Wage Dispersion Between and Within Plants: Sweden 1985-2000

by

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1. Introduction

Over the period lasting from the late 1960s to the mid 1980s, Sweden experienced a sharp decline in wage inequality. Overall wage inequality fell along with educational wage differentials and wage differentials between young and older workers. This development came to a halt in the mid 1980s and the subsequent years have seen a reversal of previous trends. The rise in wage inequality since the mid 1980s has been particularly marked for private sector workers (le Grand et al, 2001).

The causes of the fall of Swedish wage inequality have been discussed in Edin and Holmlund (1995), Hibbs (1990) and other contributions. Institutional factors almost certainly played a role. The so called solidarity wage policy pursued by the major trade union confederation was clearly attempting to reduce wage differentials and appeared to have been successful in these ambitions. However, there is also evidence that the usual supply and demand factors played some role, in particular concerning the evolution of educational wage differentials. Changes in the university wage premium (college versus high school) are strongly negatively correlated with changes in the relative supply of university educated people in the labor force up to the mid 1990s. From the mid 1990s, however, this pattern no longer holds. The university wage premium has continued to increase despite a continuous increase in the relative supply of university educated people in the labor force (Gustavsson, 2004).

Earlier studies of changes in Swedish wage inequality have been silent on the question as to what extent the changes are attributable to changes in dispersion between and within firms (plants). The main contribution of the present paper is to document how wage dispersion between and within establishments has evolved since the mid 1980s. We use hitherto largely unexploited data and find a continuous rise in between-plant wage inequality.

The plan of the paper is as follows. We begin in section 2 by giving a brief overview of the Swedish labor market institutions, in particular those of relevance for wage determination. We also offer a short account of the turbulent macroeconomic events of the 1990s. Section 3 describes the data and section 4 describes in some detail the evolution of the wage structure. Section 5 provides a brief discussion of possible explanations and section 6 concludes.

2. Background

2.1 The Institutional Setting

Union density in Sweden has hovered above or around 80 percent of the number of employees over the past couple of decades. The coverage of collective agreements is even higher as wage agreements are typically extended to non-union workers. The trend decline of union density visible in many countries has been conspicuously absent in Sweden. A high degree of union membership is an integral part of what has been referred to as the Swedish Model. Indeed, labor legislation concerning employment protection and worker co-determination is based on the presumption that the overwhelming majority of the workers are union members.

The fact that the provision of unemployment insurance is closely linked to union membership is almost certainly an important explanation of the high unionization rate. Three other Nordic countries with very high union density – Denmark, Finland and Iceland – also organize their unemployment insurance through union-affiliated insurance funds. There is by now a reasonable amount of evidence suggesting that such institutional details explain a substantial part of the country differences in unionization.

Post-war wage determination in Sweden has frequently been associated with centralized wage bargaining as well as so-called solidarity wage policy. Nationwide coordination of wage negotiations were implemented from the mid-1950s and continued for almost three decades. The key players in these negotiations were LO (the Swedish trade union confederation) and SAF (Swedish employers' federation). The guiding principle for LO's wage policy, as laid out in several influential documents by their economists Gösta Rehn and Rudolf Meidner, was "equal pay for equal work". One implication of this principle was that wages should not be made dependent on the ability to pay among particular firms or industries. In theory, the policy recognized the need for wage differentials among workers so as to reflect differences in qualifications. In practice, there was always a clear egalitarian ambition in LO's wage demands.

The centralized wage negotiations came under increasing stress during the late 1970s when some employer organizations argued that the central frame agreements left too little room for flexibility at the local and industry level. A significant step towards more decentralized wage bargaining came in 1983, when the metalworkers' union and their employer counterpart

sidestepped the national negotiations and opted for an industry agreement. Wage negotiations after 1983 have mainly taken place at the industry level, albeit with exceptions in the early 1990s when double-digit inflation and an emerging macroeconomic crisis led the government to initiate a coordinated "stabilization drive" so as to achieve a deceleration of wage inflation. The drive took the form of a government-appointed commission that delivered a proposal for economy-wide wage restraint for the period 1991-1993. This involved negotiations with over 100 organizations and the proposal was finally accepted across the whole labor market. The following years involved a return to largely uncoordinated industry-wide bargaining.

In the summer of 1996, several blue-collar unions in the manufacturing sector launched an important initiative that eventually materialized as the so-called Industrial Agreement (IA) of 1997. The agreement was struck by the blue- and white-collar unions as well as employer organizations in the industrial sector and was mainly concerned with procedural "rules of the game". It represented an attempt to establish consensus around timetables for negotiations, the role of mediators, and rules for conflict resolution. A group of "impartial chairs" have been appointed and the agreement states rules for when and how these chairs could intervene in the negotiation process.

The Industrial Agreement has served as a model for similar agreements in the public sector (and also in parts of the service sector). As of 2002, over 50 percent of the labor force is covered by IA-type agreements. IA also came to serve as a model for government policies concerning industrial relations. A new national mediation institute (Medlingsinstitutet) has been created (in operation from June 2000) with the power to appoint mediators even without the consent of the parties concerned.

The IA innovations that emerged in the late 1990s represent a move towards informal coordination in wage bargaining. Perhaps paradoxically, the move towards informal macro-coordination in wage bargaining has taken place simultaneously with a clear shift towards stronger local influence over the distribution of wage increases. Pay setting in the public sector is a case in point. Previous rigid wage scales have been abandoned and there is, at least in theory, substantial room for wage adjustments tailored to the needs of recruiting and retaining employees.

2.2 The Macroeconomy in Turmoil

During the 1980s, Swedish labor market performance was widely appreciated as a remarkable success story. Whereas unemployment in Western Europe climbed to double-digit figures, the Swedish unemployment rate remained exceptionally low by international standards. The average unemployment rate during the 1980s was around 2 percent and by the end of the decade it had fallen to 1.5 percent. Employment-to-population rates were also exceptionally high by international standards. In 1990, total employment had risen to 83 percent of the working age population, whereas the average European figure was 61 percent and the OECD average 65 percent.

In the early 1990s, the picture of outstanding Swedish labor market performance changed dramatically. Between 1990 and 1993, unemployment increased from 1.6 percent to 8.2 percent and total employment declined to 73 percent of working age population. The level of GDP fell from peak to trough by 6 percent over a three year period. For five successive years in the mid-1990s, official unemployment was stuck at around 8 percent whereas extended measures of unemployment reached double-digit figures.

Why did Swedish unemployment rise so sharply in the early 1990s? It can be argued that the main causes were a series of adverse macroeconomic shocks, partly self-inflicted by bad policies and partly caused by unfavorable international developments. The policy failures date back to the 1970s and include an inability to pursue a sufficiently restrictive aggregate demand policy so as to bring inflation under control. This inflationary bias in policy was especially pronounced in the late 1980s when it was fueled by financial liberalization. The timing of financial liberalization and a major tax reform in 1990-91, which contributed to a slump in the housing market, was not well designed. When macroeconomic policy finally took a firm anti-inflationary stand in 1991, the economy was already edging towards recession. The depth of the recession was reinforced by the international recession of the early 1990s and by increasing real interest rates.

Although the prospects for a sustained labor market improvement appeared remote in the mid-1990s, a strong recovery was in fact around the corner. From 1997 and onwards, employment exhibited a marked increase and unemployment fell precipitously. By the end of 2000, unemployment had reached 4 percent of the labor force and it remained fairly constant at this level during 2001 and 2002. To some degree, this recovery reflects the unwinding of

earlier shocks and a return to what may be close to the equilibrium unemployment rate. There is little doubt that the extremely low unemployment rate around 1990s was not sustainable. Over the 1990s, several reforms may have facilitated to return to lower equilibrium unemployment. For example, unemployment insurance became less generous, a number of deregulations in product market took place, and labor market reforms opened up for temporary work agencies.

3. Data

The basic data source is a version of a register data base (RAMS) provided by Statistics Sweden. The underlying population consists of all individuals aged 16-65 residing in Sweden between 1990 and 2000 but the data cover the period 1985-2000. This implies that the oldest workers as well as workers that emigrated or died before 1990 are missing during the first five years. Thus, in effect, we have an age restriction of 16-60 in 1985 and 16-64 in 1989.

RAMS contain yearly plant-level data on all individual workers that were employed at the plant some time during the year. The data include information on total annual earnings as well as the first and the last salaried month for each employee. We construct monthly wage data by dividing total earnings during the year by the number of remunerated months, including only employment spells that cover November each year.

We consider a person employed if and only if the wage for November exceeds 75 percent of the mean wage of a janitor employed by a local municipality according to Statistics Sweden's information on monthly wages (the cut-offs are available upon request). Furthermore, an individual is only allowed to be employed by one plant each year and priority is given to the observation generating the highest wage.

