



## Jenaer Schriften zur Wirtschaftswissenschaft

# Works Councils and Heterogeneous Firms

*Simon Renaud*

16/2006

**Arbeits- und Diskussionspapiere  
der Wirtschaftswissenschaftlichen Fakultät  
der Friedrich-Schiller-Universität Jena**

ISSN 1611-1311

**Herausgeber:**

Wirtschaftswissenschaftliche Fakultät  
Friedrich-Schiller-Universität Jena  
Carl-Zeiß-Str. 3, 07743 Jena

[www.wiwi.uni-jena.de](http://www.wiwi.uni-jena.de)

**Schriftleitung:**

*Prof. Dr. Hans-Walter Lorenz*  
[h.w.lorenz@wiwi.uni-jena.de](mailto:h.w.lorenz@wiwi.uni-jena.de)

*Prof. Dr. Armin Scholl*  
[a.scholl@wiwi.uni-jena.de](mailto:a.scholl@wiwi.uni-jena.de)

# "Works Councils and Heterogeneous Firms"

May 2006

by Simon Renaud\*

## Abstract:

Theoretical analyses of the effects of works councils show ambiguous results. Therefore an empirical investigation of the issue is inevitable. The results so far are mixed, frequently a positive effect on productivity, but a negative one on profits is found. The problem of both theoretical and empirical studies is the assumption of firm homogeneity. To close this gap, we take into account firm heterogeneity proxied by the percentage of highly qualified employees in the workforce. The theoretical result that the positive productivity effect is more pronounced in firms with well-defined majorities is confirmed in the empirical part of the paper. The results on profitability are less favourable for works councils: in those firms where the productivity effect is significant, the profitability effect is negative, except for firms with a very high percentage of highly qualified employees. Turning to the effect of collective agreements, they seem to mitigate the problem of reduced profitability in firms with no clear majority in the structure of qualifications.

Keywords: firm heterogeneity, works councils, productivity, profitability, IAB-Establishment-Panel

JEL-Classification: J42, J50

---

\*

Friedrich-Schiller-University Jena, Chair of Economic Policy, Carl-Zeiss-Str. 3, D-07743 Jena, Phone: ++49 3641 943 250, Fax: ++49 3641 943 252, e-mail: [s.renaud@wiwi.uni-jena.de](mailto:s.renaud@wiwi.uni-jena.de).

# "Works Councils and Heterogeneous Firms"

by Simon Renaud

## I. Introduction

The German history of codetermination via works councils in today's form dates back to the codetermination laws of either 1952 or 1972. The latest major modifications were applied in 2001. From an economist's point of view there are two interconnected questions. First of all, why is it necessary to regulate industrial relations by law and secondly, what are the effects of these laws? Section II of this paper will give an overview of the answers to these questions according to the literature. When applying laws it is not possible to consider firm specific situations beyond a certain extend. Theoretical as well as empirical research has not taken firm heterogeneity and different interest groups of employees into account to a satisfactory extent so far. Yet, it is unlikely that the situation of all firms and all employees is homogeneous. In Section III of this paper, we will extend a theoretical model analysing the case for mandatory codetermination considering heterogeneity. Section IV will test these implications empirically, while firm heterogeneity is measured by the percentage of highly qualified employees in the workforce. Section V will give conclusions and an outlook on the effects of structural changes.

## II. Literature review

There are mainly two theoretical lines of arguments evaluating the effects of works councils. These are the property-rights-theory and the participation-theory, which reveal different results.<sup>1</sup> Arguments against codetermination are found especially in the property-rights-theory: codetermination weakens the residual decision rights of employers or owners and leads to less efficient

---

<sup>1</sup> For an overview see especially Dilger (2003).

decisions. This results in lower productivity or at least in fewer profits for the owners, as the employees are able to reap some of the profits. On the other hand, the participation-theory suggests that codetermination favours the voice against the exit option and leads to higher productivity. According to Jensen and Meckling (1979, p. 474), it is not necessary to find out which theory is true: if codetermination was beneficiary to the firm, the owners or employers would introduce it voluntarily. However, as in countries without codetermination laws no voluntarily introduced works councils are found, they are not efficient according to this reasoning.<sup>2</sup> Nevertheless, there are some reasons why an efficient institution may not emerge from a free market for industrial relations. These are mainly that allocation and distribution may not be separated and that the usual market failure arguments hold: external effects, public goods and information asymmetries.<sup>3</sup> Since the question of the effects of works councils is not to be determined theoretically, empirical estimation is necessary.

Although there are some empirical problems estimating these effects, the major difficulty is diminishing: getting a representative data-set. With the IAB-Establishment Panel<sup>4</sup>, a broad data base is available for the researcher. Table 1 presents an overview of current studies concerning the effects of works councils using this panel.

---

<sup>2</sup> Although there are quite a lot of other participatory elements which are implemented voluntarily (e.g. Frick 2002a).

<sup>3</sup> See Dilger (2003) or Renaud (2006) for a comprehensive analysis.

<sup>4</sup> See Kölling (2000) for a detailed description of the IAB-Establishment-Panel.

