

Wage Structure and Labor Mobility in the West German Private Sector 1993 – 2000

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1. Introduction

2. Data

3. Macroeconomic situation and institutional setting in Germany

4. Results

4.1. Structure of wages within and between plants

4.2. Wage dynamics

4.3. Mobility

5. Summary and conclusions

References

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1. Introduction

We present empirical evidence from Germany about the structure and dynamics of wages and the mobility for different kinds of jobs. We use descriptive methods, variance decomposition technique and matching methods in order to assess the influence of several factors on the development of wages and mobility in Germany for the years 1993, 1995 and 2000. The results are computed with the linked-employer-employee-dataset of the IAB, which consists of an IAB-establishment panel survey part and a part from the employment statistics of the German social security system. The data sets are described in the next section 2. In section 3 we explain the macroeconomic situation in the nineties and the relevant labour market institutions. Then in section we will present the empirical results. Section 5 summarizes the main results and concludes the paper.

2. Data

Since 1993 the Institute for Employment Research conducts the IAB-Establishment-Panel which is based on the employment statistics register of the Federal Employment Service. Employers have to report information concerning employees' entries, exits and wages annually to the social security system. There are legal sanctions for misreporting.

From the establishments included in the employment statistics register a stratified sample is drawn using selection probabilities which depend on the variation of the number of employees covered by social insurance in the respective stratum. To correct for panel attrition, exits, and newly founded units, the samples are augmented regularly, leading to an unbalanced panel.

With the common plant identifier in the IAB-Establishment-Panel and in the employment statistics register it is possible to create the Linked-Employer-Employee-Dataset of the IAB.

The date of reference in the IAB-Establishment-Panel is June 30th. We link all employee reports from the employment statistics register which cover the date of reference in the years 1993 to 2000 with the plants in the panel. Crucial for the analyses is the construction of the tenure variable. Job tenures can be computed by checking the appearance of the employee identifier in t , $t-n$ ($n \in \mathbb{N}$) with the condition of the duration equal 365 (366) days. With larger n we have less plant observations because of panel attrition. Therefore we calculate the job tenures only up to three years.

The information about the duration of working contracts is on an annual basis. This allows to identify stayers and movers¹. By appending other years, information about the job tenures of employees can be obtained. This procedure has at least two implications: first, we cannot observe employees after leaving a plant. Hence the cell in the later analysis “average change in wage from workers who change firms” is not filled in. Second, for computing job tenures and change in wages a balanced panel is needed².

The employment statistics register covers more than 90 percent of all employees in the manufacturing and 75 percent in the service sector. Civil servants, self employed persons and workers who are not eligible to the social security system because of their earnings or working time are too low, are not included in the data. However, it is possible to obtain this information from the IAB-Establishment-Panel on the aggregate level of the establishments. We exclude apprentices from our analysis³.

The plant size was constructed by aggregating the number of workers with social insurance in the employment statistics register. We include in the analysis only plants with at least 25 employees in t. Some establishments have only a few full-time workers but exceed the number of 25 employees with part-time workers and apprenticeships or workers not covered by social insurance.

To illustrate the effect of the weighting procedure adopted to the establishment data, which are collected as a stratified sample, Table 1 shows weighted and unweighted values of selected variables. In principle smaller establishments are sampled with a lower probability so that weighting increases their proportion.

Table 1: Weighted and unweighted values of selected variables

	percentage of		
	part-time Workers	fixed-term contracts	blue-collar workers
<i>unweighted</i>			
1993	.09	.02	.36
1995	.17	n.a.	.38
2000	.20	.08	.43
<i>weighted</i>			
1993	.13	.03	.40
1995	.22	n.a.	.43

¹ Stayers have a duration of 365 (366) days (movers otherwise).

² This is not possible in 1993. We got from the data holders the requested information about employees by delivering the plant identifiers. It is also the reason why we have the highest number of observations in 1993.

³ Apprentices work full-time and receive wages fixed by collective agreements. These wages are much lower even than those for unskilled blue collar workers.

2000	.28	.09	.36
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n.a. : not applicable

Sources: IAB-Establishment-Panel, Linked Employer-Employee-Dataset from the IAB

The increase in the share of part-time workers is mostly driven by the rising participation rate of female workers in the labor market. Fixed-term contracts are distributed more equally between males and females. The correction for panel attrition by means of substitution of mainly larger plants by newly founded – mainly smaller – establishments decrease the proportion of employees covered by the IAB-Establishment-Panel from 68 percent (1993) and 84 percent (1995) to 57 percent in the unweighted sample.

All wages are gross wages. The information about wages is *censored*, because payments for the social security system are limited to a certain amount. This threshold varies from year to year. For example in the year 2000 it amounts to a gross monthly wage of 3427 Euros. Thus the threshold is the highest observable wage in the respective year.

Of course the censoring of the wage variable has important implications on the distribution of wages. We adopted the following procedure: we imputed the observed wage at the threshold (and only there) with predicted values using a Mincerian earnings function augmented by ten sector and ten occupation dummies⁴. Varying from year to year ten to fifteen percent of all observations are imputed. In the group of employees with a university degree 50 % of all observations are censored. Occupations (3-digit code) are ordered according to the average wage paid. From the employment statistics the working time is available only on the basis of an interval scale, which differs between full- and part-time workers. For the latter a distinction of the working time between more or less than 15 hours per week is made.

Switchers from part-time to full-time (and opposite) are excluded from the analysis. The wage statistics are based on continuing workers in continuing plants.

The job tenure can be computed by comparing the incidence of the individual identifier in the plant at t and $t-n$. We decided that n should not be greater than three (years) in order to lose not too much establishment observations. Two further conditions must be given for an individual to be in the group “job tenure > 3 years”. First there must be full-time employment in t and $t-1$ and the individual identifier in the plant must be observed in all three years. Secondly there has to be an annual job duration in these three years of 365 (366) days. It follows that employees recalled in the specific time period of three years belong to the group “job tenure < 3 years”.

⁴ Details of the imputation method are described in Gartner(2004).

3. Macroeconomic situation and institutional setting in Germany

Table 2: Macroeconomic Situation in West Germany 1991 to 2000

Year	GDP*	growth GDP 1 year	growth GDP 2 years	growth GDP 5 years	unemployment rate**
1991	2798.8				.063
1992	3007.3	.063			.066
1993	3086.0	.026	.093		.082
1994	3469.0	.110	.013		.092
1995	3459.6	-.003	.108	.191	.093
1996	3541.5	.023	.021	.151	.101
1997	3641.8	.028	.050	.153	.110
1998	3784.4	.038	.064	.083	.094
1999	3877.2	.024	.061	.108	.088
2000	3976.1	.025	.048	.109	.078

* actual prices in Billion German Marks

** West Germany

Source: German Central Statistical Office

In the first years after the reunification especially the West German economy benefited a lot from the scarcity of goods and services in the former German Democratic Republic. Due to the emerging market the West German GDP grew substantially from 1990 to 1994 (cf. table 2). Then, in 1995 there was a slump in economic activities. From 1996 to 2000 we can observe a rather slight growth in GDP, but compared with the situation after 2000 the growth rates appear in a better light. Not before 1997 the peak of unemployment was reached due to a time delay in labor market reaction.