[Table 2]

The dataset is based on information on total labour earnings collected for the purpose of calculating taxes. Thus, the data include the earnings of *all* employees, including top CEO:s, which implies that some of the observations are extreme outliers. It should be noted that there is great persistence over time in the recorded wages of these individuals suggesting that the extreme values are not due to errors. As is evident from Table 2, the wages of the top earners

have a large impact on the standard deviation of monthly wages while the mean hardly is affected at all (this pattern is of course even more noticeable when looking at wages in levels). It might be misleading if a very small number of workers influence the statistics in such a dramatic way, especially when comparing to other data sets where this group may be excluded by construction. On the other hand, wages of top earners within each plant are in the focus of parts of the paper. Considering this, we retain all but the top 0.5 percent in the wage distribution in the relevant years. In an effort to reduce the impact of measurement errors in changes we also rank individuals according to their log wage change and drop the highest and lowest half-percentile each year.

Table 3 compares the constructed wage distribution to the "actual" wage distribution calculated from the 3 percent random sample in the LINDA-database (see Edin and Fredriksson, 2000). The constructed data correspond reasonably close to the actual data when looking at log wages but appear to contain some noise in the estimated dispersion of wage changes.

[Table 3]

The analysis of this paper is focused on the corporate sector, including only establishments with at least 25 employees. For convenience, we will refer to the establishments as plants. We do not correct for disappearing administrative numbers and calculate tenure within the sample. This implies that we will underestimate the fraction of long tenured workers. In order not to misclassify the disappearance of administrative numbers as plant closings, we only include plants that existed in two consecutive years when studying changes (and, for comparability, throughout section 4). Thus, the calculated exit rates will not include plant closings. Note also that, when calculating wage changes for people that change plants, we only include people that changed between plants with at least 25 employees in both years.

[Table 4]

Table 4 displays the relative size of the corporate sector for the years 1985 and 2000.[1] We include both a measure where we use the entire corporate sector and one where we restrict the analysis to the private corporations. It is shown that the size of the corporate sector, as

[1] The sector definitions are based on SCB (2000) and SCB (2002) and supposedly comply with EU-standard classifications.

measured in number of employees, increased slightly between 1985 and 2000 (from 63 to 66 percent).The relative size of the private corporate sector increased somewhat faster from 52 to 60 percent.

Table 4 also shows the share of workers in each sector that worked in plants with at least 25 employees. It is shown that 59 percent of individuals employed in the corporate sector in 2000 worked in 25+ sized plants; the corresponding number for 1985 was 57 percent. Figure 1 shows the log plant-size distribution for 2000. It is obvious that most 25+ sized plants have close to 25 employees, and as a consequence, a significant fraction of plants move around the 25 limit between years. However, as noted above, we will condition on plants having at least 25 employees in both years whenever we calculate changes.

[Figure 1 – Plant size in 2000]

4. Snapshots of Plant Wages and Mobility: 1986, 1990, 1995 and 2000

This section provides detailed descriptive evidence of wages, wage changes and mobility at the plant level in the Swedish private corporate sector for the years 1986, 1990, 1995 and 2000. The years are chosen in order to reflect the business cycle behavior during the period (see Section 2).

The analysis in this section is based only on plants in *privately owned* firms in the corporate sector. It is worth noting, however, that the period under study was characterized by a steady increase in the share of workers in private plants within the corporate sector: in 1986 only 77 % of workers worked in plants owned by private firms, whereas the corresponding share was 87 % in 2000 (see Table 4 in Section 3).

Since the focus of this section is on describing the pattern and changes in wages and turnover at the plant level, most statistics are calculated with one plant as one observation implying that all included plants have an equal weight. Thus, small plants are up-weighted compared to an individual based analysis.

4.1 Wage Levels

Figure 2 shows the log real wage distribution for the four years (deflated by the consumer price index). The figure shows a steady increase in real wages, but also an increase in

dispersion. The increased dispersion is also evident from Table 5. It is a well known fact from several previous studies that the wage dispersion started to increase in the mid-1980s after several decades of wage compression. Further reading of Table 5 shows however what appears to be a new piece of evidence, namely that the prime source of increased dispersion is between, rather than within, plants.

[Figure 2 – Real wage distribution]

Table 5 also reveals a positive correlation between the wage *level* in a plant and the wage-*dispersion* within the plant. This result is probably, at least partly, driven by the skewness of the wage distribution (see Figure 2 above). The wage dispersion among high paid people is larger even in relative terms; it can be shown that the log wage variance among the highest quartile of predicted wages (predictions based on the regression found in Table C1, Appendix C) is about twice that of the lower quartiles.[2]

The bottom rows of Table 5 show the evolution of wage dispersion for young and old workers. The results show that the increase in wage dispersion was larger for young workers than for prime aged workers. The level of youth wages, however, appears to have remained relatively stable at approximately 90 % of the average wage.

[Table 5 - Wage levels]

4.2 Wage Changes

Figure 3 shows the distribution of wage changes for the four years. It can be noted that most workers experienced a real wage decline between 1989 and 1990. Table 3 looks at wage changes within and between plants using information on the workers that remained in the plant for two consecutive years (from $t - 1$ to t). We see that the mean *plant level* change rate is higher than the average change rate, implying that large plants have steeper wage profiles (since the mean plant analysis puts equal weight on all plants regardless of size).

[Figure 3 – Distribution of real wage changes]

[Figure 4 – Distribution of real wage changes, by plant]

[2] Some caution is warranted when comparing these numbers to other data sources since the used data is rather unique in including the earnings of all people receiving remuneration from each plant, including top CEO:s. Note however that we, as explained in Section 3, excluded the top 0.5 % of wages each year.

Table 6 shows that wage increases are smaller for workers with long tenure than for workers with shorter tenure. The wage increases for workers that change firms are smaller than average at the start of the period, but larger at the end of the period. This observation seems consistent with the observed increase in the importance of plant effects. However, it should also be noted that the dispersion of wage changes is much larger for those that change firms, suggesting important differences between voluntary and involuntary worker separations. It is important to keep in mind that the analysis is based on raw differences and that the probability of changing firms may be correlated with other characteristics that may affect the rate of wage growth, such as age or education.

[Table 6 Wage changes]

4.3 Mobility

Table 7 looks at plant level entry and exit rates where the *entry rate* is defined as the share of workers in a plant in year *t* that did not work in the plant in *t*-1. Correspondingly, the *exit rate* is defined as the share of workers in a plant in year *t-1* that did not remain in the same plant in year *t*.

We see that most of the mobility takes place in the lower part of a plant's wage distribution; both in terms of exit and entry. We also see that there is relatively more entry than exits at lower wages and relatively more exits than entry at higher wages suggesting that people do promote to higher wage levels within plants. It is also obvious that the turnover rates are lower in larger plants, presumably because larger organization should provide more career opportunities than smaller organizations.

The most important development over time seems to be that the mobility is procyclical, both in terms of entry rates and exit rates. In both the (relative) slump years of 1986 and 1995 we see that exits as well as entries where relatively uncommon and the fraction of high tenured workers was relatively large in 1995. We also see an increasingly positive correlation between the plant-wage level and mobility, both in terms of entry and exit rates.

[Table 7 Mobility]

Appendix A shows tables that depicts high and low level jobs separately. *High level jobs* are defined as jobs paying more than the 80th percentile of the wage distribution in the data and *Low level jobs* are defined as the jobs paying less than the 20th percentile of the distribution. The story told by these numbers are essentially the same as in Table 6: both entry and exits are more common for low level jobs and less common for high level jobs, with a more pronounced pattern for entries. The main difference seems to be that the correlation between the plant wage level and wages is positive for high level jobs and negative for low level jobs.

5. The Evolution of the Wage Structure

The description in the previous section suggested that differences between plants may play an important role in explaining the growing wage dispersion in Sweden since the mid 1980s. The purpose of this section is to study in more detail the changing role of plants in explaining the wage dispersion between workers in the Swedish economy.

5.1 Within and between plant components

We start by looking at how the share of log wage variance that can be attributed to plant-specific factors has changed over time. Figure 5 shows that the between plant variance as a share of overall variance has increase steadily throughout the period. The development appears equally visible when studying the entire economy as when studying only the corporate sector. There is a steady increase in the importance of plant effects also when focusing only on the manufacturing sector, even though the increase is less pronounced in that sector. Throughout the rest of this section we will focus on plants in the corporate sector. However, we will include the entire corporate sector regardless of ownership (see the discussion in the beginning of the previous section).

[Figure 5 – Fraction of variance explained by plant effects]

Interestingly, it can be shown that it is the increase in between plant variance that makes up the entire increase in wage dispersion over the period. Figure 6 shows the evolution of within plant variance which contains a marked cyclical pattern but has no trend (estimates of time trends can be found in Appendix B).

[Figure 6 – evolution of within-plant variance]

5.2 The role of structural change

It is possible that the increase in between plant variance is due to changes in the industry composition. Thus, in Figure 7 we decompose the between plant variance in two parts, between plants within the same 2-digit industry and between 2-digit industries.[3] The figure clearly shows an increase in both the wage variances between plants in the same industry, and between industries. We have also looked at the variance between plants within the same firm; this variance is small (since many firms just have one plant) but increasing.

