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Privatization, Entry Regulation and the Decline of Labor's Share of GDP: A Cross-Country Analysis of the Network Industries

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Abstract
Labor's share of GDP in most OECD countries has declined over the last two decades. Some authors have suggested that these changes are linked to deregulation of product and labor markets. To examine this we focus on a large quasi-experiment in the OECD: the privatization of many network industries (e.g. telecommunications and utilities). We present a model with agency problems, imperfect product market competition and worker bargaining which makes clear predictions on how the labor share, employment and wages respond to privatization and other regulatory changes. We exploit cross-country panel data on several network industries and find that privatization can account for a significant proportion of the fall of labor's share (a fifth overall, but over half in Britain and France). The impact of privatization has been offset by falling barriers to entry, which consistent with theory, dampens profit margins.

JEL classifications: E25, E22, E24, L32, L33, J30
Keywords: Profit share, Wages, Privatization, Entry Regulation

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1 Introduction

Capitalists are grabbing a rising share of national income at the expense of workers[1].

This comes not from a socialist tract, but the *Economist* magazine. Indeed, Figure 1 shows that labor's share in value added (the flip side of the profit share) has been falling across the business sector of OECD countries for about two decades. This is surprising as the stability of labor's share has been labelled a "stylized fact of growth"[2]. The *Economist* attributes these changes to globalization (see also IMF, 2007, Chapter 5) as trade with less developed countries such as India and China have led to a large increase in the global supply of labor. But, as we show below, the decline of the labor share has also taken place *within* the non-traded sectors of the economy. Trade can affect equilibrium wages across the whole economy, of course, but this is the reason it is very difficult to identify the effects of trade from other country-wide influences. Furthermore, as we show theoretically and empirically below, an increase in product market competition due to globalization would actually tend to increase labor's share. The purpose of this paper is to investigate one other possible cause of the declining labour share, specifically that the incentives of senior managers have shifted towards maximizing shareholder value and away from other objectives (such as job protection or "empire building"). We look at the impact of privatization as a key mechanism that has shifted these incentives and test this on a panel of "network" industries across countries that have experienced significant shifts in the influence of the state.

We discuss a simple model where the manager of an organization cares not only for profits, but also about the number of employees under him. This may

[1] "Breaking Records" *The Economist* February 12th 2005.

[2] This concept was introduced by David Ricardo in 1821. More recently, Blanchard (1997), Cabellero and Hammour (1998) and Acemoglu (2003) have examined various aspects of the share.

be because principal-agent problems allow CEOs to "build empires", but it may also be because the organization is heavily influenced by politicians who do not want to see falls in employment in state (or para-statal) firms. We embed this objective function in an environment of monopolistic competition and wage bargaining. In such a model we show that labor's share is likely to fall if the manager is forced to put a greater weight on profits and a lower weight on employment. A leading example of such a change is privatization, which will simultaneously reduce political influence and increase investor pressure to maximize profits. We also show that this model has some further novel predictions suggesting that employment will fall and wages will rise following privatization. Another more standard prediction of our model is that an increase in product market competition, for example through a reduction in entry barriers, would be associated with a rise in the wage bill share[3] (as profit margins are squeezed).

Despite the interest in the causes of the fall of labor's share, the empirical work in the area is rather meagre. Most authors work with aggregate data using cross-country panel regressions (e.g. Harrison (2002); Guscina (2006); IMF (2007)). But a problem with this sort of evidence is that there are many events occurring simultaneously at the macro-level and disentangling the impact of globalization or other factors from these other events is a formidable task. This is why it is important to use more disaggregated data. This identification problem can be illustrated with a simple example from our dataset (a discussion of the exact definitions of all variables is deferred until later). We predict that reducing public ownership (denoted PO) and/or increasing barriers to entry (denoted BTE) in the product market should reduce labor's share of GDP ("$SHARE$"). Consider an aggregate cross-country panel OLS regression of the labor's $SHARE$ in GDP on our indices of public ownership and entry barriers. In our data, estimating this equation delivers the following encouraging

[3] Throughout the paper we use labor share and wage bill share interchangeably.

regression results (standard errors in brackets):

$$SHARE = \underset{(0.001)}{0.006} * PO - \underset{(0.003)}{0.029} * BTE + \text{time dummies}$$

(Observations = 327, R^2=0.35)

Consistent with the theory, an increase in public ownership is associated with a significant increase in the share of labor. Similarly, an increase in the barriers to entry index is associated with a fall in the labor share. Both are statistically significant at the 1% level. Unfortunately, including a full set of country dummies drives both policy variables to statistical and economic insignificance:

$$SHARE = \underset{(0.164)}{-0.001} *PO - \underset{(0.206)}{0.001} *BTE + \text{time dummies} + \text{country dummies}.$$

(Observations = 327, R^2=0.93)

One response to these findings would be to include observed country-wide variables instead of the country fixed effects, but this is unlikely to be credible because of the wide range of other unobserved nation-specific factors. In the unemployment and regulation literature, researchers attempt to estimate much more sophisticated models including country-specific time trends, longer lags, interactions between policies and so on. But this is likely to make the identification problem worse, not better[4] . Our proposal in this paper is to use some of the inter-industry variation within countries (and over time) to identify the effects of policy changes. We find that better data helps a lot.

A second problem with the existing literature on the macro-effects of regulatory change is that policy changes tend to be focused in particular sectors so a

[4]See Nickell (2003) for example. Baker et al (2003) give a compelling criticism of the robustness of the empirical cross country unemployment and regulation literature.

sector specific approach is more attractive. There is a significant line of research in Industrial Organization focusing on the impact of deregulation in single sectors[5]. Although enlightening, the disadvantage of this very micro approach is that it is hard to generalize to other sectors or across the economy as a whole. In this paper, we take an intermediate approach using panel data from sectors across several OECD countries. These are the "network industries" that have seen the greatest degree of regulatory reform – Telecoms, Post, Gas, Electricity, Airlines, Railways and Roads. The timing and extent of these reforms vary significantly between countries. We exploit these differences, as quantified by the OECD in their Regulations Database on public ownership and barriers to entry, to explicitly test some key economic mechanisms[6].

Our results suggest that disaggregation and controls for unobserved heterogeneity are vital in order to find results that are consistent with theory. We find that falling public ownership is associated with a lower labor share and this is driven by the positive effect of public ownership on employment. This strongly suggests that privatization is an important reason for the falling wage bill share in the network industries in the OECD. Barriers to entry also appear to matter in that higher barriers to entry are generally associated with a lower labor share. This result is, however, less robust than the public ownership result.

The finding that privatization tends to reduce labor's share helps to answer the question of why labor's share fell *despite* falling entry barriers over time (see Torrini (2005) or Blanchard and Giavazzi (2003)). The impact of privatization does exert a strong downward pressure on labor's share and this is only partially offset by the increase in product market competition. Other things being equal, we find that although the fall in public ownership accounts for only about 20%

[5] For example, Rose (1987) on trucking or Olley and Pakes (1996) on telecommunications equipment.

[6] The only other paper we know of that uses regulation data in a cross country industry level panel setting is Alessini et al (2003). They find evidence that entry barriers reduce investment.

of the fall in labor's share on average in our sample, it can account for more than 50% of the fall in some countries. An alternative explanation may be that deregulation of the labor market side could reduce labor's share through declines in worker bargaining power. However, in our analysis we do not find support for the labor market deregulation hypothesis.

The closest paper to our own is by Bentolila and Saint-Paul (2003) who perform a cross-country analysis of the wage bill share across a larger number of industries. They do not focus on direct measures of policy changes as we do, however, and their interest is more on the role of the capital-output ratio in accounting for changes in labor's share, rather than the causes of the secular decline in the wage bill share[7].

The structure of the paper is as follows: Section 2 lays out some basic theory and Section 3 details the econometric modelling approach. Section 4 describes our data and Section 5 discusses our results. We offer some concluding remarks in Section 6.

2 Theory

2.1 Basic Model

This section presents a basic model to understand how deregulation can affect labor's share, wages and employment. We allow for imperfect product market competition (monopolistic competition) and worker bargaining (à la Nash). An important aspect of the model is that we assume that the CEO/manager who bargains with workers does not necessarily maximize profits. We will parameterize this in a reduced form way by following the spirit of Baumol (1959) and assume that the CEO maximizes a weighted function of profits and firm size (employment). One rationale for this is that CEOs like to "build empires" and

[7] Their data also ends in 1993 for estimation purposes whereas ours runs until the end of the 1990s. This is important as in many countries (e.g. Italy) the most dramatic changes in privatization occurred in the late 1990s.

if corporate governance is weak then they will find it easier to do this. In our application we consider a particularly stark example of this when there is a substantial degree of public ownership. In this case, not only is governance weak, but politicians are generally reluctant to see job losses and will generally put some greater weight on employment than would a private sector firm. Bertrand et al (2005), for example, present evidence that politically connected French firms behave in exactly this manner to keep firm employment high, especially during election years.

The firm is assumed to care about profits (Π) and total employment (N) so that the value function of the firm is $U(\Pi, N)$, where $\frac{\partial U}{\partial \Pi} \geq 0, \frac{\partial U}{\partial N} \geq 0$ and $U(.)$ is a concave function. Choosing employment to maximize the value function, given the wage (W), leads to the following expression for the value of the marginal product of labour ($VMPL$) :

$$VMPL = W - (\frac{\partial U}{\partial N} / \frac{\partial U}{\partial \Pi}) \tag{1}$$

This implies that, for a given wage, the firm will have an employment level higher than would be the case if the firm simply maximized profits. To simplify we adopt the functional form:

$$U = \Pi^{1-\phi} N^{\phi} \tag{2}$$

where $0 \leq \phi < 1$. Privatization, for example, can be thought of as a reduction in ϕ. A representative organization has profits:

$$\Pi = PQ - WN \tag{3}$$

where P is price and Q is value added and we abstract away from other factors of production. The product market is imperfectly competitive so the firm faces the inverse demand curve:

$$P = BQ^{-\frac{1}{\eta}} \tag{4}$$

where B is a demand index and $\eta \geq 1$ is the price elasticity of demand. Output is produced with the production function $(0 < \alpha \leqslant 1)$[8].

$$Q = CN^{\alpha} \tag{5}$$

Substituting (2), (3), and (4) into (1) and taking logs we obtain:

$$\log U = (1-\phi)\log[BC^{1-\frac{1}{\eta}}N^{\alpha(1-\frac{1}{\eta})} - WN] + \phi \log N \tag{6}$$

The firm chooses employment to maximize the equation (6) given the wage, leading to the labor demand equation:

$$\log N = \frac{\phi}{1-\alpha(1-\frac{1}{\eta})} - \frac{1}{1-\alpha(1-\frac{1}{\eta})}[\log W - \log B - \log C^{1-\frac{1}{\eta}} - \log(\alpha(1-\frac{1}{\eta})(1-\phi)] \tag{7}$$

There are several things to note about the labor demand curve. First, the stronger the preference of the employer for jobs over profits (ϕ), the higher will be employment for a given wage. Secondly, the labor demand curve slopes downwards with an elasticity that does not depend on the wage (i.e. $\varepsilon_{NW} = -\dfrac{\partial \log N}{\partial \log W} = \dfrac{1}{1-\alpha(1-\frac{1}{\eta})} \geq 1$) and does not depend on the preferences of the employer. The easiest way to understand why the labour demand curve slopes downwards, even for the case where the employer only cares about employment ($\phi = 1$), is that employment will be chosen to make profits zero as the break-even point is binding: the higher the wage, the lower the level of employment that delivers zero profits.

