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The Course of Research into the Economic Consequences of German Works Councils

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ABSTRACT

The Course of Research into the Economic Consequences of German Works Councils*

In a survey published in the *British Journal of Industrial Relations*, Frege (2002) evaluates research on the German works council from the perspective of several disciplines, including economics. Ultimately, she concludes that economic analysis of the works council has reached a 'dead end'. The present treatment offers a very different conclusion based on a more encompassing review of the evidence. It will identify three distinct phases in the economic analysis of codetermination at the workplace. This framework is key to understanding the progress that has been made in analysing the effect of works councils on firm performance, while highlighting some important measurement issues and diversity of finding. Given the recent vintage of much of the German research, it is inevitable that Frege considers studies from just the first two phases. Rather interestingly, it is the neglected third phase of research that contains some of the most favourable evaluations to date of works council impact.

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1. Introduction

Research into the impact of works councils on firm/establishment performance dates from the mid- to late-1980s, with a series of articles by FitzRoy and Kraft (1985, 1987, 1990) that much exercised orthodoxy. Until then, it had largely been taken for granted that what was good for (certain identified aspects of) workplace relations necessarily benefited firm performance. FitzRoy and Kraft's altogether more pessimistic conclusion served to stimulate the economic analysis of works councils, even if progress was to be fitful because of data limitations. Almost from the outset, however, analysis of the likely economic consequences of works councils attracted considerable interest outside of Germany. This was because of the points of contact between the institution of the *Betriebsrat* and two important research strands of (Anglo-Saxon) industrial relations research: the union effects literature on the one hand and the employee involvement literature on the other.

In her recent survey article in the *British Journal of Industrial Relations*, Frege (2002) offers an assessment of research on works councils from the perspective of several disciplines. In addressing the ontology, practice, and transformation of works councils, she does a good job in setting the economics 'component' into wider research relief. That said, her summary of labour economics research is seriously incomplete. In the first place, not unnaturally she omits the very latest research based on the nationally representative Establishment Panel of the Institute of Labour Market Research (of the Federal Labour Office). Interestingly, this research contains some of the most optimistic evaluations of impact of the entity on firm performance. Second, she provides only a partial view of the developing economic literature up to that point, in discussing (citing) just four (eight) of the mainstream economic studies. Our own and necessarily still abbreviated review of the earlier literature will discuss (cite) seventeen (twenty-three) empirical studies and a wider range of performance outcomes. Third, her discussion compounds two distinct 'phases' of this earlier

literature – phases that are delineated among other things by major differences in sample sizes *and* in the reported effects of workplace codetermination on firm performance. The different technical issues and questions of interpretation that arise necessarily escape identification in Frege's narrative. Lastly, and of lesser importance, there are a number of factual errors in her treatment.[1]

Ultimately, Frege (2002, p. 239) appears to conclude that the economic analysis of the works council is at a 'dead end.' In the light of the preceding criticisms, we think it necessary to offer both a restatement and update of that part of Frege's treatment dealing with the economic effects of the German works council. In this endeavour, the three phases of research noted above provide an indispensable guide to the developing economic literature. We will conclude, contrary to Frege, that disputation in the literature is a far cry from it having reached a dead end.

2. The Three Phases of Economics Research

Research into the association between works councils and firm performance conforms to three distinct phases. The first phase is marked by the investigation (and *reinvestigation*) of small samples of firms in cross section. The second phase largely corresponds to the analysis of much larger data sets of a regional or industry-specific nature (with the one exception noted below). The third phase is characterised by the use of truly nationally representative data. The second and third phases each have a basis in panel data, although it has proved difficult to fully exploit the longitudinal nature of the new datasets because very few plants introduce or abandon works councils over the life of the panel. Also, as we shall see, the findings of works council effect differ between (and within) phases.

Phase 1: Small Sample Studies.

Results of what we have termed the first phase of research are contained in Table 1. Apart from their basis in small samples of firms, the hallmark of these Phase I studies is their generally

pessimistic view of works council operation. This is most obviously the case in the key studies by FitzRoy and Kraft (rows 1 through 3), which are also notable for their technical sophistication (namely, use of systems of equations).

(Table 1 near here)

As can be seen from the table, FitzRoy and Kraft exploit a common data set to investigate three outcome indicators: profitability (row 1), total factor productivity (row 2), and innovation (row 3). The unifying theme of all three studies is a *managerial pressure/managerial competence* model. Hard-driving managers are said to elicit greater effort from their workers and are rewarded with higher salaries and profits. This pressure exerted by management causes workers to join unions, and unionised workers get higher wages even if this is only partial compensation for their greater effort. Workers are also more likely to form a works council for defensive reasons. Yet efficient managers, so the argument runs, can institute adequate systems of communication and decision-making without the *impedimenta* of autonomous works councils (i.e. works councils are viewed as a constraint, not a potential source of efficiency gain). Managerial competence is thus expressed in a reduced probability of works council presence, partly because efficient managers pay higher wages.

In testing this managerial pressure/managerial competence model, it follows that FitzRoy and Kraft have to endogenise worker representation. In their profitability study, (workplace) union density is endogenised, while in their productivity study it is works council presence that is simultaneously estimated with total factor productivity (see rows 1 and 2, respectively). In recognition that union density may be more than an intervening variable, however, FitzRoy and Kraft subsequently argue that any adverse effect of the works council may be reinforced by workplace union density; that is, a works council is supposed to carry more weight in negotiations

where density is high and be more likely to take a hard line in conflict situations. In addition, FitzRoy and Kraft posit that a more highly organised workforce is more likely to elect a council. Accordingly, in their study of innovation, they now combine works council presence with union density to form an 'organised labour' variable (row 3). (Other attempts to examine the relation between unions and works councils will be noted below.)