As a (very) rough formal analysis of time trends for different industries, Appendix B shows time trend estimates for the entire economy as well as separately for all 1-digit industries. The results show that all industries had positive trends in between plant variances, while only three industries had trends in within-plant variance. To further asses the role of structural change we have looked separately at all plants that existed in 1985 and/or 2000, as well as dividing these plants by employment growth rates. All the results from these experiments suggest that the growing difference between plants is driven by increased differences between plants in the wages they pay, rather than by changes in the composition of plants in the economy.

[Figure 7 – Between plant variance within industries and between industry variance]

5.3 The role of sorting and observed human capital

The increased variance between plants may in principle have occurred for two very different reasons: either due to increased sorting of workers, or due to an increased importance of "true" plant effects. To get a first look at the importance of sorting according to skill we will include traditional observable human capital variables (age, age squared, education, gender and immigrant) in a "Mincer-type" regression. The results from the regressions can be found in Appendix C. As already been shown in e.g. Gustavsson (2004), the explanatory power of observable characteristics has declined over time. We then proceed by including plant fixed effects and calculate the fraction of residual variance attributed to the plant effects and interpret it as the additional explanatory power of plant effects after controlling for observable characteristics. We also calculate the correlation between the fixed effects and the

[3] We use "reduced" 2-digit industry codes that are the lowest level at which it is possible to get consistent industry classifications throughout the period (new codes where issued in 1992). Thus, the economy is divided into 39 industries.

prediction from observables as a measure of the degree of sorting on observables. The results displayed in Figure 8 show that the plants play an increasingly important role also after controlling for observable skills. Furthermore, we see that there has been an increase in the tendency for high skilled workers to work in high paying firms. As far as we can trust the observable characteristics' ability to capture the market-value of workers, these results thus suggest that both sorting and "true" plant effects have gained in importance. The figure also show that that observed human capital variables can explain less of the within plant variance over time.[4]

[Figure 8 –Residuals]

5.4 Plant effects and skill levels

We have already shown that the increased wage dispersion does not appear to be the result of structural changes but we have so far said nothing about changes in the skill composition. It is well known for instance that the average level of education increased dramatically during the period. We also noted in Section 4 that the variance of log wages within a plant is correlated with the average log wage of that plant and that this may be the result of the skewness of the log wage distribution. Thus, we may be interested in the changing role of plants in different parts of the skill distribution. We study this by dividing the sample of individuals into quartiles of predicted wages from the estimated OLS-Mincer equations. Figure 9 shows an interesting pattern; the plant effects become increasingly important for all quartiles except the highest predicted quartile.[5] This suggests that institutional factors are important since they should be more binding for less skilled workers.

[Figure 9 – By skill group]

5.5 Wage changes and mobility

So far this section has focused entirely on wage levels. However, changes in the variance between plants in wages may have implications for both wage changes and mobility. In Figure 10 we study the fraction of wage growth variance that can be attributed to plant

[4] However, using the within-estimated coefficients to calculate the between R2 we see no evidence of a trend, suggesting that the between plant variance of observables have increased relative to the within plant variance. We interpret this as further support to the notion of increased sorting.

[5] It should be noted that the pattern of increased plant effect R2:s can be replicated using only males. Thus, it is not likely that the differences between predicted wage quartiles are driven by different time patterns for men and women.

effects for the different years (using only workers that remain in the same plant). The pattern is less obvious than when studying wage levels, but there is a marked shift in plant specific wage growth in the beginning of the 1990s. This pattern also remains after controlling for observables. The strongest pattern emerging from the figure is however an increased sorting starting in the mid 1990s, where workers with high predicted wage growth rates (e.g. young workers) increasingly sort themselves to plants with high residual wage growth rates. However, it should be noted that, as is evident from Figure 10, the within plant predictive power of the observables is quite small (in the order of 1-3 %).

[Fig 10: Plant-effects in changes]

In Section 4 we noted what appeared to be increased wage changes for those that changed plants relative to the average wage change. However, when studying the time pattern throughout the period it is apparent that the difference is highly volatile with little evidence of a trend (in most cases the differences are insignificant), a picture that also remains after controlling for observable characteristics. What appears to be a robust pattern however is a procyclicality of the fraction of worker observed in the data in two consecutive years that have changed plants between the years (see Figure 11).

[Figure 11: Mobility and wage changes]

5.6 The dynamics of plant wages

If plant wages follow productivity, it is conceivable that the plant wages move from year to year in response to temporary shocks. We have computed the year by year correlation of plant wages; the correlation displayed in Figure 12 varies between 0.92 and 0.96 with a marked pro-cyclical pattern (the four years with the lowest correlations are 1991-94) but with no trend. Thus, plant specific wages do not appear to fluctuate more in response to temporary shocks in 2000 than they did in 1985.

In Section 4 we saw signs of an increased correlation between the firm wage level and mobility (as measured by both entry and exit). We have also studied the correlation between plant wage levels and employment growth; they are always close to zero and move around without any discernable pattern.

5. Discussion

How can the rising importance of firm effects be interpreted?

There are at least three possibilities:

- institutional changes with stronger local unions
- increasing dispersion of plant value productivity (relative price differences, capital intensity etc)
- increased segregation by skill because of changes that have made sorting by skill more attractive for firms

Institutional changes

In a standard bargaining framework, one can regard the bargained wage as being determined by inside and outside factors. The former include measures of the firm's ability to pay.

Forslund and Lind (2004) look at this and cannot find any change over time for manufacturing. We can check their data and perhaps run some new regressions. They don't include any human capital variables, for example. Nor do they include any local labor market variables. If human capital variables are unavailable in FL data one may use production vs nonproduction workers (arbetare, tjänstemän)

Product markets and ability to pay

If local bargaining power is unchanged, an increase in the dispersion of firms' ability to pay may cause an increase in wage dispersion (at least for a while).

We don't have plant information on correlates of ability to pay. We have however looked at the dispersion of labor productivity across some 25 industry groups and found nothing. But it is better to look at plants and FL data are the best we can get. They don't report any measures of productivity dispersion. We could compute, for 1985 and onwards, the standard deviation of log value added per employee (or work hour if possible). We could also compute other measures (90/50, 50/10).

Sorting by skill

The Kremer-Maskin theory is one story (Kremer and Maskin, 1996). The details are messy, but one implication is that an overall increase in education, and variance in education, can cause increased sorting by skill.

A possible 'test' of this theory is to look at the evolution of sorting across regions and relate this to changes in education by region (this would replicate what Kremer-Maskin has done on US states).

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Section 2

Table 1: Macroeconomic conditions

Year	Unemployment[1]	Employment[2]	Economic growth[3]		
			1 Year	2 Year	5 Year
1980	2.0	79.9	1.67	5.57	6.83
1981	2.5	79.4	-0.19	1.47	5.51
1982	3.2	79.1	1.24	1.05	8.55
1983	3.5	79.0	1.88	3.14	8.68
1984	3.1	79.4	4.31	6.27	9.18
1985	2.8	80.3	2.22	6.62	9.77
1986	**2.7**	**80.9**	**2.79**	**5.07**	**13.04**
1987	2.1	81.4	3.40	6.28	15.45
1988	1.7	82.2	2.60	6.09	16.27
1989	1.5	82.9	2.75	5.42	14.53
1990	**1.6**	**83.1**	**1.03**	**3.80**	**13.20**
1991	3.0	81.0	-1.08	-0.06	8.94
1992	5.2	77.3	-1.18	-2.25	4.11
1993	8.2	72.6	-2.00	-3.15	-0.56
1994	8.0	71.5	4.16	2.09	0.82
1995	**7.7**	**72.2**	**4.05**	**8.39**	**3.84**
1996	8.1	71.6	1.29	5.40	6.32
1997	8.0	70.7	2.44	3.76	10.22
1998	6.5	71.5	3.65	6.17	16.56
1999	5.6	72.9	4.58	8.39	17.03
2000	**4.7**	**74.2**	**4.33**	**9.10**	**17.33**
2001	4.0	75.3	0.92	5.29	16.91

Note: [1] Share of labour force.[2] Share of working aged (16-64) population.[3] Change in real GDP. Numbers in **bold** refer to the years studied in section 4.

Section 3

Figure 1

Table 2: The importance of extreme values (2000)

Highest included percentile	Log of nominal monthly wage in 2000		
	Mean	Standard deviation	Max
95	9.820	0.283	10.54
99	9.855	0.328	10.98
99.5	9.862	0.338	11.19
99.9	9.868	0.351	11.75
All	9.870	0.359	15.07

Note: Total sample size is..

Table 3: Actual and constructed nominal monthly wages (2000).

	Log (wages)		Changes in log wage (from 1999)	
	Constructed	Actual	Constructed	Actual
Mean	9.860	9.876	0.051	0.054
Standard deviation	0.336	0.283	0.149	0.116
10^{th} percentile	9.453	9.585	-0.093	-0.022
Median	9.821	9.818	0.042	0.037
90^{th} percentile	10.309	10.258	0.216	0.165
N	2,999,065	105,633	2,602,351	88,864

Note: The observations with the largest (and smallest for the actual data) 0.5 % of wages as well as the largest and smallest 0.5 % of log wage changes are excluded from the data.