[8] This simplified Cobb-Douglas form is for expositional purposes. Bentolila and Saint-Paul (2003) examine more general production functions, which generate some additional implications that we will discuss in the robustness section.

We can also derive a simple expression for the labor share from this maximization. We write the value of the marginal product of labor as:

$$VMPL = \alpha P(1 - \frac{1}{\eta})\frac{Q}{N} \tag{8}$$

Substituting these into the first order condition (1) gives:

$$VMPL = \alpha P(1 - \frac{1}{\eta})\frac{Q}{N} = W - (\frac{\phi}{1-\phi})(\frac{PQ}{N} - W) \tag{9}$$

Re-arranging and solving for the labor's share, we obtain:

$$SHARE \equiv \frac{WN}{PQ} = \alpha(1 - \frac{1}{\eta}) + \phi(1 - \alpha(1 - \frac{1}{\eta})) \tag{10}$$

So that the wage bill share is independent of the wage; of course this is derived from the assumption that all functions are iso-elastic. Equation (10) shows the key relationships we will focus on in the paper. First, in the standard case of perfect competition and profit maximization (i.e. $\phi = 0$ and $\lim \eta \to \infty$), equation (10) shows that the wage bill share will be equal to the technological parameter, α. However, if there is some degree of non-profit maximizing behavior then as $\phi > 0$, the wage bill share will be higher, all else being equal. Empirically, we will focus on public ownership as affecting the departure from profit maximizing behavior. Second, the greater the degree of monopoly power (a lower η), the lower will be the wage bill share, all else being equal. Empirically, we will focus on higher barriers to entry, such as those caused by legal or bureaucratic rules as a source of market power.

One further result that will be useful in what follows is the elasticity of employer utility with respect to the wage (ε_{UW}). By differentiating (6) and using the envelope condition, we can show that the elasticity of utility with respect to wages is:

$$\varepsilon_{UW} = -\frac{\partial \log U}{\partial \log W} = (1-\phi)\frac{SHARE}{1-SHARE} = \frac{\alpha(1-\frac{1}{\eta})(1-\phi)+\phi}{1-\alpha(1-\frac{1}{\eta})} \tag{11}$$

Note that this elasticity is increasing in ϕ so that an employer who cares a lot about employment will find their utility reduced more by a given wage increase than one who does not. The simplest way to understand this is to think of the two extreme cases $\phi = [0, 1]$ in which the employer only cares about either employment or profits. An employer who is only interested in profits (i.e. has $\phi = 0$) will have an elasticity of utility with respect to the wage which is the elasticity of profits with respect to the wage. In contrast, an employer who only cares about employment (i.e. has $\phi = 1$) , will have an elasticity of utility with respect to the wage which is the elasticity of labour demand with respect to the wage which, under the assumptions made, is greater than the elasticity of profits with respect to the wage[9]. This assumes that even state employers face some kind of budget constraint generating a wage-employment trade-off[10]. The consequence of this is that an employment-maximizing employer will be more hostile to wage rises than a profit-maximizing one.

Now consider the determination of the wage. As is standard, we consider Nash bargaining between the workers which has the form:

$$\Omega = \beta \log V + (1-\beta)\log U \tag{12}$$

Where V is the utility of the workforce and β is the worker bargaining power parameter. We assume that the preferences of the workers can be written as:

[9] This intuition suggests that this result is dependent on the wage elasticity of the labour demand curve being larger than the wage elasticity of the profit function. This is not true for all production functions, but is true for Cobb-Douglas, which seems a reasonable approximation to the data (see for example Hamermesh (1993), chapter 3).

[10] Although publicly owned firms may be able to sustain losses for a greater length of time than those in the private sector, there is still some level at which the Finance Ministry will refuse to fund an increase in the industries level of subsidy.

$$\log V = \log(W - A) + \gamma \log N \tag{13}$$

where A is the value of the alternative "outside" wage and γ is the union preferences over employment compared with the wage. Differentiating Ω with respect to wages and re-arranging delivers the "wage equation":

$$W = \frac{\beta\gamma\varepsilon_{NW} + (1-\beta)\varepsilon_{UW}}{\beta\gamma\varepsilon_{NW} + (1-\beta)\varepsilon_{UW} - \beta} A = (1+\mu)A \tag{14}$$

Where:

$$\mu = \frac{\beta[1 - \alpha(1 - \frac{1}{\eta})]}{\beta(1 - \gamma - \alpha(1 - \frac{1}{\eta})) + \phi[(1-\beta)(1 - \alpha(1 - \frac{1}{\eta}))]} \tag{15}$$

μ can be thought of as a wage mark-up over the outside option. With these results we can develop our predictions about the effects of various changes on the wage bill share, wages, employment, and productivity.

2.2 Analysis

The main comparative static we are interested in is what changes when privatization, improved corporate governance or some other change in the environment forces the firm to place a greater weight on profits than on firm size (i.e. ϕ falls). If there is a fall in the importance given to jobs in the firm's value function then our model predicts: (i) the wage bill share of value added will fall, (ii) the average wage will rise, (iii) employment will fall. The fall in the wage bill share follows directly from equation (10) since $1 - \alpha(1 - \frac{1}{\eta}) > 0$. This is quite intuitive and general, since a greater focus on profits in the objective function, relative to jobs, will lead to an increase in profits as a share of output. Wages will rise from equation (15) because $(1-\beta)(1-\alpha(1-\frac{1}{\eta}) > 0$ and employment falls from equation (7). The intuition is that an employer who cares a lot about employment will be much more sensitive to an increase in the wage than one who places a

much greater importance on profit maximization because employment is more sensitive to wages than profits.

It may seem surprising that our model predicts lower wages in the public sector as most people assume that public sector workers earn wage rents. But this may be a misapprehension if the main benefit of being in the public sector is job protection through very high employment levels compared to the private sector. Controlling for selection, both Disney and Gosling (2003) and Postal-Viney and Turon (2005) find that in Britain there is close to zero public sector wage rents on average[11].

Next, consider a change in the degree of product market competition. In our model, an increase in product market competition leads to a higher sensitivity of quantity to price (i.e. an increase in η). This will raise the wage bill share (from equation (10)), and reduce wages (from equation (15)) as it makes the labor demand curve more elastic. Finally, it will increase employment from equation (7). Finally, consider a decrease in worker bargaining power (β falls). This will reduce wages, raise employment but leave the labor share unchanged[12].

These predictions are summarized in Table 1. We will take these predictions to the data, focusing on the primary predictions of public ownership, but also examining product market competition. We will find support for most of the model predictions in the data. Despite the interest in worker power, we have the least to say here empirically; perhaps because we lack good empirical indicators of bargaining power. The data does not give strong support to the union bargaining story.

[11] It is more likely that some groups of individuals in the public sector earn a positive premium and others obtain a negative premium compared to the private sector due to greater wage compression. For example, high skilled men in high cost areas may do worse than low skilled women in low cost areas.

[12] This result obviously depends on the assumptions of an iso-elastic demand curve and a Cobb-Douglas technology.

2.3 Some Extensions to the model

This analysis is solely in partial equilibrium and there are other effects present in the general equilibrium settings, as described by Blanchard and Giavazzi (2003). They show how one can derive a positive effect of bargaining power on labor's share in a general equilibrium, efficient bargaining framework.

Another possible extension is to allow for heterogeneous labor. Assume that there are two types of labor, skilled (denoted by a subscript "S") and unskilled labor (denoted by a subscript "U"). They have different market wages but we still assume that it is total employment that the manager cares about. In this case, the relative value marginal product can still be written:

$$\frac{VMPL_S}{VWPL_U} = \frac{W_S - (\frac{\partial U}{\partial N} / \frac{\partial U}{\partial \Pi})}{W_U - (\frac{\partial U}{\partial N} / \frac{\partial U}{\partial \Pi})} \tag{16}$$

In the public sector there will be an over employment of unskilled workers relative to skilled workers (as it is cheaper to indulge the preference for larger employment size by employing more low-wage workers). If we consider the case of total privatization (a change to ϕ=0) this will lead to a reduction in the employment of unskilled workers. Consequently privatization will lead not only to a fall in employment but also to an increase in the observed average wage as there is a compositional shift to the more skilled.

Finally, there may be effort bargaining. Andrews and Simmons (1995) argue that the big decline in jobs (but not wages) of large UK unionized workplaces in the 1980s can be explained by a model where unions bargain over both wages and effort but their influence over effort has declined. We would obtain similar results if we assumed that after privatization the nature of bargaining changed from an "efficient bargain" over both wages and employment to a "right-to-manage model" in which only wages are negotiated. In fact, Bentolila and

Saint-Paul (2003) formally show that increases in worker bargaining power will usually increase labor's share in an efficient bargaining model.

3 Econometric Models

Our basic equation of interest is:

$$SHARE_{ijt} = \alpha_i^S PO_{ijt} + \beta_i^S BTE_{ijt} + \eta_{ij}^S + (t * v_i^S) + u_{ijt}^S \tag{17}$$

where $SHARE$ is the share of the wage bill in value added for industry i in country j at time t. PO is an index of the degree of public ownership and BTE is an index of barriers to entry. There are two key predictions from the theory. First, labor's share should be increasing in the importance of public ownership ($\alpha_i^S > 0$). Second, that high entry barriers will reduce labor's share of value added ($\beta_i^S < 0$).

We consider a number of additional controls to deal with unobserved heterogeneity. First, we include a full set of industry-country fixed effects (η_{ij}^S) which turn out to be very important control variables. Second, we include industry-specific time trends ($t*v_i^S$) – these are generally significant. The final error term is assumed to be uncorrelated with the regressors (u_{ijt}^S) although we allow it to be heteroskedactic and serially correlated (using the Newey-West technique). In our basic regressions we pool over industries, setting $\alpha_i^S = \alpha^S$ and $\beta_i^S = \beta^S$, but in our extended regressions we look separately by industry and allow BTE and PO to have industry-specific coefficients.

Our models also have predictions over the behavior of employment and wages, so we estimate analogous employment equations of the form:

$$\ln N_{ijt} = \alpha_i^N PO_{ijt} + \beta_i^N BTE_{ijt} + \eta_{ij}^N + (t * v_i^N) + u_{ijt}^N \tag{18}$$

The basic model predicts that $\alpha_i^N > 0$ and $\beta_i^N < 0$.