Table 1: Empirical publications on works councils' effects

<b>Authors</b>	<b>Methodology</b>	<b>Years</b>	<b>Results</b>
Frick (2002b)	OLS, cross-section	1998	25-30% higher productivity in firms with works council.
Frick and Möller (2003)	OLS, cross-section	2000	25-30% higher productivity in firms with works council.  Significant reduction of personnel fluctuation in firms with works council, especially when firm is bound to a collective agreement.
Wolf and Zwick (2002)	OLS, fixed-effects, cross-section and panel	1996-1999	Positive productivity effects of works councils' presence
Addison et al. (2003)	OLS, production-frontier-approach with fixed-effects, cross-section, pooled cross-sections and panel	1997-2000	Significant positive effects of works councils in pooled cross-sections, but not very robust in single-year cross-sections.  No significant effects of works councils on productivity-growth.  No significant effect of works councils in production-frontier-approach.
Addison and Teixeira (2004)	OLS, cross-section	1993-2000	Significant negative effect of works councils on employment growth.
Schank et al. (2004)	Production-frontier-estimation via fixed-effects, panel	1993-2000	No significant effects of works councils on productivity.
Addison et al. (2004a)	Propensity-score matching, cross-section	1996-2000	No significant differences in personnel fluctuations, productivity, employment and profits between matched firms with and without works council.
Addison et al. (2004b)	Probit, cross-section and pooled cross-section	1996-2000	Significant positive effect of works councils on plant closings except for a sub-sample of small firms with collective agreement.
Addison et al. (2005)	OLS, propensity-score matching, pooled cross-section	1998-2003	No (robust) significant effects of works council formation or dissolution on investment.

To sum up, the results so far are ambiguous. Thus, neither the proponents, nor the critics of the firm-level-codetermination have the empirical evidence on their side. Unfortunately, it is not yet possible to examine the long term effects of works councils, as the IAB-Panel did not exist before 1996 for Germany (or 1993 for the Western part).

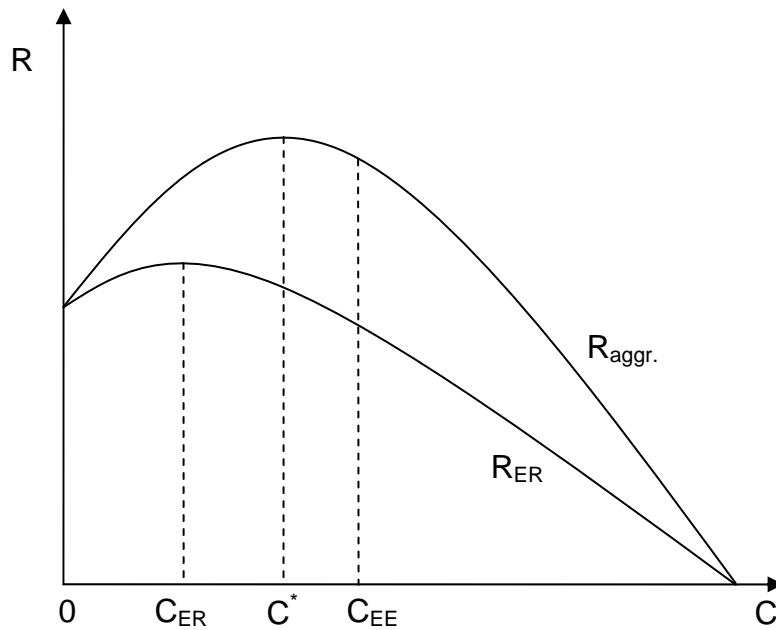
### **III. Theoretical considerations concerning works councils and firm heterogeneity**

A model, introduced by Freeman and Lazear (1995, pp. 29) gives a concise overview of some of the reasons why codetermination laws may be necessary: Productivity or the cooperation-rent increases with the degree of works councils' rights up to a certain point ( $C^*$  in Figure 1). Although the aggregate rent is increasing, the share of the employers (the part below  $R_{ER}$  in Figure 1) peaks with lower codetermination rights ( $C_{ER}$ ), because with higher codetermination rights, the employees are able to reap an increasing part of the rent (the part between  $R_{aggr.}$  and  $R_{ER}$ ). Therefore the optimal degree of codetermination for the employees peaks at  $C_{EE}$  (where the slope of  $R_{aggr.}$  and  $R_{ER}$  is equivalent). Codetermination in an optimal allocational sense may not be introduced, a special law may be necessary to maximize welfare at  $C^*$ .<sup>5</sup>

---

<sup>5</sup> Implicitly, this model is static and assumes a closed economy. We will turn to this later.

Figure 1: The rent-sharing model



This reveals the first empirically testable implication: If the codetermination law is somewhere near  $C^*$ , the firm's profits should be lower and its productivity higher than in firms without a mandatory works council. Firm profits in the case of a works council may be higher (but not necessarily) than in the case of no codetermination at all (0). However, the relevant point of comparison is  $C_{ER}$ , because it is rational for firms to introduce the profit-maximising amount of codetermination ( $C_{ER}$ ), except that there are other reasons of market-failure.<sup>6</sup> If there are no productivity increasing effects of codetermination at all, a works council will necessarily lead to lower profits. If the law is near point  $C_{EE}$ , i.e. there are very extensive codetermination rights, the qualitative empirical result would be similar to point  $C^*$  (higher productivity and lower profits compared to no codetermination law). Though, the productivity effects may also be negative compared to voluntary codetermination. If the law is near point  $C_{ER}$  (or below this point), there will be no effects on productivity and profitability as this is the amount of codetermination the firms will introduce voluntarily. This leads us to

**Hypothesis 1: If the codetermination law goes beyond voluntary codetermination, a negative effect on profitability is expected.**

<sup>6</sup> See Dilger (2003) for an overview.