Although we focus on the West German economy one should address the persistent high unemployment in East Germany (in 2000 about 17 percent) as well as the extensive money transfers from West to East Germany. In the nineties there was an enormous governmental program to adapt the East German Economy to the Western level. But still in 2002, the productivity level of the establishments in the East German manufacturing sector was on average only 70 percent of the West German one.

Labor market institutions in Germany

One country-specific institution which should be mentioned is the German system of apprenticeship training. It has a strong position in acquiring skills. The training duration is between two and three and a half years, so plants invest remarkable time and money in apprenticeship training. Although we decided to exclude apprentices from our later analysis, it has to be stressed that the German system leads to a reduced mobility of employees especially

in the group of young skilled blue collar workers in the first years after finishing their training because establishments try to amortize their human capital investment by means of longer job tenure of their trainees. In several branches it is guaranteed by collective agreement that trainees can stay at least one year after the completing of their apprenticeship training in the firm. It is especially the mobility of younger workers which is hampered by the apprenticeship system.

On the OECD-scale of rigidities and employment protection Germany ranks in the midfield (depending on the special indicator between position 18 and 23). Despite the trend of deregulation in the nineties, there are still several institutions which enforce the position of insiders in such a manner that outsiders have only a small chance to re-enter the (internal) labor market.

A prominent example is the German Protection against Dismissal Acts, according to which in all plants with more than five (between 1996 and 1998 ten, since 2004 again ten) employees, dismissals must be judged in perspective of avoiding social cases of hardship. As a result, especially young employees (workers with short job tenure) *must* be dismissed instead of others. Especially elder, married workers and workers with children are protected by this law. In all of the plants included in the analysis this law is valid. Thus we can expect that the mobility of individuals is mainly determined by (younger) persons with shorter job tenures.

Another notable institution is the set-up of works councils. They have a very strong legal base in Germany. Lots of studies were made about the effect of works councils on the mobility of employees (for example Addison, Schnabel, Wagner (2002)). Nearly all these studies come to the conclusion that the mobility of workers is hampered by this institution. The set-up of a works council is guaranteed by law in all plants with more than five employees. In plants with more than 20 employees the works council must agree to dismissals. In case of mass dismissals, the regional labour office and the firms involved plants have to draft a social plan to avoid cases of hardships if possible. Especially in larger establishments works councils often exist in combination with collective agreements. This co-determination can be a powerful tool for employees to influence the personnel policy.

Table 3 shows the coverage of works councils, collective agreements and their combination in the year 1998 and 2002⁵.

⁵ In 1993 and 1995 the information are not available. We choose the years 1998 and 2002 in order to show the dynamic process at the end of the millennium.

Table 3: Works Councils and Collective Agreement: Coverage of full-time employees in the West German private sector (percentage points)

Size class	Coverage of collective agreement		Coverage of collective agreement and works councils	
	1998	2002	1998	2002
1 - 4 employees	.46	.45	not possible	not possible
5 – 19 employees	.65	.55	.05	.05
20 – 99 employees	.73	.62	.24	.29
100 - 199 employees	.79	.72	.60	.61
200 – 499 employees	.85	.81	.79	.76
500 and more employees	.96	.94	.95	.92
Total	.78	.71	.51	.48

Source: IAB-Establishment-Panel 1998 and 2002, weighted values

In this table collective wage agreements on branch level and plant level are summarized⁶. The coverage of works councils and collective agreement is close to 100 percent, even in smaller plants. Firms being member in an employers' association can deviate from paying collectively agreed wages only by negotiating with the union on plant level, but nevertheless the branch union must agree to the result of the bargaining process. Plants which are not member in an employers' association have no restrictions in setting wages. Negotiated wages must be paid only for union members, but in fact such wages are often paid to all employees in a plant. The coverage of collective agreement in manufacturing is higher than in the private service sector. Also the increase of bargained wage is often higher in the manufacturing sector.

Some plants pay more than negotiated wages, but often not for all employees. This additional payment increases the flexibility in setting wages in labour markets with rather rigid wage structures (Bellmann/ Kohaut, 1995). In addition, centrally bargained wage arrangements cannot take into account all observed and unobserved heterogeneity of establishments and employees. In this perspective paying higher wages than fixed by collective agreements will cause a higher wage dispersion. Büttner/ Fitzenberger (1998) argue that a high likelihood for wages to be equal to collective arrangements occurs at the bottom end of wages. Paying more than fixed by collective agreement is especially the case at the upper end of wages. However, the proportion of plants paying higher wages than bargained was decreasing in the observation period (cf. table 4). The effect of collective contracts on the wage structure, the

⁶ Approximately ten percent of all establishments have wage arrangements on plant level (rising). The public sector is excluded.

dynamics and the mobility patters will be investigated in the respective paragraphs of the next section.

Table 4: Summary Statistics for paying more than collectively negotiated wages

	Proportion	mean	Standard Deviation	10%-ile	90%-ile
1993	.41	.134	.076	.05	.25
1995	.32	.112	.073	.05	.20
1998	.23	.111	.066	.05	.20
2000	.27	.115	.071	.05	.20

Sorce: IAB-Establishment-Panel 1993 – 2000, weighted values

4. Results

With regard to what was said in the data section 2 we present each table twice, with weighted and unweighted values. All figures for wages are calculated on a monthly base and always in Euros. We did not deflate. Furthermore, we complement our analyses with a variance decomposition and the non-parametric matching approach in order to assess the effect of collective wage agreements. However, the interpretation of the results is not yet finished.

4.1. Structure of wages within and between plants

Figure 1 shows the Kernel densities of the log wage distribution for the years 1993, 1995 and 2000 and Figure 2 the distribution of the firm average wage. Whereas the wage distributions did not change, in the distribution of firm average wage the proportion of higher values has increased since 1993.

[Figure 1 and 2 about here]

Table 5 shows the unweighted values for the structure of (gross) wages within and between plants.

[Table 5 about here]

Wages grew very fast in the first half of the nineties and then at a slower rate. The standard deviation of wages on the individual level was smaller in the second half of the nineties. In accordance with other studies (e.g. Stephan, 2001) at the upper limit of the wage distribution the growth rates were moderate – here in the unweighted analysis even negative. More or less stable positive growth rates occur at the bottom end of the wage distribution.

Also in line with other findings, the wage differentials for individuals and plants exhibited different developments. The standard deviation of individual wages became smaller, on plant

level larger. The range between high- and low paying establishments was getting wider in the second half of the nineties⁷.

For the observed establishments the last two columns of table 5 give some hints what partly drives this development. Regarding their wages the group of workers aged 45 to 50 became more homogenous, the group of younger workers more heterogenous.

Table 6 shows the weighted values.

[Table 6 about here]

We cannot observe the declining effect in the 75%-ile like in table 5, but nevertheless, compared to the 25%-ile the growth rates in the 75%-ile were more moderate. Especially for blue-collar workers the proportion of the variance attributed to employer was larger than for white-collar workers. Stephan (2001, 147) got a similar result from her analyses of a linked-employer-employee-data set in the German federal state of Lower Saxony.

In the weighted figures the results for the 75%-ile and 25%-ile of the wages for younger and elder employees remained stable. While the difference did not increase between 1993 and 1995, since then it increased.