Finally, we consider using average wages, W, as the dependent variable:

$$\ln W_{ijt} = \alpha_i^W PO_{ijt} + \beta_i^W BTE_{ijt} + \eta_{ij}^W + (t * v_i^W) + u_{ijt}^W \tag{19}$$

Our model predicts $\alpha_i^W < 0$ as the public firm finds it easier to indulge its preference for jobs by over-employing unskilled workers, leading to a low average wage. We would expect $\beta_i^W > 0$ because workers in protected industries can capture some of the monopoly rents in the form of higher wages. We also consider adding various proxies for worker bargaining power to equations (17) to (19). As we show below these were insignificant and often perversely signed.

A concern with the estimation of equations (17), (18) and (19) is that the policy variables PO and BTE may not be exogenous. We regard this as unlikely as the policy variables are nationally decided (or sometimes internationally, as in the case of the EU Single Market Program) rather than influenced by industry specific shocks. Nevertheless, to check this concern we report experiments using country-wide socio-political variables as instrumental variables for PO[13]. To tackle this problem we consider using socio-political variables as instruments. A change in the governing party from a left wing party to a right wing party in the previous year is likely to be associated with greater privatization but unlikely to be associated with any industry-specific wage bill shock. We also use lagged country-wide changes in attitudes towards state ownership from the World Value Survey as another factor that increases the probability of privatization but is unlikely to be influenced by a shock to the wage bill share of the network industries. The instruments are not perfect, of course, as there may be other unobserved factors correlated with these socio-political variables that cause a change in the wage bill share. For example, a new government may also

[13] For example, consider an exogenous industry-specific shock that increases the labor share in a public sector industry. This may translate into giving labor unions greater resources through strike funds (relative to state managers) that could be used to resist attempted privatization. Consequently, we may see high labor share associated with greater public ownership due to reverse causation (a higher labor share causes a higher value of PO).

introduce other reforms that affect the wage bill share, such as labor legislation. We try and condition directly on such variables, but we can never be sure that some are not controlled for.

4 Data

4.1 Data Sources

We obtained our data on public ownership (PO) and barriers to entry (BTE) from the OECD's regulation database (see Data Appendix A and Nicoletti and Scarpetta (2000a,b, 2003)). These were kindly supplied at a greater degree of disaggregation than is publicly available in the standard OECD publications by Giuseppe Nicoletti. Public Ownership (PO) is scaled between 0 (no public sector involvement) to 6 (complete public ownership and control). This captures a combination of government ownership, control and interference in the running of the industry. These measures are developed from an in-depth analysis of the country-specific regulation working with the relevant departments in each OECD country. For example, even when an industry has been privatized, governments will typically own some proportion of equity in the dominant firm, and other things equal the PO measure will be higher the larger is this percentage. Barriers to Entry is also an index on the scale of 0 (lowest barriers to entry) to 6 (highest barriers to entry). As with public ownership, the OECD calculated this index based on a detailed examination of costs of entering the industry based on the administrative, legal and political obstacles.

The second dataset we draw on is the OECD's STAN database. This includes information on wage bills (including all employer costs) and value added, which we use to calculate $SHARE$ (the wage bill divided by industry value added/GDP). It also includes information on employment that we use to calculate average wages (the wage bill divided by employment)[14]. Since

[14] In a few cases this can exceed unity (if the industry is making losses). We "windsorized"

there are some missing values on employment in STAN we drew on a third database, the Gronnigen Industry Productivity Database (downloaded from http://www.euklems.net/) to supplement STAN. STAN also has information on gross output, investment and wage bills.

In combining the datasets we had to aggregate across some industries to obtain consistent series. Although we also examine some other industry disaggregations in the descriptive statistics, the main econometric analysis is confined to three sectors in the network industries across eighteen countries between 1970 and 2001 (it is an unbalanced panel – see Table A1). The network industries include Electricity and Gas, Telecommunications (including Post) and Transport (Airlines and Railways and Roads). The Data Appendix gives more information and descriptive statistics on the construction of the database. Table 2 gives some basic descriptive statistics of the key variables used in the dataset. All values are expressed in real US 1996 dollars evaluated at Purchasing Power Parities (PPPs) from the OECD.

We also use two datasets to obtain the socio-political variables that are used as instrumental variables: the World Values Survey (WVS) and the Database of Political Institutions (DPI). For the purpose of our study, the variables of most interest are: (1) Self positioning in the political scale (which ranges from 1 (left) to 10 (right)), and (2) the DPI provide details about the party compositions of the Opposition and Government coalition. We look at whether the party in power is right wing or not (See Data Appendix for more details).

A drawback of the dataset is that we do not have detailed information on the human capital characteristics of the workers. We attempt to capture these in the empirical work by including fixed effects specific to an industry-country pairing, time dummies, industry specific time trends.

the variable to take a maximum value of unity in these cases, but the results are robust to using the raw data.

4.2 General Trends in the Data

In order to understand the declining labor share we need to highlight where the changes are taking place. We focus on the "business sector" (i.e. excluding health, education and public administration). This is where most of the change took place in the 1980s and 1990s and is not solely in the government's control.

Table 3 reports the results for the change in labor's share between 1980 and 2000 for each country. We only report the results for the countries for which we have continuous data from both 1980 and 2000[15]. Column (1) of Table 3 shows the stylized fact that has been noted elsewhere: the share of value added going to workers has fallen in every country we consider, on average by over five percentage points (or 8 percent of the 1980 average share of 65%). This ranges from an 8.83% point fall in the US to a 1.85% point fall in (West) Germany. Figure 1 graphically shows the changes in the country-wide share of the wage bill and it is clear that it is falling over time in every country. Given the historical stability of the wage bill share, this represents a substantial change.

We can always decompose the total change in share for each of the (groups of) industries into the "within industry" and "between industry" changes. To be precise, for any country j we denote the wage bill share as $SHARE_i$ for industry i. For this exercise we divided the business sector into four broad industries – Network Industries, Manufacturing, Financial and Wholesale/Retail/Hotels. In the main empirical work we focus on sub-sectors within the network industries (where there has been the most significant time series variation in public ownership and entry barriers). The total change in the aggregate labor share ($\Delta SHARE$) can be decomposed into two components, one due to reallocation of production *between* industries with different levels of the labor share

[15] Although we use STAN for most of the analysis, here we use the data from the Gronnigen Industry Productivity Database since it has a continuous dataset from 1980. The datasets are explained in more detail in the Appendix.

($\sum_i \overline{SHARE}_i \Delta VA_i$) and the other due to changes in the level of share *within* industries ($\sum_i \overline{VA_i} \Delta SHARE_i$):

$$\Delta SHARE = \sum_i \overline{SHARE}_i \Delta VA_i + \sum_i \overline{VA_i} \Delta SHARE_i \tag{20}$$

where VA_i denotes the value added of industry i as a fraction of the total value added in the business sector and $\overline{SHARE}_i$ and $\overline{VA_i}$ represent a simple average of the wage bill share and value added for industry i over time, respectively.

In the Appendix, Table A2 gives the complete between and within changes for each industry included in the business sector. In columns (4) and (5) of Table 3 we report the results for the two most important contributions: the between changes in manufacturing and the within changes in the network industries (the final column reports the sum of all the other components). It can be seen that the fall in manufacturing share of value added can account for a great deal of the fall in the wage bill share. Figure 2 shows this more clearly. This is interesting in itself as it suggests that the decline of manufacturing is an important factor in the falling wage bill share. For example, part of the greater fall in the American labor share compared to the German labor share is due to the faster rate of de-industrialization in the US relative to Germany.

Nevertheless, both Table 3 and Figure 2 show that a substantial component of the aggregate fall in the labor share is attributable to changes occurring within the network industries. On average, changes in the network industries account for a quarter of the aggregate change in the wage bill share (even though they contribute, on average, only seventeen percent of aggregate value added).

The impact of the network industries is further highlighted in Figures 3, 4 and 5. Figure 3 plots the time series variation of the wage bill share in the network industries. Compared with Figure 1 where we examined the economy as a

whole, the fall of the wage bill share in the network industries has been larger, on average (both figures are on the same scale). Figure 4 plots the change in the (mean) public ownership index and Figure 5 plots the mean barriers to entry variables in these industries. The OECD Regulation Database reports variation across countries at the macro-level, but only reports regulatory variation over time for the network industries. Overall there has been a trend towards privatization and a reduction in entry barriers across all countries. Figures 3 through 5 show that there is substantial heterogeneity between countries and industries in the change in the wage bill share and the pace of reform. It is for this reason we focus on these sectors in the paper.

5 Results

5.1 Main Results

Table 4 contains our main results from pooling the sectors across industries and countries. We divide the results into three panels. Our main results are for the wage bill share (Panel A) and we consider employment in Panel B and wages in Panel C.

The first two columns of each panel include only public ownership (and the controls), the third and fourth columns include only barriers to entry together and the final two columns include both public ownership and barriers to entry. For each dependent variable we first present the results without fixed effects then the results with a full set of fixed effects (industry dummies interacted with country dummies) in the next column. All specifications include a full set of time, country and industry dummies and separate time trends for each sector.

Turning first to the wage bill share regressions in Panel A, we find that the two key predictions of the basic model appear to be strongly supported by the data. Public Ownership (PO) has a positive effect on the share of value

added accruing to labor. This relationship is strong with and without the fixed effects (e.g., the coefficient is 1.002 in column (1) and 0.764 in column (2)). The magnitude suggests that the results (with fixed effects) are economically, as well as statistically, significant. Moving from the highest to the lowest degree of public ownership (i.e. from 6 to 0) is predicted to reduce the wage bill share by seven percentage points (note that the entire average time series change in labor's share between 1980 and 2000 was 5.3%). The barrier to entry (BTE) variable appears to have a negative impact on the wage bill share as theory predicts, however it is only significant at the 10% level in column (4). In the final two columns we control for both of the policy variables simultaneously. This increases the absolute magnitude of the coefficients on the policy variables because falls in public ownership and entry barriers tend to covary positively (both are pursued at the same time by liberalizing governments). In our most general regression, the preferred specification of the final column, the coefficient on public ownership is 0.898 compared to 0.764 in column (2). Similarly, the coefficient on entry barriers is 0.495 compared to 0.397 in column (4). Both policy variables are significant at the five percent level.

Panel B of Table 4 shows the employment regressions. The coefficient on PO in the first column is very negative (which is contrary to our theoretical predictions). When we include fixed effect in column (2), however, the effect of public ownership becomes positive and highly significant as we would predict from our model. Privatization is predicted to reduce employment, as is consistent with other evidence (e.g. Green and Haskel (2004)). In columns (3) and (4) we observe that BTE is positive but insignificantly associated with a fall in employment, which is not what our model predicts (it should be negative). Turning to the preferred specification of the final column we see, as in Panel A, that the marginal effects of the policy variables are correctly signed and highly significant for public ownership (which is associated with higher employment)

but the barriers to entry variable remains insignificant. A one point decrease in PO is predicted to reduce employment by 3%.

The final panel of Table 4 (Panel C) looks at average wages. Wages appear to be significantly lower in industries that are subject to more public ownership, whether or not we control for fixed effects (compare columns (1) and (2)). In columns (3) and (4) we find that increases in entry barriers are associated with higher wages (as our model predicts), however the effect is not significant. In the final column we still find that public ownership is associated with lower wages and entry barriers with higher wage but only the public ownership effect is significant at conventional levels. A one point fall in PO is associated with a two percent fall in average wages.