Table 4: Sector and size.

	All plants and employees		Employees in 25+ plants only	
1985	Relative size of sector (# Employees)	Share of employees in 25+ plants	Relative size of sector (# Employees)	Relative size of sector (# Plants)
All corporate	0.63	0.59	0.62	0.62
Private corporate	*0.52*	*0.55*	*0.48*	*0.48*
Public and non-profit	0.37	0.63	0.38	0.38
2000				
All corporate	0.66	0.57	0.62	0.60
Private corporate	*0.60*	*0.55*	*0.54*	*0.52*
Public and non-profit	0.34	0.68	0.38	0.40

Note: Size is relative to the total number of employees (or plants) each year.

Section 4

Figure 2

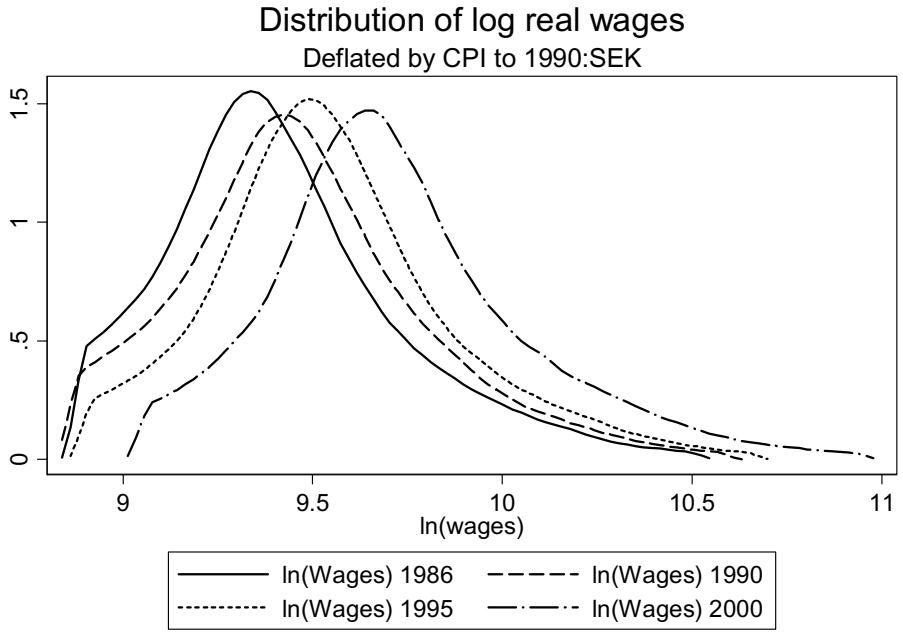


Figure 3

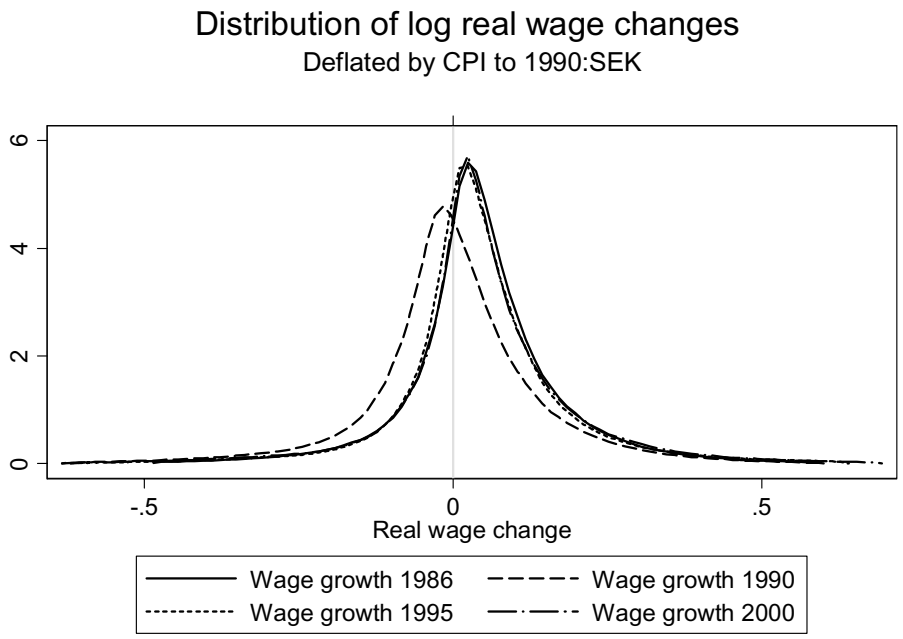
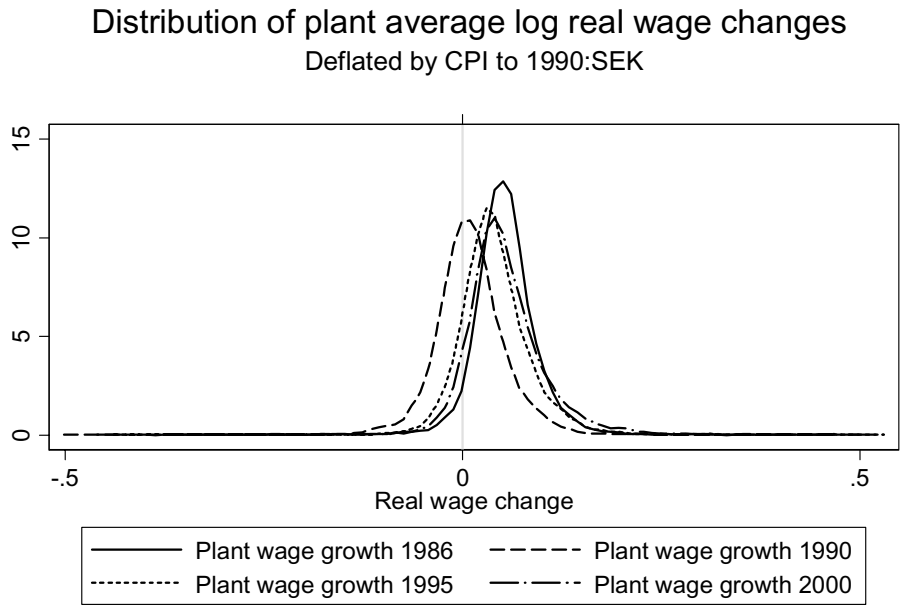


Figure 4



Note: Only for workers that remain in the same firm

Table 4: Structure of wages within and between plants

	Wages (1990-SEK)[1]					Log wages (1990-SEK)[1]			
	1986[2]	1990	1995	2000		1986	1990	1995	2000
Average Wage	12976	13797	14865	17843		9.420	9.477	9.553	9.727
(s.d.)	4572	4996	5346	7040		0.307	0.322	0.318	0.340
75%-ile	14544	15649	16711	20055		9.585	9.658	9.724	9.906
25%-ile	9992	10525	11462	13437		9.210	9.262	9.347	9.506
[N – workers]	692870	800332	739378	860581		692870	800332	739378	860581
Plant average wage	12678	13490	14432	17245		9.396	9.455	9.521	9.692
(s.d.)	2088	2266	2679	3663		0.145	0.152	0.169	0.188
75%-ile	13664	14586	15855	19008		9.478	9.541	9.624	9.801
25%-ile	11239	11953	12554	14698		9.297	9.353	9.407	9.561
[N – firms]	7047	8306	7526	9067		7047	8306	7526	9067
Plant s.d. of wages	3820	4168	4404	5484		0.266	0.279	0.273	0.279
(s.d.)	1387	1416	1626	2222		0.064	0.060	0.066	0.069
75%-ile	4702	5029	5459	6917		0.308	0.317	0.317	0.326
25%-ile	2775	3119	3159	3794		0.220	0.238	0.226	0.228
[N – firms]	7047	8306	7526	9067		7047	8306	7526	9067
Plant CV of wages	0.296	0.305	0.300	0.312		0.028	0.030	0.029	0.029
(s.d.)	0.076	0.072	0.080	0.088		0.007	0.006	0.007	0.007
75%-ile	0.349	0.356	0.356	0.371		0.033	0.033	0.033	0.033
25%-ile	0.240	0.253	0.242	0.247		0.024	0.025	0.024	0.024
[N – firms]	7047	8306	7526	9067		7047	8306	7526	9067
Correlation(average wage, s.d. of wage)	0.782	0.758	0.742	0.768		0.591	0.499	0.480	0.499
Wages for workers aged 25 - 30	11910	12716	13318	16258		9.358	9.419	9.467	9.657
(s.d.)	2950	3321	3456	4929		0.230	0.249	0.243	0.276
75%-ile	13293	14381	14994	18364		9.495	9.574	9.615	9.818
25%-ile	9961	10508	11086	13073		9.206	9.260	9.313	9.478
[N – workers]	103277	125836	127035	138219		103277	125836	127035	138219
Wages for workers aged 45 - 50	14251	15453	16255	19169		9.508	9.585	9.638	9.795
(s.d.)	5236	5770	6002	7772		0.327	0.339	0.332	0.351
75%-ile	16254	17854	18562	21767		9.696	9.790	9.829	9.988
25%-ile	10773	11600	12304	14193		9.285	9.359	9.418	9.561
[N – workers]	91500	120626	121496	116080		91500	120626	121496	116080

Note: Data only include employees of plants with 25+ employees in year *t* and *t*-1. [1]Deflation by CPI to 1990-SEK. [2]Data for 1986 do not include workers older than 62 or workers that emigrated or died before 1990.

