

**WORKERS' EARNINGS IN THE U.K. BEFORE AND AFTER
PRIVATISATION: A STUDY OF FIVE INDUSTRIES**

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WORKERS' EARNINGS IN THE UK BEFORE AND AFTER
PRIVATISATION:
A STUDY OF FIVE INDUSTRIES*

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Abstract

In this paper we offer new evidence on the impact of British privatisations on wages in five selected industries: gas, electricity, water supply, railways and air transport. For the above sectors we construct long time-series of different measures of labour earnings, spanning from 1970 to 2002, taken from the ONS New Earnings Survey (NES). The use of an homogeneous source allows us to compare privatisation experiences quite different between each other. Mainstream privatisation theories suggest that under state ownership workers earn high wages because of unionisation and soft budget constraints, therefore privatisations should reduce wages for employees. We find instead that privatisation has permanent negative effects on real wages only in the gas industry. In the other sectors considered the change of ownership has only temporary effects, either of positive or of negative sign.

Keywords: UK, Privatisation, Workers' earnings, Gas, Electricity, Water, Railways, Air transport.

JEL NUMBERS: J31, L33, L92, L93, L94.

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1. Introduction

The interest in evaluating the impact of privatisations on relative earnings is justified by the fact that in any privatisation experience the reform of labour management and industrial relations has been of prime importance. This is particularly true for the UK experience, the first and probably still the most relevant example of privatisation's policy in developed economies (Heald and Steel 1986; Vickers and Wright 1988; Vickers and Yarrow 1988; Martin and Parker (1997); Florio, 2004).

Focussing on the UK, some of the early research was devoted to the analysis of industrial relations processes and institutions, in particular organisations immediately prior to, during and just after privatisation (Colling 1991; Ferner 1990; Blyton 1993; Turnbull 1993; Ferner and Colling 1993; Forrester 1993; O'Connell Davidson 1993; Ogden 1992, 1993¹). These studies showed a general tendency towards decentralisation of collective bargaining structures, but said little about outcomes such as changes in pay levels and employment.

This issue instead is particularly relevant, since much of the debate on the desirability of privatisation has centred on wage and employment outcomes. The advocates of privatisations were convinced that public ownership caused 'overstaffing' and 'inflated' levels of pay. On the other hand, trade unions were fearing that privatisations could drastically reduce workers bargaining power and therefore levels of pay and benefits.

A theoretical framework for the consequences of privatisations on the labour market can be found in property right and public choice theories, according to which private ownership transmits greater efficiency incentives to the management than public ownership. Since the aim of the owner of nationalized firms is not to maximise profits, but to achieve a jumble of political objectives, the management is not provided with clear incentives to minimise costs. For a general discussion see Laffont (2005).

Various authors maintain that labour costs need to be excessive in a public corporation:

"Much of these excess costs are in fact, transfers in the form of higher wages, reduced intensity of effort, corruption, bribery,..." (Breton, Weintrobe in Boes, 1982).

"Most public enterprises are encouraged by politicians seeking votes to employ too many people....The beneficiaries of excess employment are often political supporters of the government, who value these jobs because they pay more than market wages". (Shleifer and Vishny, 1994).

¹ For a survey on the impact of change of ownership on corporate performance see Megginson and Netter (2001).

Private owners instead, being able to appropriate profits, can adequately motivate management to minimise costs, including labour costs. Implications in terms of the crucial variables of labour markets are clearly a reduction of both employment and wages, *ceteris paribus* (i.e. for the same quality adjusted output level, technology, and tax/subsidies structures).

In this paper we focus on the impact of privatisation on wages. In this case the empirical evidence from the received literature is mixed. Some early commentaries on industrial relations (Thomas 1984) documented a number of cases where wage cuts and deterioration of working conditions accompanied privatisations (Trade Union Congress 1986; McCarthy 1988). But some other studies seem to find the opposite. Bishop and Kay (1993), Haskel and Szymansky (1992, 1993), Martin and Parker (1997) all conclude that privatisation did not alter systematically the position of the average wages of workers, with respect to the manufacturing sector, or the services industry, or the averages for the economy as a whole. In addition, Bishop and Kay (1988), and Cragg and Dyck (1999) find that salaries of top management recorded sharper increases in the privatised firms than in the rest of the private companies.

We believe that most foregoing studies of the impact of privatisations on the UK labour market are flawed in three important aspects. First, they use very short time series, especially for the post-privatisation period, which makes quite difficult to distinguish transitional from permanent effects. Second, there may be a bias because of aggregation of average pay for workers of different ability, in particular skilled and unskilled workers. Third, most of the analyses are carried out on firm-level data, that are not homogeneous enough to compare different experiences of privatisation.

In this paper we offer new, original evidence on the impact of privatisation on real wages, and follow the approach of comparing privatised firms with the economy as a whole in an attempt to identify the specific effects of privatisation. In order to overcome the limits of previous analyses: 1) we construct long time-series of different measures of labour earnings, spanning from 1970 to 2002; 2) we use measures of wages separately calculated for manual and non-manual workers; 3) we use individual data, homogeneous by construction across sectors. The source is administrative data on labour earnings taken from the New Earnings Survey (NES), an individual panel survey carried out at the Office for National Statistics (ONS) and used as the official source for annual publications on labour earnings by industries (three digits) in the UK.

The information available allows us to consider adult male workers employed in five sectors, particularly interesting for their privatisation processes: gas, electricity, water supply, railways, and air transport. Also, the construction of series covering more than thirty years permits considering a sufficient number of years before and after privatisation for each sector, which allows to compare on an homogeneous basis different experiences of change of ownership.

The evidence shown in this paper supports the view that the impact of privatisation on wages is modest or neutral. The stylised facts from our source of data do not seem to confirm the prediction that the management of a privatised industry has always a greater incentive of

effectiveness in controlling labour costs than the management of the public sector. More precisely, our data show that, although there might be transitory effects of privatisation on wages, in the long-run neither manual nor non-manual workers staying in the same privatised sector seem to loose in terms of real earnings from the change of ownership.

At this stage of our research we are unable to assess whether a reduction of overall labour costs is implemented through a strong reduction of employment. However, some recent evidence on employment dynamics in some privatised sectors in the UK (Florio, 2004, ch.6 for a survey and Florio, 2003, for the British Telecom case-history over 40 years) shows that employment reductions in the privatised industries started much earlier than the actual change of ownership, and therefore can hardly be considered as a direct consequence of privatisations².

The structure of the paper is the following: in Section 2 we motivate our analysis, clarifying the theoretical implications that we aim to test; Section 3 summarises previous evidence on the impact of privatisations on wages; in Section 4 we describe our source of data. We then present our results, and the final Section concludes.

2. Motivation

Different theoretical explanations for the impact of privatisation on wages have been proposed in the literature. The implications for the observed wage dynamics are not always the same. First, according to the well established public/private wage differential literature, if on average workers with similar attributes are better paid in the public sector than in the private sector, then privatisation will reduce wages for employees staying in the same, privatised firm.

The above general prediction is confirmed in the first model that considers specifically the impact of a change of ownership in the labour market, developed by Haskel and Szymansky (1992, 1993). According to this model, privatisation implies a shift of the public firms' objective function towards profit maximisation and a reduction of employees' bargaining power. As a consequence, pay levels of privatised firms are expected to converge to the levels paid by the other private firms.

In contrast, the prediction which emerged from the subsequent works, resulting from either extensions of the previous model (Haskel and Sanchis, 1995) or using completely different analytical frameworks (De Fraja, 1993 and Goerke, 1998) are ambiguous. Wages may either increase or decrease after privatisations, depending on the assumptions made regarding the firms' market power, unions role and nature of wage determination.

Whereas the above models look at the effects on the overall wage distribution, there is a vast growing literature aimed at trying to identify the conditions that effect the remuneration of one

² There is however evidence of systematic downsizing of privatised firms elsewhere, notably in Latin America and transition economies.

specific occupation: top or chief executive managers (CEO)³. According to this line of reasoning, the compensation of top managers/executives should rise after privatisation for a number of reasons: pay scale constraints are released; executives are more explicitly linked to observable measures of firm performance; CEOs have more bargaining power; and, being privatisation associated with a general increase in firm scale, managers have direct oversight of more activities.