What do FitzRoy and Kraft find from estimating systems of equations in this manner? In their study of financial performance, works councils are associated with sharply reduced profitability (row 1). In this case, however, recall that works council presence is taken to be exogenous, and only the nonrandom distribution of union density is modeled. In their productivity analysis (row 2), works council presence leads to lower total factor productivity. That is to say, purged of any (positive) feedback effect from productivity to works council presence, works councils are associated with lower productivity.

In both these studies the effect of unions is positive but the effect is indirect. However, as we have seen, in their row 3 study the role of the union is direct and now operates in tandem with works council presence to impede efficiency. FitzRoy and Kraft's simultaneous equation estimates of innovation (as proxied by the proportion of sales consisting of new products introduced over a five-year interval) and the composite work council measure point to a strongly negative effect running from workplace organization to innovation, with no reverse causality operating.

Most of the other studies of Phase 1 provide single-equation estimates. The major exception is the controversial study by Kraft (1986) in row 7 (see below). Together they fail to tell as consistent a story of works council impact as do the analyses of FitzRoy and Kraft. But of all the studies only Schnabel and Wagner (1994) report a favourable impact of the works council (row 4). In an analysis of innovative activity, this time measured by R&D intensity, these authors find a

marginally significant positive relation between works council presence and innovation among their sample of 31 establishments in a 1990 cross section. Interestingly in the light of our foregoing discussion, any such favourable impact is sensitive to workplace union density. The tipping point here is 51 per cent unionization. Once this threshold is breached, the favourable effect of the works council vanishes and the net effect of workplace representation turns increasingly negative.

Only one of the Phase I studies looks at investment in physical capital. In an analysis of investment – as measured by the ratio of gross capital formation to the capital stock – for a sample of a little over 50 manufacturing establishments in two German Länder in 1990/91, Addison, Kraft, and Wagner (1993) report that plants with works councils undertake significantly less investment than their codetermination-free counterparts (row 5). But if works council presence yields less favorable investment, this negative result does not apparently carry over to value added or to pretax profits in other of the authors' performance regressions.

Works council effects on a subjective measure(s) of profitability, as well as a measure of product innovation, are also found to be generally statistically insignificant in a study of industrial firms in Lower Saxony by Addison and Wagner (1997), based on a telephone interview of an initial sample of 175 establishments in 1993 (row 6 of the table). This study is notable for its attempt to gauge the degree of influence of the works council (see also below). The authors derive an index of works council 'voice' according to their reported involvement in four areas of decision making. A marginally significant negative association is found between the extent of works council voice and the achievement of high profitability, again as assessed by the manager respondent. By contrast, the coefficient estimates for a conventional works council measure are statistically significant throughout, whether presence is endogenised or not.

The last study in row 7 of Table 1 is noteworthy for its attempt to inquire into the black box of mechanisms through which works councils are supposed to achieve the benefits attributed to them. Pooling two years of data on metalworking firms (i.e. the same sample as subsequently used by FitzRoy and Kraft in the studies summarized in rows 1 and 2 of Table 1), Kraft (1986) regresses a dummy variable capturing low/high turnover among unskilled workers – manager respondents to the study questionnaire were asked whether unskilled worker quits were 'high' or 'low' – on an index of *individual* voice, works council presence (i.e. *collective* voice), a measure of training opportunities, firm size, and variables capturing production techniques and organisation structure. The novel individual voice argument is constructed on the basis of replies to questions as to the decision possibilities open to blue-collar workers in the areas of investment and rationalization, coordination of work groups, and the determination of job design. Kraft finds that turnover is materially reduced, the greater the opportunities for the exercise of individual voice. Interestingly, the œefficient estimate for collective voice/works council presence is positive (but imprecisely estimated), while all the other covariates are shown to have their expected effect on turnover.

One obvious cause for concern with the Phase I studies is the issue of sample size. The use of small samples should reduce the precision of the works council coefficient estimate and thus predispose any test against finding a works council effect. At the same time, problems of omitted variables bias are elevated by the limited number of controls, making it more difficult to attribute causality to even 'well-determined' associations in the data. In any event, we see that the findings offer little overt support to the work council institution irrespective of the outcome indicator – labour or total factor productivity, investment in physical or intangible capital, profitability, or even labour turnover – and some seemingly strong negative results for particular outcomes.