In summary, we find that privatization is associated with a significantly lower labor share, a significantly higher average wage and a significantly lower number of jobs, other things being equal. These are all in line with the theoretical predictions of our simple model summarized in Table 1. Furthermore, we find that lower barriers are associated with a significantly higher wage bill share which is also consistent with the model. The results on average wages and employment are less conclusive - the entry barriers variable is not significant in the wage or employment equation (although it is correctly signed in the wage equation).

5.2 Industry heterogeneity

Table 5 breaks down the results by the three network industries. As before, the main labor share results are in Panel A. The employment equations are in Panel B and the average wage results in Panel C. We only show our preferred specification where all estimates include a full set of fixed effects and time dummies. It is clear that the strongest results are again for public ownership. In eight of the nine regressions the coefficients are of the correct sign. Turning to the BTE

variable, we see that in the $SHARE$ regressions the BTE is correctly signed (negative) in two of the three regressions. As was suggested in the pooled results in Table 4, there is not a clear picture on wages and employment. For example, BTE takes its expected negative sign in the employment equation for transport but has an unexpected positive sign for Electricity/Gas and Telecoms.

In summary, the results in Table 5, when we disaggregate by industry, show a very clear pattern for the public ownership variable, which is similar to that in the pooled results of Table 4. Public ownership is associated with a higher labor share and this is driven by the positive effect of public ownership on employment (since the wage effect is negative). This strongly suggests that privatization is an important reason for the falling wage bill share in the network industries. Furthermore, barriers to entry also appear to matter – higher entry barriers are generally associated with lower labor shares of value added.

5.3 Quantification

Table 6 examines how well our simple model performs in accounting for some of the trends in the labor share between 1980 and 1998 in the network industries as a whole. The first column shows the empirical fall in the labor share between these years, which were, on average, over ten percentage points - much larger than the change for the whole business sector as shown in Table 3 (5.3 percentage points). Although every country experienced some fall in labor's share of value added in the network industries, it was obviously much more rapid in some countries than in others[16].

These declines in the labor share have coincided with a fall in barriers to entry and public ownership in every country. We make a back of the envelope calculation of how much privatization can account for the change in the wage

[16] The large fall in Italy is mainly post 1995 (the 1980-1994 fall was 16 percentage points), which coincided with a major utility privatization in 1995.

bill of the network industries. Using our preferred estimates of the effect of privatization (-0.009) and the empirical fall in public ownership (on average the index fell by 1.583 points) we account for, on average, twenty percent of the fall. This is a significant, although not an overwhelming fraction of the change. Note though that there is much heterogeneity by country. Whereas we can only account for under two percent of the change in the wage bill share of the US (which had very little privatization) we can account for over fifty percent of the change in France and Britain.

In the absence of any changes in public ownership, we predict that labor's share should have *risen* in every country due to the decrease in barriers to entry, which enables stronger competition to erode firm margins. Column (5) of Table 6 shows that entry barriers fell on average by 2.2 points. Therefore, our story is essentially that falls in entry barriers were outweighed by the role of privatization in accounting for some of the fall in labor's share.

5.4 Labor Market Regulation

Although our basic model predicts no effect of worker power on wage bill shares this may occur in various extensions to other bargaining models. Blanchard and Giavazzi (2003) have pointed to labor market deregulation as a possible cause of the declining wage bill share, especially in European countries. We investigated in some detail whether labor market deregulation could also play a role in understanding the falling share of labor in value added. We augmented our specifications to include various OECD measures of the regulation of labor markets such as hiring and firing costs, the labor conflict rate, replacement rates, bite of the minimum wage, the coverage and coordination of collective bargaining, etc. These were all statistically insignificantly different from zero (see Appendix Table A3 for examples).

A disadvantage of these labor market measures compared to the public own-

ership and barriers to entry measures is that they do not have variation at the industry level over time (only at the country level over time). Consequently, it may be hard to identify their effect separately from the industry time trends, time dummies, and country dummies. A possible exception is union density that does have within industry variation. Consequently we include union density in Table 7 as an additional regressor in the preferred models of Table 4, with and without fixed effects. Columns (1) and (2) have the wage bill share regressions, columns (3) and (4) the employment equations and columns (5) and (6) the wage equations. Although we lose a few observations because of missing values on the union density variable, it is reassuring that our main results remain robust on this sub-sample. In particular, public ownership is associated with a higher wage bill share, higher employment level and lower wage level. The union density variable is negative and insignificant in the wage bill regressions in the first two columns. This is consistent with our predictions, but not with a model that emphasizes labor market regulation as the key reason for the fall in wage bill shares.

In the fixed effects models of column (4) of Table 4 we do find a negative (although insignificant) association of union power with employment, which is consistent with the expectation of Table 1. The marginal effects of the other variables also grow stronger compared to Table 4[17]. Unfortunately, the union density variable enters with a significantly negative coefficient in the wage equation of the final column. This is inconsistent with our model and almost any other bargaining model, making us suspicious of the interpretation of the union density variable. It is possible that we are picking up the higher union membership of less skilled workers (who get paid lower wages) with the union power variable in these regressions, so union density merely reflects (unobserved) com-

[17] Also the entry barrier variable in the employment equation is now correctly signed (although still insignificant), which it was not in the earlier table.

positional changes).

We conclude that there is no empirical support for the view that declining labor market institutions are the cause of the falling wage bill share. This, however, may be a reflection of the difficulty in finding an adequate measure of worker bargaining power in the type of data that we have available.

5.5 Instrumental Variable Results

In the econometric section we discussed reasons why there may be endogeneity bias for the privatization indicator. We investigate this issue in Table 8 where we use two socio-political variables as instrumental variables. The first is the median person's stated political position on a ten point left-wing/right-wing scale, as revealed in the World Value Survey. The second is the political complexion of the governing party (in the previous year). Note that these are country and time period specific. First, column (1) shows the baseline OLS results in the preferred specification of column (6), Panel A in Table 4. The sample is slightly smaller because we have a few missing observations on the socio-political variables, but the results are very similar to those reported for the full sample.

Column (2) of Table 8 presents the first stage where we regress public ownership on our two instruments (and the other exogenous covariates including fixed effects). Both variables are individually significant and correctly signed. When a more right wing party is in power, privatization becomes significantly more likely. Similarly when the median voter moves to the left in his political attitudes, public ownership becomes more likely (a one point movement to the left is associated with about a twenty-seven percentage point increase in the public ownership index).

The third column presents the IV results. The public ownership variable remains statistically significant at the 10% level with a coefficient that is larger

than that of column (1). This is reassuring as it suggests that the results reported earlier are robust and not due to a spurious endogeneity bias.

5.6 Further Robustness Tests - A more general production function

We also conducted a variety of other robustness tests on the results, a few of which we report here.

In Table 9 we follow Bentolila and Saint-Paul (2003) to include determinants of labour share, such as the capital-output ratio, that allow for a departure from the Cobb-Douglas framework (i.e. the elasticity of substitution can be different from unity). Like them we also allow control for capital augmenting technical progress (TFP) and labour adjustment costs (i.e. a labour conflict rate). We have some reservations about including these as controls as some are clearly endogenous (e.g. TFP). Nevertheless we want to ensure that our main results are not biased by excluding potentially important omitted variables from the regressions[18]. Columns (1) and (2) present our original labor share specification with and without controlling for the capital-output ratio, respectively. Observations were the capital-output ratio is missing are dropped so the sample size is slightly smaller. We can see that our estimates of PO and BTE are largely unchanged with the inclusion of the capital-output ratio (from 0.987 to 1.029 for public ownership and from -0.822 to -0.874 for barriers to entry). The capital-output ratio is negative and significant, suggesting that capital and labour in these industries are on average substitutes. In columns (3) to (6) we repeat the exercise using TFP and the labour conflict rate, respectively. Again, it is reassuring that our estimates of PO and BTE do not change much from our original specification and if anything, become stronger. According to Bentolila

[18] Bentolila and Saint-Paul (2003) use lags of the endogenous variables as instrumental variables, but this identification strategy hinges on assumptions over the absence of higher order serial correlation.

and Saint-Paul (2003), if TFP is strictly capital augmenting, it should have the same sign as the capital output ratio. This is not the case, suggesting that there is a more complex effect of productivity on the production function. The labour conflict rate, like our union density measure, is insignificant. Finally, in column (8), we include all three of these measures. Our estimates of PO and BTE remain robust but the capital-output ratio becomes insignificant.

Next, we experimented with different dynamic structures on the policy variables by including extra lags of public ownership and barriers to entry (see Appendix Table A4). There do not seem to be additional dynamics of adjustment as the additional lags were statistically insignificant. In Table A5 we show the robustness of the results to conditioning the estimates of Table 4 to a sample where we have non-missing data on all dependent variables.

In addition, we experimented with a full set of country trend interactions. In the labor share regressions the point estimates do not change very much, the marginal effect on the labor share falls from 0.898 to 0.602 and the effect of BTE is almost unchanged (from -0.495 to- 0.487). However, the PO estimate is no longer significant when we include these interactions. The problem being that when we allow for such a demanding specification we lose a great deal of identification. We try to resolve this problem by introducing manufacturing as a quasi-control group; the additional industry acts as a counterfactual group, where we assume that there has been no public ownership or change in barriers to entry. The point estimates are again significant at the 5% level similar to our original specification in the first column (from 0.898 to 0.750 for public ownership and from -0.495 to -0.452 for barriers to entry). In turn, our results remain robust with the inclusion of the country trend interactions (see Table A6 for full results).

Finally, we also examined a productivity equation to investigate whether the results on the share could be driven by increased productivity when indus-

tries moved into the private sector. Although public ownership did seem to be associated with lower productivity, the results were not sufficiently robust in magnitude nor statistical significance.

6 Conclusion

In this paper we show that there is robust empirical evidence that privatization has been a cause of the fall of labor's share of value added over the past two decades. We set up a simple model that showed how privatization might do just this because of the preference for employment over profits displayed in the objectives of publicly owned firms. By contrast, falling barriers to entry should increase labor's share of income as competition erodes profit margins. Our model also predicts that employment should fall and wages should rise following privatization, which also appears to be consistent with the data.

We exploit a number of policy experiments across several "network" industries in many OECD countries in order to identify these effects. These relationships are very difficult to estimate from solely macro-economic data as product market deregulation is very industry specific and the aggregate data may be swamped by many events that are taking place simultaneously in the aggregate economy.

We find after controlling for unobserved heterogeneity, consistently with theory, that falling entry barriers increase labor's share of value added. On the other hand, declining state control tends to reduce labor's share. These results are robust to a number of controls, including adding a full set of fixed effects and using socio-political variable as instruments.

Quantitatively, we find that the wave of privatization in OECD countries is significant part of the declining share of labor in the network industries – accounting for a fifth of the fall on average, but over half in Britain and France.