**Furthermore, there may be a positive effect on productivity in firms with a works council compared to its council-free counterparts.**

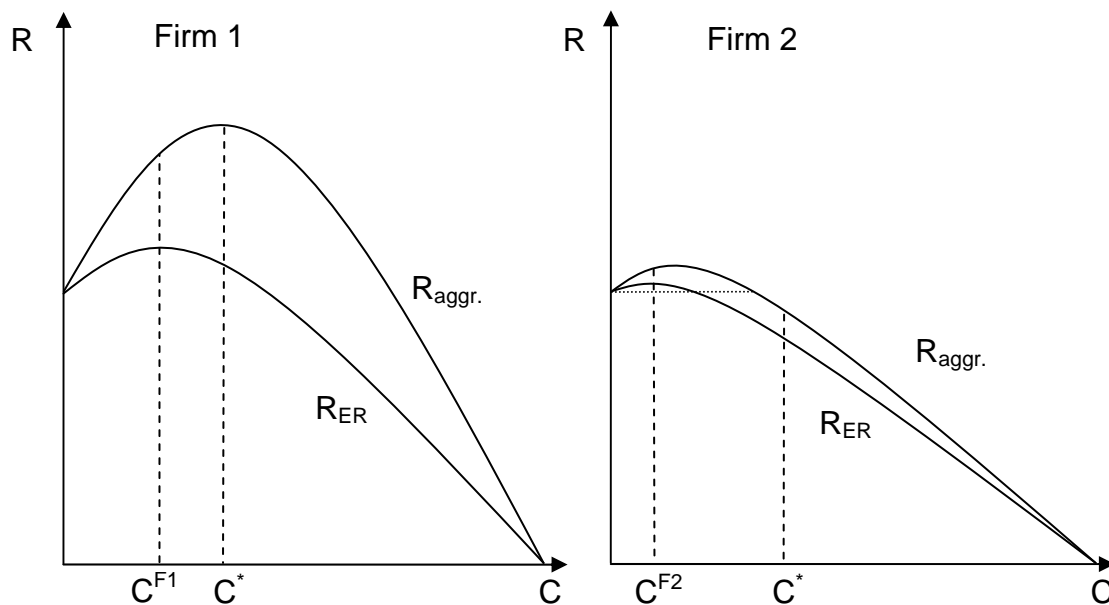
Deviating from the assumption of the previous model, which assumes homogeneous effects across firms, the situation may be different depending on size, industry sector, employment structure, organizational structure etc. (Renaud 2006, Addison et al. 2000). The situation may look as in Figure 2. While the law may lead to a welfare maximum in firm 1, it may not in firm 2, although the situation in this firm favours employees because their rent is maximised. The reason to be tested here empirically is that in firms with a workforce “divided” between highly qualified employees and lowly qualified workers, the works councils either may not lead to significant productivity increases as they may not be an appropriate voice vehicle for all employees, or they may not have a quorum to decide efficiently. This view is consistent with Freeman and Lazear’s (1995, pp. 39) argument that the efficiency of the works council’s decisions is reduced if there is no clear majority. The productivity effect is reduced or even turns negative. On the other hand, it may be that in those companies there still persists rent-seeking by the works councils as they have certain rights guaranteed by law. This behaviour leads to lower profitability in these firms – or the profitability is simply reduced by the lower productivity. The situation of a company with a homogeneous structure of employees may look as in firm 1, while a firm with a divided workforce may be represented by firm 2. There are two other theoretical possibilities in the case of heterogeneity: Firstly, there may be no effects on productivity or profitability due to a lack of clear majorities in the works council and its inability to pursue rent-seeking (meaning both lines in firm 2 are horizontal). Secondly, there may be no productivity effect and still rent-seeking effects due to the power given to the council by the law (meaning the  $R_{agg}$ -line to be horizontal while  $R_{ER}$  is the same as in firm 2). Although the heterogeneity effects are not completely clear, theory suggests a U-shaped relationship of the effects of codetermination laws on productivity across firms differing in qualification structure. These effects are present in firms with a high and a low share of qualified workers, meaning homogeneity. The profitability effects are less



obvious as the effect may be greater for heterogeneous firms if there is still rent-seeking but no productivity effect. On the other hand, there may be no effect because a divided workforce cannot pursue rent-seeking effectively. This leads us to

**Hypothesis 2: When considering the structure of the workforce, there is a U-shaped effect of the codetermination law on productivity: (positive) productivity effects are particularly high in firms with a clear majority of either highly or lowly qualified workers. The effect on profitability is negative for a homogeneous workforce, while it is indeterminate in the heterogeneous case.**