Two further issues have to do with how one measures the works council, although neither is confined to this phase of the research literature. As we have seen, the above studies identify the works council effect via the coefficient estimate for a dummy variable indicating presence of the entity or, less commonly, for predicted works council presence. An immediate problem is that most establishments over a certain size have works councils, while most plants under a certain size do not. In 2000, for example, just 9.1 per cent of German establishments employing between 5 and 20 employees had works councils whereas in plants with between 201 and 500 (over 500) employees the corresponding incidence was 80.6 (91.7) per cent. In other words, over certain ranges of employment one cannot hope to identify a works council effect using a measure based on presence of the entity. In the absence of other information on, say, works council *type*, one presumably has to work with samples of plants in which works council presence is more 'balanced'. (In this sense, there is no obvious indication of 'imbalance' in the Phase I studies.) And on the question of works council type, whatever the general disadvantage of small samples of firms from the perspective of statistical inference, it has to be recognized that the data sets used in Phase I have sometimes been rich enough to allow the researcher to gauge the degree of involvement of the institution in decision-making (the row 6 study) or to examine the relationship between the works council and workplace union density (rows 3 and 4). As we shall see, the parsimony of larger data sets in this regard has required alternative solutions to works council 'definition', such as prior structuring by sample size (i.e. examining size ranges within which the power of the works council is a datum), as well as reformulation of the 'collective bargaining' variable.

Finally, not all performance outcomes have received equal treatment in Phase I. In particular, there is a seeming neglect of the employment indicator. That being said, employment change (say) is a more ambiguous performance measure than outcomes such as productivity or

investment. For example, the attempt to recast the workplace into a form more adaptable to technical change or the abandonment of restrictive work practices may be manifested in slowed employment growth. As we have seen, only one of the Phase I studies examines employment (row 7) and is unconventional in focusing on a *subjective* measure of quits rather than an objective, continuous measure of turnover. However, the use of a subjective indicator can be informative. Thus, objective data may not be available for individual skill categories. More important, absent formalization of what constitutes an optimal quit rate, a manager's identification of excessive quits – or lack thereof – might usefully supplement objective data; for instance, indications of higher quit rates in plants without works councils may have no implications for efficiency when subjective data fail to identify turnover as problematic or 'high'.

Despite some real data strengths – including information on establishment variables – the bottom line is that the findings of the early research literature may not be representative by reason of sample size. Further, the circumstances of time and place may well cast a long shadow.

Phase II: The Emergence of Some New Large-Scale Data Sets

Studies of the next phase are able to exploit large-scale data sets, principally the Hannover Firm Panel and the NIFA-Panel. (For descriptions of each, see Brand, Carstensen, Gerlach, and Klodt, 1996, and Gerlach, Hübler, and Meyer, 2003; Schmidt and Widmaier, 1992, and Widmaier, 2001). The population of the former (four-wave) data set is all manufacturing establishments with at least five employees in the state of Lower Saxony. The actual sample of plants is stratified according to firm size and industry and yields around 1,000 establishments in 1994 (declining to a little over 700 establishments by the time of the fourth wave in 1997 by reason of sample attrition). The latter is a survey of all establishments in the machine-tool industry covering the period 1989-1999. The panel

has eight waves, the data for which were collected via a mail questionnaire. The sample base is approximately 6,000 companies, and the realised sample approximates 1,500 per wave.

There is also a third data set in the form of a nationally representative but older and employment-based survey of 2,392 private-sector firms, conducted in 1987 (see Büchtemann and Höland, 1989) Reflecting its narrower focus on employment issues, this data set has been used to investigate labour fluctuation alone (see below).

A summary of results from selected Phase II studies is provided in Table 2. The broad conclusion would be that works councils now appear in more favourable light than hitherto. The jury is still out on whether this outcome is a reflection of the unrepresentativeness of the Phase I studies, or instead indicative of an improvement in, or maturation of, the relationship between firms and their works councils flagged in the German industrial relations literature (in particular, see Kotthoff, 1994).

Four distinguishing characteristics of the Phase II studies can usefully be identified. First, there is a tendency to look for differences in works council impact by establishment size. There are several reasons for this. One is that works council authority (number of councilors, number of paid councilors, entitlements to information, and input in matters of personnel selection, etc.) is increasing in establishment size. Thus, it is prudent to structure tests by employment size categories within which the powers of the council do *not* vary. Another is the point made earlier that very large plants almost always have works councils and small plants seldom do. A further reason is that there are practical grounds for believing that the costs of the codetermination apparatus may be greater and the benefits smaller for specific categories of plant. Using data from the first wave of the Hannover Firm Panel, Addison, Schnabel and Wagner (2001), caution that where beneficial

outcomes are observed these tend to be confined to establishments with more than 100 employees (row 2 of Table 2).

(Table 2 near here)

Second, more attention is paid in the Phase II literature to labour turnover. Here the findings are seemingly at odds with findings from the single Phase I turnover study reviewed earlier. In her review, Frege (2002, pp. 237-38) chooses to emphasise the turnover issue, focusing on a study by Backes-Gellner, Frick, and Sadowski (1997) that uses data from the Büchtemann and Höland (1989) data set. Backes-Gellner et al. argue that skills formation and acquisition are a precondition for the success of the German model and that the works council promotes reliance investments (termed effective skill utilisation) by fostering cooperation between the two sides and safeguarding employment security. Their evidence is indirect, however, reflecting the lack of data on training in this data base. That is to say, rather than examining training investments directly, these authors mainly look to evidence on quit rates and dismissals, both of which are found to be materially reduced in the presence of works councils. Since this evidence was first reported by Frick and Sadowski (1995), the details given in row 1 of Table 2 pertain to this study.

Although data from the much richer Hannover Firm Panel do not always point to reduced quits in works council regimes – while also indicating that management in works council plants is more prone to complain that employment levels are excessive – they do nonetheless tell much the same employment story. Thus, for example, Addison, Schnabel, and Wagner (2001) find that hires, quits, and dismissals are all reduced in works council settings (row 2). The same tendency is evident in Dilger's (2002) analysis of personnel fluctuation using the NIFA Panel (row 6).