Table 5: Wage Dynamics

	Δ Wages (1990 SEK:s)[1]					Δ ln(Wages) (1990 SEK:s)[1]			
	1986[2]	1990	1995	2000		1986[2]	1990	1995	2000
Change in wages	610	46	638	898		0.048	0.004	0.045	0.048
(s.d.)	1559	1890	2018	2633		0.124	0.140	0.134	0.142
75%-ile	1283	922	1428	1826		0.103	0.068	0.098	0.105
25%-ile	-108	-830	-195	-177		-0.009	-0.059	-0.014	-0.011
[N – workers]	586057	665982	623679	704360		586057	665982	623679	704360
Plant average wage change[3]	666	122	565	948		0.054	0.010	0.041	0.053
(s.d.)	541	680	799	1141		0.042	0.049	0.053	0.059
75%-ile	914	440	878	1292		0.073	0.033	0.063	0.076
25%-ile	368	-232	162	384		0.032	-0.016	0.014	0.024
[N – firms]	7037	8296	7521	9063		7037	8296	7521	9063
Plant s.d. in change	1402	1713	1738	2197		0.113	0.128	0.120	0.126
(s.d.)	483	553	690	980		0.029	0.033	0.035	0.039
75%-ile	1627	1986	2059	2605		0.130	0.147	0.140	0.147
25%-ile	1078	1346	1275	1553		0.093	0.107	0.096	0.100
[N – firms]	7035	8294	7519	9054		7035	8294	7519	9054
Wage change if changed plant	524	-129	742	1069		0.037	-0.015	0.047	0.053
(s.d.)	2302	2671	3179	4026		0.174	0.194	0.197	0.213
75%-ile	1703	1358	2347	3133		0.135	0.099	0.155	0.175
25%-ile	-700	-1595	-789	-1049		-0.055	-0.122	-0.053	-0.063
[N – workers]	23659	28824	21477	40217		23659	28824	21477	40217
Wage change if tenure 1-3 years	--	444	1073	1542		--	0.037	0.083	0.089
(s.d.)		1984	2316	2965			0.155	0.163	0.164
75%-ile		1460	2186	2793			0.118	0.165	0.170
25%-ile		-569	-30	108			-0.044	-0.002	0.007
[N – workers]		230789	172967	224083			230789	172967	224083
Wage change if tenure $\geq$ 3 years	--	-168	458	555		--	-0.013	0.029	0.027
(s.d.)		1726	1773	2192			0.121	0.113	0.115
75%-ile		603	1150	1312			0.043	0.078	0.075
25%-ile		-915	-233	-252			-0.064	-0.016	-0.015
[N – workers]		406369	429235	440060			406369	429235	440060

Note: Data only include employees of plants with 25+ employees in year *t* and *t*-1. [1]Deflation by CPI to 1990-SEK. [2]Data for 1986 do not include workers older than 62 or workers that emigrated or died before 1990. [3] Average change in wage (or log wage) for workers that worked in the plant in both *t* and *t* – 1.

Table 6: Mobility. All Jobs

	All Plants					Plants with 100+ employees			
	1986	1990	1995	2000		1986	1990	1995	2000
Number of plants	7047	8306	7526	9067		1341	1566	1420	1650
Employees	98.3	96.4	98.4	95.2		311.5	303.1	315.3	301.6
(s.d.)	232.1	222.6	219.1	206.7		474.3	456.0	441.2	424.4
Employment growth	0.015	0.028	0.056	0.059		0.001	-0.006	0.051	0.040
(s.d.)	0.241	0.245	0.228	0.319		0.172	0.160	0.193	0.249
Exit rate, *observ = person*	0.173	0.187	0.129	0.172		0.182	0.208	0.132	0.186
Exit rate	0.202	0.216	0.159	0.212		0.183	0.204	0.136	0.191
(s.d.)	0.124	0.124	0.120	0.141		0.107	0.107	0.100	0.124
Exit rate, top quartile of firm wages	0.131	0.148	0.127	0.174		0.116	0.139	0.110	0.164
(s.d.)	0.147	0.154	0.148	0.174		0.116	0.121	0.111	0.141
Exit rate, bottom quartile of firm wages	0.355	0.353	0.259	0.316		0.338	0.349	0.230	0.288
(s.d.)	0.190	0.184	0.180	0.194		0.138	0.135	0.131	0.147
Exit rate, top decile of firm wages	0.143	0.160	0.148	0.191		0.133	0.154	0.137	0.188
(s.d.)	0.192	0.201	0.197	0.224		0.144	0.144	0.142	0.169
Exit rate, bottom decile of firm wages	0.454	0.432	0.340	0.396		0.444	0.437	0.314	0.376
(s.d.)	0.272	0.270	0.268	0.278		0.161	0.159	0.164	0.173
Entry rate	0.198	0.221	0.191	0.234		0.176	0.191	0.169	0.209
(s.d.)	0.126	0.129	0.127	0.153		0.105	0.102	0.110	0.135
Entry rate, top quartile of firm wages	0.103	0.116	0.105	0.144		0.090	0.100	0.096	0.134
(s.d.)	0.134	0.140	0.136	0.164		0.102	0.108	0.111	0.137
Entry rate, bottom quartile of firm wages	0.398	0.432	0.392	0.438		0.366	0.388	0.353	0.399
(s.d.)	0.212	0.212	0.227	0.235		0.169	0.165	0.177	0.199
Entry rate, top decile of firm wages	0.112	0.127	0.118	0.159		0.103	0.115	0.115	0.155
(s.d.)	0.170	0.182	0.176	0.206		0.121	0.135	0.133	0.161
Entry rate, bottom decile of firm wages	0.500	0.528	0.502	0.541		0.461	0.478	0.463	0.504
(s.d.)	0.288	0.282	0.294	0.295		0.195	0.189	0.198	0.215
% of workers with 5+ years of tenure	--	0.316	0.414	0.364		--	0.351	0.459	0.423
(s.d.)		0.218	0.262	0.249			0.225	0.257	0.258
Correlation (exit rate, average wage),	-0.149	-0.128	0.012	0.035		-0.095	-0.094	0.090	0.151
Correlation(exit rate, average wage change)	0.032	0.009	0.060	0.200		0.085	0.013	0.097	0.320
Correlation(exit rate, s.d. of wage)	-0.016	0.028	0.124	0.153		0.054	0.046	0.232	0.291
Correlation (entry rate, average wage),	-0.071	-0.079	-0.010	0.078		-0.067	-0.006	0.067	0.118
Correlation(entry rate, average wage change),	0.231	0.201	0.243	0.362		0.361	0.227	0.326	0.423
Correlation(entry rate, s.d. of wage),	0.044	0.057	0.118	0.185		0.109	0.160	0.199	0.248

Note: All statistics are at the plant level with one plant as one observation except otherwise noted.
Separate tables for high and low level jobs can be found in Appendix A.

