years for almost every capital market in the world, is unequivocal in its conclusion that initial public offerings (IPOs) provide significant abnormal returns on their first day of trading... the literature is almost unanimous in its conclusion that their presence constitutes evidence of deliberate underpricing".

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[25] The twelve cases include: BAerospace, C&W, Amersham, ABP, Jaguar, BT, BG, BA, Rolls Royce and BAA.
[26] Cf. the international comparisons and interpretation given by Perotti, Guney (1993).
[27] This is not so in other countries: for a recent review of international evidence cf. Megginson, Netter (2000).

The same author quotes a series of empirical studies that show evidence of undeperformance in the long term in the USA, Germany, Brazil, Mexico, Chile and Finland and he proposes verifying whether the case of the UK confirms these results. The author's conclusion is that for a period of 36 months there is evidence of underperformance also in the case of the UK.

The test that he uses is simply an extension of the index already given for the return after 24 hours, to include the difference between the return at 36 months from the IPO and a benchmark index (without any risk adjustment).[28]

While the author is mainly interested in showing underperformance in the case of the UK for the IPOs as a whole, we are more interested in the case of privatised firms.

The result[29] is that after three years while the cumulated abnormal return of the IPOs as a whole was 55.72%, that of the privatised firms was almost double: 96.91%. Even more interestingly, while the ratio with the benchmark indices was lower than 1 for all three benchmarks for the sample as a whole (712 cases), in the case of privatisations it was well above 1 for the FTA and HGSC indices, and marginally lower than 1 for the ASEW index.

In our opinion, given the size of the privatised firms, the comparison with the FTA index seems definitely the most relevant. This gives us a significant deviation: 1.157 for the privatised firms compared to 0.958 for the IPOs as a whole (obviously less if the comparison is made without the privatised firms).

Cawthron (1999) offers a different, but convergent, approach. He considers the real internal rate of return after the first day and compares it with the FTA index. The performance is then calculated at 31/5/97 for all shares: with the exception of BT, there is ample evidence of returns far higher than the benchmark index. In the case of the 12 RECs the difference is 17 points on average; in the case of the 10 Water authorities the average difference is 12 points. One notices that the IRR of the FTA index between 1984 and 1996 was, in real terms, an average of over 15%, which is undoubtedly high both in historical terms and by international comparison. Thus the abnormal returns of privatised companies in fact exceed a stock exchange performance which was in itself very good.

Other estimates are given by L. Channells (1997)[30]. Still using the FTSE All Share Index, the cumulated abnormal returns calculated for some sectors are shown in Table 12

Table 13 - Estimates of abnormal returns by sector

Firm	100 days	1 year	4 years
Water	31	58	93
Electricity (RECs)	26	23	124
Electricity (Generation)	28	27	109
BT	51	52	18
BG	10	22	32
BAA	43	39	69
Railtrack	3	15	na

Source: Channels (1997)

Lastly, we repeated the exercise of calculating the abnormal returns for a sample of privatised firms (55 cases), extending the analysis to different periods of time: 1 year, 5 years, 10 years (for the latter the sample was reduced to 14 cases). We excluded the first month, so the intial underpricng is not included. See Fig. 6.

We can confirm the previous result that there is clear evidence of abnormal returns in the long run (using the FTA index as a benchmark and using as share prices the monthly Datastream values corrected by dividends and other operations).

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[28] Since the long term returns are sensitive to the benchmark used, in addition to the FTA (which covers 650 stocks accounting for 90% of the value of the stock market) the author also uses another index (Extended Hoare Govett Smaller Companies) which includes smaller companies than those in the FTA. A third index is also used (All Share Equally Weighted) which moved much faster than the FTA and the HGSC in the period 1980-88.

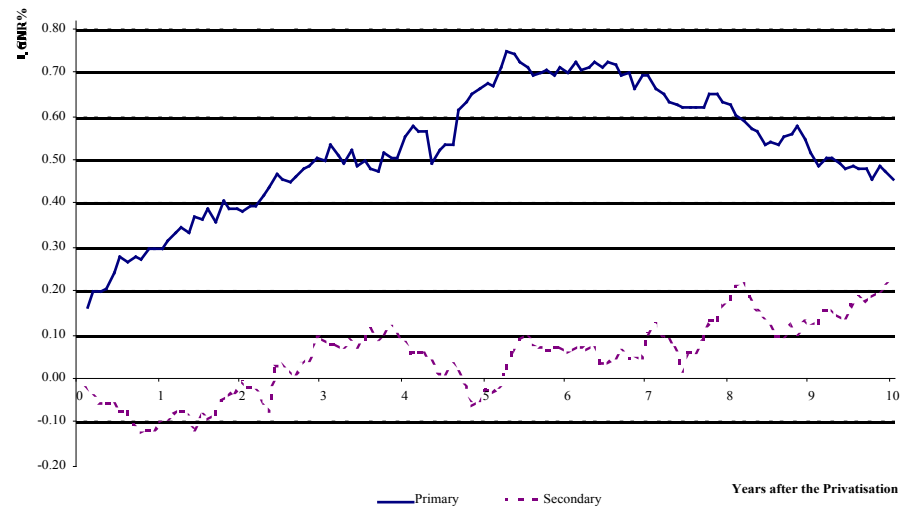[29] Cf. Levis (1993), tab 11, p. 39

[30] "The Windfall Tax", in *Fiscal Studies*, no. 18, p. 281.

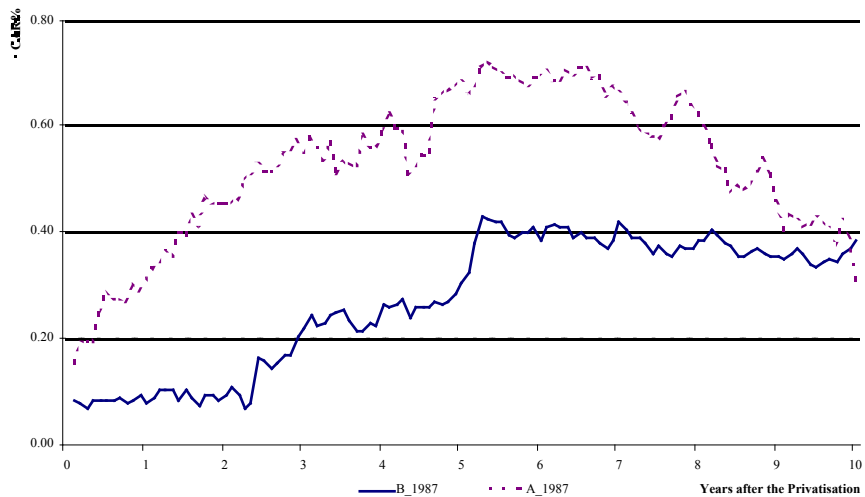**Fig. 6 Abnormal returns of privatized companies in the long term**

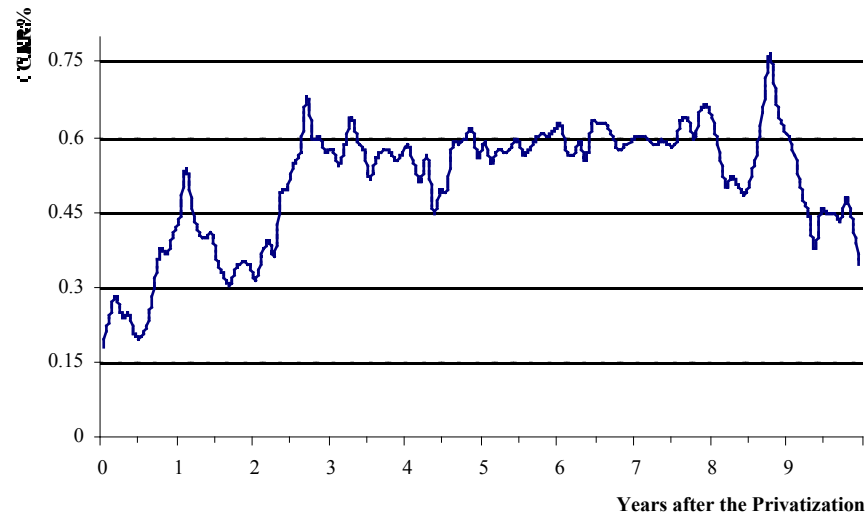**Cumulative Average Adjusted Returns for the whole sample of UK privatised firms, 1977-1996**