Since lower quits imply greater training, Frege is quite correct to rehearse the training argument. Indeed, in a recent Hannover study *not* summarised in Table 2, Gerlach and Jihrjahn

(2001) report that works council firms provide more (further) training than their codetermination-free counterparts. But further progress in identifying the work council role in this area optimally requires matched employee and employer data.[2] Such information would assist in identifying the effect of works councils on quits over and above the contribution of wages. And, to recall our earlier inference that the reduction in quits/increase in training investments under works councils might be excessive, it would also be useful to incorporate either argument in a production function test. Pending such analyses, this most direct of collective voice arguments is still strangely opaque.

Third, a rather interesting development in the Phase II literature is the emergence of a collective bargaining argument proper. The large-scale data sets either fail to contain information on union density or that information is unreliable. The new studies instead use the presence or otherwise of a collective bargaining agreement (at regional or industry level), which is analogous to the equally standard measure of 'union coverage' by virtue of the dual system of industrial relations in Germany. In its fullest application, the new variable is interacted with works council presence, so that works council impact (inter al.) is examined separately by collective bargaining regime. In particular, the study by Hübler and Jirjahn (2001) in row 3 of the table offers a formal test of Freeman and Lazear's (1995) argument that where a works council is embedded in an *external* collective bargaining framework – specifically, where the establishment is covered by collective agreement – this will serve to dissipate distributional squabbles at the workplace, thereby enhancing any pro-productive effect of the works council. Hübler and Jirjahn test the model using pooled data from two waves of the Hannover Firm Panel. They run separate regressions for labour productivity, wages, and firm quasi-rents (or profitability) in which both works council presence and collective bargaining coverage are endogenous variables estimated by a double-selection methodology. The productivity results offer support for the model: labor productivity is higher in works council

regimes but only where the establishment is covered by a collective agreement. The wage results are less compelling. That is to say, the idea that collective agreements can police rent-seeking behavior is undercut by the finding of higher wages in all works council establishments irrespective their collective bargaining coverage.[3]

The notion that strong collective bargaining can be beneficial is also encountered in Britain, where it has been argued that unions need to be strong if they are to be effective agents of collective voice (see Bryson, 2001). In the German case, the argument is particularly interesting because of the intriguing prospect of a decoupling of distribution from production issues, even if only partial. Since this application seems to hinge on bargaining external to the firm, an issue is raised by the growing tendency towards *company-level* collective agreements. The number of German firms bargaining at the company-level has tripled since 1990. We are unaware of any analysis of this development on performance outcomes, but as part of a future research agenda it would certainly be interesting to see – in the manner of the Phase I literature – whether the effects on workplace economic performance are differentiated when both the union and the works council are active at the company level.

The fourth theme of the Phase II literature is the inclusion of other employee involvement mechanisms and/or high performance work practices in the performance equations – variables that may complement works councils or possibly even substitute for them.[4] The distinction is important because it was an alleged shortfall of worker representation that prompted the recent reform of the Works Constitution Act (for the terms and a critique of which, see Addison, Bellmann, Schnabel, and Wagner, 2002). The main Phase II studies covering such workplace and personnel practices are reported in rows 5 and 6 of Table 2. But we should preface our review of this material with some brief remarks on the study in row 4 of the table that focuses on the interaction between works

councils and profit-sharing schemes for *managers*. In his analysis of data from the Hannover Firm Panel, Jirjahn (2002) finds that works councils are generally associated with higher labour productivity and that this effect is strengthened after allowing for management incentive schemes which are themselves pro-productive. However, as can be seen from the table, the coefficient estimate for the interaction term is negative, which the author interprets as consistent with two hypotheses: *either* profit-sharing management reduces the commitment value of agency in circumstances where the works council cannot foster trust and loyalty absent the cooperation of management, *or* management rent seeking is curbed by profit sharing and the works council is not so important for building cooperation in situations of reduced opportunism on the part of management. Although empirically inconclusive, conceptually this study represents a *development* of the underlying collective voice model in which improvements in firm performance are potential rather than guaranteed (see Addison and Belfield, 2003).

The last two studies in Table 2 return us to the issue of non-executive employee involvement mechanisms/high performance workplace practices.[5] Each exploits the NIFA-Panel for the machine-tools industry. This data set is of interest for three main reasons. First, it identifies a set of five such practices. Second, it contains management's assessment of the working relationship with the works council, albeit only for the sixth wave in 1996. Specifically, the NIFA survey asks the management respondent to rate the works council entity as (a) 'mostly antagonistic', (b) 'sometimes difficult', (c) 'unreservedly cooperative', (d) 'passive', and (e) 'excluded by management'. Third, the data set also records additional information on the degree of involvement of the works council. It can be seen from the table that the results of using this additional material are mixed. Thus, from the row 5 study it is the case that firms with works councils tend to use more high performance workplace practices than their works council-free counterparts but that the

number of such practices is highest where the institution is described by management as 'antagonistic'. More positively, from the more extensive study in the last row of the table, it can be seen that although the general tendency is for works council plants to record lower profitability this effect can apparently be negated by greater works council involvement. In addition, some beneficial effect of the works council on product innovation is detected in circumstances where its degree of involvement is above normal.