Figure 2: Firm heterogeneity



Works councils are only one part of the German system of industrial relations. There may be an important interaction effect, because works councils are not allowed to negotiate on issues which are part of collective agreements between unions and the employers' associations (or the companies). This implies that in firms where a collective agreement is present, there should be a

reduced (negative) profitability effect of works councils as rent-seeking is kept out of the firm (Freeman and Lazear 1995, p. 32).<sup>7</sup>

**Hypothesis 3: The profitability effect of works councils should be lower in firms where a collective agreement deals with distributional issues.**

#### **IV. Empirical Evidence**

The theoretical considerations from section III imply that the effects of works councils differ from firm to firm. Our empirical strategy is to test the effects of works councils in groups of firms, differing in the share of highly qualified employees in the workforce. Although there are codetermination laws, this is possible because works councils are not mandatory: a works council has to be introduced only on the employees' request. This provides the possibility to compare firms with and without a works council.<sup>8</sup>

The database we use contains only firms with 21-100 employees for two reasons: first of all, smaller firms almost never have a works council, while larger firms almost always do. In our sample, about one third of all firms have a works council so any bias is less likely. The second reason is that in this range of employees, the works council's rights are fixed, while with larger firms their rights increase. We pooled data from 2000-2004, however we did not exploit the panel structure of the data. It would be useful to apply fixed-effects estimation, but as the works council presence is nearly time invariant, the effect would be driven by those few firms that introduced or abandoned a works council in those years.<sup>9</sup>

To test the hypotheses, we first estimate a translog production function<sup>10</sup>. Compared to Cobb-Douglas or CES-functions (which are special cases of it), it

---

<sup>7</sup> Although de-jure influence of works councils on pay-schemes etc. bargained in collective agreement is limited by §77,3 BetrVG in all firms (even when it is not member of the employer's association).

<sup>8</sup> On the other hand, this may cause a problem of endogeneity of the works council if its presence is not random. Unfortunately, it is hardly possible to use treatment-effect techniques, as the formation or dissolution of a works council is nearly not existent in the sample (Addison et al. 2004a, pp. 410 ff) and especially in the subsamples. See also Addison et al. (2003, pp. 668) for the endogeneity problem.

<sup>9</sup> See Addison et al. (2003) for details.

<sup>10</sup> See e.g. Frick (2002b) or Frick and Möller (2003) for details.

has the advantage of making no specific assumptions on returns-to-scale or substitution elasticities. The general form is  $\ln Y = f(\ln L, \ln C)$  with capital and labour as production factors. Its testable form (after Taylor-approximation) in our context is:

$$\ln \text{Sales} = \beta_0 + \beta_1 \ln L + \beta_2 \ln C + \beta_3 \frac{\ln^2 L}{2} + \beta_4 \frac{\ln^2 C}{2} + \beta_5 \ln L \ln C + \varepsilon$$

Our output-measure is total sales, although physical output or value added would be better measures. As physical output is not available in the panel, and value added is difficult to calculate, we decided to use sales according to Addison et al. (2003, p. 13). Labour input is proxied by the number of employees; capital is proxied by the re-investment average of the base year and the year before. Additional control variables, available in the IAB-Panel, are the state of production-facilities (index from 1 (state of the art status) to 5 (completely out of date)), the export-quota as a proxy of international competitiveness or pressure, the share of highly qualified employees (white-collar workers for qualified work, executives, firm-owners), the share of part-time workers, the share of apprentices, a dummy which takes the value 1 if the firm is a stand-alone firm (not a branch plant), a dummy which takes the value 1 if the firm invested in information- and communication-technology, and finally, the dummy which takes the value of 1 if a works council is present in the firm.

### **Testing hypothesis 1**

The results for the sample of all firms, testing hypothesis 1, are presented in Table 2.

Table 2: OLS-regression of the productivity effects – all firms

Dependent variable: ln sales

<b>Independent Variables</b>	<b>Coefficient (p-value)</b>
In Capital	-0,280 (0,000)***
In Employees	1,386 (0,000)***
In Capital <sup>2</sup>	0,019 (0,000)***
In Employees <sup>2</sup>	-0,054 (0,000)
In Employees * In Capital	-0,006 (0,194)
State of production-facilities	-0,031 (0,003)***
Export-quota	0,006 (0,000)***
Share of high-qualified employees	0,007 (0,000)***
Share of part-time workers	-0,009 (0,000)***
Share of apprentices	-0,006 (0,000)***
Dummy standalone-firm	-0,211 (0,000)***
Dummy investment in new technologies	0,061 (0,000)***
Dummy works council presence	0,142 (0,000)***
Constant: yes	
Year dummies: yes	
41 industry dummies: yes	
adj. R <sup>2</sup> = 0,621	
N = 7120	

\*\*\*, \*\* significant at the 1% or 5% level.

Source: IAB-Establishment Panel, Waves 8 - 12, controlled remote data access via the Research Data Center (FDZ) of the Federal Employment Service (BA) in the Institute for Employment Research (IAB)

These results are similar to some of those presented in Table 1: the presence of a works council increases the productivity. This effect is statistically significant at conventional levels. The control variables are significant and their signs of the expected direction. The technology-parameters (coefficients of the production function) do not reveal much separately.<sup>11</sup>

The second indicator of firm performance is profitability. The theoretical considerations imply that it is lower due to rent-seeking activities by

<sup>11</sup> See e.g. Addison et al. (2003) for construction of the output-elasticities.

employees. The IAB-Panel, unfortunately, does not provide firm profits in numbers, but in an index from 1 (very good) to 5 (insufficient). We chose Ordered-Probit estimation as an appropriate procedure to take this into account. Independent variables are the number of employees as a proxy for firm-size (and its square to check for non-linearity), the state of production-facilities, export-quota, percentage of highly qualified employees and the works-council dummy as above. Additionally, we check for an effect of collective agreements by a dummy which takes the value of one if a firm-level or sectoral-level collective agreement applies to the firm. The results for the sample of all firms are given in Table 3.