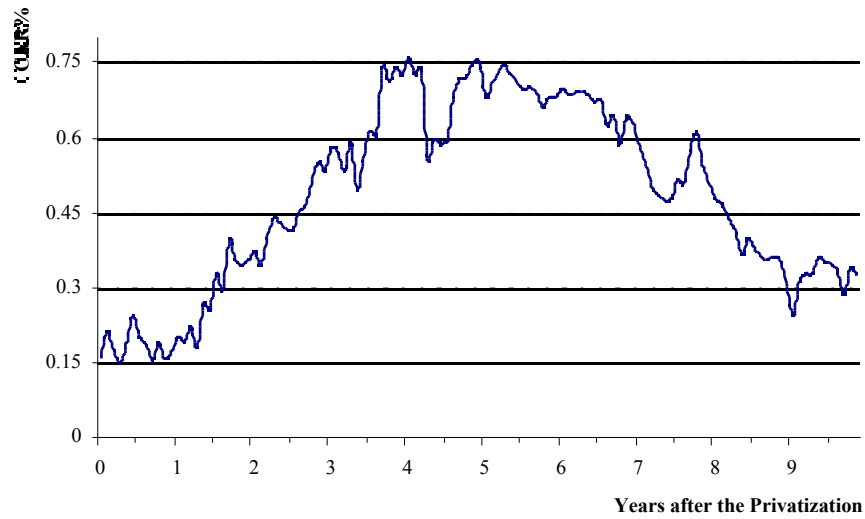**Performance by Primary or Secondary Issue**

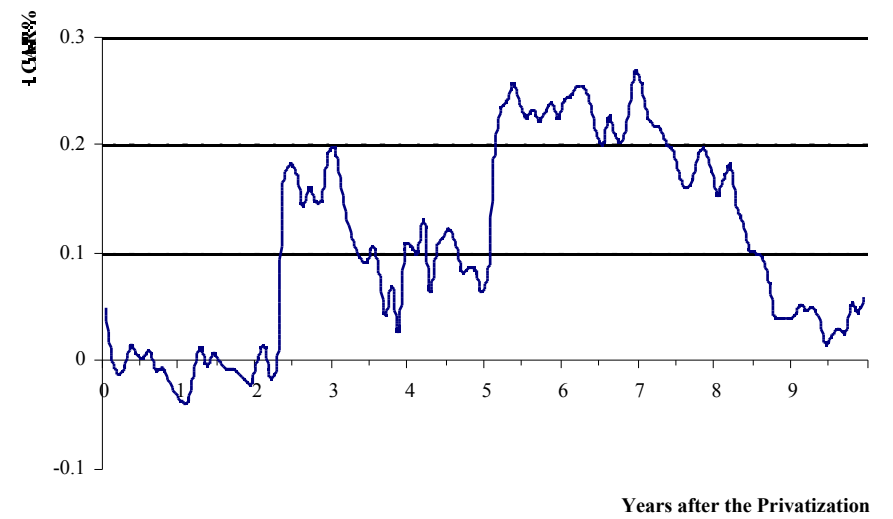**Performance of firms privatised before and after 1987**
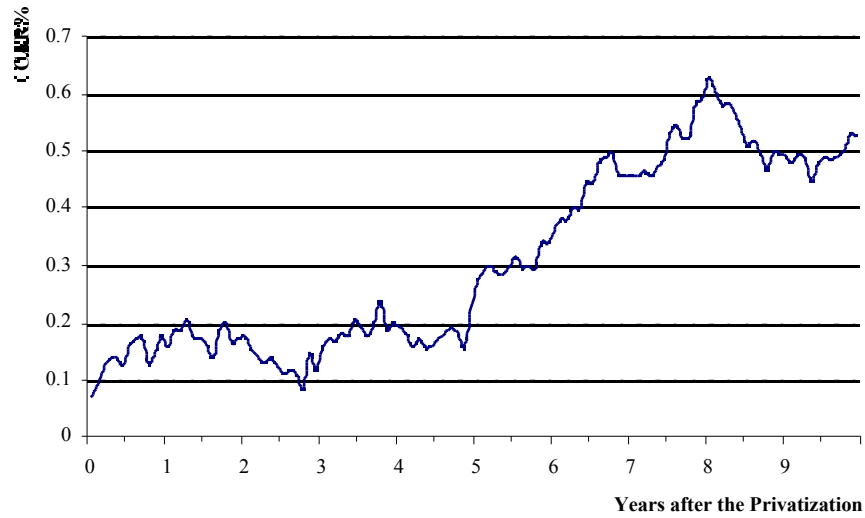
Water Industry performance

Electricity Industry Performance

Energy Industry Performance

Telecommunications Industry performance

Transport Industry Performance

Years after the Privatization

27
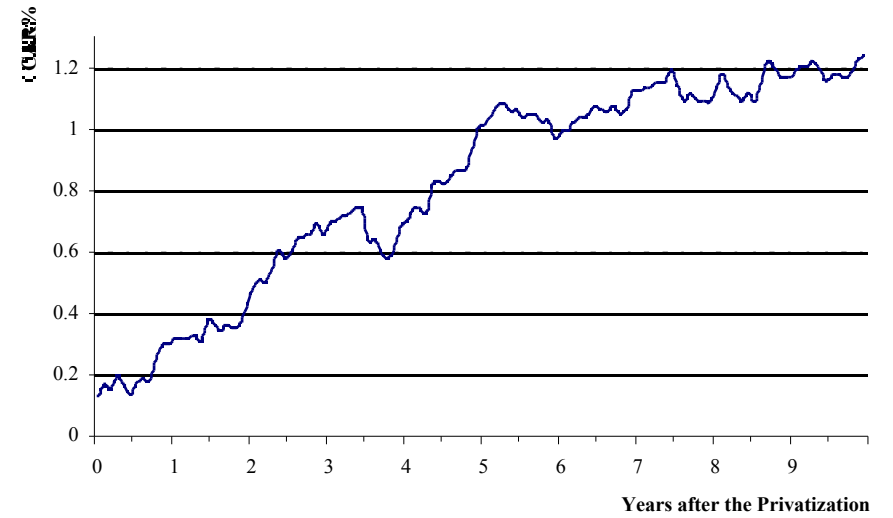
The cumulative abnormal returns are 21% at one year; 30% at two years; 57% at five years; and down to 38% at 10 years (for a smaller sample). We tested also these results by subsamples, particularly by industry, and by time of the public offering and other variables (see again Fig 6).

The values are statistically significant and they appear to undeniably confirm that the returns of privatised firms, after the initial underpricing, were much higher than those of the rest of the companies quoted.

The empirical evidence thus suggests that beyond the initial "dowry", the market appreciated the protection of the monopolistic position granted by the government to the privatised firms. It is no coincidence that sectors such as electricity and water, showed particularly high abnormal returns.[31]

4.6 Summing up

The purchasers of shares in privatised firms obtained a substantial transfer from the Exchequer thanks to the policy of underpricing. This transfer can be estimated to be worth approximately £ 14 billions, or 20% of the privatisation proceeds. In addition to this one-off effect, shareholders benefited from a total return on capital invested that was significantly higher than the average for other sectors. This high profitability is basically the other side of the lost benefit for consumers: reductions in costs that were not transferred to prices. And it is also proof of the fundamentally non-competitive nature of many of the markets in which privatised firms operate.

5. Consumers

5.1 Price trends

The comparison between the trends in nominal prices "before" and "after" privatisations in the UK does not show a clear structural break (for a detailed discussion, see Brau, Florio, 2001), see Table 14 and 15.

In the case of electricity, prices had been falling for over a decade under public ownership and they increased in preparation for privatisation and in the years that followed, especially prices for the residential users Subsequently they started falling again in a manner not too different from the long term trend.

In the case of gas there was a net drop in prices after privatisation, but they were falling sharply even when British Gas was a nationalized industry.