Using data set linking employees' and employers' information allows to compute the proportion of the variance of wages related to human capital endowment and to firm-specific effects (vgl. Groshen 1991, 1996 and Stephan 2001). Table 15 shows the coefficient of determination R^2 which can be attributed to human capital, firm-specific effects and their interaction within a Mincerian earnings function. For the years 1993 to 2000 a clear trends emerge: The importance of the firm-specific effect increases, whereas that of the human capital effect decreases. The R^2 related to the interaction of firm-specific and human capital effects remains almost stable over that time period. These results fit very well to those obtained from the descriptive analyses of the structure of wages within and between plants.

4.2. Wage dynamics

The results concerning the wage dynamics seem to be more sensitive to the development of the business cycle. Figure 3 shows the Kernel densities of the distribution of firm average wage growth rates for the years 1993, 1995 and 2000. It is revealed that the proportion of larger growth rates has increased since 1993.

[Figure 3 about here]

⁷ The 75/25-Quotient changes as follows: 1993: 1.31 , 1995: 1.32 , 2000: 1.34.

In the tables presented there are only small differences between weighted and unweighted values. Therefore, the two tables will be discussed together.

[Tables 7 and 8 about here]

In the last section it was shown that the wages of the younger employees were lower during the recession. However, the wages raise more during the recession than in the boom years. This result is difficult to interpret. A possible explanation could refer to a time lag.

In the recession year 1995 the change in wages of employees was smaller than in the boom years 1993 and 2000. Larger German establishments could not react in the same i.e. short time as smaller establishments to changing market conditions regarding their number and composition of employees. In addition, wages are often fixed for a certain time period until renegotiations are possible.

In recession years the structure of wages became more homogenous for younger employee (column 3, average of standard deviation). This is what we could expect: in difficult economic times there is less mobility because the German labour market institutions protects insider (we come back to this point when discussing the mobility patterns). The insiders can take advantage from the central bargaining process with guaranteed wage growth rates.

4.3. Mobility

In this part we will focus more on technical aspects and computations. Weighted and unweighted values will be discussed together. Such descriptive results are difficult to interpret without further investigations according to observed and unobserved individual and establishment effects. The insider-outsider theory has implications not only for the wage dynamics but also for the mobility of employees.

In general we computed all rates based only on the chosen years. Growth rates are computed as $2(N_t - N_{t-1}) / (N_t + N_{t-1})$ with N as the total number of full-time workers in plant i . Entry and exit rates were quite similar constructed as $2E / (N_t + N_{t-1})$. E is the total number of exits or entries on plant level. Only full-time workers are considered excluding apprentices and switchers between full-time and part-time.

Some of the sample characteristics reflect the trends presented in earlier sections. We have nearly all larger establishments existing in Germany in our sample and the decreasing number of employees is partly a result from sample attrition. The weighted values should correct for the selectivity, because German plants became in fact smaller in the second half of the nineties, according to other studies. In addition there are an important number of in- and

outsourcing activities in the observation period. For more details we refer to the technical report written by Vilhuber (2004)

Panel A: all jobs

Table 9 and 10 show the results for all jobs.

Table 9 and 10 about here

Comparing the exit rates of bottom and top quartiles (deciles) of establishment wages and with regard to the business cycle, the development between those establishments at the tails of the wage distribution differed the most in recession years. There was less mobility in high paying and more in low paying establishments. In both groups of establishments the entry rates were reduced in recession years. As mentioned earlier in recession years we observe higher proportions of workers with job tenures over three years.

The correlation of the exit rates with wage characteristics was weak, especially at the beginning of the observation period. At the end of the observation period the correlation of the exit rate and the average wage in establishments became weaker. A more stable effect was the negative correlation between the entry rate and the average wage of establishments. During the recession years the negative correlation between the entry rates and the average wages is stronger than in the boom. Both results are expected.

Panel B: High-level jobs and Panel C: Low-level jobs

The interpretation of the results will follow.

5. Summary and conclusions

Wage dynamics and mobility patterns differ in Germany in the first and the second half of the nineties. Comparisons of two boom years 1993 and 2000 reveal that the establishments became larger. During that period the range between the average wage of individuals and that of establishments was growing. Especially in the 25%-ile of the wage distribution the wage level stagnate. The wage structure of employees aged 45 to 50 became more homogenous, meaning a decline in the 75%-ile and stable growth rates at the bottom of the wage

distribution in this age-group. In accordance with other studies this can be interpreted as indicative for a relatively high protection of wages against downward mobility.

In contrast to the group of workers aged 45-50 the wage structure for younger employees become more heterogeneous. The growth rates from the 75%-ile average change in wage of individuals in this age-group are higher than from 25%-ile (from 1995 to 2000: ≈ 10 percent versus ≈ 2.5 percent).

The decomposition of the variance of wages shows that the importance of the firm-specific effect increases, whereas that of the human capital effect decreases. The R^2 attributed to the interaction of both human capital and firm-specific effects remains almost stable during the years 1993 to 2000.

The change in wages went along with the business cycle meaning lower growth rates in years of recession (and vice versa higher ground rates in the boom years). Also here we observe the process of rising wage differentials between establishments especially in the second half of the nineties. While on the individual level the distance between the 75%-ile and the 25%-ile remains nearly stable, the wage differential between establishments was rising. The range between high and low paying firms was getting wider in the second half of the nineties.

The figures for the mobility of employees show that in general there was more mobility in the second half of the nineties. It is supposed that this effect was not only driven by the business cycle but also by a strong trend of deregulation in the formal institutional setting for working contracts in the German labour market. On the other hand several institutions tend to protect insiders. It can be concluded that a notable part of the higher mobility in the second half of the nineties was undertaken by a minority of employees, while (still) the majority of employees remained in stable employment.

Such mobility patterns become also obvious in our tables 9 – 14. While the entry rates in most cases grew moderately (but nevertheless there was more mobility), the exit rates become higher during the nineties. Despite that fact, stable employment is still the normal case in Germany. The protection of insiders became most obvious in the percentage of workers with duration of job tenure of more than three years. In recession years the proportion of core (full-time) workers rises in German establishment (and vice versa during boom times).

Wage growth can be described as a moderate, stable and more homogenous process for elder employees. In contrast, the wage differential for younger people is growing on both tails of the individual wage distribution. The same can be observed for the wage differentials at the establishment level. At the upper limit of the wages at the establishment level the growth rates were positive, while at the lower tail the average establishment wage was nearly unchanged

during the second half of the nineties. Thus we can conclude that especially the upper tail of the wage distribution in Germany becomes more dynamic both on the individual *and* on the plant level.