Table 3: Ordered-Probit-regression of the profitability-effects – all firms

Dependent variable: profits (index from 1 = good to 5 = insufficient)

<b>Independent Variables</b>	<b>Coefficient (p-value)</b>
Employees	0,003 (0,330)
Employees <sup>2</sup>	-2,145E-0,5 (0,427)
State of production facilities	0,172 (0,000) <sup>***</sup>
Collective agreement	0,044 (0,112)
Export-quota	-0,004 (0,000) <sup>***</sup>
Share of high-qualified employees	-0,001 (0,328)
Dummy works council presence	0,110 (0,000) <sup>***</sup>
Constant: yes	
Year dummies: yes	
41 industry dummies: yes	
Pseudo-R <sup>2</sup> : Cox and Snell = 0,067	
Nagelkerke = 0,071	
McFadden = 0,024	
N = 7969	

<sup>\*\*\*</sup>, <sup>\*\*</sup> significant at the 1% or 5% level.

Source: IAB-Establishment Panel, Waves 8 - 12 (controlled remote data access via FDZ)

As the theoretical considerations imply, the works council effect on profits is negative (note that in this case a positive coefficient indicates a negative effect of the variable on profits due to the construction of the index). Interestingly, there seems to be no effect of collective bargaining. This may be caused by the fact that although most employers and employees are neither member of an employer's association nor a union, most of the German wages are influenced by collective agreements (Möschel et al. 2005). Thus it is not surprising that there are no significant differences between firms with and without a collective agreement. The state of production facilities and the export quota are statistically significant and the signs are as expected. The share of high-qualified employees, and the firm's size (number of employees) have no effect. The empirical results so far are in favour of hypothesis 1.

### **Testing hypothesis 2**

Now we turn to heterogeneity in firms, i.e. hypothesis 2: Theoretical considerations imply that the positive effects of works councils should be smaller in firms with a heterogeneous employment structure. To check this, we applied regressions as above but for different sub-samples of firms, differentiated by the share of high-qualified employees on the payroll. The results for the effects of the works council variable are summarized in Table 4.

Table 4: Summary of works council effects on productivity – separated by share of highly qualified employees

Dependent variable: ln sales

Share of highly qualified employees	Coefficient (p-value)	N, adj. R <sup>2</sup>
0-20% HQ	0,139 (0,000)***	N = 2981; adj R <sup>2</sup> = 0,619
20-40% HQ	0,122 (0,000)***	N = 1841; adj R <sup>2</sup> = 0,628
40-60% HQ	0,103 (0,053)	N = 783; adj R <sup>2</sup> = 0,629
60-80% HQ	0,069 (0,311)	N = 551; adj R <sup>2</sup> = 0,633
80-100% HQ	0,189 (0,004)***	N = 964; adj R <sup>2</sup> = 0,545

\*\*\*, \*\* significant at the 1% or 5% level.

Source: IAB-Establishment Panel, Waves 8 - 12 (controlled remote data access via FDZ)

Again, the theoretical considerations hold: the positive productivity effects of works councils are only present in firms with a low percentage of highly qualified employees, while it is insignificant in firms where the workforce is “divided” around 50%<sup>12</sup>. The positive productivity effect returns for very high shares of qualified employees. This result confirms hypothesis 2 on the part of the productivity effect.<sup>13</sup>

We examine the same sub-samples for the question of firm profitability. Theoretical considerations in this case are not completely clear. In firms without a homogeneous workforce, rent-seeking may be high and therefore profits lower, even if there are large positive productivity effects in this case. A heterogeneous workforce, on the other hand, may not be able to pursue any actions reducing the company’s profits, so the works councils may not have any effect at all in those firms. But it may also be possible that, without having positive influences on productivity, the groups leading the works councils may be able to get personal profits or to prevent profitability-increasing measures by firms, reducing firm-profitability. The results are given in Table 5.

<sup>12</sup> This is especially true for the sub-sample with 60-80% HQ, while the 40-60% group is weakly significant if we apply the 10% level of significance.

<sup>13</sup> Though, we have to treat the results with some caution as the number of observations is lowest for the insignificant sub-samples.