However, the within sector change of the network industries only accounts for a quarter of the overall fall in the wage bill share. Consequently, privatization does not seem to be the dominant factor in explaining what is going on at the macro level. A caveat to this is that there are many other forms of privatization, such as public sector outsourcing, manufacturing privatization, quasi-market reforms in health and education, etc., that we are not considering due to data constraints.

If not privatization, then what are the other factors that could account for the fall in labor's share? Labor market liberalization is an obvious culprit, but we did not find compelling evidence that this was a major factor. "Globalization" may be a possibility but this may be difficult to tackle with micro-economic data. Indeed a large component of the change (see Table 3) may simply be the shift of the economy out of manufacturing which may be related to trade, but may also be driven by technology and tastes.

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A Data Appendix

A.1 OECD Regulation Databases

The key dataset is the OECD Regulation database developed by Nicoletti and Scarpetta (2000, 2003a,b). There are overall country-wide indicators of regulation, barriers to entry (BTE) and public ownership (PO) for 21 countries between 1975 and 1998. There are also industry-specific time series for barriers to entry and public ownership for seven non-manufacturing industries, which is our focus in this paper. These were kindly supplied at a greater degree of disaggregation than is publicly available in the standard OECD publications by Giuseppe Nicoletti. All of these are on a scale of 0 to 6 (from least to most restrictive).

Public Ownership measures the share of equity owned by municipal or central governments in firms of a given sector. The two polar cases are of no public ownership ($PO = 0$) and full public ownership ($PO = 6$). Intermediate values of the public ownership indicator are calculated as an increasing function of the actual share of equity held by the government in the dominant firm. The information in the OECD's data also draws upon the OECD's *Privatization Database* and the Fraser Institute's *Economic Freedom of the World Reports.*

Barriers to Entry cover legal limitations on the number of companies in potentially competitive markets and rules on vertical integration of network industries. The barriers to entry indicator takes a value of zero when entry is "free" (defined as a situation with three or more competitors and with complete ownership separation of a natural monopoly and a competitive section of the industry) and a value of six when entry is severely restricted (i.e. situations with legal monopoly and full vertical integration in network industries or restrictive licensing in other industries). Intermediate values represent partial liberalization of entry (e.g. legal duopoly, mere accounting separation of natural monopoly and competitive segments).

The construction of the indicators takes the following steps. First, the separate indicators are constructed at the finest level of industry disaggregation. Second, these indicators are then aggregated at the industry level using revenue averaged weights. Thirdly, for the country-wide aggregators the industry indices are aggregated using revenue weights again.

For more information on the construction, properties and descriptive statistics of this data see Nicoletti and Scarpetta (2000) or Alessini et al (2003).

A.2 Labor Market Regulations

Our labour market regulation measures are drawn from the OECD, Bell and Dryden (1996), Nickell et al (2002), Nickell (2003) and Baker et al (2004). For the union density information we drew on the work of Visser (2003).

A.3 Industry Data: STAN, ISDB and Gronnigen Databases

The main data source for investment, value added, wage bill and employment comes from the OECD STAN database for Industrial Analysis, based on the International Standard Industrial Classification Revision 3 (SIC Rev. 3). We had to aggregate the regulation data to the most disaggregated STAN level available. These were the following five industries: Electricity and Gas; Telecommunications and Post; Transport (Airlines, Railways and Road Freight). We supplemented STAN with information on the capital stock from the OECD's International Sectoral DataBase (ISDB). We used ISDB to allocate the capital stock to STAN in the first year and then used the perpetual inventory method to build up the capital stock using gross investment flows from STAN. We used a depreciation rate of eight percent.

We also drew on the Gronnigen Database to supplement employment series that were sometimes missing in STAN and ISDB for particular industries in particular years. Although for most part the STAN and Groningen data on employment is compatible, there are three discrepancies for UK in the late 1990s, which we drop from our analysis. Because of non-overlapping data from STAN and Gronnigen we have slightly different numbers of observations for the three main regressions (SHARE, wages and employment). Table A1 gives the final balance of the panel on the non-missing observations.

A.4 Database of Political Institutions: World Bank Database

The Database of Political Institutions (DPI) contains 106 variables for 177 countries over the years 1975-2004. The variables provide details about elections, electoral rules, types of political system, party compositions of the opposition and government coalition and the extent of military influence on the government.

We look at the cross-country time series of whether the party of government is right-wing or not. To identify the party orientation with respect to economic policy, they use the criteria: (1) *Right*: for parties that are defined as conservative, Christian Democratic or right-wing, (2) *Left*: for parties that are defined as

communist, socialist, social democratic or left wing, (3) *Centre*: for parties that are self-defined as centrist or when the party position can best be described as centrist , (4) All those cases which do not fit into the other mentioned categories or when there is no information.

A.5 Socio-political Attitudes: World Value Survey

The World Values Survey (WVS) is a worldwide investigation of sociocultural and political change. Interviews are carried out with nationally representative samples of the public. The World Values Survey provides a broad range of variables for analyzing the impact of the values and beliefs of the public. We used the variable that measures self positioning in the political scale - this ranges from 1 (far left) to 10 (far right).

The interviews were conducted with a representative sample of at least 1,000 adults aged over 18 from each country. To ensure that the variables that we use are nationally representative we apply the provided sampling weights. When merging this data with other data we collapse the variables at the median. We also repeated the analysis by collapsing at the mean with similar results. The survey was carried out in 1981, 1990, 1991, 1995, 1996, 1999, 2000 and 2001, but for most countries we only have data in years 1981, 1990 and 1999. We interpolated linearly over missing years. We do not have data for Greece until 1999 so it is dropped from the data.

Table 1: Theoretical predictions

Experiment	Notation	Empirical proxy	labor share of value added *SHARE*	Average wages *W*	Employment *N*
Increase in weight given to profits in firm value equation	ϕ	Public Ownership (*PO* down)	FALLS	RISES	FALLS
Increase in Product market competition	η	Barriers to Entry (*BTE* down)	RISES	FALLS	RISES
Decrease in worker bargaining power	β	Union Density (*UNION* down)	ZERO	FALLS	ZERO

NOTES:- See Section 2 for derivation of these comparative static results

Table 2: Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Min	Max
Barriers to Entry (PO)	944	4.240	1.886	0	6
Aggregate Public Ownership (PO)	944	4.200	1.754	0	6
Labor Share of Value added	944	0.491	0.161	0.195	0.957
Employment	1070	331,957	540,630	11,000	2,834,000
Value Added($m)	944	25,325	42,775	63	299851
Wage Bill ($m)	944	12,737	21,091	23	176899
Average Wages($)	873	37,252	9,736	11,361	91,747
Union Density	792	0.438	0.210	0.086	0.911

NOTES:- Means and standard deviations from sample (see Data Appendix for a full description). Employment data comes from Gronnigen Industry Productivity Database. The number of observations for wages is lower because we calculate real wages using the wage bill divided by employment and there are missing values in each. All values are expressed in real US 1996 dollars evaluated at PPPs from the OECD. Union density is from Visser (2003).

Table 3: Changes in the labor share, 1980-2000

	[1]	[2]	[3]	[4]	[5]	[6]
Country	Change in Business Sector	Labor share 1980	Labor Share 2000	Within Network Industries Change	Between Manufacturing Change	All Other Components
Austria	-4.02	60.87	56.86	-0.269	-1.890	-1.856
				6.70%	47.07%	46.23%
France	-5.60	65.71	60.11	0.323	-5.645	-0.277
				-5.77%	100.81%	4.96%
Germany	-1.85	69.17	67.32	-1.908	-4.330	4.389
				103.19%	234.20%	-237.39%
Italy	-6.22	65.75	59.53	-4.077	-5.904	3.758
				65.52%	94.87%	-60.39%
Netherlands	-7.02	62.54	55.52	-1.016	-3.528	-2.476
				14.47%	50.26%	35.27%
Spain	-4.37	54.07	49.70	-1.164	-8.418	5.210
				26.63%	192.55%	-119.18%
USA	-8.83	70.17	61.34	-1.234	-6.544	-1.052
				13.98%	74.11%	11.91%
United Kingdom	-4.34	69.45	65.12	-1.572	-8.308	5.544
				36.25%	191.60%	-127.85%
Average	-5.28	64.72	59.44	-1.365	-5.571	1.655
				25.84%	105.50%	-31.34%

NOTES:- Data from Gronnigen Industry Productivity Database; coefficients are multiplied by 100 (so the element in the first row and column indicates that the labor share of value added fell by four percentage points in Austria between 1980 and 2000 from 61% to 57%). The decomposition formula used is equation (20) in the text. We present only three elements: the within component from Network Industries, the Between Component from the manufacturing sector and the residual of all other effects (see Table A1 for a complete breakdown).

Table 4: Econometric Results (Pooling over network industries)

Panel A - Labor Share

	[1]	[2]	[3]	[4]	[5]	[6]
Dependent variable	Labor Share					
Public Ownership (PO)	1.022	0.764			1.120	0.898
	(0.380)	(0.331)			(0.387)	(0.339)
Barriers to Entry (BTE)			-0.246	-0.397	-0.424	-0.495
			(0.288)	(0.246)	(0.287)	(0.246)
Trend*Telecom	-0.832	-0.771	-0.819	-0.735	-0.840	-0.773
	(0.158)	(0.109)	(0.157)	(0.108)	(0.158)	(0.108)
Trend*Electricity	-0.086	-0.086	-0.046	-0.017	-0.055	-0.037
	(0.137)	(0.083)	(0.140)	(0.090)	(0.138)	(0.089)
Fixed Effects (54)	No	Yes	No	Yes	No	Yes
Country Dummies (18)	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies (3)	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies (24)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	944	944	944	944	944	944

Panel B - Employment

	[1]	[2]	[3]	[4]	[5]	[6]
Dependent variable	Ln(Employment)					
Public Ownership (PO)	-13.109	3.266			-13.314	3.085
	(2.342)	(0.996)			(2.600)	(1.046)
Barriers to Entry (BTE)			-2.695	1.054	0.560	0.603
			(1.337)	(0.567)	(1.475)	(0.595)
Trend*Telecom	0.437	-0.258	0.292	-0.182	0.431	-0.259
	(0.922)	(0.155)	(0.932)	(0.158)	(0.920)	(0.155)
Trend*Electricity	0.481	-0.654	0.149	-0.614	0.432	-0.706
	(0.947)	(0.198)	(0.932)	(0.216)	(0.933)	(0.211)
Fixed Effects (57)	No	Yes	No	Yes	No	Yes
Country Dummies (19)	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies (3)	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies (20)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1070	1070	1070	1070	1070	1070

Table 4: Econometric Results (Pooling Over network Industries)- Cont.