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Tables 5 – 14

Table 5: Structure of Wages within and Between *Plants* (unweighted values)

	Wages in Euros			Log monthly wages in Euros		
	1993	1995	2000	1993	1995	2000
Average Wage, observation = a person	2783.69	2783.69	2783.69	7.88	7.88	7.88
(s.d.)	897.05	915.76	960.95	0.30	0.31	0.33
(75%-ile)	3216.10	3229.06	3234.00	8.08	8.08	8.08
(25%-ile)	2169.74	2157.11	2136.70	7.68	7.68	7.67
[N – workers]	1613662	1059419	622307	1613662	1059419	622307
Average of plant average wage, observ = a plant (weights observations differently from previous row)	2499.44	2511.31	2635.45	7.76	7.77	7.81
(s.d.)	502.99	524.60	626.17	0.21	0.22	0.25
(75%-ile)	2832.96	2854.83	2997.32	7.91	7.92	7.97
(25%-ile)	2168.31	2162.25	2240.63	7.64	7.64	7.67
[N – firms]	2163	1709	1569	2163	1709	1569
Average of s.d. of wage, observ = a plant	710.53	714.76	767.28	0.27	0.27	0.27
(s.d.)	188.92	198.51	246.26	0.06	0.06	0.08
(75%-ile)	838.57	854.61	934.43	0.31	0.30	0.32
(25%-ile)	584.43	582.06	608.02	0.23	0.23	0.23
[N – firms]	2163	1709	1565	2163	1709	1565
Average Coefficient of variation of wages, observ = a plant)	0.29	0.29	0.29	0.03	0.03	0.04
(s.d.)	0.07	0.07	0.08	0.01	0.01	0.01
(75%-ile)	0.33	0.33	0.34	0.04	0.04	0.04
(25%-ile)	0.24	0.24	0.24	0.03	0.03	0.03
[N – firms]	2163	1709	1565	2163	1709	1565
Correlation(average wage, s.d. of wage), observ = a plant	0.59	0.59	0.63	na	na	na
Average Wage for workers between 25 and 30, observation = a person	2439.99	2384.91	2377.93	7.77	7.75	7.74
(s.d.)	575.79	552.02	618.70	0.23	0.22	0.26
(75%-ile)	2706.13	2653.44	2679.91	7.90	7.88	7.89
(25%-ile)	2065.90	2025.82	1983.10	7.63	7.61	7.59
[N – workers]	292220	172243	69017	292220	172243	69017
Average Wage for workers between 45 and 50, observation = a person	2955.45	2921.92	2889.34	7.94	7.93	7.91
(s.d.)	966.91	972.83	1014.07	0.31	0.32	0.34
(75%-ile)	3531.65	3477.36	3428.81	8.17	8.15	8.14
(25%-ile)	2265.47	2236.13	2194.12	7.73	7.71	7.69
[N – workers]	227483	158982	105460	227483	158982	105460

Table 6: Structure of Wages within and Between *Plants* (weighted values)

	Wage in Euro			Log monthly wage in Euro		
	1993	1995	2000	1993	1995	2000
Average Wage, observation = a person	2530.46	2510.46	2538.14	7.78	7.77	7.77
(s.d.)	885.91	896.91	951.62	0.34	0.35	0.37
(75%-ile)	2965.09	2935.47	3004.39	7.99	7.98	8.01
(25%-ile)	1938.06	1916.65	1904.47	7.57	7.56	7.55
[N – workers]	9083054.12	8197376.38	4652495.61	9083054.12	8197376.38	4652495.61
Average of plant average wage, observ = a plant (weights observations differently from previous row)	2285.10	2266.93	2435.10	7.67	7.66	7.72
(s.d.)	501.89	522.10	633.59	0.23	0.24	0.27
(75%-ile)	2602.11	2553.21	2814.51	7.83	7.81	7.90
(25%-ile)	1953.01	1936.20	1981.32	7.54	7.53	7.55
[N – firms]	105265.11	102722.66	63670.57	105265.11	102722.66	63670.57
Average of s.d. of wage, observ = a plant	633.61	622.20	698.87	0.27	0.27	0.29
(s.d.)	202.41	219.74	269.83	0.08	0.08	0.11
(75%-ile)	767.56	757.49	868.99	0.32	0.31	0.34
(25%-ile)	491.95	463.82	517.65	0.22	0.21	0.22
[N – firms]	105265.11	102722.66	63670.57	105265.11	102722.66	63670.57
Average Coefficient of variation of wages, observ = a plant)	0.28	0.28	0.29	0.04	0.03	0.04
(s.d.)	0.08	0.09	0.10	0.01	0.01	0.01
(75%-ile)	0.33	0.33	0.35	0.04	0.04	0.04
(25%-ile)	0.23	0.22	0.23	0.03	0.03	0.03
[N – firms]	105265.11	102722.66	63670.57	105265.11	102722.66	63670.57
Correlation(average wage, s.d. of wage), observ = a plant	0.52	0.49	0.60	na	na	na
Average Wage for workers between 25 and 30, observation = a person	2227.81	2174.13	2157.56	7.68	7.65	7.63
(s.d.)	587.13	568.58	636.71	0.26	0.26	0.30
(75%-ile)	2518.71	2464.75	2483.35	7.83	7.81	7.82
(25%-ile)	1846.16	1805.17	1750.46	7.52	7.50	7.47
[N – workers]	1696546.36	1405241.74	548180.91	1696546.36	1405241.74	548180.91
Average Wage for workers between 45 and 50, observation = a person	2730.15	2676.74	2635.05	7.85	7.83	7.81
(s.d.)	960.56	972.01	998.11	0.36	0.36	0.38
(75%-ile)	3318.26	3222.35	3172.17	8.11	8.08	8.06
(25%-ile)	2062.37	2014.34	1965.13	7.63	7.61	7.58
[N – workers]	1223131.76	1159767.67	770242.16	1223131.76	1159767.67	770242.16

Table 7: Wage dynamics (unweighted values)

	Change in Wages in Euros (defined as wage in year t – wage in year t-1)			Change in Log monthly wages in Euros (defined as log wage in year t – log wage in year t-1)		
	1993	1995	2000	1993	1995	2000
Average change in wage observation = a person	94.42	143.96	86.90	0.03	0.05	0.03
(s.d.)	430.50	420.09	556.12	0.12	0.11	0.13
(75%-ile)	181.99	231.47	184.41	0.07	0.09	0.07
(25%-ile)	-17.40	31.10	-18.45	-0.01	0.01	-0.01
[N – workers]	1612690	1058503	621749	1612065	1058246	621576
Average of firm average change in wage, observ = a plant	102.54	116.41	80.59	0.04	0.05	0.03
(s.d.)	77.57	87.40	87.97	0.03	0.03	0.03
(75%-ile)	151.27	161.23	121.92	0.06	0.06	0.05
(25%-ile)	58.71	69.05	35.91	0.03	0.03	0.02
[N – plants]	2163	1709	1569	2163	1709	1569
Average of s.d. of change in wage, observ = a plant	312.27	304.06	355.88	0.10	0.09	0.11
(s.d.)	153.54	158.10	219.19	0.03	0.04	0.05
(75%-ile)	399.87	395.43	475.63	0.12	0.11	0.13
(25%-ile)	197.32	181.79	186.47	0.08	0.07	0.07
[N – plants]	2163	1709	1565	2163	1709	1565
Avg Coefficient of variation of change in wages, observ = a plant)	11.38	5.63	11.72	9.25	4.71	13.92
(s.d.)	208.67	32.41	113.85	114.33	26.84	196.98
(75%-ile)	4.54	3.60	6.65	3.56	2.82	5.30
(25%-ile)	1.81	1.71	2.29	1.47	1.33	1.88
[N – plants]	2163	1709	1565	2163	1709	1565
Avg change in wage for people with tenure < 3 years, observ = a person	86.43	140.96	82.05	0.03	0.05	0.03
(s.d.)	436.23	422.07	565.43	0.11	0.11	0.13
(75%-ile)	173.64	228.26	179.84	0.07	0.09	0.07
(25%-ile)	-24.50	29.31	-22.88	-0.01	0.01	-0.01
[N – workers]	1375812	893337	515764	1375392	893169	515637
Avg change in wage for people with tenure ≥ 3 years, observ = a person	140.88	160.23	110.49	0.06	0.06	0.04
(s.d.)	392.36	408.81	507.72	0.12	0.12	0.14
(75%-ile)	224.18	247.83	205.90	0.10	0.11	0.08
(25%-ile)	22.87	40.06	-1.27	0.01	0.02	0.00
[N – workers]	236878	165166	105985	236673	165077	105939