Probably the most accredited explanation of the negative impact of a change of ownership on the labour market comes from the standard privatisation theories based either on property rights or on public choice approach. According to Shleifer (1998), and Shleifer and Vishny (1994) labour costs need in general to be excessive in a state owned enterprise (SOE). The stylised facts proposed by these privatisation theories, reviewed by Martin and Parker (1997), and Mueller (2003) suggest the following story.

First, governments implement SOEs for objectives that differ from profit maximisation. These objectives, even when dressed in terms of social welfare maximisation, in fact are those of specific individuals, the policy makers, who are the actual key stake-holders of the SOE. Politicians have their private agenda that usually includes the maximization of probability of re-election. Hence, ministries and members of parliament collude in offering to SOEs capital for new investment, or subsidies to cover losses, under the implicit contract that, whatever the statutory official objectives of the public enterprises, they should act in such a way as to implement the politicians' agenda. The managers of the SOE, who are often depicted in this framework as the agents of their political principals, have private information and can extract rents for themselves in various forms (salaries and other benefits, corruption), but must deliver the expected result in terms of politically useful actions. While these may include low tariffs in order to bribe the consumers, a typical target of consensus building are public sector employees. While the former are a large but dispersed constituency, the latter is a more concentrated target. Politicians and SOE executives will collude in aiming at excess employment and excess wages because for the former there are political rents attached, and for the latter there are money rewards.

Thus, if the politicians get more votes by large numbers of excessively paid employees in SOEs, and the compensation of the executives is a function of the number and wages of employees, there is wide room for inefficiency. Sometimes this story is supplemented by the observation that even a benevolent, welfare-maximiser government has a jumble of policy objectives, quite often contradictory, and this does not give the right cost-minimization incentive to managers.

There are many possible variations in the way this story has been told but reviewing all the models that have been presented to explain the perceived inefficiency of SOE is beyond the scope of this paper.

³ See Rosen (1992) for a both theoretical and empirical survey.

The change from public to private ownership, in the convergent property rights-public choice perspective, should have foreseeable consequences in terms of the quantity and remuneration of labour. Politicians are now replaced by an appointed regulator who has no interest in elections, and who has a relatively narrow mandate to supervise the industry. Managers have a new principal, the shareholder, who has an interest in profit maximization. Under this new structure of incentives, the managers compensation will be a function of profits (for example through stock options schemes). Thus, cost minimization will follow. While incentive theory⁴ may offer a more complex insight in this new framework of principal-agents relationships, and less clearcut predictions, the property right-public choice view maintains that even if there are still informational asymmetries and rents involved in the new setting, privatised firms will definitely be more cost-efficient than under state ownership, and will shrink real wages and employment to efficient levels.

When we translate all this in testable predictions, there are simple propositions that lend themselves to empirical analysis. For example:

- a) if the SOE maintains higher employment than it is necessary for cost minimisation, after privatisation – *ceteris paribus* - we should observe a reduction in the number of employees, for the same amount of output;
- b) if salaries are too high in SOE, after privatisation they should fall in real terms;
- c) labour effort and organisation should improve after divestiture;
- d) the achievement of results in these three directions could need action on the part of the management to reduce the power of trade unions within privatised firms, and we should be able to observe a decline of unionisation;

Lastly, one can ask what effects large scale privatisation may have on the labour market as a whole, for example through the indirect effects linked to the changing role of trade unions, reduction in personnel, containment of salaries, etc. According to standard macroeconomic theory, as argued in Bacchiocchi, Florio and Grasseni (2005), privatisation may be seen as a positive shock on aggregate supply, thus increasing output and employment⁵.

Having said this, in this paper we wish to use privatisation as a natural experiment to test a simple version of question (b): whether it is true that workers in SOEs enjoy a rent in the form of excess wages and this rent is wiped out or decreases with privatisation.

We define excess wages as workers' earnings (per hour or per a convenient unit of time) that is higher than the reservation wage, or the money disutility of labour. Under labour market clearing equilibrium the reservation wage cannot systematically differ from the value of the marginal product of labour, except for specific characteristics of the individuals and the industries. Thus, we

⁴ Recent results in this spirit are reported by Corneo and Rob (2003), and Tirole (2005).

⁵ Other implications of privatisations on real wage dynamics in a macro framework can be found in Blanchard and Giavazzi (1991).

use the average wage per similar categories of workers (full-time males, skilled and unskilled) as our benchmark, and we test what happens to different measures of workers' earning before and after privatisation in specific British industries.

The aim of our paper is not to try to assess the effect of privatisations per se, which would require predictions of how the industries would have performed had they not been privatised, while all the other changes occurred (a counterfactual scenario). Consequently, we estimate the effect of observed changes before and after privatisation, and compare the effects in the privatised sectors with other sectors to control for macroeconomic changes in the economy. This is the approach followed in most of the existing literature, surveyed in the next section, but we improve on it because of the time span we consider and our more systematic empirical analysis.

3. Earlier contributions

Since theoretical implications concerning wage and employment effects of privatisations are mixed, many empirical studies have tried to assess their existence and characteristics. Here we revise the results of previous studies for the UK, mainly carried out using firm-level data⁶.

Salama (1995) claims that between 1970 and 1983 wage increases in nationalised firms in the UK were higher than those in the private sector, but without a corresponding increase in productivity. This trend would appear to be confirmed looking at the period 1979-88, and its effects would appear to extend also to the workers and not only to the top management. Several studies confirm this evidence: for a survey see Pendleton (1997).

Detailed data on eleven companies can be found in Martin and Parker (1997), where they show wage levels in the period before and after privatisation, standardised with the wages of the manufacturing sector or with the averages of the economy as a whole. These data show that, 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 among different layers of the workforce.

The literature we have cited does not confirm the prediction 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. A study by Haskel and Szymanski (1994) confirms in fact that

⁶ There is some recent growing evidence also for other countries. See, for example: Monteiro (2003, 2004) for Portugal, La Porta and Silanes (1999) for Mexico, Brainerd (2002) for Russia, and Gupta et al. (2001) for a general survey of previous studies.

market share does influence pay in a 1972-88 panel of 14 companies that were publicly owned in 1972 and then were privatised, as implied by some existing theories.

A separate point raised by Martin and Parker (1997) concerns the ratio of wages on turnover, or rather the relative position of wages, on the one hand, and profits and interests on the other. Here we observe a tendency for the share of wages to fall, while the share of external inputs rises. This is more evidence of contracting out of services than of substitution of labour with capital, or increased sector productivity. The remuneration of own and third party capital rises as well after privatisation. The increase in company profitability is a question that should be dealt with separately. It is, however, important to note that while privatisation in itself did not reduce employment or wages, the increase in profits may derive exclusively from either an increase in labour productivity that has not been translated into a corresponding increase in wages (perhaps also due to the weakening of the unions) or, in the absence of clear evidence of growth in productivity, from an increase in prices relative to costs.

The phenomenon described above may not concern specific sectors in which the cost of labour is the result of particular situations. Pendleton (1999) gives some evidence of reduction in wages regarding the system of franchising of the London buses, and more generally the bus industry.

Boyfield (1997), and Cragg and Dyck (1999) focus on managers' compensation. According to Boyfield (1997) the salaries of Board members of the utilities (British Telecom, British Gas, RECS, Powergen, National Grid) incurred a nominal increase of 600% from before privatisation to 1996. According to the author, however, this simply shows that the average pre-privatisation salary was below market rewards. Cragg and Dyck (1999) find evidence of convergence of top executive pay in the privatised companies and in a matching sample of publicly traded firms. Since apparently the boards of privatised 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), it is hard to believe that those managers accepted low-paid jobs in the public sector because less productive than their private counterparts, and unable to find better paid jobs. It is not clear, however, whether similar performances are relevant for middle management.