Section 5

Figure 5

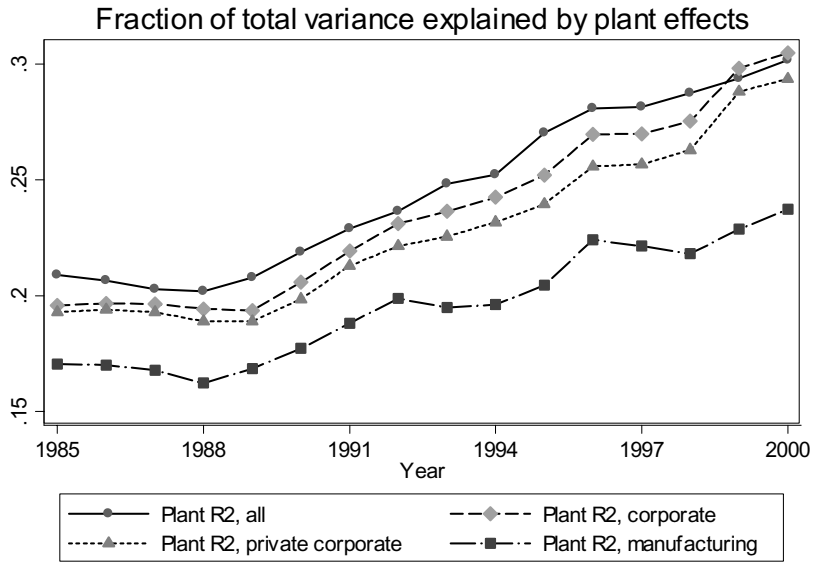


Figure 6

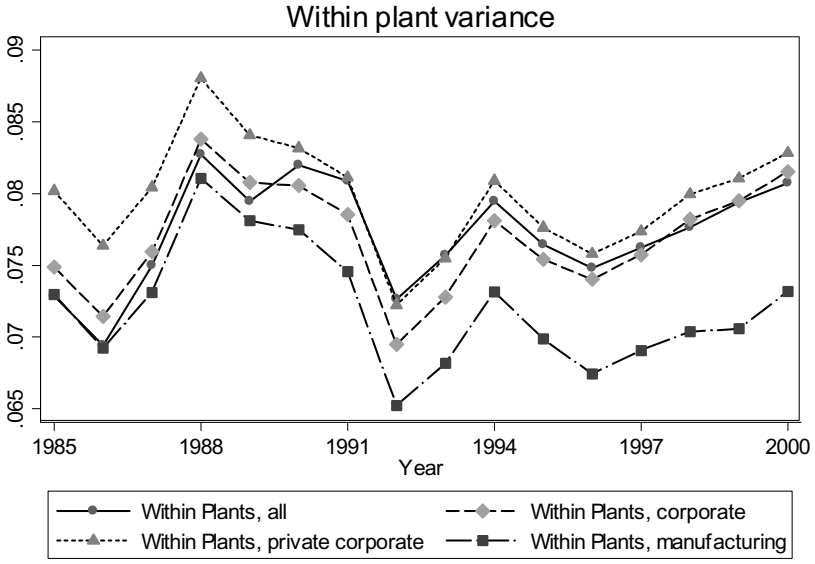


Figure 7

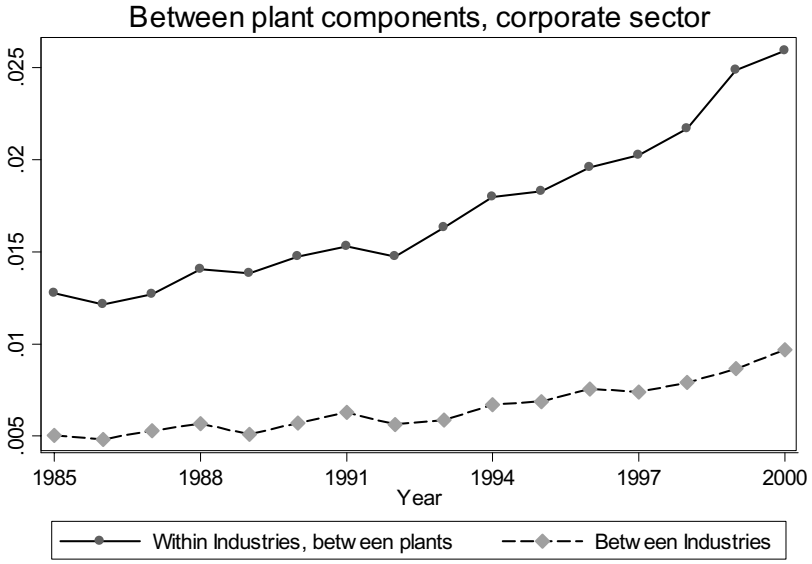
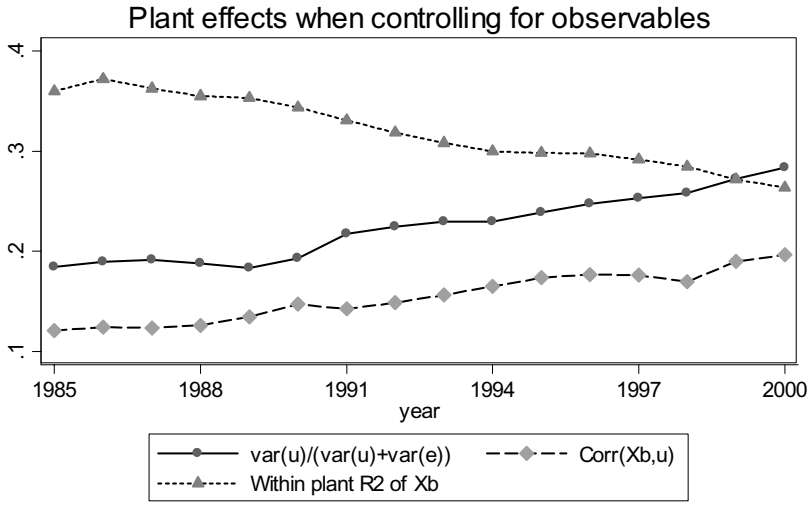
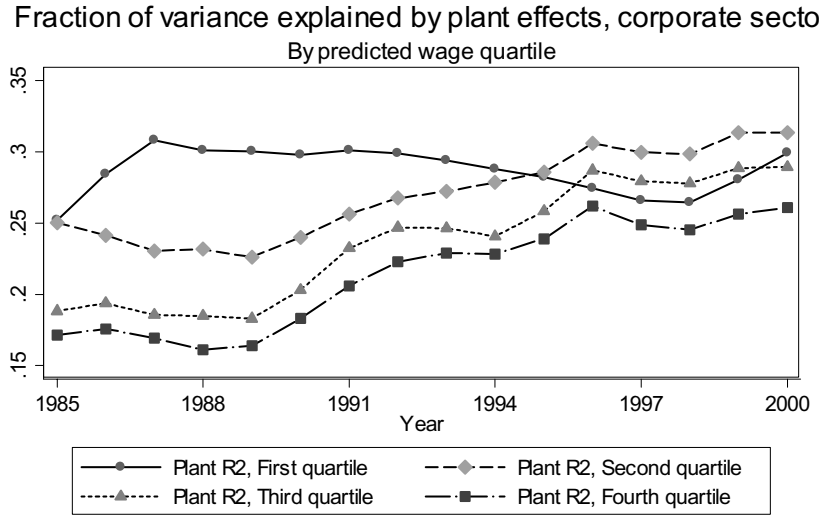


Figure 8



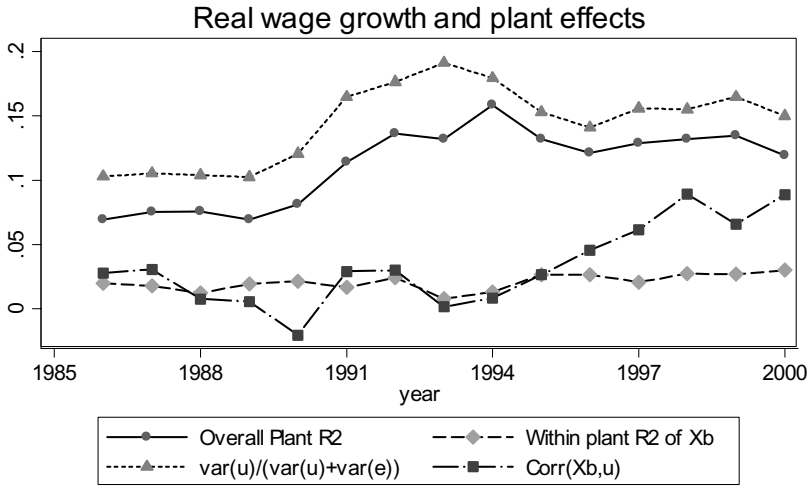
Note: The estimated (year-specific) model is lnW=Xb+u+e
where X is education (6 dummies), age, age squared, gender and immigrant.
u is a plant fixed effect and e the error term. For estimates, see Appendix C

Figures 9



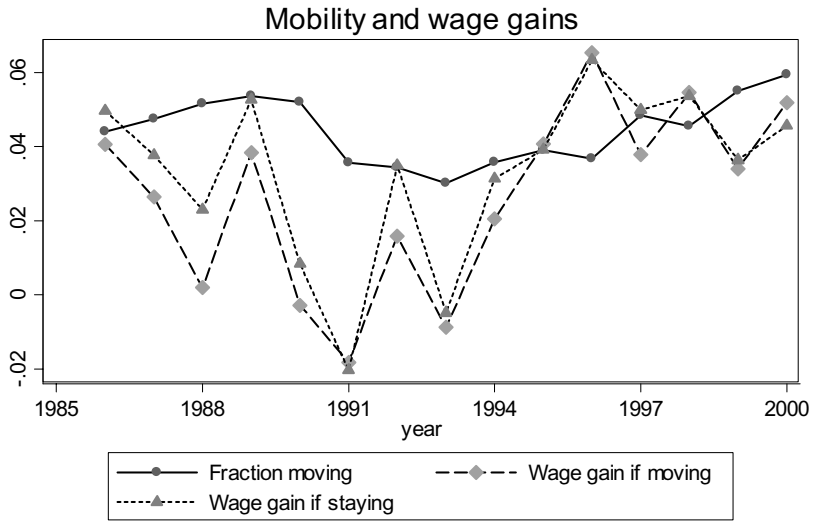
Quartiles of predicted wages from regressions on Education (6 dummies), Age, Age squared, Immigration status and Gender