Table 8: Wage dynamics (weighted values)

	Change in Wages in Euros (defined as wage in year t – wage in year t-1)			Change in Log monthly wages in Euros (defined as log wage in year t – log wage in year t-1)		
	1993	1995	2000	1993	1995	2000
Average change in wage observation = a person	96.72	112.83	79.87	0.04	0.05	0.03
(s.d.)	360.06	350.61	468.19	0.11	0.11	0.12
(75%-ile)	173.82	186.56	160.89	0.08	0.08	0.07
(25%-ile)	1.70	17.52	-8.49	0.00	0.01	0.00
[N – workers]	9069944.61	8187154.21	4646531.23	9069944.61	8187154.21	4646531.23
Average of firm average change in wage, observ = a plant	103.46	89.71	65.61	0.05	0.04	0.03
(s.d.)	85.53	93.22	95.76	0.04	0.04	0.04
(75%-ile)	152.18	130.08	114.26	0.07	0.06	0.05
(25%-ile)	53.65	38.99	14.27	0.03	0.02	0.01
[N – plants]	105265.11	102722.66	64975.06	105265.11	102722.66	64975.06
Average of s.d. of change in wage, observ = a plant	239.89	228.16	278.41	0.09	0.08	0.10
(s.d.)	143.70	155.31	211.54	0.04	0.05	0.06
(75%-ile)	312.98	297.23	357.53	0.11	0.10	0.12
(25%-ile)	134.57	117.11	125.82	0.06	0.06	0.06
[N – plants]	105265.11	102722.66	63670.57	105265.11	102722.66	63670.57
Avg Coefficient of variation of change in wages, observ = a plant)	8.82	5.84	9.35	7.47	6.25	9.24
(s.d.)	186.47	20.09	79.27	59.13	31.78	87.46
(75%-ile)	3.75	4.19	5.71	3.06	3.27	4.80
(25%-ile)	1.25	1.39	1.86	1.11	1.18	1.63
[N – plants]	105265.11	102722.66	63670.57	105265.11	102722.66	63670.57
Avg change in wage for people with tenure < 3 years, observ = a person	89.46	110.38	76.09	0.03	0.04	0.03
(s.d.)	371.45	356.05	482.16	0.11	0.10	0.12
(75%-ile)	165.80	184.03	155.97	0.07	0.08	0.06
(25%-ile)	-4.02	15.75	-9.95	0.00	0.01	0.00
[N – workers]	6980069.39	6184137.28	3486146.68	6980069.39	6184137.28	3486146.68
Avg change in wage for people with tenure ≥ 3 years, observ = a person	120.94	120.40	91.24	0.05	0.05	0.04
(s.d.)	317.93	333.16	423.27	0.11	0.11	0.13
(75%-ile)	198.08	194.77	176.31	0.10	0.09	0.08
(25%-ile)	18.69	22.50	-5.04	0.01	0.01	0.00
[N – workers]	2089875.22	2003016.93	1160384.55	2089875.22	2003016.93	1160384.55

Table 9: Mobility | Panel A: all jobs

	All firms (# firms)			Firms with 100+ employees (# firms)		
	1993	1995	2000	1993	1995	2000

Employees (s.d.)	812.415 2119.559	696.544 1552.058	453.927 1286.649	1092.013 2416.153	946.112 1763.059	699.320 1574.521
Number of occupations (s.d.)	35.012 27.262	33.351 25.798	26.455 21.565	43.893 26.643	42.112 25.175	35.632 22.341
Employment growth (s.d.)	-0.049 0.153	-0.020 0.163	-0.047 0.237	-0.055 0.135	-0.017 0.149	-0.032 0.208
Exit rate, <i>observ = person</i>	0.139	0.120	0.145	0.137	0.118	0.139
Exit rate (s.d.)	0.169 0.135	0.147 0.132	0.202 0.204	0.156 0.112	0.135 0.110	0.174 0.165
Exit rate, top quartile of plant wages (s.d.)	0.147 0.158	0.139 0.152	0.193 0.210	0.133 0.116	0.130 0.111	0.172 0.181
Exit rate, bottom quartile of plant wages (s.d.)	0.209 0.127	0.179 0.150	0.306 0.229	0.193 0.104	0.167 0.151	0.297 0.227
Entry rate (s.d.)	0.111 0.102	0.121 0.113	0.150 0.156	0.093 0.085	0.111 0.104	0.139 0.147
Entry rate, top quartile of plant wages (s.d.)	0.090 0.085	0.096 0.105	0.125 0.135	0.080 0.070	0.093 0.107	0.113 0.116
Entry rate, bottom quartile of plant wages (s.d.)	0.147 0.123	0.162 0.143	0.261 0.231	0.124 0.108	0.146 0.128	0.304 0.264
% of employees who switch jobs* internally (s.d.)	0.027 0.048	0.021 0.035	0.020 0.045	0.029 0.046	0.024 0.037	0.022 0.045
% of workers who have been at plant 3+ years (s.d.)	0.664 0.194	0.665 0.275	0.590 0.337	0.697 0.172	0.692 0.271	0.627 0.330
Correlation (exit rate, average wage), <i>observ = a plant</i>	-0.200	-0.115	-0.061	-0.198	-0.094	0.005
Correlation(exit rate, average wage change), <i>observ = a plant</i>	-0.073	-0.161	-0.018	-0.106	-0.175	0.012
Correlation(exit rate, s.d. of wage), <i>observ = a plant</i>	-0.095	-0.040	-0.051	-0.071	-0.033	0.004
Correlation (entry rate, average wage), <i>observ = a plant</i>	-0.273	-0.252	-0.198	-0.216	-0.187	-0.221
Correlation(entry rate, average wage change), <i>observ = a plant</i>	0.115	-0.001	0.019	0.159	0.031	-0.025
Correlation(entry rate, s.d. of wage), <i>observ = a plant</i>	-0.166	-0.113	-0.099	-0.087	-0.063	-0.074

Note: All statistics are calculated at the plant level, except the first exit rate

Table 10: Mobility Panel A: all jobs (weighted values)