For all of the above reasons, the literature of Phase II is of no small interest. Even if they contain few if any technical innovations, the studies are noteworthy for their creative use of both existing and new variables such as establishment size, collective bargaining, and employee involvement. The use of these variables in performance equations has revealed the works council in more favourable light than the Phase I studies. As cases in point, consider the findings that works councils may be associated with higher productivity in larger plants; that the dual industrial relations system may allow the pro-productive potential of works councils to be realised; and that works council effects may be positive when taken in conjunction with other forms of employee involvement. To be sure, there remain a number of inconsistencies and ambiguities in the literature. A case in point is provided by profits outcome. Nearly all studies point to poorer financial performance in works council regimes, but what is the source of this deficit if – as is the case – wages and productivity do not emerge as consistent culprits? This ambiguity in turn only fuels the theoretical controversy over the efficiency implications of reduced profitability in the wider union literature.

As is the case for the Phase I studies, almost all the research summarised in Table 2 is cross sectional. A problem of statistical inference arises if the determinants of the key independent variable – works council presence (or type, or intensity) – are not accounted for. Works councils

may be introduced in circumstances of economic difficulty or advantage. Also, their introduction may reflect unobserved differences in the costs and benefits of the institution at plant level which may in turn be linked to the outcomes in which we are interested. As in the earlier literature, there have been some attempts to endogenise works council presence, although identification is always clouded. Further, if some permanent unobserved plant characteristic is associated with works council presence (inter al.) and the outcome indicator, accounting for the nonrandom distribution of the works council in cross section will not suffice. In short, biases of varying severity may attach to these Phase II estimates, and causality may remain an issue.[6] A final question is whether the above findings are representative given their regional and industrial composition of the two main data sets. This is the issue of external validity. Fortunately, in each of the above respects this is not the end of the story.

Phase III*: *The IAB Establishment Panel

The latest data set to be used by researchers is the Establishment Panel of the Institute for Labour Market Research (Institut für Arbeitsmarkt- und Berufsforschung/IAB) of the Federal Labour Office (Bundesanstalt für Arbeit). Each year since 1993 (1996), the IAB Establishment Panel has surveyed several thousand establishments from all sectors of the economy in western (eastern) Germany. The Establishment Panel is based on a stratified random sample – the strata are for 16 industries and 10 employment size classes – from the population of all establishments with at least one employee covered by social insurance. To correct for panel mortality, exits and newly-founded units, the data are augmented regularly, producing an unbalanced panel. Familiarly, the data are collected in personal interviews with the owners or senior management of the establishment. The purpose of the panel is to serve the needs of the Federal Labour Office, and so its focus is on

employment-related matters such as labour turnover, level and composition of employment, apprenticeship training, investments, and subsidies (see Kölling, 2000).

Although information on most variables is collected for each wave of the panel, this is not exactly true for the works council variable. The works council question was asked of all establishments in 1993, 1996, 1998, and 2000, and in the 'missing' years only of panel accessions. Other questions have been asked on a less regular basis. Examples include questions on employee share ownership and profit sharing, teamworking, devolved decision-making, as well as additional information on training and the goals of training programmes (all of which arguments have variously been used to identify employee involvement /high performance work practices).

(Table 3 near here)

Table 3 provides a snapshot of some of the very latest research using the IAB Establishment Panel. The information in the first two rows of the table provides a rather rosy picture of works council operation. This is particularly true of the studies by Frick (2001b, 2002), summarised in row 1 of the table. At the time, Frick provided only the second works-council-in-the production-function test for Germany – the first being the Phase I analysis of Addison, Kraft and Wagner (1993) (see row 5 in Table 1). Frick uses the question in the Establishment Panel asking for information on 'replacement investment' (i.e. depreciation) as a rough proxy for the capital stock. He estimates production functions for two cross sections of data (1998 and 2000), and reports that labour productivity is as much as 25 to 30 per cent higher in works council regimes.

The production-function study by Wolf and Zwick (2002) in row 2 also presents an upbeat picture of works council impact. Thus, for the 1999 cross section, the authors obtain positive and statistically significant coefficient estimates for the works council dummy variable, albeit somewhat less flamboyant ones than are obtained by Frick. Wolf and Zwick are more concerned with the

effects of (two sets of) high performance workplace practices (rather than codetermination) on output and with the methodological problems that arise from the endogeneity of the decision to introduce these measures and from unobserved establishment characteristics. (The two sets of workplace practices are *organisational changes*, comprising the delegation of responsibility and decisions to lower levels of the hierarchy, teamwork, and workgroups with an independent budget, and *incentives* to include employee share ownership and profit sharing.) In recognition of these potential biases, the authors provide panel estimates of a Cobb-Douglas production function for 1996-99 to calculate an unobserved time invariant fixed effect for each establishment in their sample – the equation including just the time-variant input factors as regressors. In a second stage, these fixed effects are regressed on the HPWP and other time-invariant determinants including the presence or otherwise of a works council, with and without controlling for the endogeneity of the HPWP measures. The coefficient estimate of the works council variable is again positive and statistically significant, although we should note that the procedure amounts to a cross-section test of the works council effect.[7] Interestingly, the effects on productivity of the two sets of high performance workplace poractices identified in the study are reversed once unobserved plant heterogeneity and selection are accounted for. Specifically, those practices fostering employee involvement (such as teamworking) now have a significantly positive impact on productivity whereas the incentive bundles (such as profit sharing) become statistically insignificant.