Figure 10



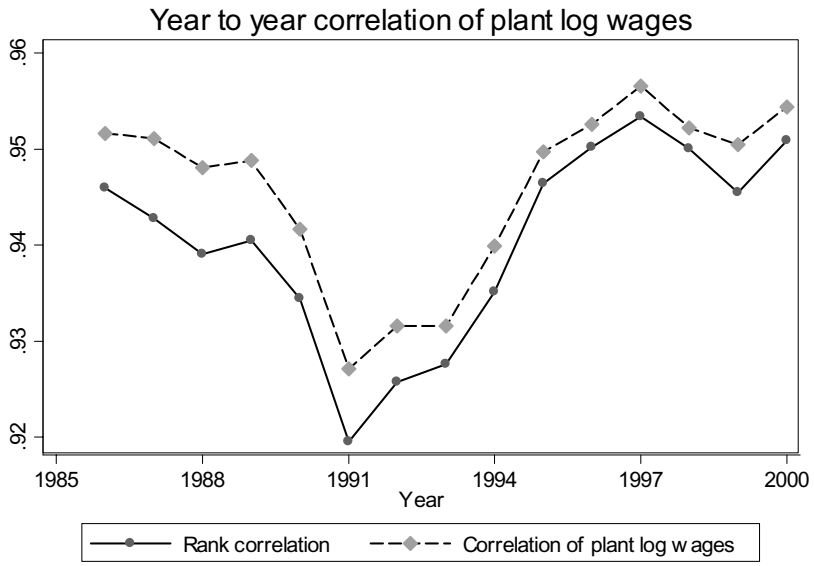
Note: The overall plant R2 is the between plant variance of changes devided by total variance of changes in log wages. The other statistics are based on the estimated (year-specific) model dlnW=Xb+u+e where X is education (6 dummies), age, age squared, gender and immigrant. u is a plant fixed effect and e the error term.

Figure 11



Note:Data include only workers in plants with 25+ employees in year t and t-1.
'Fraction moving' is fraction of included workers that changed plant between t and t-1.

Figure 12



Appendix A, Mobility of high and low level jobs

Table A1: Mobility. High Level Jobs

	All plants					Plants with 100+ employees			
	1986	1990	1995	2000		1986	1990	1995	2000
Number of plants	6783	8025	7137	8475		1338	1560	1418	1640
Employees	100.6	98.4	101.7	99.1		311.6	303.8	315.4	302.6
(s.d.)	236.1	226.1	224.5	213.2		474.7	456.8	441.5	425.5
Employment growth	0.016	0.029	0.057	0.062		0.002	-0.005	0.051	0.040
(s.d.)	0.243	0.247	0.230	0.327		0.171	0.160	0.193	0.249
Exit rate, *observ = person*	0.136	0.149	0.136	0.182		0.133	0.153	0.131	0.197
Exit rate	0.141	0.158	0.144	0.190		0.125	0.152	0.130	0.191
(s.d.)	0.202	0.210	0.206	0.237		0.140	0.150	0.139	0.179
Exit rate, top quartile of firm wages	0.167	0.183	0.179	0.220		0.161	0.190	0.182	0.239
(s.d.)	0.285	0.293	0.293	0.320		0.201	0.213	0.213	0.259
Exit rate, bottom quartile of firm wages	0.128	0.147	0.128	0.177		0.113	0.128	0.105	0.159
(s.d.)	0.249	0.266	0.252	0.282		0.185	0.188	0.184	0.217
Exit rate, top decile of firm wages	0.186	0.204	0.208	0.239		0.188	0.229	0.236	0.279
(s.d.)	0.339	0.352	0.353	0.375		0.263	0.288	0.291	0.333
Exit rate, bottom decile of firm wages	0.141	0.156	0.122	0.192		0.115	0.130	0.095	0.170
(s.d.)	0.289	0.301	0.267	0.323		0.233	0.233	0.196	0.269
Entry rate	0.116	0.129	0.128	0.169		0.107	0.114	0.118	0.167
(s.d.)	0.183	0.191	0.197	0.227		0.133	0.136	0.138	0.181
Entry rate, top quartile of firm wages	0.130	0.147	0.146	0.181		0.126	0.148	0.151	0.191
(s.d.)	0.253	0.268	0.271	0.300		0.182	0.202	0.208	0.243
Entry rate, bottom quartile of firm wages	0.117	0.125	0.122	0.179		0.102	0.096	0.105	0.149
(s.d.)	0.241	0.244	0.242	0.289		0.182	0.163	0.182	0.221
Entry rate, top decile of firm wages	0.144	0.160	0.159	0.194		0.152	0.171	0.180	0.222
(s.d.)	0.304	0.320	0.321	0.347		0.243	0.260	0.273	0.311
Entry rate, bottom decile of firm wages	0.128	0.141	0.139	0.200		0.094	0.095	0.111	0.154
(s.d.)	0.279	0.289	0.285	0.330		0.201	0.201	0.209	0.254
% of workers with 5+ years of tenure	--	0.452	0.485	0.447		--	0.472	0.529	0.468
(s.d.)		0.344	0.355	0.347			0.310	0.308	0.299
Correlation (exit rate, average wage),	0.108	0.108	0.139	0.164		0.169	0.119	0.197	0.193
Correlation(exit rate, average wage change)	0.044	0.049	0.071	0.135		0.077	0.084	0.126	0.140
Correlation(exit rate, s.d. of wage)	0.083	0.114	0.131	0.168		0.103	0.077	0.153	0.130
Correlation (entry rate, average wage),	0.106	0.135	0.154	0.168		0.089	0.169	0.226	0.184
Correlation(entry rate, average wage change),	0.029	0.044	0.056	0.097		0.081	0.079	0.077	0.086
Correlation(entry rate, s.d. of wage),	0.097	0.136	0.129	0.139		0.048	0.149	0.128	0.127

Note: High level jobs are jobs with wages above the 80th percentile of the sample wage distribution All statistics are at the plant level with one plant as one observation except otherwise noted. Tables for all jobs can be found in the text.

Table A2: Mobility. Low Level Jobs

	All Plants					Plants with 100+ employees			
	1986	1990	1995	2000		1986	1990	1995	2000
Number of plants	6964	8195	7415	8868		1340	1565	1420	1650
Employees	99.1	97.2	99.4	96.4		311.6	303.2	315.3	301.6
(s.d.)	233.3	223.9	220.6	208.8		474.4	456.1	441.2	424.4
Employment growth	0.016	0.028	0.057	0.060		0.001	-0.006	0.051	0.040
(s.d.)	0.242	0.246	0.228	0.320		0.172	0.160	0.193	0.249
Exit rate, *observ = person*	0.394	0.395	0.270	0.346		0.376	0.387	0.246	0.319
Exit rate	0.387	0.382	0.286	0.345		0.369	0.377	0.258	0.321
(s.d.)	0.212	0.216	0.219	0.233		0.135	0.138	0.146	0.160
Exit rate, top quartile of firm wages	0.303	0.318	0.217	0.276		0.257	0.290	0.168	0.230
(s.d.)	0.314	0.316	0.296	0.318		0.189	0.191	0.181	0.207
Exit rate, bottom quartile of firm wages	0.521	0.485	0.393	0.456		0.525	0.496	0.385	0.460
(s.d.)	0.353	0.352	0.349	0.352		0.209	0.214	0.231	0.245
Exit rate, top decile of firm wages	0.291	0.306	0.208	0.272		0.249	0.274	0.159	0.226
(s.d.)	0.385	0.387	0.352	0.380		0.247	0.255	0.224	0.267
Exit rate, bottom decile of firm wages	0.579	0.537	0.443	0.517		0.584	0.545	0.451	0.518
(s.d.)	0.409	0.413	0.411	0.415		0.312	0.313	0.320	0.321
Entry rate	0.428	0.463	0.417	0.463		0.393	0.414	0.378	0.424
(s.d.)	0.239	0.239	0.256	0.264		0.167	0.162	0.181	0.201
Entry rate, top quartile of firm wages	0.333	0.375	0.320	0.361		0.280	0.319	0.273	0.309
(s.d.)	0.336	0.345	0.347	0.359		0.210	0.216	0.237	0.262
Entry rate, bottom quartile of firm wages	0.544	0.568	0.541	0.583		0.510	0.515	0.500	0.538
(s.d.)	0.357	0.355	0.358	0.356		0.234	0.230	0.238	0.263
Entry rate, top decile of firm wages	0.318	0.364	0.305	0.347		0.262	0.300	0.259	0.285
(s.d.)	0.400	0.414	0.402	0.417		0.264	0.276	0.282	0.306
Entry rate, bottom decile of firm wages	0.570	0.604	0.585	0.618		0.523	0.538	0.546	0.567
(s.d.)	0.413	0.407	0.409	0.405		0.328	0.323	0.322	0.332
% of workers with 5+ years of tenure	--	0.137	0.235	0.203		--	0.170	0.278	0.262
(s.d.)		0.169	0.232	0.222			0.147	0.196	0.210
Correlation (exit rate, average wage),	-0.174	-0.138	-0.185	-0.217		-0.124	-0.070	-0.232	-0.247
Correlation(exit rate, average wage change)	-0.015	-0.048	-0.026	-0.021		-0.042	-0.081	-0.015	-0.073
Correlation(exit rate, s.d. of wage)	0.032	0.044	0.062	0.086		0.052	-0.022	0.047	0.149
Correlation (entry rate, average wage),	-0.154	-0.118	-0.123	-0.149		-0.180	-0.060	-0.073	-0.171
Correlation(entry rate, average wage change),	0.110	0.084	0.134	0.131		0.229	0.219	0.255	0.145
Correlation(entry rate, s.d. of wage),	0.036	0.024	0.047	0.073		-0.034	-0.006	-0.059	0.011

Note: Low level jobs are jobs with wages below the 20th percentile of the sample wage distribution All statistics are at the plant level with one plant as one observation except otherwise noted. Tables for all jobs can be found in the text.