	All plants (# plants)			Plants with 100+ employees (# plants)		
	1993	1995	2000	1993	1995	2000
Employees	100.315	94.229	86.165	292.787	277.718	253.543
(s.d.)	395.994	310.298	374.508	777.298	609.774	743.461
Number of occupations	13.776	13.152	13.013	25.953	25.505	23.551
(s.d.)	11.056	10.612	10.356	15.728	14.721	15.315
Employment growth	-0.017	-0.002	-0.042	-0.023	0.009	-0.002
(s.d.)	0.151	0.158	0.231	0.147	0.166	0.232
Exit rate	0.187	0.163	0.227	0.162	0.147	0.188
(s.d.)	0.132	0.128	0.195	0.111	0.105	0.160
Exit rate, top quartile of plant wages						
(s.d.)	0.161	0.127	0.213	0.138	0.135	0.158
	0.144	0.133	0.182	0.141	0.112	0.136
Exit rate, bottom quartile of plant wages						
(s.d.)	0.219	0.191	0.291	0.196	0.169	0.273
	0.134	0.139	0.181	0.104	0.119	0.201
Entry rate	0.159	0.157	0.179	0.130	0.149	0.185
(s.d.)	0.125	0.141	0.177	0.116	0.146	0.181
Entry rate, top quartile of plant wages						
(s.d.)	0.137	0.117	0.150	0.105	0.130	0.141
	0.125	0.118	0.148	0.092	0.145	0.154
Entry rate, bottom quartile of plant wages						
(s.d.)	0.181	0.187	0.250	0.155	0.172	0.313
	0.132	0.166	0.218	0.125	0.162	0.300
% of employees who switch jobs* internally	0.024	0.014	0.015	0.025	0.019	0.018
(s.d.)	0.052	0.030	0.034	0.038	0.030	0.039
% of workers who have been at plant 3+ years	0.585	0.584	0.545	0.643	0.623	0.591
(s.d.)	0.217	0.282	0.324	0.183	0.294	0.323
Correlation (exit rate, average wage), observ = a plant	-0.222	-0.235	-0.142	-0.242	-0.169	-0.205
Correlation(exit rate, average wage change), observ = a plant						
	-0.032	-0.063	-0.062	-0.147	-0.098	-0.153
Correlation(exit rate, s.d. of wage), observ = a plant						
	-0.059	-0.021	-0.135	-0.116	-0.086	-0.024
Correlation (entry rate, average wage), observ = a plant						
	-0.187	-0.261	-0.178	-0.203	-0.136	-0.304

Correlation(entry rate, average wage change), observ = a plant	0.079	0.036	-0.012	0.124	0.168	-0.111
Correlation(entry rate, s.d. of wage), observ = a plant	-0.109	-0.082	-0.129	-0.112	-0.079	-0.097

Note: All statistics are calculated at the plant level, except the first exit rate

Table 11: Mobility Panel B: high level jobs

	All plants (# plants)			Plants with 100+ employees (# plants)		
	1993	1995	2000	1993	1995	2000
Employees	157.661	131.322	68.213	209.143	175.066	100.457
(s.d.)	313.019	257.689	123.875	351.736	291.391	146.963
Number of occupations	15.290	14.098	9.595	18.852	17.402	12.326
(s.d.)	12.728	11.612	7.740	13.048	11.989	8.394
Employment growth	-0.081	-0.105	-0.080	-0.076	-0.131	-0.089
(s.d.)	0.308	0.317	0.385	0.292	0.309	0.358
Exit rate	0.114	0.116	0.159	0.101	0.107	0.143
(s.d.)	0.186	0.190	0.242	0.104	0.125	0.165
Exit rate, top quartile of plant wages	0.109	0.109	0.156	0.101	0.105	0.147
(s.d.)	0.149	0.141	0.192	0.119	0.104	0.161
Exit rate, bottom quartile of plant wages	0.116	0.141	0.226	0.103	0.119	0.177
(s.d.)	0.232	0.291	0.452	0.119	0.186	0.295
Entry rate	0.060	0.074	0.091	0.054	0.072	0.089
(s.d.)	0.111	0.175	0.183	0.081	0.151	0.140
Entry rate, top quartile of plant wages	0.053	0.054	0.081	0.048	0.053	0.075
(s.d.)	0.068	0.066	0.118	0.059	0.061	0.103
Entry rate, bottom quartile of plant wages	0.079	0.100	0.138	0.071	0.106	0.132
(s.d.)	0.169	0.256	0.338	0.124	0.249	0.218
% of employees who switch jobs* internally	0.026	0.019	0.019	0.027	0.022	0.019
(s.d.)	0.060	0.049	0.068	0.052	0.044	0.062
% of workers who have been at plant 3+ years	0.636	0.669	0.628	0.666	0.684	0.651
(s.d.)	0.259	0.310	0.391	0.244	0.302	0.379
Correlation (exit rate, average wage), observ = a plant	0.006	-0.031	0.059	0.003	-0.046	0.058
Correlation(exit rate, average wage change), observ = a plant	0.021	-0.012	0.002	0.025	-0.023	0.016
Correlation(exit rate, s.d. of wage), observ = a plant	-0.010	-0.044	0.016	-0.015	-0.060	0.016

Correlation (entry rate, average wage), observ = a plant	0.027	0.093	0.082	0.026	0.086	0.086
Correlation(entry rate, average wage change), observ = a plant	0.029	0.062	0.021	0.035	0.048	0.030
Correlation(entry rate, s.d. of wage), observ = a plant	0.007	0.087	0.053	0.004	0.089	0.095

Note: All statistics are calculated at the plant level, except the first exit rate

Table 12: Mobility Panel B: high level jobs (weighted values)

	All plants (# plants)			Plants with 100+ employees (# plants)		
	1993	1995	2000	1993	1995	2000
Employees	29.900	28.225	21.523	78.672	71.188	52.787
(s.d.)	72.246	60.801	42.907	134.993	114.635	78.194
Number of occupations	6.786	6.596	5.495	11.754	11.461	8.867
(s.d.)	5.302	4.984	4.103	7.802	7.246	6.054
Employment growth	-0.089	-0.030	-0.099	-0.067	-0.112	-0.107
(s.d.)	0.339	0.329	0.387	0.281	0.344	0.435
Exit rate	0.119	0.119	0.156	0.101	0.100	0.134
(s.d.)	0.254	0.260	0.292	0.128	0.121	0.169
Exit rate, top quartile of plant wages	0.106	0.088	0.167	0.099	0.102	0.132
(s.d.)	0.138	0.120	0.180	0.102	0.106	0.129
Exit rate, bottom quartile of plant wages	0.127	0.155	0.286	0.105	0.098	0.205
(s.d.)	0.323	0.366	0.604	0.147	0.155	0.345
Entry rate	0.079	0.086	0.093	0.067	0.095	0.107
(s.d.)	0.171	0.239	0.220	0.115	0.209	0.174
Entry rate, top quartile of plant wages	0.075	0.061	0.089	0.059	0.068	0.106
(s.d.)	0.099	0.091	0.139	0.075	0.087	0.180
Entry rate, bottom quartile of plant wages	0.096	0.093	0.997	0.084	0.104	0.074
(s.d.)	0.234	0.278	0.351	0.162	0.265	0.182
% of employees who switch jobs* internally	0.024	0.013	0.014	0.024	0.020	0.014
(s.d.)	0.077	0.047	0.055	0.054	0.047	0.048
% of workers who have been at plant 3+ years	0.561	0.627	0.605	0.614	0.634	0.641
(s.d.)	0.277	0.330	0.389	0.246	0.334	0.390

Correlation (exit rate, average wage), observ = a plant	0.006	0.000	0.104	0.007	-0.008	0.011
Correlation(exit rate, average wage change), observ = a plant	0.011	0.006	0.057	0.024	0.000	0.064
Correlation(exit rate, s.d. of wage), observ = a plant	-0.001	-0.002	0.029	-0.007	-0.012	-0.050
Correlation (entry rate, average wage), observ = a plant	0.031	0.090	0.088	0.046	0.143	0.053
Correlation(entry rate, average wage change), observ = a plant	0.027	0.052	0.093	0.056	0.050	0.090
Correlation(entry rate, s.d. of wage), observ = a plant	0.019	0.060	0.026	0.028	0.117	0.039

Note: All statistics are calculated at the plant level, except the first exit rate