In the case of water the tariffs rose considerably after privatisation, and also in the case of buses and rail the price of the service increased after privatisation.

In telecommunications the construction of a price index is particularly difficult. The figures suggest that after privatisation there was a reduction in the unit cost for business users and for a number of years an increase in the unit cost for domestic users, and subsequently a generalised reduction, following a change in the regulatory constraint and increased competition (see Florio 2001b).

For various other sectors not discussed here one could also find fairly contradictory evidence. In any case it does not seem tenable that in itself privatisation in the UK generally led to a reduction in prices, understood as a structural break in the historic series. More on this below.

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[31]   According to OFWAT (1991) in the water sector despite slow demand dynamics, and notwithstanding the great investments to tackle the qualitative adjustments required by Community norms amongst other things, the sustained price dynamics (+50% in ten years) should have guaranteed a 20% pre-tax profit, compared to a return on equity in the 70 years prior to World War I of less than 7% in real terms (while bonds provided 1% real profit). It seems difficult to say that, at least in this case, the regulator was surprised by the profits from the utilities. Anyway, except for momentary fluctuations, the financial market did not really take into serious consideration the capacity or desire of the regulators to create competitive conditions in the industries or at any rate to keep prices at the lowest levels compatible with the financial sustainability of the firms.

Table 14 – Price indexes, 1974-1999

	phone	rail	bus	electricity	gas	water	coal
1974				21.9	25.0		19.4
1975							
1976							
1977				45.1	41.2		37.3
1978				49.7	42.5		41.4
1979	46.4	48.5	49.5	54.0	44.1		48.4
1980	62.2	60.3	62.7	68.7	51.4		61.9
1981	76.9	69.0	69.4	82.6	64.8		72.8
1982	85.6	79.1	80.0	91.5	80.7		78.5
1983	84.7	83.4	84.6	94.1	90.4		83.0
1984	87.4	84.2	86.5	95.3	93.7		89.4
1985	93.2	89.6	90.1	98.3	97.5		95.2
1986	98.2	95.7	97.7	100.5	99.4		97.9
1987	100.3	100.6	103.4	100.0	98.4	104.5	98.8
1988	101.2	107.6	110.6	105.4	99.7	113.6	100.2
1989	102.4	117.4	119.3	113.1	103.3	127.3	101.4
1990	108.3	127.7	125.9	122.2	110.4	144.2	105.1
1991	117.5	141.0	143.6	134.5	118.1	167.7	111.9
1992	120.7	151.3	153.6	141.5	118.0	187.4	116.2
1993	121.4	161.9	160.4	141.0	113.3	203.7	116.8
1994	113.9	169.1	164.6	145.7	120.1	218.9	124.3
1995	109.5	176.6	170.7	147.7	124.2	232.0	126.4
1996	106.9	183.7	177.1	147.1	124.3	244.2	127.6
1997	104.0	187.5	183.4	140.0	123.1	255.2	128.7
1998	102.6	195.2	189.4	133.6	118.9	269.4	129.9
1999	100.1	202.3	196.1	132.0	118.2	281.9	132.5

Source: our elaborations of NEDO, ONS

Table 15 – Expenditures data, 1974-1999. Current pounds

	phone	rail	bus	electricity	gas	water	coal
1974	652	355	628	1085	611		362
1975	927	456	802	1514	764		394
1976	1222	548	951	1860	993		433
1977	1244	658	1049	2159	1204		518
1978	1470	773	1154	2396	1359		521
1979	1688	884	1282	2703	1567		617
1980	2247	1063	1492	3370	1852		677
1981	2792	1123	1572	3973	2458		789
1982	3101	1093	1697	4264	3063		829
1983	3291	1287	1789	4450	3530	1331	838
1984	3582	1348	1833	4564	3664	1424	759
1985	3983	1474	1971	4910	4034	1587	1016
1986	4497	1637	1992	5180	4385	1722	883
1987	4872	1757	2077	5210	4465	1846	829
1988	5310	1934	2188	5412	4562	2043	799
1989	5703	2002	2346	5878	4454	2266	750
1990	6287	2242	2472	6278	4864	2538	660
1991	6842	2281	2570	7179	5804	2974	736
1992	7115	2345	2643	7671	5684	3300	596
1993	7611	2443	2796	7837	5718	3637	592
1994	8377	2555	2808	8082	5747	4014	595
1995	8878	2753	3003	8195	5909	4244	530
1996	9229	2936	3213	8416	6549	4525	460
1997	9676	3144	3342	7950	5851	4721	499
1998	10570	3530	3475	7727	5141	4909	448
1999	11971	3896	3598	7548	5113	5122	486

Source: ONS

5.2 The role of regulation

If privatisation does not explain the price trend very well, other factors must be at work. For the regulated utilities an important factor is simply the signal given by the price cap, which as we have seen was different from sector to sector, variable over time, and with a different coverage of output. Thus in the case of water the increase in price was in fact interpretable as an almost integral transfer of the cost of investments to consumers, even when the benefit – for example environmental – affected tax-payers in general. In the case of gas the reduction in prices was favoured by a rather stringent price cap in the face of a prolonged conflict between regulator and privatised monopolist. In the case of telephony the price cap mechanisms allowed for the rebalancing of tariffs within a basket of services, enabling British Telecom to raise tariffs for some services (domestic use, less exposed to competition and to more rigid demand) and to reduce them for others (international calls, business users). It is clear that all of this has less to do with the change in ownership than with the advent of different modalities of public management of the prices of certain services.

5.3 Exogenous changes in costs

In some sectors the empirical evidence shows that movements in factor costs explain a large part of the change in prices after privatisation. In the case of electricity and gas, both before and after privatisation there was a spectacular crash in the cost of input. In the case of telephony a cycle of technological innovation provoked a sizeable increase in productivity. In other sectors the change in costs was due to changes in environmental or sanitary norms (water).

The different sectors experienced different phases of their technological cycles and only a detailed analysis case by case can unbundle the effect of the new regulations from that of the new technologies or other exogenous factors.

The case of electricity is particularly illuminating. The key elements for comprehending the restructuring of the industry after privatisation (but not necessarily connected to it) were the abolition of the obligation for the CEGB to use British Coal as a supplier; the end to Community restrictions as to the use of gas as a fuel in the sector; the more restrictive Community norms regarding sulphurous emissions. At the time of privatisation (1990) the CEGB used the following mix of fuels: coal 92%; oil 7%; gas 1%. In 1998 the sector as a whole used this: oil 5%; coal (and others) 63%; gas 32% There was also a large increase in imports (especially from France). It is therefore evident that a large part of the reduction in generation costs was due to three simultaneous changes in public policy. At the time of the great coal miners' strike 1984 there were 250,000 miners, ten years later there were just 7,000. One can speculate as to whether the continuation of a nationalised CEGB would have allowed a restructuring of this scale. Newbery, Pollitt (1997) think it doubtful.

We may think that the process would have been delayed, but – as in the case of coal mining, steel and other sectors – in the end it would have happened in a regime of public ownership too, also through Community environmental norms and in any case for reasons of convenience for the public budget. The same can perhaps be said for the reduction in employment in the CEGB. It could have been delayed, but not put off indefinitely.

On the other hand, as Newbury and Pollit themselves observe, until 1997 very little of the saving in costs had been transferred to consumers through prices, and we feel that this clarifies unequivocally the general subject of our discussion. The case of electricity is perhaps an extreme one, but it is not isolated (and it is in itself important).

5.4 Market structure

British privatisations did not uniformly feature forms of widespread liberalisation. The monopolistic regime of British Gas remained intact for over a decade; with electricity initially it safeguarded an oligopoly in production, regional monopolies in distribution, a "corporatist" solution for the control of the National Grid, and a spot market in the pool that probably led to collusive practices; with the exception of some profitable routes, the deregulation of the buses did not lead to a competitive system but to the rise of lots of small local monopolies or duopolies; British Airways was allowed to take over its only private competitor, British Caledonian: British Telecom was granted for many years a monopoly on some services and a duopoly on others, etc.