Panel C – Wages

	[1]	[2]	[3]	[4]	[5]	[6]
Dependent variable	Ln(Wage)					
Public Ownership (PO)	-4.578	-1.752			-4.988	-1.863
	(1.279)	(0.716)			(1.347)	(0.736)
Barriers to Entry (BTE)			0.568	0.112	1.460	0.358
			(0.743)	(0.446)	(0.796)	(0.464)
Trend*Telecom	0.319	0.837	0.250	0.754	0.327	0.842
	(0.531)	(0.233)	(0.540)	(0.231)	(0.529)	(0.235)
Trend*Electricity	0.950	0.809	0.781	0.727	0.828	0.776
	(0.459)	(0.196)	(0.491)	(0.201)	(0.468)	(0.200)
Fixed Effects (54)	No	Yes	No	Yes	No	Yes
Country Dummies (18)	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies (3)	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies (20)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	873	873	873	873	873	873

NOTES:- All coefficients and standard errors are multiplied by 100; coefficients are from separate OLS regressions with Newey-West standard errors (in parentheses under coefficients) corrected for first order serial correlation. The sample is pooled across three industries (Electricity/Gas, Telecommunications/Post and Transport). "Share" is the labor share of value added. We include a full set of time dummies and time trends interacted with industry dummies (the base trend is Trend*Transport).

Table 5: Results Separately by Industry

Panel A: Labor Share of Value Added

Sector	[1] Electricity and Gas	[2] Telecom and Post	[3] Transport
Public Ownership (PO)	0.512	0.427	1.927
	(0.379)	(1.186)	(0.524)
Barriers to Entry (BTE)	-0.785	-0.858	0.060
	(0.486)	(0.536)	(0.231)
Country Dummies (18)	Yes	Yes	Yes
Time Dummies (24)	Yes	Yes	Yes
Observations	372	268	302

Panel B: ln(Employment)

Sector	[1] Electricity and Gas	[2] Telecom and Post	[3] Transport
Public Ownership (PO)	6.324	1.749	0.577
	(1.604)	(1.199)	(1.743)
Barriers to Entry (BTE)	1.621	1.086	0.468
	(1.247)	(0.781)	(0.871)
Country Dummies (19)	Yes	Yes	Yes
Time Dummies (20)	Yes	Yes	Yes
Observations	372	328	370

Panel C: ln(Wages)

Sector	[1] Electricity and Gas	[2] Telecom and Post	[3] Transport
Public Ownership (PO)	-3.371	-2.451	1.074
	(0.888)	(2.289)	(1.202)
Barriers to Entry (BTE)	0.050	0.787	-0.238
	(0.699)	(0.962)	(0.853)
Country Dummies (19)	Yes	Yes	Yes
Time Dummies (20)	Yes	Yes	Yes
Observations	319	257	211

NOTES:- Coefficients and standard errors are multiplied by 100; these are coefficients and standard errors (in brackets) for separate OLS regressions for each specified industry. The Newey-West standard errors (in parentheses under coefficients) are corrected for first order serial correlation. We include a full set of time dummies and fixed effects (country dummies in this case) in all regressions.

Table 6: Quantification of the Role of Privatisation in Changing Labour's Share in the Network Industries, 1980-98

Country	[1] Actual Change in Share	[2] ΔPO	[3] $\alpha_{PO} * \Delta PO$	[4] Proportion [3]/[1]	[5] ΔBTE	[6] $\alpha_{BTE} * \Delta BTE$
Austria	-0.062	-0.750	-0.008	0.122	-2.424	0.012
France	-0.018	-1.053	-0.011	0.589	-2.250	0.011
Germany (1991-98)	-0.057	-0.898	-0.009	0.156	-2.580	0.013
Italy	-0.269	-1.873	-0.019	0.070	-1.885	0.009
Netherlands	-0.143	-1.645	-0.016	0.115	-3.112	0.015
Spain	-0.085	-1.523	-0.015	0.179	-1.990	0.010
USA	-0.094	-0.173	-0.002	0.018	-1.440	0.007
United Kingdom	-0.084	-4.747	-0.047	0.563	-2.063	0.010
Unweighted Average	-0.102	-1.583	-0.016	0.227	-2.218	0.011

NOTES:- These are calculations taken over 1980-1998 using actual empirical changes in shares, *BTE* (Barriers to Entry index) and *PO* (Public Ownership). Coefficients are taken from Table 4 Panel A column 6 (-0.005 on BTE and 0.009 on PO). Although there are more countries included in the analysis, here we report the results for the countries for which we have a consistent set of data from 1980-1998.

Table 7: Role of Labour Market Institutions (Union Density)

	[1]	[2]	[3]	[4]	[5]	[6]
Dependent variable	Share		Ln(Employment)		Ln(Wage)	
Public Ownership (PO)	1.037	1.055	-15.404	3.476	-2.492	-1.351
	(0.471)	(0.373)	(3.096)	(1.115)	(1.594)	(0.705)
Barriers to Entry (BTE)	-0.764	-0.834	3.961	-0.322	2.638	0.107
	(0.313)	(0.248)	(1.459)	(0.561)	(0.788)	(0.430)
Union Density	1.517	-0.478	-64.211	-2.623	-2.134	-26.791
	(1.658)	(3.147)	(11.118)	(4.937)	(7.337)	(5.950)
Trend*Telecom	-0.782	-0.767	1.453	-0.541	-0.643	1.106
	(0.189)	(0.134)	(0.936)	(0.177)	(0.672)	(0.195)
Trend*Electricity	0.012	0.055	0.986	-0.653	0.385	1.300
	(0.152)	(0.098)	(0.909)	(0.220)	(0.569)	80.181)
Fixed Effects	No	Yes(46)	No	Yes(49)	No	Yes(46)
Country Dummies (17)	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies (3)	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies (20)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	792	792	838	838	723	723

NOTES:- All coefficients and standard errors are multiplied by 100. The coefficients are from separate OLS regressions. The sample is pooled across three industries (electricity/gas, telecom/post and transport). "Share" is the Labor Share of Value Added. We include a full set of time dummies and time trends interacted with industry dummies (the base trend is Trend*Transport). The Newey-West standard errors (in parentheses under coefficients) are corrected for first order serial correlation.

Table 8: Labor Share Regressions – Instrumental Variable Estimates

	[1] OLS	[2] First Stage OLS	[3] IV
Dependent variable	Labor Share	Public Ownership	Labor Share
(lagged) Positioning on the political scale (from most left=1 to most right=10)		-27.580 (5.554)	
(lagged) right-wing party in power		-9.468 (3.030)	
Public Ownership (PO)	0.883 (0.345)		6.031 (1.967)
Barriers to Entry (BTE)	-0.506 (0.251)	12.160 (3.127)	-1.095 (0.356)
Trend*Telecom	-0.748 (0.110)	4.105 (0.961)	-0.972 (0.159)
Trend*Electricity	-0.033 (0.092)	2.507 (1.125)	-0.148 (0.123)
F-Statistic (p-value of excluded IVs)		12.7	
Fixed Effects (53)	Yes	Yes	Yes
Time Dummies (23)	Yes	Yes	Yes
Observations	910	910	910

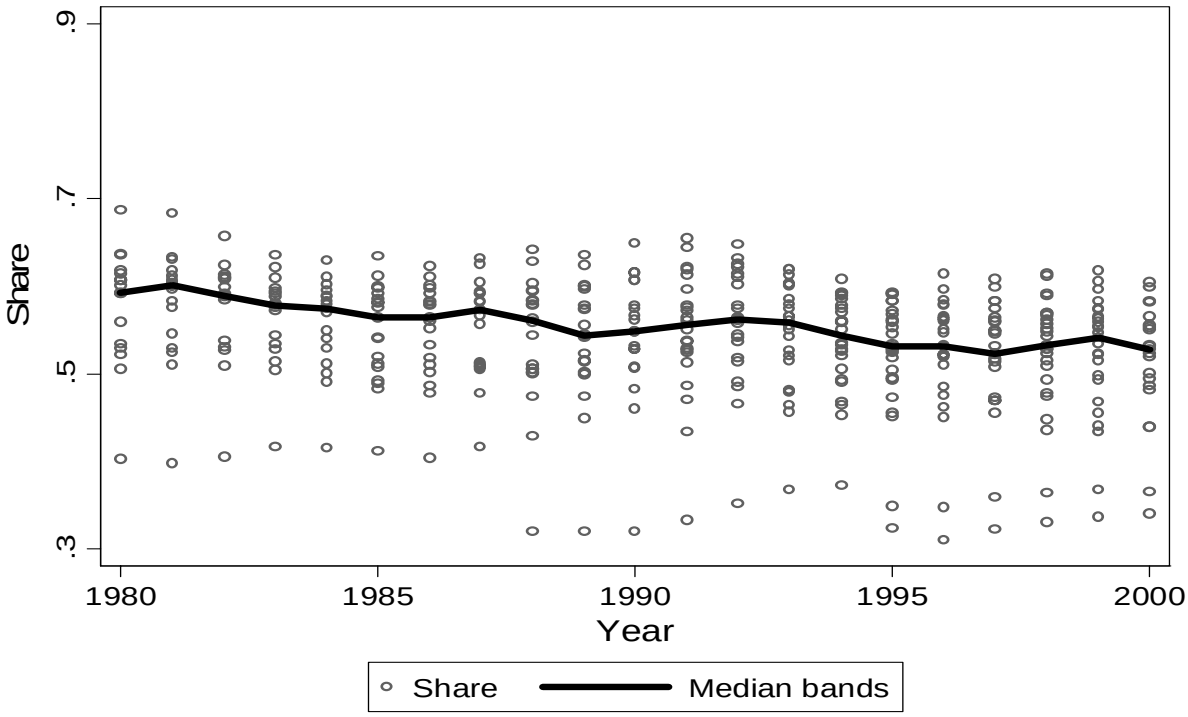
NOTES:- These regressions estimate instrumental variable versions of the labor share regressions using socio-political variables as instruments for public ownership. All coefficients are multiplied by 100. The Newey-West standard errors are corrected for first order serial correlation.