To sum up: earlier research offers mixed evidence and as far as we know did not offer an analysis based on sufficiently long time series. Quite often the comparison in labour conditions in the privatised industries is limited to a few years before and a few years after privatisation. Moreover, most papers do not attempt to examine wages for different types of workers and for different industries in a systematic way. We propose to improve on the existing research in three ways: first we consider data for more than 30 years, in order to control for temporary shocks; second, we consider different types of workers and earning measures; third, we examine comparable data for five nationalised/privatised industries.

4. Data

For analysing earnings dynamics we have built an appropriate data-set, based on the annual publications “New Earnings Survey: analysis by industry, Part C”, available at the Office of National Statistics (ONS). In this publication are reported data on earnings and their structure, based on a panel of individuals, constructed in 1970. The panel consists of a 1:100 sample of workers, selected according to a random criterion based on the last two digits of the national insurance number⁷. Employees belonging to the sample are members of the pay-as-you-earn (PAYE) income tax schemes, that covers all categories of workers in businesses of all kinds and sizes⁸.

The information required in the questionnaire is given directly and compulsorily from the employer, and is taken from payslips. This implies that (differently from individual survey panel data) wages and their components are not rounded, or misreported. Moreover, since the questionnaire is asked every year, there is no attrition in the sample. People exit the panel when they become unemployed, but re-enter when they find a new job since the new employer can be contacted. Every year, the ONS updates the panel according to the national insurance number.

Average data derived for various categories of workers (e.g. full-time, part-time, by gender, by region, by occupation, etc.) are published every year by ONS. In particular, for full-time employees⁹, the tables published in NES-Part C report different measures of earnings and hours aggregated at the industry level for men, women, manual and non-manual workers. The breakdown by sector at two and three digits level lets us identify quite precisely five sectors that have been privatised during the last twenty years in the UK: gas, electricity, water supply, railways and air transport.

The measure of wages from which figures are given is gross earnings, i.e. wages paid by the firm before any deductions or taxes, excluding non-ordinary payments such as costs remuneration or pay for holidays not referred to the period considered, that usually is specified in the questionnaire. However, detailed information on the structure of wages is given in the NES data.

For each sector considered, the tables that we have collected give the following values:

⁷ The same pair of digits has been used since 1975.

⁸ There is a PAYE earnings threshold below which neither the employer nor the employee makes National Insurance contributions, therefore there is an undercoverage problem in the NES sample. Since employees not covered by the PAYE system are usually part-time workers, especially women, and young people, the NES sample cannot be considered as a representative sample for measuring employment in the UK. However, the sample of full-time men is normally considered representative for the entire population of full-time male workers. For details see National Statistics Methodology Advisory Committee, NS MAC (02)3, *Methodological issues in the New Earnings Survey*.

⁹ This ensures the exclusion from the sample of employees not paid according to adult rates. For men, to whom we restrict our analysis, working age is fixed in the majority of contracts at 21 years.

- Number of observations
- Average weekly earnings (i.e. the sum of individual weekly earnings divided by the number of employees), for two sub-samples according to the fact that workers whose wage can be affected by absence¹⁰ are included or excluded
- Average hourly earnings, calculated for full-time workers whose wage is not affected by absence. Since in the NES overtime pay is reported separately, we have two measures of hourly earnings: one including and the other excluding overtime. Hourly earnings including overtime are calculated by dividing the sum of weekly earnings of employees by the sum of their total weekly hours. We define this measure: '*average hourly wages*'. The second measure of hourly earnings instead is constructed dividing total earnings minus total overtime earnings by the total number of hours paid, net from overtime hours. Since this last measure can be considered as a precise evaluation of the hourly base-wage rate contracted, we define it '*average hourly base-wages*'.

There are two samples for which tables are given: 1) *cross-sections*; and 2) the panel constructed following exactly the same individuals in two consecutive years, the so-called *matched sample*. The first sample takes into account turnover mechanisms in the labour market, therefore figures might not be referred to the same individuals. On the contrary, the matched sample gives figures that, being referred to the same individuals, are in theory a better measure for wage changes. However, the overlap between consecutive waves is often not very large in the five sectors we are interested in. As a consequence, the indicators of changes in earnings can be biased. For this reason, we focus on cross sections in this paper.

We also concentrate on full-time males, since women's participation to the labour market is more difficult to analyse with the information available. The time period covered by our data spans from 1970 to 2002.

5. Trends in relative wages.

In this section we present some descriptive findings relative to the time series that we have constructed. In particular, we focus on the impact of privatisations on the UK labour market in terms of wage-levels paths.

Our preferred measure for wages is hourly wages, since the likely effect of changes in hours is eliminated. In particular, both measures of hourly wages available are useful for analysing the impact of privatisations in the labour market. The first, *average hourly wages*, takes into account

¹⁰ By absence in this context we mean a period of interruption of work due to many possible reasons (illness, volunteer absenteeism, etc...).

controls for changes in hours effects. The second, *average hourly base-wages*, is a good proxy for the base-wage contracted, therefore can be considered as an indicator of the bargaining power of trade unions.

Earnings for each sector are normalised with respect to the level of corresponding measures of earnings in all the industries and sectors of the economy, therefore we analyse *relative earnings' dynamics*¹¹.

Figure 1 and 2 report relative *average hourly* and *hourly base-wages* dynamics for manual workers. In each graph and for each sector, a vertical bar has been inserted in correspondence of the year when the sector has been privatised.

Although paths are different across sectors, we can see that there is a continuous upward trend in relative *average hourly wages*. No particular structural break is easily identified in correspondence or in the nearby of the year of privatisations. In the water and electricity sectors an increase in wage growth trends is evident after 1990, the year of privatisation. However, such behaviour of wages can be observed also for the other utilities in correspondence of the same year, and seems to be explained more plausibly with the cyclical situation of the UK than with the event of privatisations.

The *average hourly base-wages* path of Figure 2 is similar to the *average hourly wages'* dynamics shown in Figure 1, suggesting that it is the base wage contracted that drives hourly wage and not the overtime and benefit components of labour earnings. Moreover, since relative base-wages never decrease after the privatisation experience, it is hard to claim that privatisations reduced unions' bargaining power. Eventually, despite the process of decentralisation of wage determination, manual workers did not lose in terms of wage bargaining power.

Figure 3 and 4 report the two measures of hourly earnings for non-manual workers¹². Although these patterns look quite different from Figure 1 and 2, but homogeneous across sectors, also for non-manual workers we do not observe any reduction in relative wages after the privatisation year. Again, a general upward trend in wages can be seen in proximity of the year 1990, that coincides with the year of privatisations in the sectors of electricity and water. Also for non-manual workers labour earnings dynamics are clearly driven by the base-wages since Figure 3 and 4 show very similar patterns.

We then compare average labour earnings pre and post privatisation for each sector. Table 1 and Table 2 show, for each sector, the number of years observed pre and post privatisation¹³, and the number of observations for each category of workers on which are based our results. In the

¹¹ Probably considering only the services sector for the normalisation would have been more precise, but the unavailability of this measure for the first fifteen years let us prefer the most aggregate measure available in order to have homogeneous results.

¹² Unfortunately, due to the lack of number of observations, figures for the railways sector are not published after 1996.

¹³ Although data have been collected for each year, it is worth noticing that some years for some category of workers are missing. This is due to the fact that results are published only for samples of at least 100 observations. Non-manual workers in the railways industry, in particular, present very few observations.

same tables we can read, separately for manual and non-manual workers, the average value of the two measures of wages in the interval of time considered. Overall, from the analysis of Tables 1 and 2, it seems very hard to identify a clear break at the privatisation year. The results seem to confirm the visual evidence of a clear continuous increase of average wages after privatisations.

The analysis of wage trends – to sum up - suggests that: 1) real labour earnings did not decrease in the UK after privatisation; and 2) the bargaining power of employees was not negatively influenced by privatisations, both for manual and non manual workers.

6. Econometric analysis

The simple visual evidence of graphs carried out in the previous section, although useful at first instance, does not allow us to test appropriately the impact of privatisations on wages. In particular, we cannot distinguish among the different possible causes of the observed pattern of relative wages. We therefore move to regression analysis introducing a simple test for the impact of privatisations on wages. Having shown that patterns for the two measures of wages do not differ, we focus on the first measure: *average hourly wages*.