However, there are opposite trends, e.g. in international telephone calls, in electricity supply to major customers and elsewhere. The degree of competition varies from sector to sector, and in the space of the twenty years examined, these conditions changed, there was increased liberalisation, and obviously the mark up on the costs charged by the companies may in part have changed in response to liberalisation (or lack of it).

The Monopoly and Merger Commission, the regulators and the Ministries intervened so frequently in the market structures that it is virtualy impossible to discern a price trend independent from policy changes. It is perhaps fair to say, when comparing price interference by Government in the nationalised industries and by the regulators in the privatized industries, that in the latter case companies were in a stronger position.

5.5 The distributive effects among consumers

The empirical evidence[32] shows that the price policies following privatisations created not negligible distributive effects. For some consumers in the lower income bracket family spending for the acquisition of a decent standard of electricity, gas, water, public transport, telephone, could exceed 20% of their income and be, in practice, unaffordable. Increases in the prices of these services, due to the abolition of cross-subsidies or to the introduction of regressive discrimination in prices, had considerable effects. Vast areas have been created where there is a shortage of important services in terms of "basic needs" in the poorer sections of the population. This phenomenon most definitely involves the energy and water sectors, and it is not insignificant for the other public services that were privatised.

Those affected were not marginal fringe groups, but millions of people, most of them aged, disabled, children of lone parents, long-term unemployed and the working poor. The increase in polarisation of the British society in the period examined greatly increased the hardship in these social areas.

It is not at all clear that these phenomena were the price that had to be paid for an improvement in allocative efficiency. A price system which makes marginal users pay in advance and pay more than those whose consume a lot, and which at the same time shows a noticeable wedge between average costs and revenues, does not at all look efficient in allocative terms (a topic we shall cover in more depth in the chapter on the returns for shareholders).

In principle these regressive effects could have been compensated by adequate monetary lump-sum subsidies (for example financed by a capital gains tax for shareholders in privatised firms or in other ways). This compensation in practice never happened. Thus it is likely that for this aspect privatisations contributed to the worsening of the Gini index or of other measures of the distribution of welfare, to a degree that increased according to the weight given to the welfare of those that were worse-off. It is probable that in the climate of the 1980s and 1990s little weight was given to this: but from the point of view of a standard analysis of social welfare, the question appears to be an important one.

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[32]   As reviewed in Florio 2001b, ch. 7

5.6 Quality and information

Prices should always be "quality adjusted" and there is no doubt that after privatisations there were important qualitative improvements in different sectors: but not in all, and neither were they always socially desirable (as Glaister's discussion of the case of water shows), nor always necessarily linked to privatisations (as shown by the case of the postal service).

From the point of view of the informative completeness of the markets, privatisations as such were not *per se* effective in tackling the considerable information asymmetries and imperfections of some markets. Regulation and liberalisation may, on the other hand, have contributed to greater transparency. However, we should not underestimate the effect of information noise sometimes determined by new conditions. In later years, after the full liberalisation of domestic energy markets, regulators were concerned with the increasing difficulty that the consumer had in interpreting the contracts proposed them by aggressive saleseman. In any case these are subjects quite different from the change in regime of ownership.
Public corporation could have been subject to quality standards and information obligations to consumers in identical ways as privatized companies. Some that remained public experienced succefully this change of orientation towards the consumer, e.g. the Post Office.

5.7 Indirect effects

It is difficult to document the indirect effects on British consumers of any possible change in the prices of the output of the privatised firms acquired by other companies: the most obvious cases are those of telephony, gas and electricity. In these sectors we observed that the reduction in price was more marked for the business users than for residential users. There was therefore a reduction in company costs which may to some extent have been transferred to consumers through possible reductions in real terms in the prices of output of companies. With the knowledge we have so far, however, this effect is not documentable.

5.8 Consumers' welfare

There are very few empirical studies available for the UK that enable us to pass from the changes observed in prices, whether or not attributable to privatisations, to the welfare of consumers over the period considered: one study of British Telecom (Galal et al., 1996) which we discuss in detail in Florio 2001(b), and on British Airways and National Freight, by the same authors; one study of the bus sector (White, 1990); Newbery, Pollit (1997) discuss the case of the CEGB with a methodology deriving from that of Galal et al.see also Newbery (2000). In the case of BT the authors arrive at a positive aggregated evaluation, but at a negative evaluation for domestic users, especially because of the increase in prices for a number of years following rebalancing. In the second work mentioned the evaluation is negative.

In the case of the CEGB, Newbery and Pollit propose a detailed cost-benefit analysis and resort to various alternative scenarios, using various social discount rates and various welfare weights: their conclusion is that the final evaluation of social welfare depends in the end on how one aggregates the gains and losses of the various subjects, especially the shareholders, tax-payers and consumers. We shall not discuss this point in detail, however, we would like to stress that in all the scenarios of Newbery and Pollit consumers suffered a net loss of welfare.

Maybe there are other studies that have escaped us, but overall it is surprising how little cost-benefit analysis has been carried out on the subject in the UK, despite its good academic tradition in this field. In any case, if one examines the available studies, and if one goes back over the data we have gathered on prices, one can make the appropriate conjectures of the elasticity of price in ordinary demand (for lack of anything better) for the various sectors, and one can make various conjectures of different counter-factual scenarios.

An essential step in making conjectures in this regard is to formulate hypotheses about the other courses that would have been practicable compared to those taken in the period studied. Counter-factual scenarios could include very different policies, for example:

- the continuation of the public monopoly with the interposition of the regulator between the government and the boards, in order to define the system of price control in a more stable manner (in order to avoid the destabilising effect of occasional interference by the government in the running of nationalised enterprises);

- the maintenance of public ownership of some companies or networks and the radical liberalisation of the sector (as happened to a certain extent in the electricity sector in Norway, for example);

- the fragmentation of public property under regional or municipal utilities and liberalisation;

- privatisation, vertical disintegration, the breaking up of companies and liberalisation (as proposed from the start by some experts for British Gas);

- the experimentation of mixed formulas for both ownership and market regimes, with a pragmatic approach oriented towards clear sector policies (a solution that was in fact not often practised or debated, but which would have some merits).

These are just examples. It is impossible to say that privatisation in the concrete way in which it was carried out in the UK was clearly superior to one or more of these counter-factual hypotheses. Only a case by case study could reach this judgement. In contrast to the rhetoric about privatisations, the observation of the empirical evidence about price trends raises many doubts as to the advantages reaped by consumers.

It is possible that there has been a certain attenuation of pre-existing rationing constraints, for example, waiting times to have a telephone line installed were reduced, etc. But it is also possible that in general price discrimination increased, with a socially debatable fine-tuning of tariffs: where – paradoxically – the abandoning of systems of cross-subsidy and uniform tariffs could leave the field free for sophisticated systems of consumer exploitation.

5.9 Summing up

In summary: we observe a variety of price trends "before" and "after" privatisation, but no structural break is attributable to it, whilst contemporarily there were some exogenous changes: in the costs of input, in the public regulation of prices, in technology, in the form of market. It is more difficult to find indisputable evidence of reductions in prices linked exclusively to the change in objective function of the company with its transition to private ownership, and thus automatically to the change in costs.

The changes in the exogenous scenario, including factors of public policy (related to the sector, competition, labour and the environment), are different from sector to sector and together, as a causal factor of the trend in prices, they would appear to largely overshadow the change in ownership regime.

Having said all this let us try some conjectural calculation.

Let us start by a conjecture. Suppose that the total expenditure by households for the privatized industries (energy, transport, telecomunications, water) was 10% of their expenditure in year 1990, ie midway between 1979 and 1997 (giving less weight to the first years, when privatisations of utilities did not start yet).

In 1990 private consumption was £350 bn, thus expenditure for the privatized industries may have been 35 bn. Suppose now that the weighted average price decrease for the basket of goods and services supplied by the privatized industries were 10% (real). This would give a welfare increase of 1% of private consumption in 1990, and with price elasticity of zero and constant income, a yearly benefit (expenditure decrease to buy the same amount of goods of £ 3.5 bn). The perpetuity value of this benefit with a real social discount rate of 5% would be £ 70 bn.