Table 13: Mobility Panel C: low level jobs

	All plants (# plants)			Plants with 100+ employees (# plants)		
	1993	1995	2000	1993	1995	2000
Employees	223.284	181.506	111.529	302.352	248.573	174.596
(s.d.)	839.317	562.563	494.572	968.451	649.362	616.038
Number of occupations	17.890	16.660	11.807	22.975	21.570	16.738
(s.d.)	17.825	16.750	13.458	18.272	17.262	14.783
Employment growth	-0.039	-0.081	-0.060	-0.034	-0.070	-0.041
(s.d.)	0.305	0.303	0.360	0.177	0.194	0.259
Exit rate	0.252	0.222	0.317	0.245	0.213	0.312
(s.d.)	0.189	0.206	0.319	0.173	0.174	0.273
Exit rate, top quartile of plant wages	0.309	0.298	0.383	0.301	0.276	0.385
(s.d.)	0.261	0.291	0.374	0.231	0.224	0.323
Exit rate, bottom quartile of plant wages	0.225	0.186	0.289	0.211	0.176	0.285
(s.d.)	0.137	0.105	0.237	0.115	0.148	0.221
Entry rate	0.181	0.203	0.352	0.159	0.204	0.361
(s.d.)	0.182	0.192	0.363	0.149	0.195	0.326
Entry rate, top quartile of plant wages	0.216	0.245	0.418	0.198	0.250	0.407
(s.d.)	0.229	0.258	0.430	0.173	0.262	0.368
Entry rate, bottom quartile of plant wages	0.163	0.176	0.267	0.138	0.160	0.315
(s.d.)	0.142	0.153	0.244	0.124	0.137	0.271
% of employees who switch jobs* internally	0.022	0.015	0.021	0.020	0.015	0.018

(s.d.)	0.074	0.054	0.083	0.055	0.047	0.068
% of workers who have been at plant 3+ years	0.831	0.767	0.708	0.846	0.781	0.743
(s.d.)	0.234	0.327	0.403	0.177	0.304	0.376
Correlation (exit rate, average wage), observ = a plant	-0.015	0.011	0.073	-0.035	0.043	0.066
Correlation(exit rate, average wage change), observ = a plant	-0.047	0.023	-0.008	-0.058	0.008	0.024
Correlation(exit rate, s.d. of wage), observ = a plant	0.025	0.030	0.050	0.015	0.042	0.038
Correlation (entry rate, average wage), observ = a plant	0.032	-0.062	0.082	0.030	0.007	0.098
Correlation(entry rate, average wage change), observ = a plant	0.014	-0.033	0.067	0.017	-0.034	0.044
Correlation(entry rate, s.d. of wage), observ = a plant	0.020	-0.043	0.046	0.016	-0.015	0.022

Note: All statistics are calculated at the plant level, except the first exit rate

Table 14: Mobility Panel C: low level jobs (weighted values)

	All plants (# plants)			Plants with 100+ employees (# plants)		
	1993	1995	2000	1993	1995	2000
Employees	19.945	17.419	16.109	66.920	59.406	54.314
(s.d.)	149.547	107.182	148.489	300.380	217.421	301.362
Number of occupations	5.561	5.094	4.522	11.795	10.997	9.409
(s.d.)	6.457	6.038	5.692	10.090	9.539	9.223
Employment growth	-0.045	-0.118	-0.072	-0.027	-0.084	-0.044
(s.d.)	0.509	0.461	0.459	0.231	0.237	0.348
Exit rate	0.253	0.223	0.300	0.240	0.214	0.313
(s.d.)	0.197	0.199	0.332	0.182	0.178	0.264
Exit rate, top quartile of plant wages	0.312	0.298	0.364	0.312	0.288	0.377
(s.d.)	0.303	0.325	0.395	0.299	0.273	0.317
Exit rate, bottom quartile of plant wages	0.234	0.199	0.275	0.211	0.176	0.262
(s.d.)	0.148	0.146	0.190	0.116	0.123	0.197
Entry rate	0.242	0.224	0.345	0.203	0.241	0.373
(s.d.)	0.236	0.203	0.426	0.184	0.229	0.329
Entry rate, top quartile of plant wages	0.293	0.253	0.405	0.232	0.313	0.409
(s.d.)	0.354	0.266	0.503	0.219	0.321	0.410

Entry rate, bottom quartile of plant wages (s.d.)	0.199 0.155	0.203 0.177	0.269 0.231	0.176 0.144	0.183 0.167	0.322 0.305
% of employees who switch jobs* internally (s.d.)	0.028 0.114	0.013 0.072	0.022 0.100	0.020 0.062	0.012 0.051	0.023 0.090
% of workers who have been at plant 3+ years (s.d.)	0.795 0.340	0.714 0.390	0.674 0.421	0.835 0.202	0.728 0.349	0.733 0.395
Correlation (exit rate, average wage), observ = a plant	0.000	-0.013	-0.041	-0.018	0.054	-0.219
Correlation(exit rate, average wage change), observ = a plant	-0.020	0.051	-0.138	-0.046	-0.006	-0.395
Correlation(exit rate, s.d. of wage), observ = a plant	0.016	0.040	0.110	0.014	0.050	0.145
Correlation (entry rate, average wage), observ = a plant	0.019	-0.074	0.025	0.027	0.032	0.041
Correlation(entry rate, average wage change), observ = a plant	0.004	-0.020	0.094	0.009	-0.028	0.065
Correlation(entry rate, s.d. of wage), observ = a plant	0.014	-0.040	0.024	0.016	-0.036	-0.008

Note: All statistics are calculated at the plant level, except the first exit rate

Table 15: Analysis of Variance

R ²	1993	1995	2000
Firm effects	0.273	0.284	0.347
Human capital	0.474	0.468	0.407
Human capital + firm effects	0.655	0.663	0.652

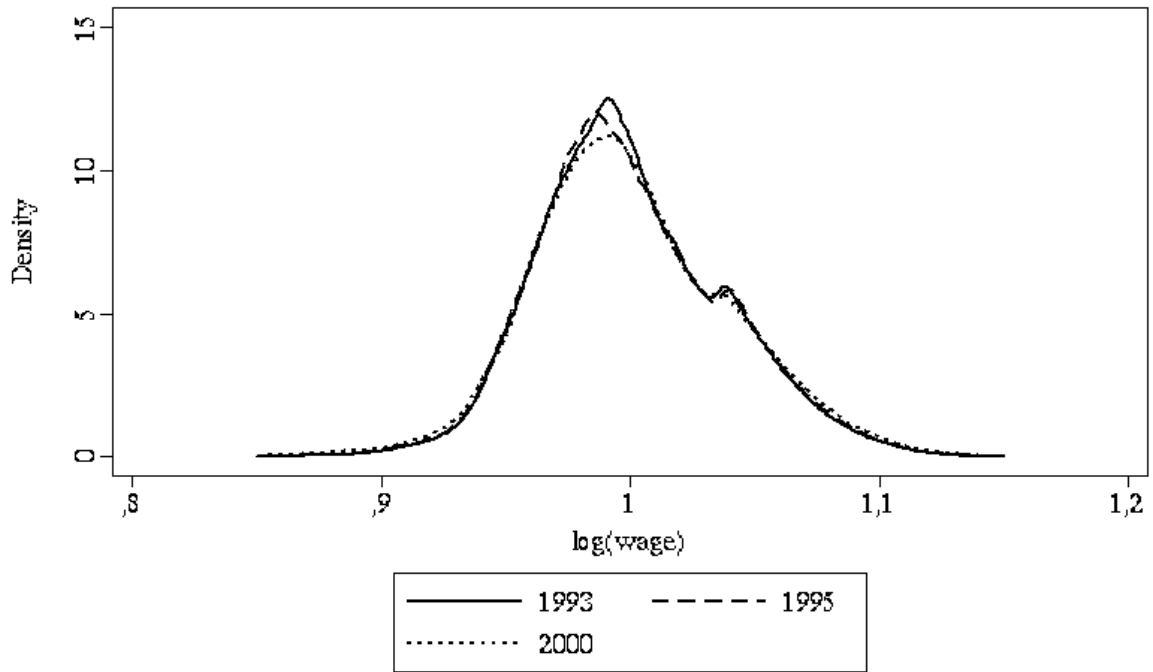
Table 16: Comparison of mean values with matching method