In contrast to these studies, the two remaining Phase III treatments summarised in Table 3 each suggest that establishments with and without a works council do not exhibit statistically significant differences in efficiency. In the row 3 study, Schank, Schnabel, and Wagner (2002) estimate a fixed effects frontier production function separately for each of the two workplace regimes and then compare technical efficiencies of median plants in the two regimes. Only plants

with between 21 and 100 employees (throughout the 1993-2000 sample period) are included on the grounds that over this size interval the powers of the works council are a datum and to avoid any potential bias in the estimated impact of a works council due to size effects (the point that very large plants almost always have a works council whereas small plants seldom so). The confidence intervals of the reported technical efficiency estimates for the two plants overlap, leading the authors to conclude that there is no evidence that works council plants are any more efficient than their works council-free counterparts.

Alone among the studies, the final analysis in row 4 of the table formally exploits changes in works council status through time. Since its focus is upon recent changes in the law facilitating works council formation – namely, the 2001 Works Constitution Reform Act – its concern is with the introduction of works councils rather than with their introduction *and* dissolution. The empirical strategy of this paper by Addison, Bellmann, Schnabel, and Wagner (2002) is dominated by the selection problem, noted above. The authors thus use a formal matching model to effect a comparison between establishments that subsequently experienced the election of a works council and their closest counterparts from among the firmament of (1,513) plants that remained continuously free of works council period over the sample period. Unlike the other studies in Table 3 that focus exclusively on productivity, this study considers changes in the quit rate, in employment, and in the profit situation over the sample period – as well as changes in productivity.[8] No statistically significant differences between the treatment group and the controls are reported for any of these performance outcomes. In short, the establishment of a work council does not appear to have a causal effect on mainstream economic performance outcomes.

In outlining some key Phase III results,[9] we have evidently traveled a long way from our starting point. The Phase I literature pointed to some really rather alarming adverse consequences of

works council presence. The tenor of Phase II studies, while not uniformly supportive of works councils, however, provides a number of circumstances in which beneficial net works council effects might obtain. And, initially at least, the Phase III research using nationally representative data seemed unreservedly favourable to works councils.

3. Conclusion

In this restatement and update of a burgeoning body of empirical research into the economic consequences of works councils, we have characterised the developments as conforming to three distinct stages. The wide swings in the research findings convey a certain drama. Indeed, in neglecting the deliberations of the Kommission Mitbestimmung (1998) and the public debate leading up to the recent changes in the Works Constitution Act, we have if anything understated this tension (but see Addison, Bellmann, Schnabel, and Wagner, 2002).

Although the empirical findings are not tidy, it would be a mistake to conclude that research into the economic consequences of works councils has stalled or otherwise reached a dead end. The following itemisation might help clarify what we have learned and what we need to know more about. First, it would appear to be the case that the early literature *either* encouraged an overly pessimistic view of the impact of works councils on net, *or* that the functioning of works councils has improved since then. Second, turning to the subsequent literature, the average works council 'effect' would appear to obscure some systematic differences by establishment size, collective bargaining coverage, and employee involvement mechanism. Thus, if it seems to be the case that small establishments have been and may continue to be disadvantaged by this particular form of workplace representation, it might also be true that large plants would have had to invent something akin to works councils in the absence of their being mandated under law. For its part, collective

bargaining coverage may assist in decoupling distribution from production issues, and help focus the works council on the latter. And some forms of employee involvement/high performance workplace practices may be highly productive in works council regimes. Third, excessive admiration of the institution is as misplaced as excessive revulsion towards it. Some of the latest estimates of the effect of works councils on labour productivity are likely to seduce. But we have argued that they need to be taken with more than a pinch of statistical salt, and have provided evidence suggesting that works council effects on average are likely to be small.

Enough has been said to indicate that we do not intend this attenuated but important conclusion to be read as establishing a (German) case for works councils, although we recognize that those who have always viewed the economic case for works councils as secondary to the requirements of equity (i.e. industrial democracy) will probably regard it as decisive. Rather, our conclusion would be that research should now focus on the factors that produce shifts around this average relation. Data limitations remain a major concern in this regard but problems stemming from the lack of variation in works council status over time should at least be eased by recent changes in the law that portend an increase their frequency.

Endnotes

1. Thus, for example, Frege (2002, p. 236) incorrectly attributes the *management pressure/competence* argument (see below) to Addison, Kraft, and Wagner (1993) rather than to FitzRoy and Kraft (1985, 1987, 1990). Second, she argues that the study by Addison, Kraft, and Wagner (1993) does not have a sufficiently large control group of firms without works councils, gives no information on the size of firms in the sample, and indeed fails to indicate whether size is controlled for (Frege, 2002, p.237). In fact, Addison, Kraft, and Wagner state that codetermination-free establishments make up 40 per cent of this particular sample, provide descriptive statistics on firm size (measured by employment) in an appendix table, and in each of their regressions provide the coefficient estimates for this size variable. Third, in addressing the findings of Addison, Schnabel, and Wagner (1997), Frege (2002, p. 237) is in fact referring to findings from Addison, Siebert, Wagner, and Wei (2000). We do not further address either of these studies here, other than to note that the former estimates a linear probability model of works council presence for Germany while the latter offers a *cross-country* test of the Freeman-Lazear (1995) model discussed by Frege (2002, pp. 234-235).