However we need to consider also the counterfactual scenario: how much of this decrease would have happened with continued public ownership? This is obviously a difficult question, because it is unclear whether one can consider that the same kind of regulatory system applies to the counterfactual. And one cannot know whether the change of objectives in the public sector would have stimulated greater efficiency. But one may guess that at least exogenous cost savings, such as decreases in energy inputs, costruction costs, telecommunication costs, etc, would have been passed to consumers by state owned companies. Thus it is unlikely that all price decreases can be attributed to privatisations. Let us say it was just 50% (a generous assumptions, we suspect).

Moreover we have to account for redistributive impacts. Suppose that the consumers who benefitted more where those in the top two income quintiles while those who benefitted less, or lose, were in the bottom two quintiles, the median quintile getting the average benefit. The overall welfare gain shoud then be considerably reduced, let us say by 30%.

Finally, we have the indirect effect to the consumers through cost savings by business customers of the privatized industries, however we are unable to give a figure for these second order effects.

A little bit less crude calculation of the welfare change for consumers brought about by price changes can be based on data on the following tables.

First, we show that between 1974-1999 the overall household expenditure for phone, rail, bus, electricity, gas, water, coal for household consumption was remarkably stable, around 8% of the total value of consumers' expenditures (Table 16).

Second, we consider price indexes for the relevant sectors in Tab 14 to estimate an aggregate Marshallian surplus as the ratio between expenditures and a price index. The formula we use is:

$$M = E^* (p_1 - p_2)/p^*$$

Where E^* are expenditure in a median year; p_1, p_2, p^* are price indexes at privatisation year, at the latest year, and at a median year. This formula is an extension of the approach by Waddam Price, Hancock (1998).

All data were converted in 1995 prices and Table 17 shows that the result is a "Marshallian gross surplus" change of around 4.8 bn pounds.

A similar way to calculate this crude welfare measure is shown by Table 18. For each sector long run average price elasticities are shown and we use the following formula:

$$CS = (E_1 - E_2)/(2 \quad)$$

where   CS is the consumer surplus change, E_1, E_2 are expenditures in constant pounds,   are average price elasticities. The result we get is around 4bn pounds, again to be reduced according the counterfactual assumption concerning continued public ownership.

All of this is rather a mental experiment, than actual data, but it offers a benchmark for further analysis. See Brau, Florio (2001) for a more detailed discussion.

Table 16 – Household expenditures on privatized utilities services, 1974-1998. Percentage share on total consumption.

	phone	rail	bus	electricity	gas	water	coal	Total
1974	1.28	0.69	1.23	2.12	1.20		0.71	7.22
1975	1.47	0.73	1.28	2.41	1.21		0.63	7.72
1976	1.67	0.75	1.30	2.55	1.36		0.59	8.22
1977	1.49	0.79	1.26	2.59	1.44		0.62	8.18
1978	1.53	0.80	1.20	2.49	1.41		0.54	7.96
1979	1.47	0.77	1.12	2.36	1.37		0.54	7.64
1980	1.69	0.80	1.12	2.54	1.40		0.51	8.07
1981	1.90	0.76	1.07	2.70	1.67		0.54	8.64
1982	1.93	0.68	1.05	2.65	1.90		0.51	8.73
1983	1.86	0.73	1.01	2.52	2.00	0.75	0.47	9.34
1984	1.89	0.71	0.97	2.41	1.94	0.75	0.40	9.08
1985	1.93	0.71	0.95	2.38	1.95	0.77	0.49	9.18
1986	1.97	0.72	0.87	2.26	1.92	0.75	0.39	8.87
1987	1.94	0.70	0.83	2.07	1.78	0.74	0.33	8.38
1988	1.87	0.68	0.77	1.91	1.61	0.72	0.28	7.85
1989	1.84	0.64	0.76	1.89	1.43	0.73	0.24	7.54
1990	1.87	0.67	0.73	1.87	1.45	0.75	0.20	7.53
1991	1.91	0.64	0.72	2.01	1.62	0.83	0.21	7.93
1992	1.89	0.62	0.70	2.03	1.51	0.87	0.16	7.78
1993	1.91	0.61	0.70	1.96	1.43	0.91	0.15	7.68
1994	2.00	0.61	0.67	1.93	1.37	0.96	0.14	7.67
1995	2.02	0.63	0.68	1.87	1.35	0.97	0.12	7.64
1996	1.97	0.63	0.69	1.80	1.40	0.97	0.10	7.55
1997	1.94	0.63	0.67	1.60	1.17	0.95	0.10	7.06
1998	2.01	0.67	0.66	1.47	0.98	0.93	0.09	6.81

Source: our elaborations on ONS

Table 17 – Consuler's surplus change

	phone	rail	bus	electricity	gas	water	coal	
$Year_o$	1984	1995	1988	1990	1986	1989	1994	
$Year_m$	1991	1997	1994	1994	1992	1994	1997	
$Year_l$	1999	1999	1999	1999	1999	1999	1999	
E_m	6842	3144	2808	8082	5684	4014	499	
P_o	98.0	118.5	103.5	96.9	101.6	110.5	86.2	
P_m	88.0	119.0	114.2	101.1	85.2	151.8	81.7	
P_l	60.5	122.3	118.6	79.8	71.4	170.4	80.1	
RPI_{98}/RPI_m	1.12	0.95	1.03	1.03	1.08	1.03	0.95	
$dCS=E_m(P_o/P_m-P_l/P_m)$	2918.427	-101.453	-370.074	1369.633	2008.981	-1583.260	37.344	
dCS (1995 prices)	3259.457	-96.043	-382.915	1417.157	2162.737	-1638.200	35.352	**4757.549**

Source: our elaborations of NEDO, ONS

Table 18 – Consumers' surplus change

	phone	rail	bus	electricity	gas	water	coal	sum
$Year_n$	1983	1994	1987	1989	1985	1988	1993	
$Year_f$	1999	1999	1999	1999	1999	1999	1999	
E_n (1995 pr)	5772.8	2643.7	3039.1	7607.7	6358.0	2849.5	627.3	28898.1
E_f (1995 pr)	10773.9	3506.4	3238.2	6793.2	4601.7	46009.8	437.4	33960.6
E_c								
Elasticity	0.6	0.8	0.9	0.5	0.7	0.5	0.2	0.62
$CS_t = E_f/(2*e)$								
CS_n	4810.7	1652.3	1688.4	7607.7	4541.4	2849.5	1568.4	23304.9
CS_f	8978.3	2191.5	1799.0	6793.2	3286.9	4609.8	1093.5	27387.6
CS_c								
dCS_f	4168	539	111	-815	-1255	1760	-475	**4083**

Source: our elaborations of NEDO, ONS

6. Tax-payers

6.1 How much was the Family Silver worth?

Vickers, Yarrow (1988) had already contended that because of underpricing, which we have already discussed above,

> "the programme of the government thus impoverished its wealth by an amount equal to the undervaluation plus the related transaction costs. Privatisation does in fact worsen the government's financial position in the long run".

Since the early '80s independent studies have observed how the selling off of the "Family Silver" in the end worsened the balance sheet in the public sector.[33]

Hills (1989) reconstructed the balance sheet for the public sector in the United Kingdom between 1957 and 1987, at constant 1987 prices (using the implicit GDP deflator). Hills shows that public sector net wealth, which was still negative in 1957 due to war debts, continually improved in the 60s and 70s, to reach £364 billion when the Thatcher government came into power in 1979. Between 1979 and 1987 there was a net reversal of trend.[34]

According to Hills, between 1957 and 1979 net assets increased by £120 billion, basically thanks to the revenue from oil reserves in the North Sea: after 1979, in the space of just 8 years, assets decreased by £150 billion, bringing the net assets of the State back to the position of thirty years before: contributing to this were the fall in the price of oil, the accrual of the pension fund for civil servants, and the fall in public investments in proportion to GDP, but privatisations would also have contributed to a considerable extent in the years considered by Hills, especially those related to real estate.

6.2 The public sector balance sheet: recent estimates

The analytical reconstruction of the impact of privatisations on the accounts of the public sector in the United Kingdom would require, in addition to the cash accounting of the privatisation proceeds:

a) the construction of a historic series of assets and liabilities;

b) a verification of the effects specifically attributable to privatisations.