The principal possible explanation of wage changes in an industry is well known to be productivity, that in part reflects also demand shifts in the same sector. We use therefore the *output per hour* measure estimated in O'Mahony (1999) for the 1970-1998 period as an explanatory variable for hourly wages. Due to the aggregation criterion of this different source of data, we cannot observe the water sector. Railways are excluded because the privatisations occurred in 1996, and therefore not enough observations on productivity are available for the post-privatisation period. We therefore restrict the econometric analysis to three cases: gas, electricity, and air transport. Clearly the above measures of productivity are not specific to manual or non-manual workers, and so we have the same productivity measure entering both wage regressions. Their behaviour is shown in Figure 5, where a general upward trend of output per hour is evident, particularly strong in the '90s after a little downward shock that for the electricity and air transport actually occurs after the privatisation experience. In order to construct measures homogeneous to the ones used for wages we normalise output per hour to the aggregate value for all industries and sectors, obtaining the patterns shown in Figure 6, quite similar to the ones in Figure 5, although smoother.

We carry out a simple regression analysis using *log(relative hourly wages)* as dependent variable. As explanatory variable we use the *log(relative productivity)* of the previous year, therefore taking into account of a certain rigidity in wage adjustment. A time trend is inserted in the regression through the variable *year*.

For testing the temporary versus permanent impact of privatisations on wages we introduce a dummy with value 1 in the year when the public utility has been privatised (*priv.*) and a dummy with value 1 in all years after privatisation (*post-priv.*). In absence of privatisation effects, the coefficients for these dummies should not be significant.

Table 3 shows our regressions' results. As we can see, in general privatisation does not have a permanent impact on wages (the variable *postpriv* is not or weakly significant in almost all the sectors). The only exception is the category of non-manual workers in the gas industry, for whom real hourly wages have a permanent decrease of 10% in the long-run after privatisations.

Privatisation seems to have only a temporary impact on labour earnings, with different size and sign depending on the sector and the category of workers considered. Whereas manual workers in the gas industry received a 5% reduction of wages in the year of privatisation, similar workers in the air transport sector had an increase of real wages almost of the same size after the change of ownership. For non-manual workers temporary effects on labour earnings are found only in the gas and electricity sectors. They are always of negative sign, and their size is higher than for manual workers (8% on average). (*explain*)

Therefore, differently from what argued from the descriptive analysis of the previous graphs, when controlling for productivity and time trend privatisations have a mixed, and generally negative temporary impact on wages. However, except for non-manual workers in the gas sector, in the long run relative hourly wage dynamics are not related to the change of ownership.

7. Conclusions

Summarising, our findings are the following:

1. Despite the pattern of relative earnings over time is extremely different across sectors, contrarily to some theoretical predictions in the public choice-property rights tradition, we never observe permanent reductions in earnings relative to the benchmark as a consequence of privatisation.
2. Considering a short time interval around the year in which each specific sector was privatised, labour earnings continued to rise in sectors where they were increasing, and did start rising in sectors where, during the last few years, they were decreasing. However, when controlling for productivity shocks, privatisations had a negative temporary impact on real wages, except for manual workers in the air transport industry.
3. Over the long-run trend, no structural break is evident in correspondence of the year of privatisation in any of the sectors considered. The only exception is the gas

industry, where labour earnings of non-manual workers had a permanent 8% decrease after privatisations.

Our results discard any simplistic prediction of relative wage decreases following privatisation in Great Britain and surprisingly suggest some evidence of the opposite performance in two sectors out of three that we have analysed. There are many possible interpretations of this result, and here we suggest three competing interpretations.

One possible explanation is that workers were actually earning excess wages under state ownership, and continued to enjoy rents under privatisation thanks to a regulatory framework that allowed the survival or even the increase of monopoly rents, partly shared between shareholders, managers and workers.

A second possible interpretation is that in fact there were no excess wages in the SOE, and their high level relative to the economy was a consequence of higher productivity levels in the industry that we consider, and of labour market segmentation. Privatisation has reinforced this productivity pattern and this is why we observe increase of pay, instead of decrease. This may be the interpretation of trend for air transport, where liberalisation was more important than privatisation.

A third possible explanation points to the decrease of employment and of the share of labour in value added of the privatised industries: increasing wages for employees staying in the same industries are matched by a shift to procurement, and by lower wages in the contracted-out employment.

Further research is needed to establish which one of these (or other) alternative explanations is more compatible with observation. In any case, our findings suggest that any expectation that privatisation per se decreases relative wages in all divested public corporations is not supported by the British experience. In fact, we find that only for non-manual workers in the gas industry there is a permanent negative effect of privatisation on real wages, while neither for manual nor for non-manual workers there is a similar effect. To conclude, the picture is much more complex and needs an industry by industry analysis considering more other factors, other than change of ownership.