2. The broad data base used in the Phase III studies (see below) in principle permits this matching of employee with establishment data.

3. An anomalous result is the authors' finding of a positive albeit statistically insignificant association albeit between their profit measure and works council presence.

4. Actually, the interplay between works councils and employee involvement mechanisms is set to become the linking theme or bridge between the various research phases. Thus, in a follow-up study, FitzRoy and Kraft (1995) qualify their earlier harsh interpretation of works council impact on establishment performance. They now report a well-determined positive association between works councils and productivity in profit sharing regimes. Among firms that do not practice profit sharing, however, the works council effect on productivity is still negative and statistically significant.

5. Not reported in Table 2 are the negative results of Schedlitzki (2002), who examines the effect of works councils, employee involvement, and their interaction on establishment *profitability* using data from the 1996 wave of the Hannover Firm Panel. Schedlitzki finds that establishments where there is employee involvement but no works council have higher profitability than their counterparts with workplace representation. She interprets her findings as consistent with the managerial pressure/managerial competence hypothesis encountered earlier – namely, that efficient managers

can institute adequate systems of communication and decision-making without the distraction of autonomous works councils.

6. Apart from selection and unobserved heterogeneity biases, another potential problem is that only the most productive works council establishments survive (i.e. are observed in the data), causing any beneficial works council productivity effect to be overstated. We have no direct information on survivability bias, but for an analysis of the effect of works councils on plant closings using the IAB Establishment Panel that suggests this could be the case – that is, works councils are associated with more closings – see Addison, Bellmann, and Kölling (2002).

7. Also note that the fixed component of the unobserved heterogeneity in the second stage may still be correlated with the observed firm-level characteristics. As a result, the finding of a positive works council effect may have no causal interpretation.

8. The change in productivity is proxied by the change in sales per employee rather than the more conventional value added per employee measure because the data set has an unusually large number of missing values for purchases of intermediate products – a crucially important consideration given the small number of plants with new councils. As a practical matter, however, we find the course of sales and value added per employee to be highly correlated between 1996 and 2000.

9. Our discussion of the most recent literature is meant to be thematic rather than exhaustive of the modern studies. Thus, a recent paper by Zwick (2003) takes one of the two sets of workplace practices identified in Wolf and Zwick (2002), namely *organizational changes*, and investigates whether their effects differ in workplaces with and without work councils. The endogeneity of works councils is handled in a switching regression model. It emerges that the pro-productive effects of such organizational changes are confined to workplaces with works councils. For their part, separate works council effects are similar to those estimated in Wolf and Zwick (2002). Another paper by Addison, Schnabel, and Wagner (2003) provides a sensitivity analysis of the works council effect. It is shown that the large positive coefficient estimates for the works council variable reported in the literature are above all sensitive to establishment size. In establishments with 21-100 employees, where works council powers are a datum and where there is a 'balanced' representation of both types of workplace regime, the coefficient estimates for the works council dummy plummet, are negative for west German manufacturing, and are typically statistically insignificant. These and other of the authors' results support the notion that there are likely to be

few differences *on average* between plants with works councils and plants without them, consistent with the findings of the studies in rows 3 and 4 of Table 3.

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Table 1
The Economic Impact of the Works Council – Phase I Studies

Study	Data	Dependent variable(s)	Methodology	Findings
1. FitzRoy and Kraft (1985)	Pooled data for 1977 and 1979 on 61/62 firms in the metal-working industry.	Profitability, union density, wages, and salaries.	Four-equation system estimated by 3SLS. Detailed firm controls. Work council presence not endogenised.	Union density has a positive and statistically significant effect on profitability (and on wages and salaries). Coefficient estimate for works council dummy is negative and statistically significant in the profit equation.
2. FitzRoy and Kraft (1987)	As above.	Total factor productivity and works council presence.	Two-equation system.	Work council presence associated with a significant reduction in productivity. Union density effects positive and statistically significant throughout.
3. FitzRoy and Kraft (1990)	57 metal-working firms, 1979.	Innovation , as proxied by the proportion of sales consisting of new products introduced in the preceding five years, and an 'organized labour' measure derived from the interaction of the works council dummy and union density.	Two-equation system.	Organised labour covariate is associated with a statistically significant reduction in innovative activity.
4. Schnabel and Wagner (1994)	31 manufacturing establishments in two German states, 1990.	Proportion of revenues spent on R&D in 1979.	Single-equation Tobit model. Parsimonious specification.	Coefficient estimate for works council dummy is positive and marginally statistically significant. Union density has strongly negative effect on R&D intensity.
5. Addison, Kraft, and Wagner (1993)	c. 50 establishment sample from same data as in row 4 study above.	Profitability, value added, and investment.	Single-equation specifications estimated by least median of squares/reweighted least squares.	Mixed pattern of generally statistically insignificant coefficient estimates for the works council dummy variable. But the works council effect is negative and statistically significant in the case of investment in physical capital.
6. Addison and Wagner (1997)	74 manufacturing establishments in one German state, 1993.	Subjective measure of 'high profitability" and an innovation measure (introduction of a new product in 1992).	Probit models. Three works council indicators: works council presence, degree of participation or voice of the works council, and an instrument for the presence of a works council.	Mixed pattern of generally statistically insignificant coefficient estimates for all three works council variables. The exception is the degree of works council involvement measure which is negatively associated with high profitability, albeit only at the 10% level.
7. Kraft (1986)	As for the studies in rows 1 and 2.	Subjective measure of 'high quits' and a synthetic measure of 'individual voice', in each case for unskilled workers.	Simultaneous system of probit equations.	Individual voice, but not collective voice (as proxied by works council presence), serves to significantly reduce high turnover.