Table 5: Summary of works council effects on profitability – separated by share of highly qualified employees

Dependent variable: profits (index from 1 = good to 5 = insufficient)

Share of highly qualified employees	Coefficient (p-value)	N, pseudo-R <sup>2</sup>
0-20% HQ	0,144 (0,003) <sup>***</sup>	N = 3186; pseudo-R <sup>2</sup> : C&S = 0,080; NK = 0,085 ; McF = 0,029
20-40% HQ	0,147(0,012) <sup>**</sup>	N = 1951; pseudo-R <sup>2</sup> : C&S = 0,089; NK = 0,094 ; McF = 0,032
40-60% HQ	0,092 (0,317)	N = 835; pseudo-R <sup>2</sup> : C&S = 0,138; NK = 0,145 ; McF = 0,050
60-80% HQ	0,199 (0,078)	N = 591; pseudo-R <sup>2</sup> : C&S = 0,175; NK = 0,185 ; McF = 0,064
80-100% HQ	0,016 (0,847)	N = 1058; pseudo-R <sup>2</sup> : C&S = 0,084; NK = 0,089 ; McF = 0,030

<sup>\*\*\*</sup>, <sup>\*\*</sup> significant at the 1% or 5% level.

Source: IAB-Establishment Panel, Waves 8 - 12 (controlled remote data access via FDZ)

The negative profitability effects are only present in firms with lower share of highly qualified employees and turn insignificant for the others. While productivity increases for those companies, rent-seeking seems to reduce profitability. Interestingly, this is not the case for companies with a high share of high-qualification employees: while there is a positive productivity effect for those firms, there is no negative profitability effect.<sup>14</sup> An interpretation may be that highly qualified employees are less interested in rent-seeking. This may be due to higher salaries and better employment opportunities for this group, compared to lowly qualified workers. For a heterogeneous workforce, the theoretical consideration that rent-seeking is difficult when there is no clear majority seems to be more likely against the background of the results.

<sup>14</sup> Only if we apply the 10% level of significance, there is a weakly significant negative effect in the sub-sample of 60-80% HQ.



### Testing hypothesis 3

Our last investigation concerns the question if profitability is influenced in companies with a works council when a collective agreement is present. Theoretical considerations imply that in companies where a collective agreement is present, there should be a reduced (negative) profitability effect of works councils as rent-seeking is kept out of the firm to an increased degree (Freeman and Lazear 1995, p. 32). We estimate this by an interaction term which takes the value of 1 if the firm has a works council and a collective agreement is present. The results for all firms and the subgroups are presented in

Table 6.

Table 6: Summary of interaction of works councils with collective agreements

Dependent variable: profits (index from 1 = good to 5 = insufficient)

Share of highly qualified employees	Coefficient (p-value)	N, pseudo-R <sup>2</sup>
All firms	-0,061 (0,296)	N = 7621; pseudo-R <sup>2</sup> : C&S = 0,067; NK = 0,071 ; McF = 0,024
0-20% HQ	-0,027 (0,783)	N = 3186; pseudo-R <sup>2</sup> : C&S = 0,080; NK = 0,085 ; McF = 0,029
20-40% HQ	0,153 (0,170)	N = 1951; pseudo-R <sup>2</sup> : C&S = 0,090; NK = 0,095 ; McF = 0,033
40-60% HQ	-0,368 (0,048)**	N = 835; pseudo-R <sup>2</sup> : C&S = 0,142; NK = 0,150 ; McF = 0,052
60-80% HQ	-0,586 (0,007)***	N = 591; pseuro-R <sup>2</sup> : C&S = 0,185; NK = 0,195; McF = 0,069
80-100% HQ	0,066 (0,681)	N = 1058; pseudo-R <sup>2</sup> : C&S = 0,084; NK = 0,089 ; McF = 0,030

\*\*\*, \*\* significant at the 1% or 5% level.

Source: IAB-Establishment Panel, Waves 8 - 12 (controlled remote data access via FDZ)

The results for all firms seem to show no influence of collective bargaining on works council effects, rejecting hypothesis 3. However, turning to the subgroups, there is a significant positive effect on profitability if there is a collective agreement in a firm with a works council in firms with around 50% of highly qualified employees. So it seems that the insignificant effect of works councils on profitability in those firms is at least supported by a collective agreement, although the collective agreement itself has no significant effect on its own. This hypothesis is supported by the significant positive coefficient of the works councils (meaning reduced profits) in those two estimations<sup>15</sup>, which now represent the effect of a works council when no collective agreement is present.

## V. Conclusions

The results of the theoretical as well as the empirical analysis show that the effect of works councils differs from firm to firm. With a low share of highly qualified employees, there is a positive effect of works councils on productivity but a negative one on profitability. With an increasing share of highly qualified employees, both effects turn insignificant, while the productivity effect returns for firms with very high rates. In either case, this reduces the argument for a law concerning works councils especially against the background of structural changes. Laws cannot consider heterogeneous situations in firms beyond a certain degree. In firms with few highly qualified employees, the problem is the reduced profitability which may lead to less investment in Germany or relocation of firms to other countries. This is particularly relevant as these firms face strong international competition and lowly qualified workers are the major problem on the German labour-market.<sup>16</sup> With higher rates of highly qualified employees, there is either no positive or negative effect at all. Thus works councils seem to be pointless. At the same time, the positive productivity effect

---

<sup>15</sup> Results not presented here.

<sup>16</sup> See Renaud (2006) for a comprehensive analysis of the structural change in this context.

in companies with a very high share of highly qualified employees is not accompanied by negative profitability effects, which should lead to a voluntary implementation of codetermination, at least there should not be much resistance by firms (although the law should not do much harm in this case).