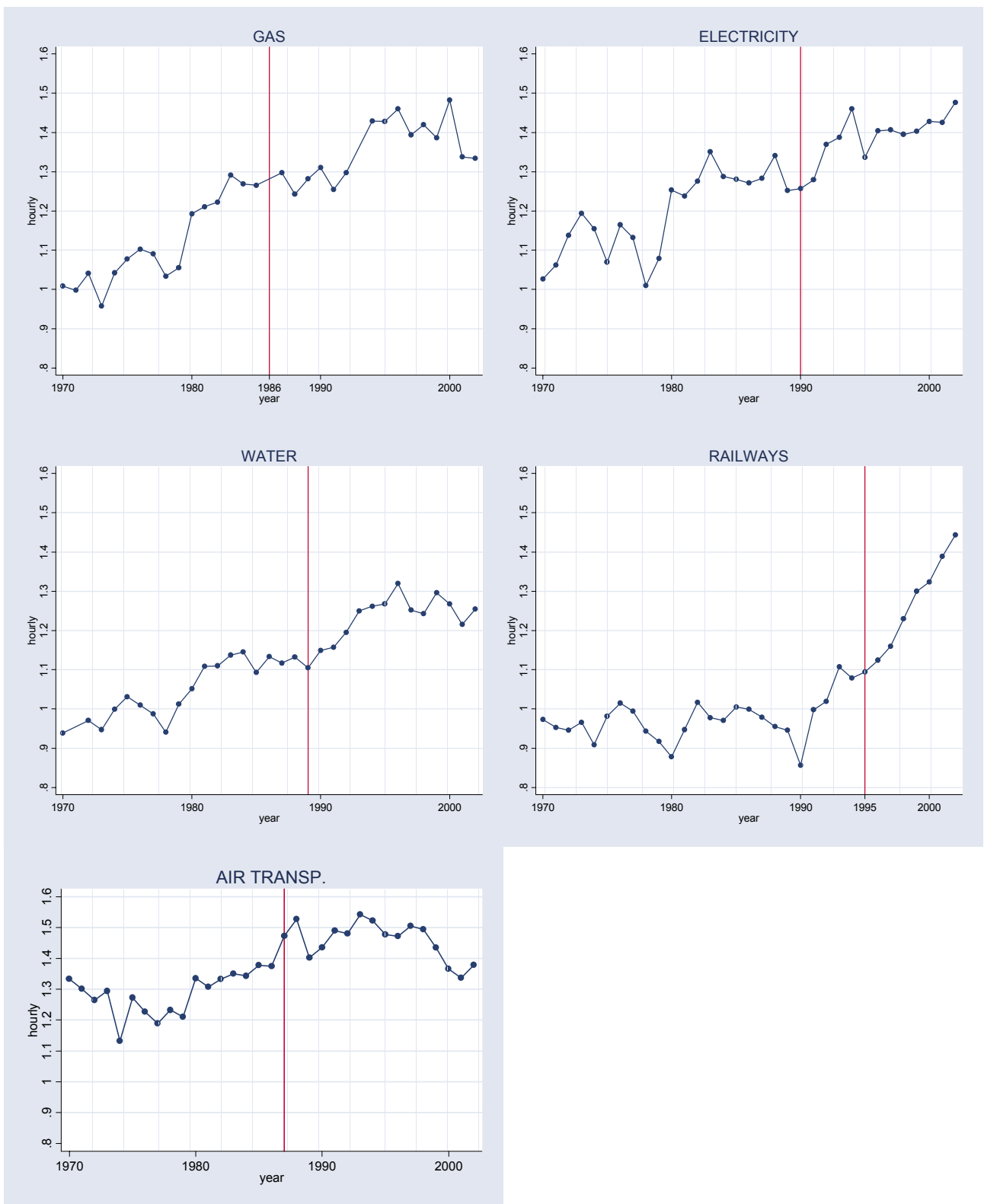
References

- Bacchiocchi, E., Florio, M. and M. Grasseni (2003), 'The missing shock: the macroeconomic impact of British privatisation', forthcoming in *Applied Economics*.
- Bishop M., J. A. Kay (1988), 'Does privatisation work?: lessons from the UK', Centre for Business Strategy, London Business School.
- Bishop M., J. A. Kay (1993), 'Privatisation in the UK: Deregulatory reform and public enterprise and performance', in *Privatisation: a global perspective*, V. Ramanadham, ed. London, Routledge.
- Blanchard, O. and F. Giavazzi (1991), 'Macroeconomic effects of regulation and deregulation in goods and labor markets', NBER wp 8120.
- Blyton, P. (1993), 'Steel', *Public Enterprise in transition: Industrial Relations in State and Privatized Corporations*, A. Pendleton and J. Winterton, eds. London: Routledge.
- Brainerd, E. (2002), 'Five years after: the impact of mass privatisation on wages in Russia, 1993-1998', *Journal of Comparative Economics*, 30, pp.160-190.
- Colling, T. (1991), 'Privatization and the management of IR in Electricity Distribution', *Industrial Relations Journal*, 22(2), p.117-130.
- Conyon, M. (1995), 'Directors' pay in the privatised utilities', *British Journal of Industrial Relations*, 33(2), p.159-172.
- Corneo, G. and R. Rob (2001), 'Working in public and private firms', *Journal of Public Economics*, 87, pp.1335-1352.
- Cragg, M. and I. J. A. Dick (1999), 'Management control and privatisation in the UK', *Rand Journal of Economics*, 30(3), p.475-497.
- De Fraja, G. (1993), 'Unions and wages in public and private firms: a game – theoretic analysis', *Oxford Economic Papers*, 45, pp.457-469.
- Ferner, A. (1990), 'The changing influence of the Personnel function: privatisation and organizational politics in electricity distribution', *Human Resource Management Journal*, 1(1), p.12-30.
- Ferner, A. and T. Colling, (1993), 'Electricity supply', *Public Enterprise in Transition: Industrial Relations in State and Privatized Corporations*, A. Pendleton and J. Winterton, eds. London: Routledge.
- Forrester, K. (1993), 'Buses', *Public Enterprise in transition: Industrial Relations in State and Privatized Corporations*, A. Pendleton and J. Winterton, eds. London: Routledge.
- Florio, M. (2003), 'Does privatisation matter? The long-term performance of British Telecom over 40 years', *Fiscal Studies*, 24(2), p. 197-234.
- Florio (2004, forthcoming), *The great divestiture. Evaluating the welfare impact of the British privatisation 1979-1997*, MIT Press.
- Goerke, L. (1998), 'Privatization and efficiency wages', *Journal of Economics*, 67(3), pp.243-264.

- Gupta, S., Schiller, C., Ma, T. and R. Erwin, (2001), 'Privatisation, labor and social safety nets', *Journal of Economic Surveys*, 15(5), pp.647-669.
- Haskel, J. and S. Syzmanski (1992), 'Privatisation and the labour market: facts, theory and Evidence' in Bishop M., Kay J.A., Mayer C. P., Thompson D.J. (eds.), *Privatisation and regulation, the UK experience*, Oxford University Press.
- Haskel, J. and S. Syzmanski (1993), 'Privatisation. Liberalisation, wages and employment: theory and evidence for the UK', *Economica*, 60 (238), p.161-81.
- Haskel, J. and S. Syzmanski (1994), 'Privatisation and the labour market: facts, theory and Evidence' in Bishop M., Kay J.A., Mayer C. P., Thompson D.J. (eds.), *Privatisation and economic performance*, Oxford University Press.
- Haskel, J. and A. Sanchis, (1995), 'Privatisation and X-inefficiency: a bargaining approach', *Journal of Industrial Economics*, 43(3), pp.301-321.
- Heald, D. and D. Steel, (1986), 'Privatising public enterprises: an analysis of the government's case', *Privatization and regulation: the UK experience*, J. Kay, C. Mayer and D. Thompson, eds. Oxford: Clarendon.
- La Porta, R. and F. Lopez-de-Silanes, (1999), 'Benefits of privatisation – Evidence from Mexico', *Quarterly Journal of Economics*, 114(4), pp.1193-1242.
- Laffont, J-J (2005), *Regulation and Development*, Cambridge University Press.
- Martin, S. and D. Parker (1997), *The impact of privatisation: ownership and corporate performance in the UK*, Routledge, London.
- Meggison, W. L. and J. M. Netter, (2001), 'From state to market: a survey of empirical studies on Privatization', *Journal of Economic Literature*, 39(2), pp.321-389.
- McCarthy, W. (1988), 'Privatization and the employee', *Privatization and the UK*, ed. London: Routledge.
- Monteiro, N. P. (2003), 'The impact of privatisation on wages: evidence from the Portuguese banking industry', mimeo.
- Monteiro, N. P. (2004), 'Using propensity score matching estimators to evaluate the impact of privatisation on wages', mimeo.
- Mueller, D. C. (2003), *Public choice III*, Cambridge University Press.
- O' Connell Davidson (1993), *Privatisation and employment relations: the case of the water industry*, London: Mansell.
- O' Mahony (1999), *Britain's Productivity Performance: 1950-1996. An International Perspective*. NISER, London.
- Ogden, S. (1993), 'Decline and fall: national bargaining in British water', *Industrial Relations Journal*, 23(1), p.44-58.
- Ogden, S. (1993), 'Water', *Public Enterprise in transition: Industrial Relations in State and Privatized Corporations*, A. Pendleton and J. Winterton, eds. London: Routledge.