Table 9: Robustness of Pooled Results - Including additional controls from a more general production function

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Dependent variable	Labor Share		Labor Share		Labor Share		Labor Share	
Public Ownership	0.987	1.029	1.086	1.323	0.796	0.829	0.922	1.132
	(0.365)	(0.390)	(0.354)	(0.351)	(0.359)	(0.359)	(0.391)	(0.411)
Barriers to Entry	-0.823	-0.874	-0.752	-0.628	-0.480	-0.499	-0.986	-0.893
	(0.223)	(0.225)	(0.201)	(0.195)	(0.304)	(0.297)	(0.282)	(0.294)
Ln(Capital-Output)		-3.986						-2.657
		(1.494)						(1.629)
Ln(TFP)				6.659				4.488
				(1.744)				(2.067)
Labour Conflict Rate						1.238		-0.997
						(1.649)		(1.630)
Trend*Telecom	-0.693	-0.692	-0.693	-0.702	-0.800	-0.796	-0.712	-0.721
	0.116	0.116	0.114	0.115	0.125	0.126	0.138	0.141
Trend*Electricity	0.101	0.145	0.126	0.262	-0.037	-0.041	0.110	0.225
	0.082	0.079	0.074	0.068	0.097	0.098	0.095	0.095
Fixed Effects	35	35	42	42	48	48	30	30
Time Dummies (24)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	664	664	774	774	848	848	568	568

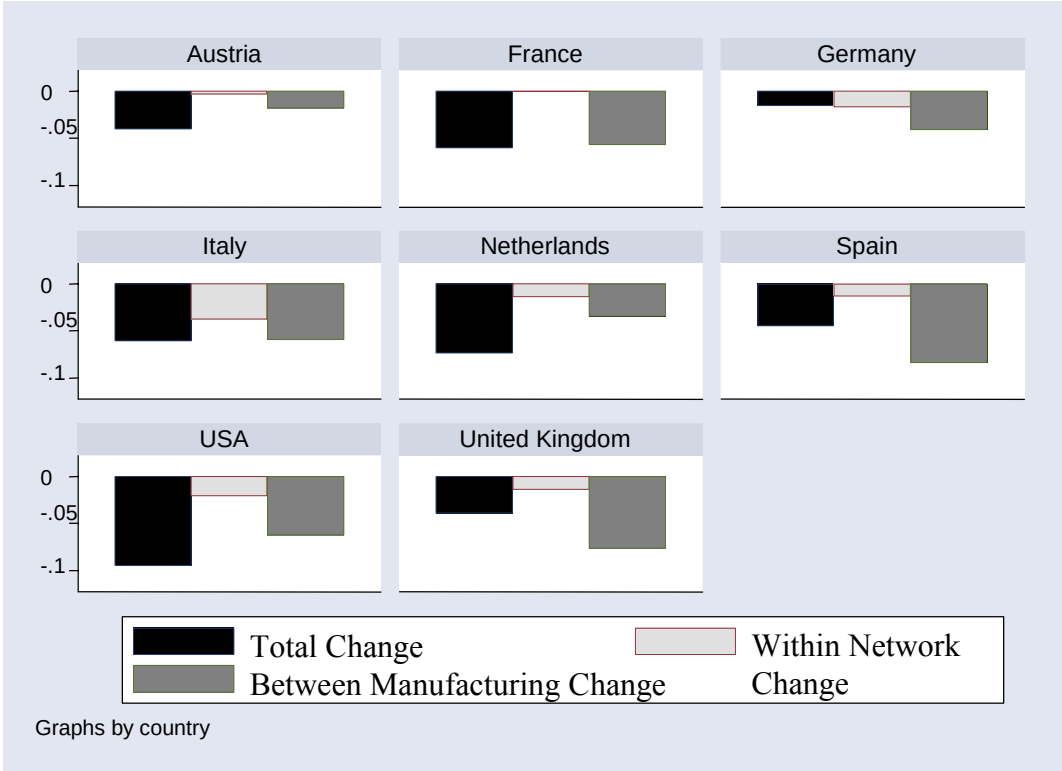
NOTES:- All coefficients and standard errors are multiplied by 100; coefficients are from separate OLS regressions with Newey-West standard errors (in parentheses under coefficients) correct for first order serial correlation. The sample is pooled across three industries (Electricity/gas, Telecommunications/Post and Transport). "Share" is the Labor Share of Value Added. We include a full set of time dummies and time trends interacted with industry dummies (the base trend is Trend*Transport). The Capital, Output and TFP variables are constructed from the OCED International Sectoral Data Base (ISDB) 1996. The Labour Conflict Rate variable is constructed from the CEP-OECD Dataset, documented in Bell and Dryden, 1996.

Figure 1: Change in the Aggregate labor share across OECD Countries



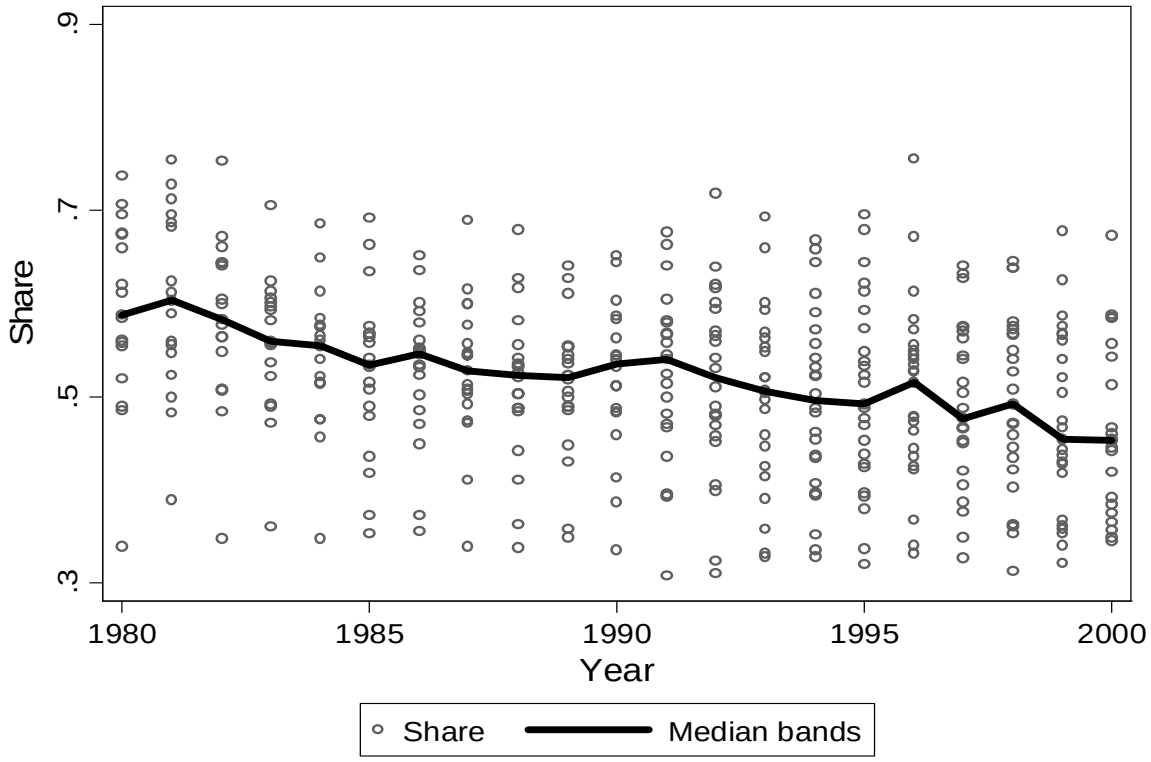
NOTES:- These are country level values of labor's share of value added. All OECD countries, 1980-2000. Each circle represents a different country (25 countries).

Figure 2: Decompositions of the changes in the aggregate labor share of value added, 1980-2000



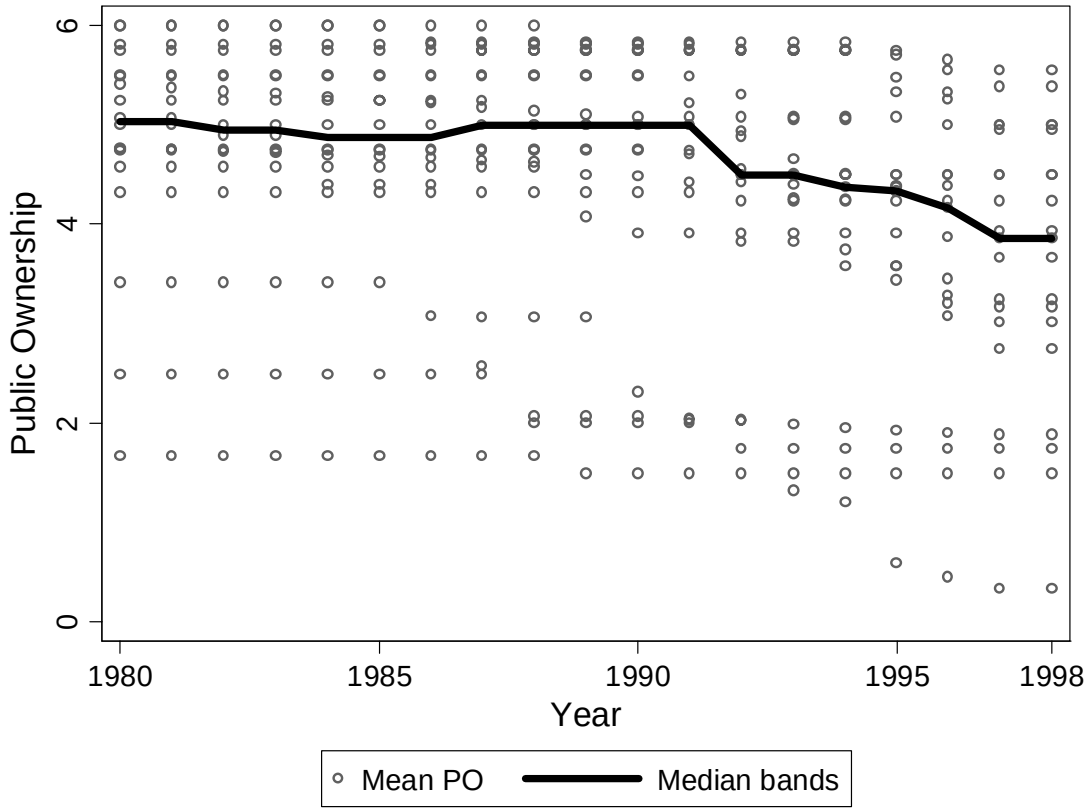
NOTES:- This figure is a graphical representation of the results in Table 3. All aggregate changes are broken down into "within industry" and "between industry" components across four broad sectors (Network Industries, Manufacturing, Finance, and Wholesale/Retail/Hotels). The contributions of the Within Network Industry and between manufacturing components are shown as these tend to be the largest components. The decomposition uses equation (20).

Figure 3: Change in the labor share across OECD Countries for Network Industries



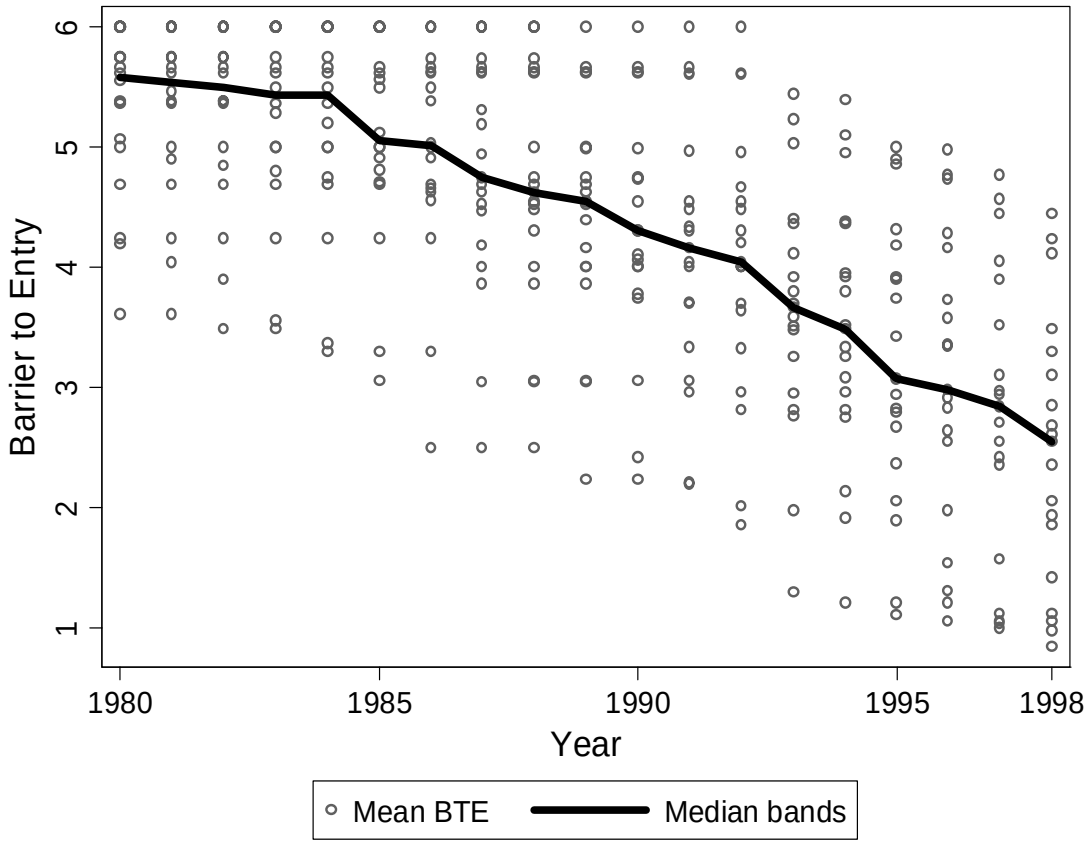
NOTES:- These are country level values of the labor share of value added in the network industries only (OECD countries, 1980-2000). Each circle represents a different country (25 countries).