Although it is not yet possible to examine the long-term effects of codetermination, structural changes in industrialized countries lead to more competition especially among firms with a lower share of highly qualified employees and to higher employment of highly qualified workers. This development reduces the case for codetermination by law.

## References

Addison, John T. and Paulino Teixeira (2004): *The Effect of Worker Representation on Employment Behaviour in Germany: Another Case of - 2,5%*, IZA Discussion Paper, No. 1188, 2004.

Addison, John T., Lutz Bellmann, Claus Schnabel and Joachim Wagner (2004a): The reform of the German works constitution act: a critical assessment, *Industrial Relations*, Vol. 43, 2, pp. 392-420.

Addison, John T., Lutz Bellmann and Arnd Kölling (2004b): Works Councils and Plant Closings in Germany, *British Journal of Industrial Relations*, Vol. 42, 1, pp.125-148.

Addison, John T., Thorsten Schank, Claus Schnabel and Joachim Wagner (2003): *German works councils in the production process*, IZA Discussion Paper, No. 812, 2003.

Addison, John T., Thorsten Schank, Claus Schnabel and Joachim Wanger (2005): *Do Work Councils Inhibit Investment?*, Diskussionspapiere des Lehrstuhls für VWL, insbes. Arbeitsmarkt- und Regionalpolitik, Prof. Dr. Claus Schnabel, No. 32, 2005.

Addison, John T., Stanley Siebert, Joachim Wagner and Xiangdong Wei (2000): Worker Participation and Firm Performance: Evidence from Germany and Britain, *British Journal of Industrial Relations*, Vol. 38, 1, pp. 7-48.

Dilger, Alexander (2003): Economic effects of co-determination, in: W. Müller-Jentsch and Weitbrecht, H. (eds.), *The changing contours of German industrial relations*, Munich, pp. 119-135.

Freeman, Richard B. and Edward P. Lazear (1995): An Economic Analysis of Works Councils, in: J. Rogers and Streeck, W. (eds.), *Works Councils: Consultation, Representation, and Cooperation in Industrial Relations*, Chicago, pp. 27-50.

Frick, Bernd (2002a): 'High performance work practices' und betriebliche Mitbestimmung: komplementär oder substitutiv? *Industrielle Beziehungen*, Vol. 9, 1, S.79-102.

Frick, Bernd (2002b): Ökonomische Analyse der deutschen Betriebsverfassung, in: D. Sadowski and Walwei, U. (eds.), *Die ökonomische Analyse des Arbeitsrechts*, pp. 213-236.

Frick, Bernd and Iris Möller (2003): Mandated works councils and firm performance: labor productivity and personnel turnover in German establishments, *Schmollers Jahrbuch*, Vol. 123, 3, pp. 423-454.

Jensen, Michael C. and William H. Meckling (1979): Rights and Production Functions: An Application to Labour-managed Firms and Codetermination, *Journal of Business*, Vol. 52, 4, pp. 469-506.

Kölling, Arnd (2000): The IAB-Establishment Panel, *Schmollers Jahrbuch*, Vol. 120, 2, pp. 291-300.

Möschel, Wernhard, Heinz Lampert and Michael Schneider (2005): Wozu (heute noch) Gewerkschaften, Tarifautonomie und Flächentarifverträge? *Ifo-Schnelldienst*, Vol. 58, 2, pp. 3-15.

Renaud, Simon (2006): *Betriebsräte und Strukturwandel*, Jenaer Schriften zur Wirtschaftswissenschaft, No. 04/2006.

Schank, Thorsten, Claus Schnabel and Joachim Wagner (2004): Works councils: sand or grease in the operation of German firms? *Applied Economics Letters*, Vol. 11, 3, pp. 159-161.

Wolf, Elke and Thomas Zwick (2002): *Reassessing the impact of high performance workplaces*, ZEW Discussion Paper, No. 02-07.

# Jenaer Schriften zur Wirtschaftswissenschaft

## 2006

- 1 Roland **Helm** und Michael **Steiner**: Nutzung von Eigenschaftsarten im Rahmen der Präferenzanalyse - Eine Meta-Studie, Diskussion und Empfehlungen.
- 2 Uwe **Cantner** und Jens J. **Krüger**: Micro-Heterogeneity and Aggregate Productivity Development in the German Manufacturing Sector.
- 3 Roland **Helm**: Implication from Cue Utilization Theory and Signalling Theory for Firm Reputation and the Marketing of New Products.
- 4 Simon **Renaud**: Betriebsräte und Strukturwandel.
- 5 Wolfgang **Schultze**: Anreizkompatible Entlohnung mithilfe von Bonusbanken auf Basis des Residualen Ökonomischen Gewinns.
- 6 Susanne **Büchner**, Andreas **Freytag**, Luis G. **González** und Werner **Güth**: Bribery and Public Procurement - An Experimental Study.
- 7 Reinhard **Haupt**, Martin **Kloyer** und Marcus **Lange**: Patent indicators of the evolution of technology life cycles.
- 8 Wolfgang **Domschke** und Armin **Scholl**: Heuristische Verfahren.
- 9 Wolfgang **Schultze** und Ruth-Caroline **Zimmermann**: Unternehmensbewertung und Halbeinkünfteverfahren: Der Werteeinfluss des steuerlichen Eigenkapitals.
- 10 Jens J. **Krüger**: The Sources of Aggregate Productivity Growth - U.S. Manufacturing Industries, 1958-1996.
- 11 Andreas **Freytag** und Christoph **Vietze**: International Tourism, Development and Biodiversity: First Evidence.
- 12 Nils **Boysen**, Malte **Fliedner** und Armin **Scholl**: A classification of assembly line balancing problems.
- 13 Wolfgang **Kürsten**: Offenlegung von Managergehältern und Corporate Governance - Finanzierungstheoretische Anmerkungen zur aktuellen Kapitalismusdebatte.
- 14 Sebastian v. **Engelhardt**: Die ökonomischen Eigenschaften von Software.
- 15 Kristina **Dreßler** und Jens J. **Krüger**: Knowledge, Profitability and Exit of German Car Manufacturing Firms.
- 16 Simon **Renaud**: Works Councils and Heterogeneous Firms.
- 17 Roland **Helm**, Martin **Kloyer** und Gregory **Nicklas**: Bestimmung der Innovationskraft von Unternehmen: Einschätzung der Eignung verschiedener Kennzahlen.
- 18 Armin **Scholl**, Nils **Boysen** und Malte **Fliedner**: The sequence-dependent assembly line balancing problem.
- 19 Holger **Graf** und Tobias **Henning**: Public Research in Regional Networks of Innovators: A Comparative Study of Four East-German Regions.