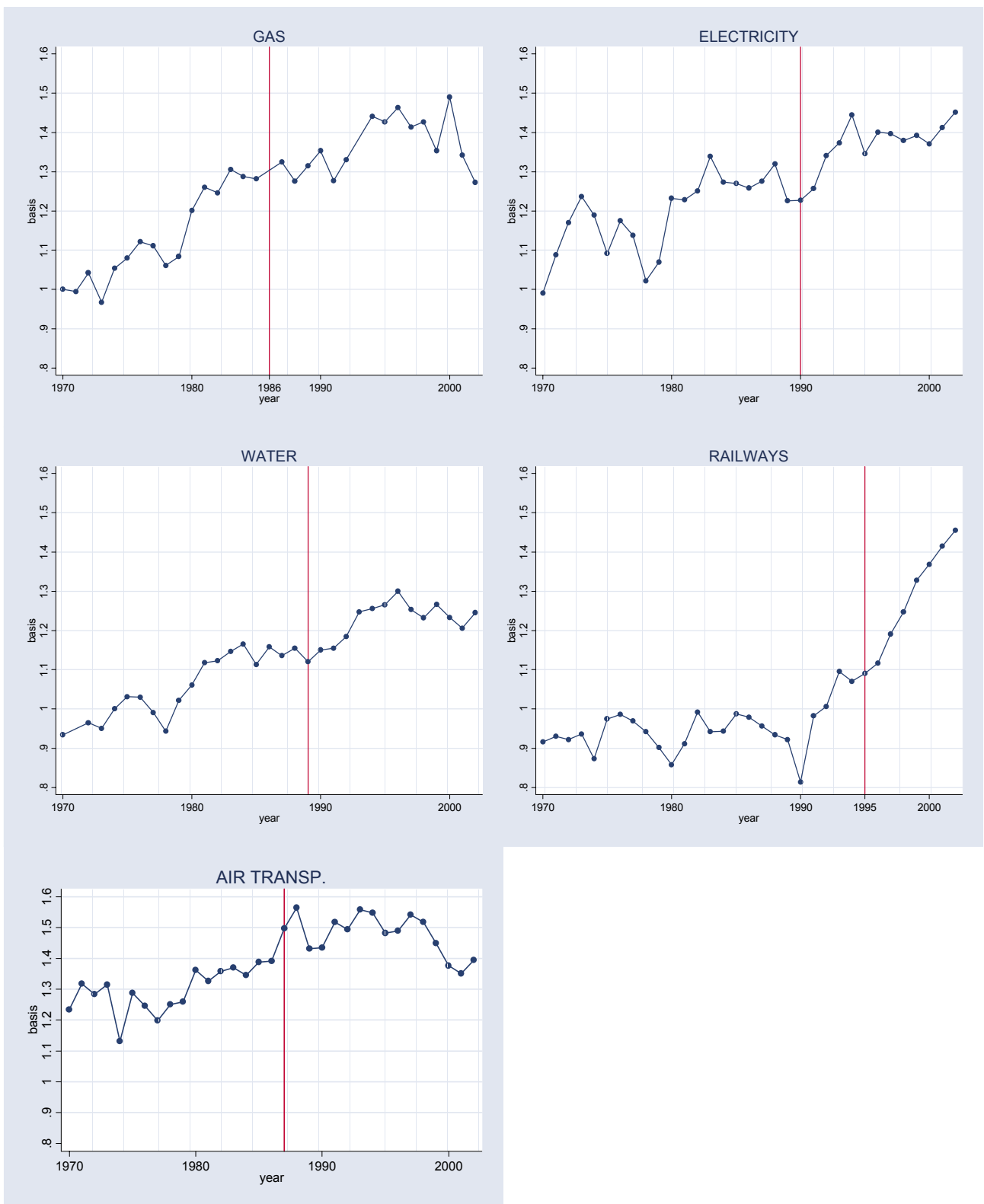
- Pendleton, A. (1997), 'What impact has privatisation had on pay and employment? A review of the UK experience', *Industrial Relations*, 52(3), pp.554-582.
- Rosen, S. (1992), 'Contracts and the market for executives', in L. Werin and H. Wijkander, ed., *Contract Economics*, Oxford, UK, Basil Blackwell.
- Shleifer, A. and R. W. Vishny (1994), 'Politicians and firms', *Quarterly Journal of Economics*, 109(4), pp.995-1025.
- Shleifer, A., (1998), 'State versus private ownership', *Journal of Economic Perspectives*, 12(4), pp.133-50.
- Thomas, D. (1984), 'Union responses to denationalization', *Privatising public enterprises: option and dilemmas*, D. Steel and D. Heald, eds. London: Royal Institute of Public Administration.
- Trades Union Congress (TUC) (1986), *Bargaining in privatised companies*, London: Trades Union Congress.
- Turnbull, P. (1993), 'Docks', *Public Enterprise in transition: Industrial Relations in State and Privatized Corporations*, A. Pendleton and J. Winterton, eds. London: Routledge.
- Vickers, J. and V. Wright (1988), 'The politics of industrial privatisation in western Europe: an overview', *West European Politics*, 11(4), p. 1-30.
- Vickers, J. and G. Yarrow, (1988), *Privatization: an economic analysis*, Cambridge Mass., MIT Press.

Figure 1: Relative Average Hourly Wages of Males Full-Time Manual



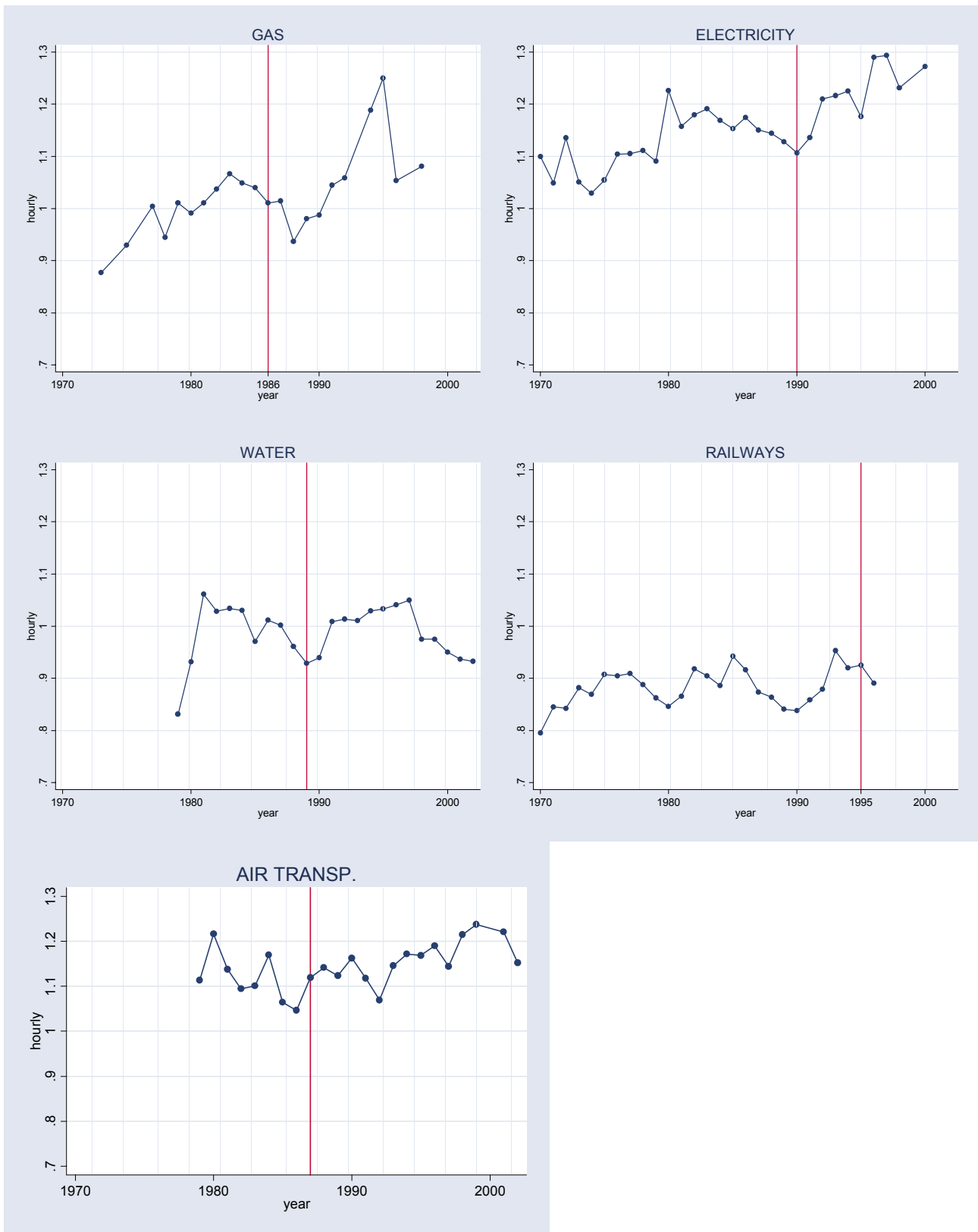
Source: ONS, NES data.