Figure 4: Average Public Ownership Index Across OECD Countries for Network Industries



NOTES:- These are country level averages of the public ownership index for the Network Industries only (OECD countries 1980-1998). The Public Ownership Index is drawn from the OECD's regulation database (Nicoletti and Scarpetta (2000, 2003a, b). Each circle represents a different country (19 countries).

Figure 5: Average Barriers to Entry Index Across OECD Countries for Network Industries



NOTES:- These are country level averages of the public ownership index for the Network Industries only (OECD countries 1980-1998). The Barriers to Entry (BTE) index is drawn from the OECD's regulation database (Nicoletti and Scarpetta (2000, 2003a,b). Each circle represents a different country (19 countries).

NOTE TO REFEREES: ALL THESE APPENDIX TABLES ARE NOT INTENDED FOR PUBLICATION, BUT ONLY FOR THE WEB-BASED WORKING PAPER VERSION AND REFEREE ATTENTION.

Table A1: Balance of Panel by Country and Industry

Country	Electricity and Gas	Post and Telecom	Transport	Total
Australia	32	22	22	76
Austria	26	26	26	78
Belgium	16	17	17	50
Canada	30	20	20	70
Denmark	32	32	32	96
Finland	32	27	27	86
France	31	23	23	77
Germany	11	10	10	31
Greece	7	7	7	21
Italy	32	22	22	76
Japan	32	19	19	70
Netherlands	32	22	22	76
Norway	32	11	11	54
Portugal	23	16	16	55
Spain	17	15	15	47
Sweden	30	20	20	70
USA	32	32	32	96
United Kingdom	31	9	9	49
Total	478	350	350	1178

NOTES: This is the unrestricted sample without controlling for missing values in share, employment and wages.

Table A2: Change in the labor share, 1980-2000

Country	Change in Business Sector	Network Industries				Manufacturing				Wholesale, Retail & Hotels				Financial Share			
		$\overline{SHARE}$	$\overline{VA}$	Within	Between	$\overline{SHARE}$	$\overline{VA}$	Within	Between	$\overline{SHARE}$	$\overline{VA}$	Within	Between	$\overline{SHARE}$	$\overline{VA}$	Within	Between
Austria	-4.02	62.53	16.98	-0.27	-0.37	62.55	40.02	-5.77	-1.89	55.41	30.94	3.42	0.29	49.80	12.06	-0.96	1.54
France	-5.60	56.25	17.08	0.32	0.21	63.31	46.74	-3.45	-5.65	67.36	26.26	-2.10	4.00	60.60	9.92	-0.52	1.58
Germany	-1.85	57.17	16.01	-1.91	0.04	71.87	50.81	-0.54	-4.33	68.57	24.35	0.18	3.15	66.03	8.84	0.65	0.91
Italy	-6.22	59.19	15.03	-4.08	2.41	64.63	44.84	0.22	-5.90	66.25	29.38	-0.88	2.41	52.56	10.75	-1.15	0.75
Netherlands	-7.02	53.38	17.63	-1.02	-0.21	61.67	39.10	-3.89	-3.53	58.99	31.66	-1.07	2.11	58.21	11.61	-0.89	1.47
Spain	-4.37	46.90	17.22	-1.16	1.23	62.19	42.09	0.12	-8.42	38.93	31.48	0.46	3.66	59.10	9.21	-1.16	0.89
USA	-8.83	56.48	18.63	-1.23	-0.20	70.67	38.31	-2.91	-6.54	70.37	31.18	-0.96	1.46	54.33	11.88	-2.54	4.09
United Kingdom	-4.34	61.27	17.97	-1.57	1.55	74.41	43.35	-2.42	-8.31	66.97	27.52	-1.75	6.26	50.79	11.15	2.27	-0.36
Unweighted Mean	-5.28	56.64	17.07	-1.36	0.58	66.41	43.16	-2.33	-5.57	61.61	29.10	-0.34	2.92	56.43	10.68	-0.54	1.36

NOTES:- Coefficients and standard errors are multiplied by 100; $\overline{SHARE}$ is the average labor share (for each sector) between 1980 and 2000 and $\overline{VA}$ is the average value added (for each sector) between 1980 and 2000. The data from Gronnigen Industry Productivity Database. The decomposition is based on equation (20 in the text.

Table A3: Aggregate Union and Employment Protection Measures

	[1]	[2]	[2]	[3]
Dependent variable	Labor Share		Labor Share	
Public Ownership	1.488	0.683	1.382	0.733
	(0.440)	(0.401)	(0.523)	(0.421)
Barriers to Entry	-0.531	-0.684	-0.701	-0.791
	(0.331)	(0.261)	(0.352)	(0.271)
Union Density			0.785	6.061
			(1.923)	(5.287)
Employment Protection	-6.491	-2.277	-5.548	0.609
	(1.249)	(3.316)	(1.428)	(4.069)
Trend*Telecom	-0.822	-0.784	-0.852	-0.790
	(0.200)	(0.124)	(0.216)	(0.136)
Trend*Electricity	-0.068	-0.005	-0.062	0.034
	(0.162)	(0.099)	(0.172)	(0.102)
Fixed Effects (50)	No	Yes	No	Yes
Time Dummies (21)	Yes	Yes	Yes	Yes
Observations	789	789	789	789

NOTES:- Coefficients and standard errors are multiplied by 100; Employment Protection measures are drawn from the OECD (Nickell et al (2002)). The base trend is Trend*Transport. The Newey-West standard errors correct for first order serial correlation.

Table A4: Dynamic Specification

	[1] SHARE	[2] Ln(Emp)	[3] Ln(Wages)	[4] SHARE	[5] Ln(Emp)	[6] Ln(Wages)
Public Ownership	0.961	2.266	-1.382			
	(0.589)	(1.008)	(1.263)			
Lagged PO	-0.063	0.991	-0.554	0.816	3.117	-1.803
	(0.578)	(1.261)	(1.255)	(0.349)	(1.133)	(0.742)
Barriers to Entry	-0.403	0.437	0.312			
	(0.347)	(0.671)	(0.607)			
Lagged BTE	-0.108	0.214	0.051	-0.452	0.558	0.312
	(0.357)	(0.704)	(0.590)	(0.261)	(0.620)	(0.462)
Trend*Telecom	-0.749	-0.268	0.845	-0.746	-0.270	0.840
	(0.109)	(0.156)	(0.236)	(0.109)	(0.156)	(0.236)
Trend*Electricity	-0.039	-0.709	0.777	-0.043	-0.682	0.776
	(0.093)	(0.213)	(0.201)	(0.092)	(0.212)	(0.201)
Fixed Effects	54	57	54	54	57	54
Time Dummies	24	20	20	24	20	20
Observations	923	1064	870	923	1064	870

NOTES:- All coefficients and standard errors are multiplied by 100. The coefficients are from separate OLS regressions. The sample is pooled across three industries (electricity/gas, telecom and transport). "Share" is the Labor Share of Value Added. The base trend is Trend*Transport. The Newey-West standard errors are corrected for first order serial correlation.

Table A5: Robustness of pooled results

Restricting sample to non-missing on all variables

	[1]	[2]	[3]	[4]	[5]	[6]
Dependent variable	Labor Share		Ln(Employment)		Ln(Wage)	
Public Ownership	1.252	1.054	-9.153	2.967	-5.076	-1.874
	(0.405)	(0.361)	(2.427)	(1.191)	(1.332)	(0.741)
Barriers to Entry	-0.405	-0.379	-0.568	0.865	0.519	0.453
	(0.294)	(0.262)	(1.276)	(0.632)	(0.753)	(0.468)
Trend*Telecom	-0.768	-0.728	-0.004	-0.555	0.051	0.736
	(0.174)	(0.110)	(0.832)	(0.174)	(0.521)	(0.236)
Trend*Electricity	-0.053	-0.074	-0.444	-1.075	0.560	0.664
	(0.179)	(0.112)	(0.821)	(0.242)	(0.454)	(0.202)
Fixed Effects (54)	No	Yes	No	Yes	No	Yes
Country Dummies (18)	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies (3)	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummies (20)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	861	861	861	861	861	861

NOTES:- The specification is identical to that in column (5) and (6) of Table 3 except we restrict the sample to observations where we have no missing values on the labor share, ln(emp) and ln(wage).

Table A6: Robustness of Pooled Results: Including Country Trend Interactions

	[1]	[2]	[3]
Dependent variable	Wage Bill Share		
Public Ownership	0.898	0.602	0.750
	(0.339)	(0.425)	(0.360)
Barriers to Entry	-0.495	-0.487	-0.452
	(0.246)	(0.213)	(0.206)
Trend*Telecom	-0.773	-0.776	-0.731
	(0.108)	(0.095)	(0.090)
Trend*Electricity	-0.037	-0.002	-0.064
	(0.089)	(0.079)	(0.091)
Trend*Manufacturing			-0.054
			(0.083)
Fixed Effects	54	54	80
Country*Trend	No	Yes	Yes
Time Dummies	24	24	24
Observations	944	944	1304

NOTES:- All coefficients and standard errors are multiplied by 100; coefficients are from separate OLS regressions with Newey-West standard errors (in parentheses under coefficients) correct for first order serial correlation. The sample is pooled across four industries (electricity/gas, telecommunications/post, transport and manufacturing). The manufacturing industry is an average over nine categories specified in the STAN dataset (food, textiles, wood, pulp, chemicals, non-metallic minerals, basic metals, metal products, machinery). "Share" is the Wage Bill Share of Value Added. We include a full set of time dummies and time trends interacted with industry dummies (the base trend is Trend*Transport).

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