Appendix B, Time trend estimates

Table B1: Industry specific **trends** in variances and size.

	Variance components		Plant-effects in Mincer eq.		Industry size	
	Within plant variance	Between plant variance	Plant specific share of residual variance	Corr (X b, u)	Log of total size	Median firm-size
Agriculture, forestry and fishing (1)	0.655**	1.697**	8.792**	12.482**	-74.878**	-15.618**
	(0.200)	(0.158)	(1.429)	(2.363)	(9.063)	(3.725)
Manufacturing, mining, quarrying, electricity and water supply (2)	-0.325	0.489**	3.132**	4.709**	-7.794*	0.027
	(0.218)	(0.042)	(0.496)	(0.574)	(3.512)	(0.528)
Construction (3)	-0.265	0.612**	6.362**	4.560**	-21.226*	-0.862
	(0.178)	(0.107)	(1.097)	(1.353)	(8.043)	(1.121)
Wholesale and retail trade and communications (4)	0.659*	1.340**	5.849**	1.678	-13.631**	-4.522**
	(0.225)	(0.075)	(0.459)	(0.976)	(4.265)	(0.638)
Financial intermediation, business activities (5)	-0.096	2.188**	6.981**	9.735**	32.154**	-1.399
	(0.205)	(0.244)	(0.988)	(0.811)	(5.198)	(0.889)
Education, research and development (6)	-0.569	0.269**	3.034**	6.509**	18.144**	-9.904**
	(0.345)	(0.046)	(0.462)	(1.205)	(2.023)	(2.107)
Health and social work (7)	0.661**	0.675**	1.268**	2.550**	4.649	-3.754**
	(0.214)	(0.068)	(0.369)	(0.642)	(2.723)	(0.670)
Personal services and cultural activities, sanitation (8)	0.355	0.786**	4.853**	0.534	4.160	-4.215**
	(0.237)	(0.071)	(0.544)	(1.213)	(2.695)	(1.011)
Public administration etc (9)	0.579	0.557**	1.956**	3.644**	0.658	-1.524
	(0.393)	(0.073)	(0.535)	(1.126)	(1.608)	(0.947)
All sectors (0)	0.231	1.089**	9.010**	-1.069	0.607	-3.270**
	(0.201)	(0.054)	(0.491)	(0.753)	(2.922)	(0.456)

Note: The table displays *linear time-trend estimates* 1985-2000 for each industry. Dependent variables are 1000*Variance or correlation. Mincer equations are estimated separately for sector and year as $\ln W = X\,\mathrm{b} + u + e$ where X is age, age squared, education (6 dummies), gender and an immigrant dummy and u is the fixed plant effect. The plant specific share of residual variance is var(u)/(var(u)+var(e)).

Appendix C, Mincer equation estimates

Table C1: OLS Mincer equation results for corporate sector workers in 25+ sized plants.

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
2-year High school	0.052	0.056	0.057	0.057	0.059	0.064	0.072	0.062	0.064	0.062	0.059	0.060	0.058	0.053	0.052	0.048
3-year High school	0.159	0.163	0.164	0.158	0.160	0.166	0.173	0.161	0.165	0.163	0.154	0.159	0.157	0.156	0.161	0.161
Some univ.	0.210	0.216	0.222	0.223	0.225	0.233	0.241	0.230	0.235	0.235	0.232	0.246	0.252	0.257	0.271	0.277
3-year univ.	0.403	0.421	0.425	0.430	0.421	0.429	0.441	0.431	0.429	0.435	0.427	0.437	0.438	0.441	0.452	0.458
Post grad.	0.561	0.578	0.578	0.598	0.582	0.588	0.592	0.584	0.576	0.556	0.565	0.552	0.549	0.552	0.565	0.617
Age	0.041	0.040	0.041	0.042	0.041	0.041	0.039	0.033	0.035	0.040	0.040	0.041	0.043	0.044	0.044	0.044
age^2*100	-0.041	-0.040	-0.041	-0.042	-0.041	-0.041	-0.038	-0.032	-0.034	-0.039	-0.040	-0.040	-0.042	-0.044	-0.044	-0.044
Female	-0.206	-0.192	-0.201	-0.216	-0.211	-0.213	-0.215	-0.206	-0.214	-0.219	-0.219	-0.215	-0.211	-0.207	-0.199	-0.197
Immigrant	-0.051	-0.056	-0.062	-0.070	-0.076	-0.082	-0.073	-0.058	-0.057	-0.058	-0.061	-0.064	-0.069	-0.074	-0.090	-0.097
Constant	8.158	8.238	8.287	8.323	8.439	8.526	8.640	8.810	8.801	8.735	8.769	8.809	8.804	8.815	8.825	8.865
R-squared	**0.4**	**0.41**	**0.4**	**0.39**	**0.39**	**0.38**	**0.37**	**0.36**	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**	**0.34**	**0.33**	**0.33**

Note: All estimates are significant at the 1 % significance level (all standard errors are 0.003 or less). Reference for education is “less than high school”.

Table C2: Plant fixed-effects Mincer equation results for corporate sector workers in 25+ sized plants.

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
2-year High school	0.042	0.045	0.045	0.045	0.047	0.050	0.053	0.049	0.049	0.048	0.046	0.048	0.046	0.042	0.039	0.036
3-year High school	0.122	0.125	0.124	0.119	0.121	0.123	0.126	0.119	0.119	0.117	0.110	0.115	0.113	0.112	0.112	0.111
Some univ.	0.154	0.160	0.163	0.165	0.167	0.172	0.176	0.168	0.169	0.169	0.164	0.172	0.176	0.177	0.182	0.184
3-year univ.	0.326	0.343	0.342	0.347	0.338	0.339	0.347	0.339	0.335	0.340	0.329	0.334	0.331	0.328	0.325	0.321
Post grad.	0.490	0.507	0.503	0.523	0.505	0.507	0.513	0.508	0.500	0.505	0.489	0.493	0.485	0.482	0.483	0.490
Age	0.038	0.037	0.038	0.039	0.038	0.038	0.035	0.031	0.032	0.036	0.037	0.037	0.040	0.041	0.040	0.040
age^2*100	-0.038	-0.037	-0.037	-0.038	-0.037	-0.037	-0.034	-0.029	-0.030	-0.034	-0.036	-0.036	-0.039	-0.040	-0.039	-0.039
Female	-0.216	-0.205	-0.214	-0.224	-0.218	-0.220	-0.221	-0.211	-0.219	-0.219	-0.215	-0.210	-0.207	-0.203	-0.197	-0.194
Immigrant	-0.056	-0.059	-0.064	-0.070	-0.077	-0.078	-0.068	-0.056	-0.052	-0.052	-0.055	-0.057	-0.059	-0.064	-0.068	-0.073
Constant	8.222	8.311	8.366	8.400	8.517	8.623	8.732	8.888	8.903	8.845	8.866	8.911	8.897	8.907	8.946	8.986
Number of Plants	8381	8680	9226	10109	10243	10552	10296	9431	9191	9816	10501	10720	10997	11575	12138	12820
Within R-squared	**0.36**	**0.37**	**0.36**	**0.35**	**0.35**	**0.34**	**0.33**	**0.32**	**0.31**	**0.3**	**0.3**	**0.3**	**0.29**	**0.28**	**0.27**	**0.26**
Between R-squared	**0.505**	**0.523**	**0.508**	**0.518**	**0.513**	**0.536**	**0.500**	**0.502**	**0.514**	**0.523**	**0.524**	**0.522**	**0.511**	**0.490**	**0.491**	**0.469**
Variance-share of plant effect (*u*)	**0.184**	**0.189**	**0.191**	**0.188**	**0.183**	**0.193**	**0.217**	**0.225**	**0.229**	**0.229**	**0.239**	**0.248**	**0.253**	**0.258**	**0.272**	**0.283**
Corr (*X* b, *u*)	**0.121**	**0.124**	**0.124**	**0.126**	**0.135**	**0.147**	**0.143**	**0.149**	**0.156**	**0.165**	**0.174**	**0.177**	**0.176**	**0.170**	**0.190**	**0.196**

Note: All estimates are significant at the 1 % significance level (all standard errors are 0.005 or less). Reference for education is "less than high school". Estimated model is $\ln W = X\mathbf{b} + u + e$ where u is the fixed plant effect and e is an error term. Between R-squared are based on squared correlations of actual and predicted plant averages (predictions are based on plant average X and within-estimated parameters).