Figure 2: Relative Average Hourly Base-Wages of Males Full-Time Manual



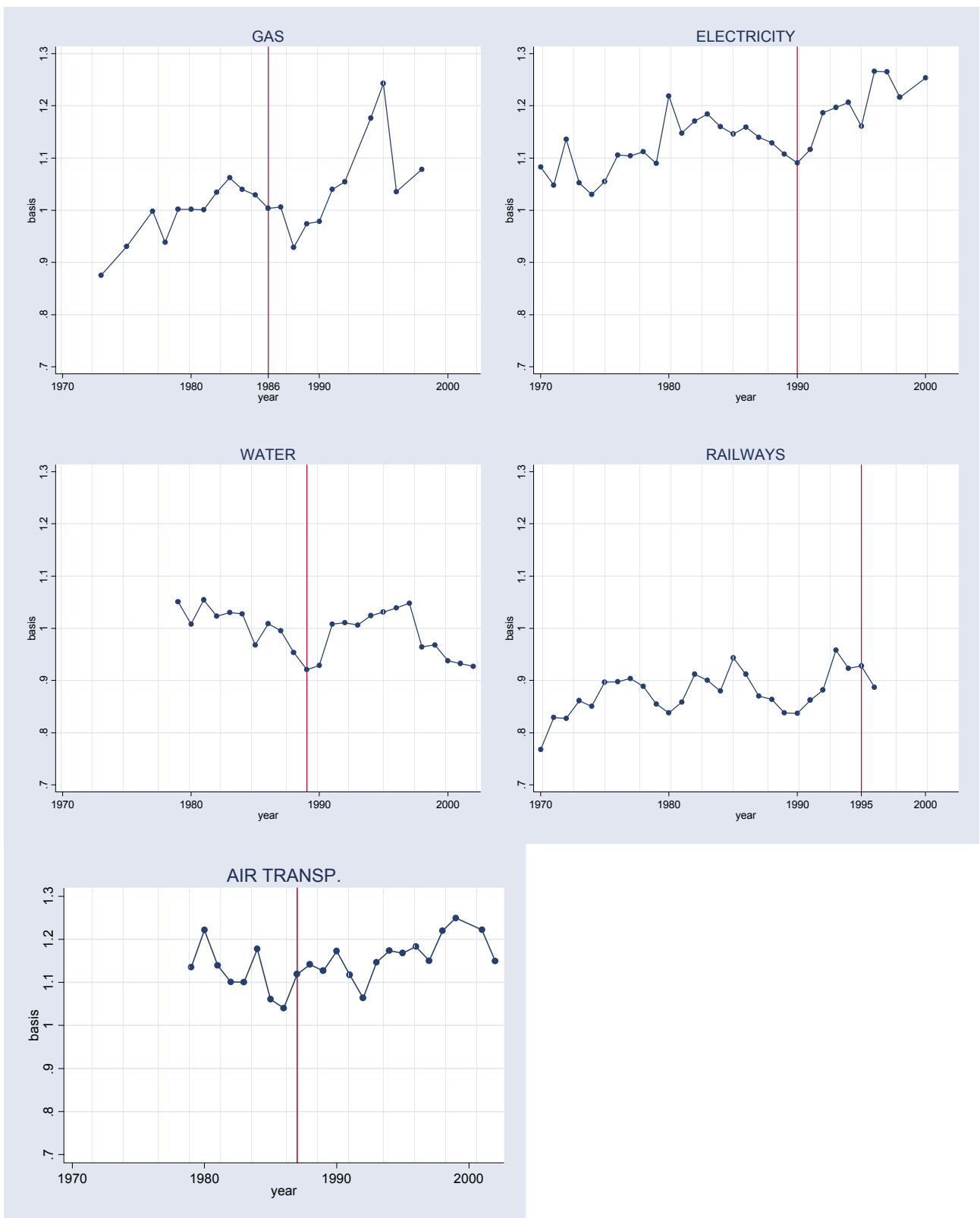
Source: ONS, NES data.

Figure 3: Relative Average Hourly Wages of Males Full-Time Non-Manual



Source: ONS, NES data.

Figure 4: Relative Average Hourly Base-Wages of Males Full-Time Non-Manual



Source: ONS, NES data.

Table 1: Relative gross weekly earnings in selected privatised sectors: 1970-2002. Sample excluding those whose pay for the survey pay-period was affected by absence.

SECTOR	GAS		ELECTRICITY		WATER SUPPLY		RAILWAYS		AIR TRANSPORT	
	pre-priv.	post-priv.	pre-priv.	post-priv.	pre-priv.	post-priv.	pre-priv.	post-priv.	pre-priv.	post-priv.
N. of years	16	16	20	12	19	13	25	7	17	15
MANUAL										
N. of years obs.	12	15	16	12	14	13	21	7	13	15
Average n. obs. per year	376	201	760	319	268	173	1132	224	236	189
Mean	1.114	1.317	1.100	1.313	.998	1.162	1.054	1.296	1.261	1.424
NON MANUAL										
N. of years obs	8	10	17	9	7	13	22	1	5	14
Average n. obs. per year	313	254	467	302	160	152	319	134	253	214
Mean	.986	1.059	1.107	1.221	.979	.972	.943	.936	1.273	1.412

Source: our calculations on ONS data, published in 'New Earnings Survey Part C: Analyses by Industry'.

Notes to Table 1:

- 1) The sub-sample considered in our table includes only full-time males on adult rates whose pay for the survey pay-period was not affected by absence.
- 2) Relative earnings are calculated dividing average gross weekly earnings for each sector by average gross weekly earnings in all industries and services.
- 3) Gross weekly earnings=Total gross earnings divided by the number of weeks in the pay-period

Table 2: Relative gross hourly earnings, excluding overtime pay and overtime hours (base-hourly), in selected privatised sectors: 1970-2002.

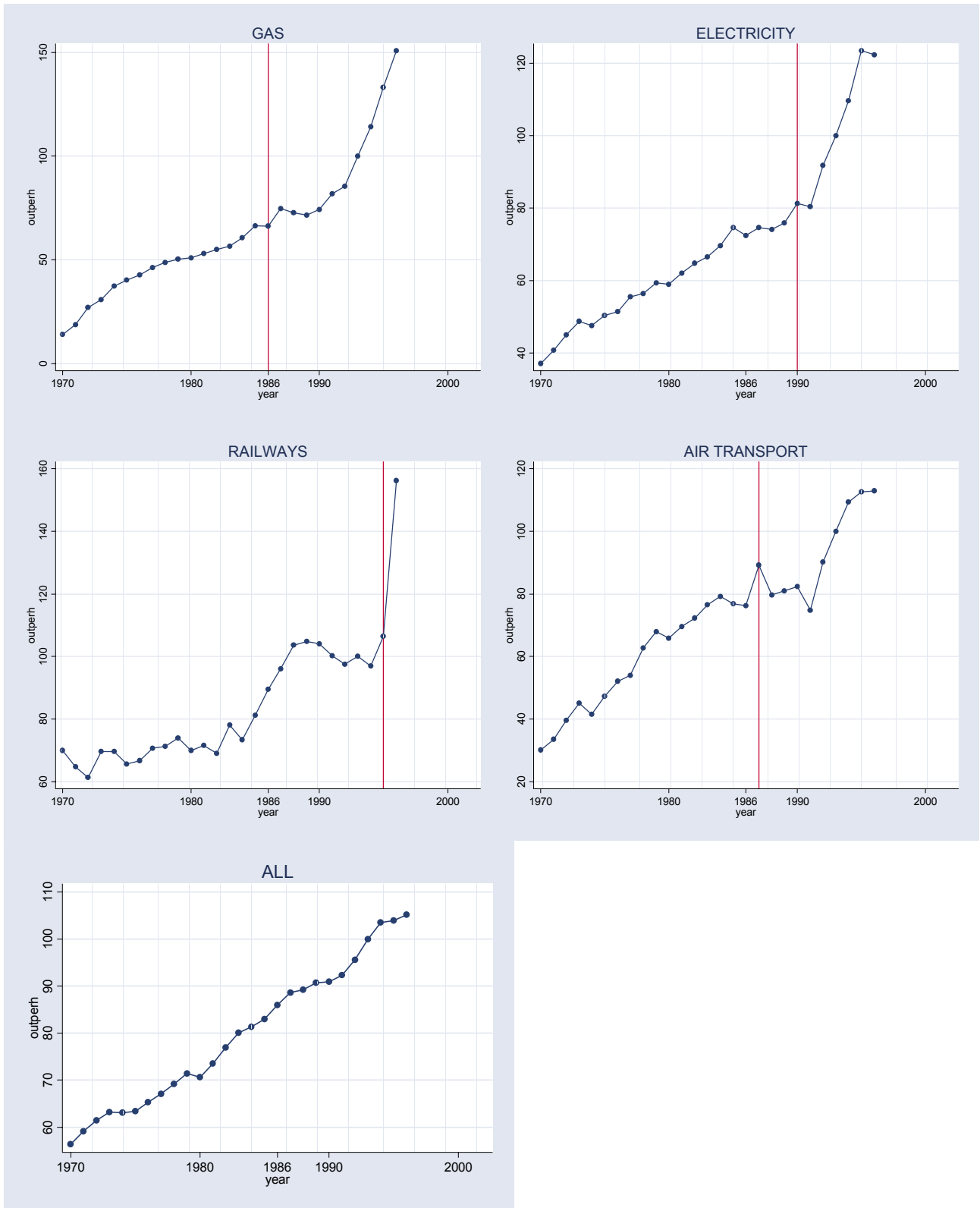
SECTOR	GAS		ELECTRICITY		WATER SUPPLY		RAILWAYS		AIR TRANSPORT	
	pre-priv.	post-priv.	pre-priv.	post-priv.	pre-priv.	post-priv.	pre-priv.	post-priv.	pre-priv.	post-priv.
N. of years	16	16	20	12	19	13	25	7	17	15
MANUAL										
N. of years obs.	12	15	16	12	14	13	21	7	13	15
Average n. obs. per year	376	201	760	319	268	173	1132	224	236	189
Mean	1.116	1.367	1.188	1.380	1.054	1.230	.958	1.303	1.306	1.477
NON MANUAL										
N. of years obs	8	10	17	9	7	13	22	1	5	14
Average n. obs. per year	313	254	467	302	160	152	319	134	253	214
Mean	.981	1.051	1.115	1.207	.997	.986	.874	.887	1.120	1.163