## 2005

- 1 Reinhard **Haupt**: Patent analysis of a company's technology strength.
- 2 Axel **Braßler**, Christoph **Grau** und Herfried **Schneider**: Wissenslabor Betriebswirtschaft - Eine Lehr-, Lern- und Kommunikationsumgebung für die universitäre und betriebliche Aus- und Weiterbildung.
- 3 Wolfgang **Kürsten**: Risikomanagement und aktionsorientierte Unternehmenssteuerung - Mehr Fragen als Antworten.
- 4 Roland **Helm**, Reinhard **Meckl** und Nicole **Sodeik**: Wissensmanagement – Ein Überblick zum Stand der empirischen Forschung.
- 5 Uwe **Cantner**, Kristina **Dreßler** und Jens J. **Krüger**: Knowledge and Creative Destruction over the Industry Life Cycle - The Case of the German Automobile Industry.
- 6 Reinhard **Meckl** und Robert **Schramm**: Empirical evidence for a theory of international new ventures.
- 7 Andreas **Freytag**, Dirk **Schiereck** und Thomas W. **Thomas**: Consolidation and Market Power of Energy

## II

- Utilities - The case of US-American and German Utility Takeovers.
- 8 Roland **Helm** und Oliver **Mauroner**: New Firms from Research-based Spin-offs.
  - 9 Werner **Jammerneegg** und Peter **Kischka**: A Decision Rule Based on the Conditional Value at Risk.
  - 10 Roland **Helm** und Wolfgang **Stölzle**: Out-of-Stocks im Handel: Einflussfaktoren und Kundenreaktionsmuster.
  - 11 Uwe **Cantner**, Kristina **Dreßler** und Jens J. **Krüger**: Knowledge Compensation in the German Automobile Industry.
  - 12 Volkmar **Botta** und Martin **Köhler**: Zur Wertaufhellungskonzeption nach IAS 10.
  - 13 Roland **Helm** und Michael **Gehrer**: Zum Aufbau von Vertrauen in interaktiven Entscheidungsprozessen.
  - 14 Andreas **Feytag** und Donato **Masciandaro**: Financial Supervision Fragmentation and Central Bank Independence: The Two Sides of the Same Coin?
  - 15 Volkmar **Botta** und Adrian A. **Weinaug**: Behandlung von Investitionszulagen für Sachanlagen gemäß Investitionszulagengesetz bei freiwilliger Offenlegung des Einzelabschlusses nach § 325 Abs. 2a HGB.
  - 16 Volkmar **Botta** und Martin **Köhler**: Implikationen der Bestimmung des Cashflows aus betrieblicher Tätigkeit nach der direkten Methode.
  - 17 Uwe **Cantner**, Andreas **Nicklisch** und Torsten **Weiland**: Innovation races: An experimental study on strategic research activities.
  - 18 Markus **Pasche**: (Self-)Regulation of a Natural Monopoly via Complementary Goods -the Case of F/OSS Business Models.
  - 19 Markus **Pasche**: Das Vertrauensspiel – eine verhaltensorientierte Erklärung.
  - 20 Reinhard **Haupt** und Matthias **Korgel**: A Comparison between US and International Patent Classification as Input Data of a Technology Competition-Oriented Cluster Analysis.
  - 21 Wolfgang **Kürsten**, Reinhard **Meckl** und Andreas **Krostewitz**: Value-Based M&A-Management – der M&A-Prozess im Lichte des Shareholder Value-Prinzips.
  - 22 Simone **Martin**: Risikominimierung bei der Arbeitgeberwahl.
  - 23 Wolfgang **Kürsten**: Neoklassische Finanzierungstheorie - Eine didaktisch motivierte Einführung.
  - 24 Karsten **Korsa** und Simone **Martin**: Die Glaubwürdigkeit personalpolitischer Maßnahmen zur Signalisierung von Arbeitgeberattraktivität.