As far as the first point is concerned, an official accounting of this type was not available for the years considered, but one was produced as an experiment by the first Budgets presented by the New Labour governments.[35]
This new official series distances itself considerably from the estimates of Hills and is worth commenting on in detail.
The introduction of this new tool of public accounting, defined more recently as Public Sector Net Worth (previously Net Wealth), aims to construct a counterpart to public accounting, based on yearly flows. This exercise should be seen in the context of the shift

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[33] Cf. in particular Hills (1989), "Counting the family silver: the public sector balance sheet 1957 to 1987."
[34] Some delicate problems are involved in this analysis, for example:
- whether it would be more or less appropriate to evaluate public real estate at the market price for empty or occupied council houses;
- whether it is possible to compare the stock exchange values at which the shares of partially privatised firms which remained in public hands were charged to the balance sheet with the previous values;
- how to evaluate the unexploited oil reserves in the North Sea.
[35] HM Treasury (1997), subsequently revived in the later "New Ambitions for Britain. Financial Statement and Budget Report. March 1998" (HM Treasury, 1998). Methodological details of this exercise can be found in a Treasury paper ("The Public Sector Balance Sheet, HM Treasury, 1998). More recent data can be found in the Pre-Budget Report 1999 (page 142 and table B20; for the methodology cf. Economic Trends, November 1999).

of emphasis by the New Labour government from the PSBR to the introduction of two general criteria of conduct of public finance:

- to so-called "golden rule": "over the economic cycle the Government will only borrow to invest and not to fund current expenditure"

- the stabilisation of the ratio between public debt and national income.

The Golden rule implies that current expenditure should be financed by taxation and that money should only be borrowed for investments. This implies a better calculation of the two types of spending on a yearly basis and the recording of the cumulative effects of the process of investment and divestment. If the Golden Rule is obeyed, the PSNW remains constant even if there is a deficit, given that the increase in financial debt is exactly offset by the value of the investment assets acquired.

The idea at the basis of the construction of a Balance Sheet for the public sector is simply to list assets (real and financial) and liabilities at various levels of government (central government, local authorities, public corporations) and to consolidate them[36]. One step in this direction is the publication of the National Asset Register, probably the greatest effort ever made to account for the size of public property in a country. The register was based on a census of all the tangible and intangible property assets of the departments of central government, their executive agencies, the organisms of the NHS, other public corporations and nationalised industries.[37]

According to a survey by the Office for National Statistics (Blue Book) at the end of 1996 the public sector had tangible assets of £405 billion and net financial liabilities of £340 billion. The balance of the two gives a Public Sector Net Wealth of £65 billion.

The principal tangible assets are civil engineering works (including roads), housing, industrial and commercial real estate[38]; the principal items of financial debt are treasury bonds and National Savings.

Figure 7. Public sector net worth - net debt (% of GDP)
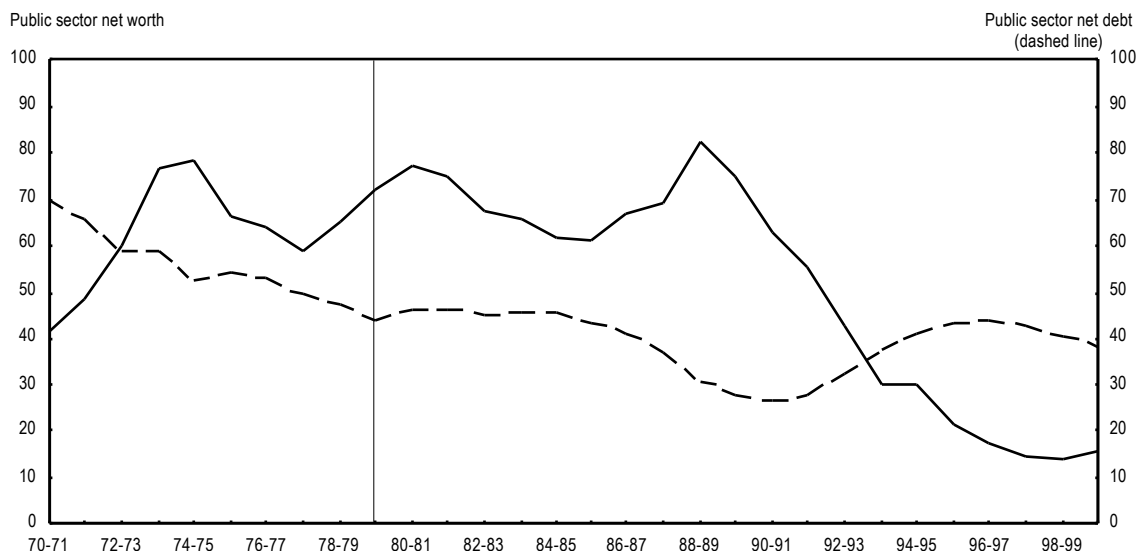
Source: HM Treasury (1999), our elaborations

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[36] Currently the only country to have officially adopted public wealth accounting is New Zealand.
[37] The first edition of the register was published in November 1997.
[38] As we all know military assets are considered public consumption, even though the ESA95, the new European System of Accounts, allows for separate accounting of assets with a dual use, for example military hospitals.

Fig. 7 shows the performance of net public sector debt since 1970 and the PSNW as a percentage of GDP. As one can see, while at the beginning of the Tory era, in 1979, the debt was around 44% of GDP, at the end of the period it had fallen by about 4 points (to reach an all time low at the beginning of the 90s of around 26%). Alongside this fall was a steep decline in PSNW, which plummeted from over 70% of GDP to less than 15%.

How should we interpret this pronounced deterioration in the balance sheet?

HM Treasury (1998) offers two possible explanations:

- an increase in financial liabilities due to the deterioration of public finance following the recession

- a fall in tangible assets following a drop in the value of land and

"the effect of privatisation whereby public corporations' tangible assets were transferred to the public sector".

However, the first of the two explanations is valid only for the phenomenon that occurred in the early '90s, when there was a momentary increase in the public debt as a proportion of GDP, but it is obviously not true for the entire period given that the debt as a whole declines. The second reason appears to be consistent with the available data.

HM Treasury (1998) admits that:

"privatisations may have had an effect on net wealth insofar as the balance sheet valuation of the underlying asset was different from the privatisation proceeds received; in some cases the differences seem to have been significant and we think that this would mainly reflect inaccurate valuation in the balance sheet data (or perhaps valuation on a different basis)."

6.3 The Windfall Tax

With the arrival of the Labour government in 1997 there was a sort of official admission that firms had been sold at too low a price and that the initial regulation was "too lax" (Vass, 1997).

The aim of the tax was to capture at least a part of the excess profits of privatised firms, whose value we have described elsewhere.

The taxable base was the following:

"the difference between the value of the company at privatisation and a 'more realistic' valuation based upon that company's after tax profits for up to the first four years after privatisation. That more realistic value was found by averaging profits for the first four years, as set out in the company accounts, and by multiplying that annual average profit figure by a price earning ratio, set at nine." (Baldwin, Cave, 1999).

The total receipts amounted to £5.2 billion, 28% from the RECS, 12.5% from electricity generating firms, 31.7% from firms in the water sector and the rest from all of the others, including telecommunications companies (Channells, 1997).

Here is not the place for a detailed discussion of this tax which has been criticised from various points of view. It has been observed that it did not hit the shareholders who benefited from the excess profits, who could, in the meantime have re-sold their shares with no after-effects other than the ordinary tax regime. It was also said that this constituted a breach of "regulatory contract" weakening the future credibility of the government. It was later observed that the tax was insufficient to correct the phenomenon of excess profits.

All three of these observations can be subscribed to a certain degree, but here it is only worthwhile commenting on the last one. If by excess profits we mean, as would seem fair, a prolonged difference between the return on capital in the privatised sectors and a

benchmark index, a difference that originated from a market power, what is evidently at stake is the whole regulation system, and not only the initial underpricing.