Source: our calculations on ONS data, published in 'New Earnings Survey Part C: Analyses by Industry'.

Notes to Table 2:

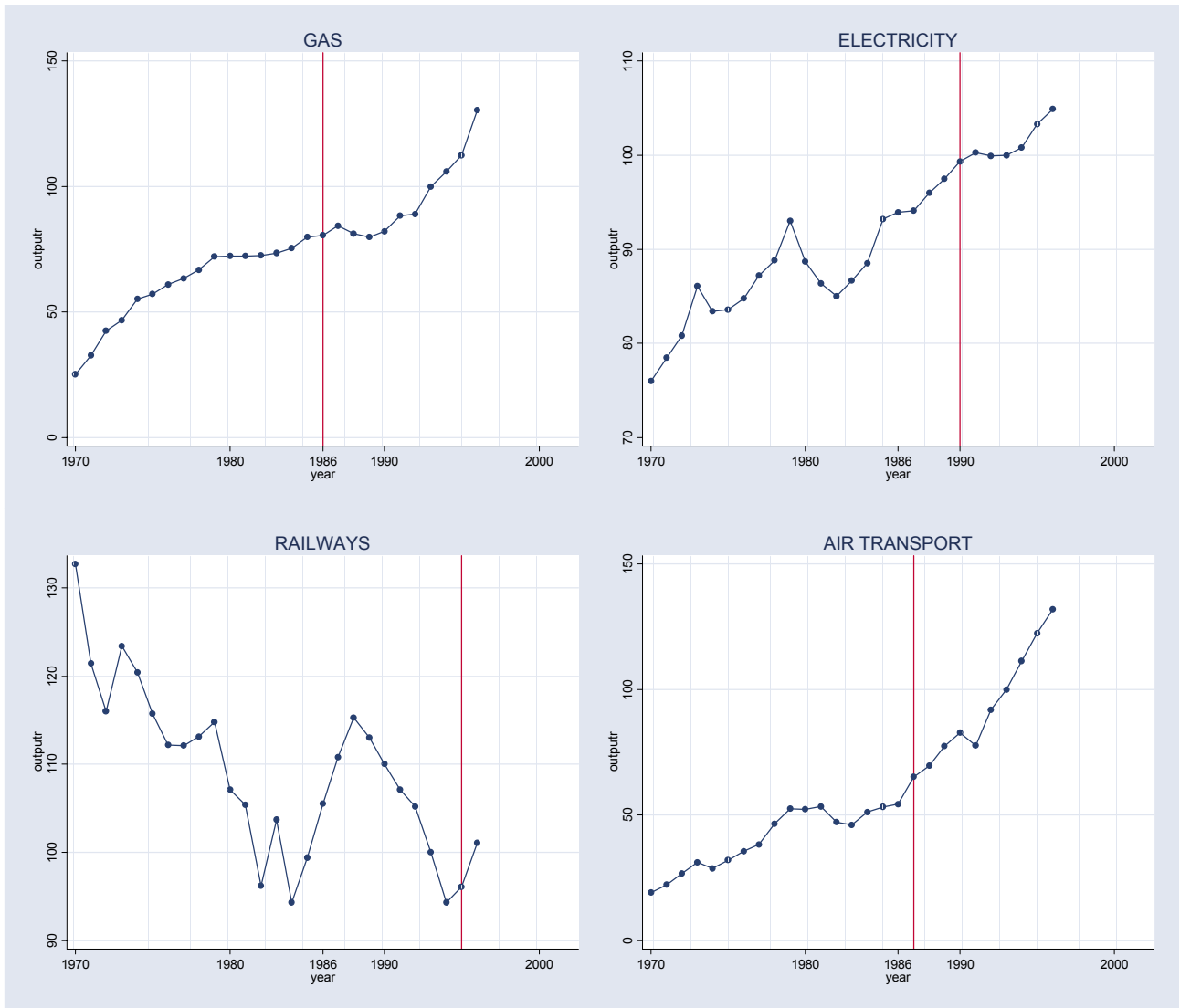
- 1) The sub-sample considered in our table includes only full-time males on adult rates whose pay for the survey pay-period was not affected by absence and for whom normal basic hours were reported.
- 2) Relative earnings are calculated dividing average gross hourly earnings for each sector by average gross hourly earnings in all industries and services
- 3) Gross hourly earnings, excluding the effect of overtime pay and overtime hours = (Gross weekly earnings minus weekly overtime earnings) divided by normal basic hours, for an employee whose pay for the survey pay-period was not affected by absence and for whom normal basic hours were reported

Figure 5: Output per hour



Source: O'Mahony (1999).

Figure 6: Relative Output per hour



Source: O'Mahony (1999).

Table 3: Regressions' results.

	MANUAL			NON-MANUAL		
	GAS	ELECTRICITY	AIR TRANSPORT	GAS	ELECTRICITY	AIR TRANSPORT
Dependent variable: Log (relative hourly wage)						
Log (relative output _{t-1})	-0.001 (0.979)	-0.585 (0.266)	-0.162* (0.060)	0.175 (0.159)	-0.104 (0.814)	0.197* (0.090)
Year	0.018** (0.000)	0.016** (0.006)	0.017** (0.006)	0.009 (0.122)	0.007 (0.121)	-0.011 (0.140)
Priv.	(Note1)	-0.051** (0.029)	0.050** (0.002)	-0.080** (0.003)	-0.076** (0.002)	0.039 (0.272)
Post-priv.	-0.072* (0.056)	-0.005 (0.867)	0.047* (0.068)	-0.107** (0.018)	-0.004 (0.888)	0.0249 (0.429)
Constant	-36.164** (0.000)	-30.187** (0.002)	-33.329** (0.006)	-18.949* (0.097)	-13.669* (0.066)	22.822 (0.140)
R ²	0.9110	0.7441	0.8437	0.6904	0.6450	0.3794
Durbin-Watson	1.363	1.6809	2.0128	1.6167	1.6980	2.1607

* significant at 10%

** significant at 5%

P-value of the t-distribution in parenthesis

Note (1): data in the year of privatisation not available.

Sample: Full-Time men, whose wages are not affected by absence.

Source: NES data, 1970-2002.