		1993	1995	2000
Average wage	collective contract	2466.23	2331.49	2608.93
	Without col. contr.	2413.66	2356.71	2450.02
	t-value	0.66	-0.31	2.82
	P> t	0.51	0.76	0.01
s.d. of wage	collective contract	715.04	655.02	785.04
	without col. contr.	720.63	725.13	759.74
	t-value	-0.20	-2.16	1.08
	P> t	0.84	0.03	0.28
Change in wage	collective contract	133.09	104.59	63.96
	without col. contr.	116.92	103.35	80.04
	t-value	1.19	0.08	-1.84
	P> t	0.23	0.94	0.07
Coefficient of variation of change in wage	collective contract	0.30	0.28	0.30
	without col. contr.	0.31	0.31	0.32
	t-value	-1.07	-2.81	-2.26
	P> t	0.29	0.01	0.02
Exitrate	collective contract	0.18	0.16	0.22
	without col. contr.	0.26	0.19	0.23
	t-value	-3.74	-1.53	-0.78
	P> t	0.00	0.13	0.44
Entryrate	collective contract	0.17	0.14	0.17
	without col. contr.	0.19	0.20	0.21
	t-value	-1.37	-2.69	-2.33
	P> t	0.17	0.01	0.02
% of workers who have been at plant 3+ years	collective contract	0.56	0.61	0.54
	without col. contr.	0.49	0.49	0.48
	t-value	2.28	3.09	2.05
	P> t	0.02	0.00	0.04

Treatment group are plants without collective contract, control group are plants with collective contract; t-value and P>|t| for H₀: identical mean values

Figure 1

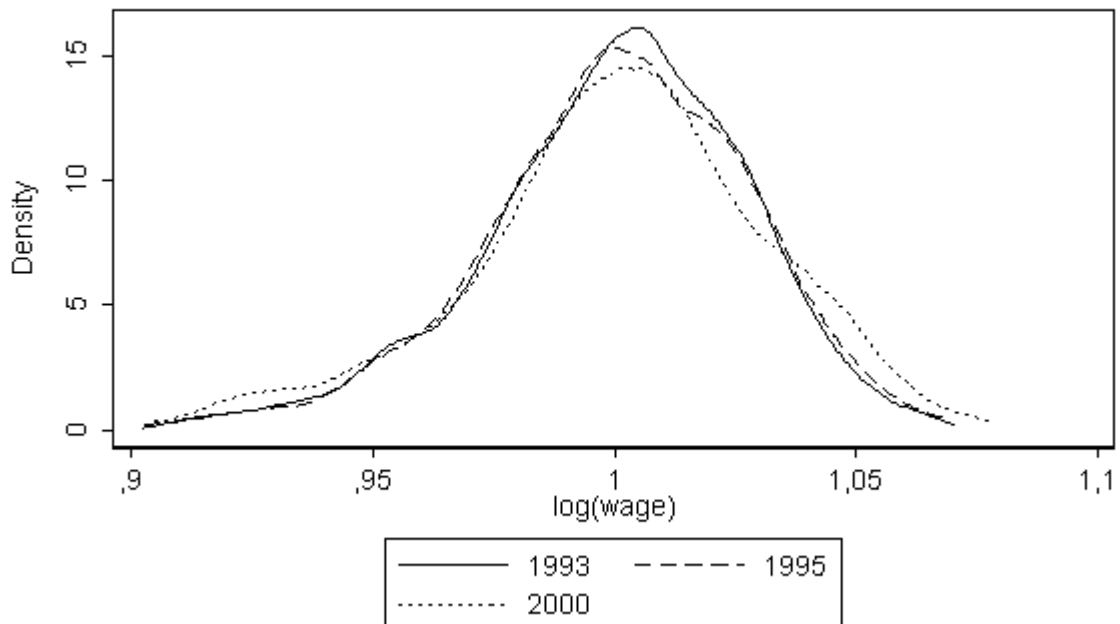
log wage distribution by year



Source: LIAB

Figure 2

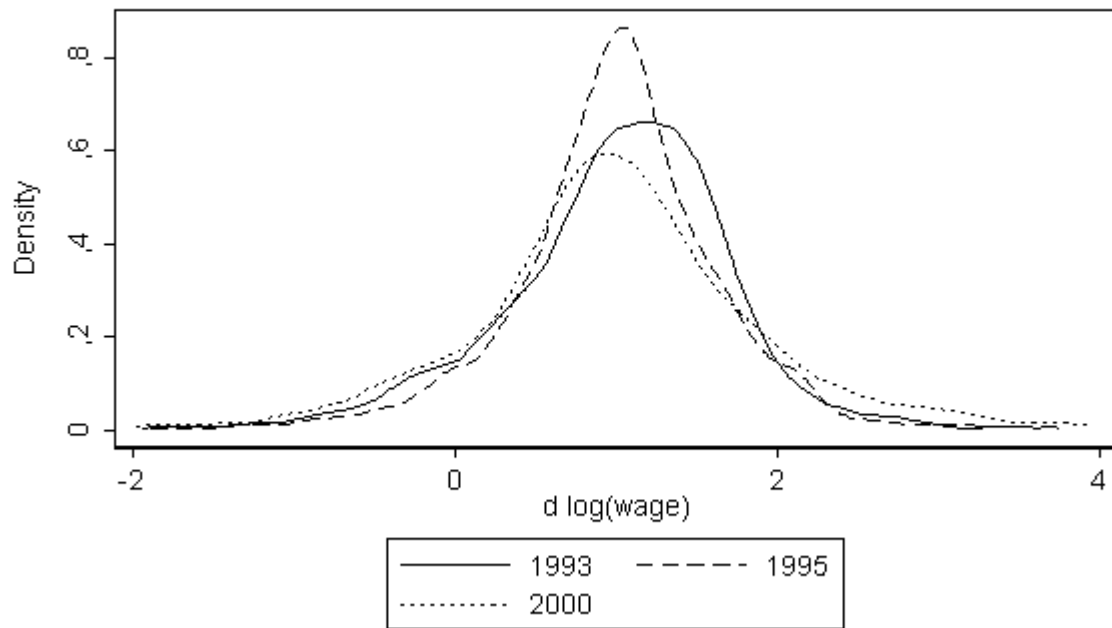
firm average wage by year



Source: LIAB

Figure 3

firm average wage growth by year



Source: LIAB