We have documented above the extent of this phenomenon in the long term. Compared to the values at stake, the amount of the windfall tax is probably equal to a fraction of the value we estimated for the underpricing (£14 billion) and this does not in any way affect long term excess profits. This point is developed below.

For these reasons, and because it was introduced by a government of a different parliamentary majority than the one that implemented privatisations, we shall exclude the Exchequer receipts deriving from this tax from our final evaluation of the social impact of privatisations in the conservative years.

6.4 Summing up

The empirical evidence of the impact of privatisations on the taxpayer is not very extensive nor very reliable. Only recently has an official estimate been available of the public sector net worth, and without this the data related to privatisation proceeds and their role in reducing the public debt have little meaning.

However, the figures seem to tell a fairly clear story. Privatisations generated a substantial amount of cash receipts, and this contributed to debt repayment. At first the combination of privatisations, increase in tax pressure and expenditure reduction brought the debt down. Subsequently this policy could not be maintained and once again sizeable deficits were created, which were not counterbalanced by further privatisations. The net worth of the public sector collapsed.

The average taxpayer probably initially suffered a substantial loss in the capital account from privatisations, to the benefit of the purchasers, including the foreign sector. In welfare terms the cost of the taxpayer may exceed by 30% the underpricing, if a prudent shadow price of public funds is considered (e.g. Laffont, Tirole, 2000).

While current spending and tax pressure did not record any fundamental changes in trend between 1979 and 1997, public investments were greatly sacrificed.

It is too early to say whether in the future the British taxpayer will have to offset this reduction in the stock of public capital with an increase in taxes or with a decreas of growth and welfare. It is, in fact, difficult to say what the optimum proportion is between public and private capital.

Furthermore, recourse to methods of "private finance" for public infrastructures may mask the effective expenditure in the capital account. It should, nevertheless, be observed that the deterioration in public net worth and the collapse of public investments brought preoccupations as to the adequacy of private investments which should be taking their place.

One example of this is the case of the railway sector, where it was recently revealed that the investments of Railtrack and the companies running the train services were not sufficient to guarantee, in the long run, the standard of service required by the regulator. In any case – on the one hand – it does not appear that privatised companies cut their investments, which overall increased in real terms, although perhaps to a lesser extent than one could have expected if it were true that public firms had under-invested due to lack of financing. On the other hand – ex-post – the figures appear to disprove the opposite argument, that public firms invest excessively.

These are controversial subjects. Far less controversial seems to be the fact that the British taxpayer suffered a loss in the capital account, through underpricing.

Let us go back to those calculations. The abnormal return for flotations was 13% on the first day. After five years the cumulated abnormal return was 57.3%, and it was 38.5% after ten years (for a smaller sample). Thus we may suggest that on average after ten years the privatized companies outperformed the market by around 4 points per year.

To make calculations simpler, suppose the normal return was 10% per year before tax and the nationalised industries were allowed to earn such a profit in a counterfactual scenario without privatisation.

The Government cashes Lst 70bn as privatisation proceeds and the perpetual value of corporate taxes, let us say 2.8 bn per year, or Lst 56 bn. Thus the taxpayer by privatisations is entitled to Lst 126 bn. (all figures at 1995 pounds and discounted by a 5% real social discount rate).

As we mentioned the corporate tax rate in the period considered was lowered from 52% to 32%, and this makes the fiscal dividend for the State smaller than it would have been under the previous regime (by saying this we are not a taking a stand on the desirability or otherwise of lowering the rate). Suppose the average effective corporate income tax rate was 30% for privatised companies. Thus their gross of tax profit was Lst 7 bn per year. Their net-of-tax perpetual value for the private shareholders was then 140 bn - 56 bn = 84bn. Because they were offered the nationalised industried at 70bn, they certainly made an extremely good deal.

The taxpayers were less lucky. Because the Exchequer cashed 70 bn + 56 bn = 126 bn, the taxpayer made a loss of Lst 14 bn against the value of the assets. If we apply a shadow prices of 1.3 to public funds (see e.g. Laffont, Tirole 2000), the taxpayer lost in welfare terms around 18 bn pounds.

A crucial point in this reasoning is the counterfactual scenario: how much profit would the firms have made if they had remained public? There are many possible inferences, from one extreme case of zero excess profit, if the firms were managed with a required rate of return around the average for the financial market, or even below it; to the other of excess profits equal to those achieved by private firms (the majority of which are regulated).

We cannot solve this question here. In any case, it is clear that it seems rather difficult to say that privatisation improved the taxpayer's position unconditionally.

It improved it only if there was a wide gap between the expectations of excess profit under public and private management. There is, however, a paradoxical aspect to this. If the excess profits taxed originated to a large extent from market power and in particular from regulation that was too weak, the taxpayer would have been safeguarded to the detriment of the consumer. Anyway, in terms of opportunity cost, privatisations failed to extract all the possible income from purchasers. In conclusion, we think it is unconvincing the claim that underpricing was recovered through the fiscal dividend. Moreover the best financial solution would have been for the Treasury to retain a substantial shareholding in the semi-privatized companies.

The greater tax dividend resulting from the increased profitability of privatised firms should be contrasted with the loss in public sector net wealth. The latter is a phenomenon which is, albeit imperfectly, measurable. Between 1979 and 1997 the net public wealth of the United Kingdom diminished considerably. The wind-fall tax introduced by the New Labour government recovered only a fraction of what was lost due to underpricing. In a counterfactual scenario in which some of the very profitable firms remained in public hands and enjoyed the same conditions that the regulators granted to the privatised firms, the Treasury would have had considerable advantages. (Alternatively these advantages could have been transferred to consumers, reducing the excess profit of the firms through stricter regulation).

7. Overall welfare balance: some conjectural calculations

In this final section we make a bold attempt to draw a balance of the welfare impact of British privatisations. We are very far from thinking that what follows is anything more than a crude guess and a starting point for further research. However we offer it to criticism in order to stimulate discussion.

7.1 Assumptions

The assumptions we use are very simple:

a) we focus on 4 agents: consumers, workers, shareholders, taxpayers, and we try to evaluate the actual welfare change for each group, then we sum the values: the balance is the gross welfare change for the society. The net welfare change is defined as the actual gross value, less a virtual value for a counterfactual scenario of continued public ownership

b) all values are expressed in constant 1995 pounds

c) the social discount rate we use is real 5%: there is no particular justification for this rate, we consider it just as a benchmark

d) in order to simplify different time horizons and possible counterfactuals we suppose that the welfare changes are all observed at the end of the period 1979-1997 and then stay unchanged whith an infinite time horizon: in other words we convert all yearly values in their net present value in the form of a perpetuity

e) we offer two calculations: one without any usage of shadow prices, which is mistaken but less controversial; another with a very simple set of shadow prices: we take the average consumer's welfare expressed in constant pound as the numeraire, with shadow price 1; we assign 1,30 to public funds, because of the excess burden of distortionary taxation (a benchmark value frequently used in public economics literature); we assign again 1,30 weight to the welfare of the poorest consumers (those in the bottom 20% income percentiles) and 0,70 to the welfare of the average shareholder (including the foreign investors), typically somebody in the top 20% incomes. Tha latter welfare weights are simple benchmarks for a plausible social welfare function with moderate aversion to inequality. All these shadow prices and the discount rate can be easily tested by a simple sensitivity analyisis.

f) We consider monopoly extra-profits as transfers, and we subtract them from the ouput value of the industries: equivalently, we may say that we use production cost (incuding normal profits) as the appropriate shadow prices for the output of the privatized industries.

g) We ignore second order impacts and the role of the foreign sector.

Let us turn now to consider the results for each agent.

7.2 Consumers

As far as the effect on real prices is concerned, and (improperly) attributing the changes over time totally to the change of ownership, a weighted consumer price index (with the initial amounts), would show:

- a reduction for telephony, electricity and gas

- increases for water and transport.

Our baseline estimation gives Lst 3.5 billion welfare change, or a perpetuity of Lst 70 bn. Our others estimations of consumers' welfare change are between Lst 4.1-4.8 bn. This is not very far from other results reported in Brau, Florio (2001). This would give us a higher gross welfare change, between Lst 82-96 bn. We will consider a median value of Lst 80 bn as our guess estimate of the gross welfare change.

To this we should add reductions of prices of other consumers' good as an indirect effect of cost reductions for other industries. These are second order effects that are very difficult to estimate, the most important of which is the reduced cost to the firms of

purchasing services produced by the utilities, part of which in turn could be passed on to the consumer the final price. We ignore this effect.

Obviously attributing to privatisation all price reductions is surely overestimating. Since we could not find any clear break in the productivity trend, it is probable that the nationalised firms would have achieved cost advantages, perhaps somewhat smaller, but not negligible, and would have passed these on to the consumers to at least the same degree as the privatised firms. One can test this hypothesis with a sensitivity analysis which makes different hypotheses, for example about the reductions in costs and mark up.

If the reduction in price attributable with certainty to privatisations, through the reduction in cost passed on to consumers, was as high as a half of the total price change (a very generous assumption to the privatized industries), the net welfare change brought about directly by price reductions may have been 40 bn.

Finally we should introduce a correction for the distributive impact. We propose here a 20% of the overall direct welfare change brought about by price decrease shoud be canceled out because of the regressive nature of the rebalancing of tariffs or because of the welfare burden of real price increase for some necessaries (see again Brau, Florio, 2001). This may be Lst 8 bn.

From all this we need to subtract extraprofits paid by consumers, because they are just transfers to monopolistic firms.

We have suggested to consider the returns of the shares of privatised firms above the stock market average return (the internal rate of return for an average share on the FTA index 1984-1996 was 15%, including the privatized firms) as extra-profit. Thus, over the period considered the privatised firms may have generated annual extra profits of around 10% of their purchase value. We estimated this value to be £70 billion, in constant 1995 sterling. Thus the extra profits (gross of tax) yearly could be about £7 billion (by comparison, on 1997 before-tax profit of BT alone was Lst 3bn, or 20% of its sales revenues).

This profit deduction is the equivalent of using the average cost, including normal return on capital, as the shadow price for the output of privatised firms. But let us suppose that half of this excess profit would still have been achieved under public ownership, or rather that prices would still have been distorted even without privatisations. This implies that around Lst 3.5 billions net extraprofits should be deducted by consumers' surplus, or Lst 70bn in terms of net present value. This is a very substantial deduction and some readers may be skeptical about it. However it is easy to repeat the calculation with somewhat lower values (see the table at the end of the chapter. We will later propose a calculation where we disregard extraprofits).

That leaves us with the estimate of the excess burden due to extra profits. With an average price-elasticity of 0.6, a yearly expenditure by 40bn, if the price wedge generated by extraprofits is as high as 0,175 (7/40) the annual excess burden is equal to 0.6 x 0.03 x £40 billion, that is £0.7 billion per year or a perpetual value of Lst 1.4 bn (we use here the textbook partial equilibrium formula $\frac{1}{2}\eta t^2$). Let us assume that half of this excess profit burden would have happened even in a regime of public ownership: the net (negative) welfare change is quite limited (Lst 0.7 bn), basically because demand is rigid (this, in fact, is the other side of the regressive impact on consumers' welfare).

The balance of the consumer's change would thus be negative, basically because the welfare changes brought about by net price decreases generated by lower costs of the privatized firms were less than price increases generated by higher extraprofits as compared with the counterfactual, and by redistributive impact.

Because the correction for the extraprofits is so critical, it is interesting to see that even if we totally ignore this correction, and we drop the distributive correction as well, the overall perpetual net present value of the welfare change for each British consumer is less than one thousand pounds, a rather modest or perhaps negligible impact for a great reform, we think.[39]

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[39] Even including any reasonable estimate for indirect benefits through second order impacts.

7.3 Shareholders

The welfare of the shareholders is influenced by privatisations in several ways: first, they pay to buy shares, second they enjoy capital gains by underpricing and extra-profits, third they pay corporate taxes.

Suppose again extraprofits (gross of taxes) were 7bn Lst per year. Taking Corporate Tax rate, which is around 30%, as a reference point we would have £2.1 billion annually as tax burden for the shareholders. Taking the higher estimate supplied by HM Treasury (1995), or data by NERA (1996), we would have £2.8 billion, whose perpetual value at 5% is £56 billion. Thus the Treasury receives around £126 billion of discounted pounds, 70 billion by privatisation proceeds, 56 billion by corporate taxes. Buyers pay £70 billion and they appropriate excess profits, net of taxes, of £4.2 billion a year, whose perpetual value is £84 billion.

The result is a net benefit to shareholders of 14 billion, or 20% of underpricing. This roughly confirms that the financial market was rational when immediately corrected the share prices after placement. Since the £14 billion gain was transferred either to the richer sections of the population or abroad, we feel that this should be discounted by a distributive welfare weight of 0.70, where a function of social welfare is adopted that shows a moderate aversion to inequality. This leaves a welfare benefit of £9.8 billion for the shareholders.

7.4 Taxpayers

Conversely the loss suffered by taxpayers is equal to all of the underpricing. The above reasoning can be easily repeated. The Treasury, on behalf of the taxpayers sold at 70bn Lst assets worth 84Lst to the buyers, thus it was unable or unwilling to extract by them all the potential rents.

Because public funds have a shadow price due to distortionary taxation, with a 0.30 correction, the net loss to the taxpayer is around 18bn Lst.

7.5 Workers

We may neglect the impact on workers at this stage, because we did not find clear evidence that employement and pay under the counterfactual would have much differed from actual trend under private ownership.

There is evidence however that blue-collars suffered a welfare loss and top managers and part of the white-collars enjoyed increased rents. But the evidence so far is not enough to guess a figure for the workers' welfare change. Presumably there was here again a regressive redistribution of income, but we are unable to quantify it.

7.6 Overall welfare balance

Our overall result, without the use of any shadow price, would be that taxpayers suffered a loss of 14 bn, but this was canceled out by the equivalent transfer to shareholders, workers' welfare was probably slightly negatively affected, but on overall this impact was negligible, consumers enjoyed a perpetual discount on prices worth less than one thousand pounds for each British citizen.

If we consider monopoly profits as costly rents, as it is their standard treatment in welfare economics, and we introduce a shadow price for public funds of 0.30, and welfare weights in order to account for regressive redistribution of the income, there is a percapita perpetual welfare net loss of less than 400 thousand pounds.

This offers us probably two extreme values and the truth may lie anywhere in between.

These conjectures are highly debatable and can be tested by sensitivity analysis for the values of the various parameters involved in the calculation, however they offer a first benchmark for a more detailed welfare analysis.

The most surprising aspect of this analysis, is that the measurable welfare impact of British privatisations was so low. Apparently, far from being a "revolution", the great divestiture was a reshuffling of relative positions of various agents, probably a regressive one, with a rather modest impact on aggregate economic efficiency.

Table 19 - Social costs and benefits of British privatisations. In £ billion, constant prices 1995. Perpetuity at 5% discount rate of annual values.

Tax-payers

	without shadow prices	*with shadow prices*	
Privatisation proceeds	+70	+91	
Loss of extra profits	-140	-182	
Taxes on profits	+56	+73	
Balance (equal to underpricing of 20%)	-14	- 18	Adjusted balance with 1.30 shadow price of public funds

Shareholders

	without shadow prices	*with shadow prices*	
Payments to the Treasury	-70	-49	
Extra- profits	+140	+98	
Taxes on extra -profits	-56	-39	
Balance	+14	+10	Adjusted balance with 0.30 distributive correction

Consumers

	without shadow prices	*with shadow prices*	
Reductions in the price of public services (net)	+40	+40	
		(-70)	Extra-profits (50% of the total as compared with the counterfactual of continued public ownership)
		(-1)	Deadweightloss caused by the extra profits (50% of the total)
		-8	Distributive correction 0.20 of price reductions(rebalancing)
Adjusted Balance	+40	+32	(-39)

Society

	without shadow prices	*with shadow prices*	
Tax-payers	-14	-18	
Shareholders	+14	+10	
Consumers	+54	+32	(-39)
Workers	0	0	
Balance	+54	+24	(-47)

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