TABLE 2

The Economic Impact of the Works Council – Phase II Studies

Study	Data	Dependent variable(s)	Methodology	Findings
1. Frick and Sadowski (1995)[a]	1,616 firms taken from a nationally representative survey of 2,392 for- profit enterprises in the manufacturing and service sectors. Data cover the interval May 1985-April 1987.	Quit and dismissal rates.	Single-equation log-odds model estimated by OLS.	Works council presence associated with statistically significant reductions in quits and dismissals (2.4 and 2.9 percentage points, respectively).
2. Addison, Schnabel, and Wagner (2001)[b]	c. 900 establishments from the 1994 wave of the Hannover Firm Panel (see text). Detailed establishment and industry controls.	Value-added per worker; subjective measure(s) of financial performance; wages and salaries per employee (and the percentage 'wage gap'); three labour turnover measures (hires, separations, and gross turnover); and two measures of innovation (introduction of new processes/products).	Single-equation estimates. Separate results for all establishments and a subset of plants with 21-100 employees	Works council presence associated with higher labour productivity overall, but not for establishments with 21-100 employees. Profitability systematically lower in the presence of works councils. Wages are higher when there are works councils but the sources of these higher earnings are not transparent. All labour turnover measures are reduced in the presence of works councils other than for the subset of smaller establishments. Neither process nor product innovation is materially influenced by works council presence.
3. Hübler and Jirjahn (2001)	Pooled data from the 1994 and 1996 waves of the Hannover Firm Panel (see text). Detailed establishment and industry controls, including whether or not the plant is covered by an (external) collective agreement.	Value added per worker; wages and salaries per employee; and establishment quasi-rents (measured by value-added less raw materials and wages divided by the number of employees).	Bivariate probit maximum likelihood estimates of works council presence and coverage by a collective agreement to form selection arguments in the outcome equations	Positive effect of works council on productivity measure is statistically significant only where the plant is covered by a collective agreement. Wages higher in works council regimes irrespective of collective agreement coverage. Works councils have no discernible impact on the profitability measure across specifications.
4. Jirjahn (2002)	As above. Detailed establishment and industry controls, including whether or not plant management covered by a profit sharing arrangement.	Value added per employee.	Single-equation OLS model (auxiliary probit model of works council presence provided, but not used to provide selectivity-adjusted estimates). Separate estimates for all establishments and a subset of plants with 21-100 employees.	Across all establishments and the subset of smaller plants, the effect of works council presence is positive and statistically significant (in all but one specification). Executive profit sharing schemes are also pro-productive throughout, although the interaction effect is negative and significant for the all-establishment case

5. Frick (2001a)	c. 1,700 establishments from the 6th (1996) wave of the NIFA-Panel. This data set identifies five high performance work practices (HPWP). It also distinguishes five types of works council as assessed by management (ranging from 'antagonistic' to 'excluded') and a variable identifying greater involvement of the works council in processes of technological and/or organizational change than laid down under the law or collective agreements.	Number of HPWP practices.	Descriptive analysis: gives number of HPWP used in plants by works council presence, involvement, and type. The five HPWP are reductions in hierarchies, delegation of decision-making, work groups with independent budgets, group- or team-work, and flexible working time. Multiple classification analysis: uses same categories as for descriptive treatment and five covariates (viz. log number of employees, log sales per employee, stock of orders, and the degrees of capacity and manpower utilisation).	Establishments with works councils use more HPWP than plants without works councils, although this difference is not statistically significant in the multivariate analysis. Establishments with works council involvement in technological and organisational change exceeding that set down by law or collective agreement also have more HPWP than do plants with less involved councils. But the number of HPWP is highest in establishments where the works council is rated 'antagonistic'. HPWP are reported to have a positive effect on establishment performance but a negative influence on labour demand.
6. Dilger (2002)	NIFA-Panel, as above, but supplemented with information on works council presence from the 4th (1994) wave. Three works council measures identified: a simple dummy variable indicating presence or otherwise of the entity, a set of dummy variables for the various types of works councils (see *row 5* above), and the change in works council status, 1994-96. Detailed establishment-level controls.	Quit, hire, and labour fluctuation rates; flexible working time; product innovation; and financial performance (a dummy variable indicating the achievement of at least a 'sufficient' rate of return).	Single-equation cross-section OLS regressions for quit, hire, and labour fluctuation rates. Single equation, cross-section Logit models for flexible working time, product innovation, and financial performance. Models for flexible working time, product innovation, and profitability are also estimated separately for plants with 21-100 employees. Multinomial Logit models for the determinants of flexible working time use the three works council measures and detailed plant-level controls.	Works councils consistently reduce all measures of personnel fluctuation, but the coefficient estimates for some types of works councils are not statistically significant at conventional levels. Works councils promote the use of flexible working time (in both the all-establishment sample and the subset of plants with 21-100 employees), but the effects by type of council are not always well determined. Although works councils do not in general influence product innovation, where their involvement in technological and organisational changes exceeds that laid down by law or collective agreement the effect is positive and weakly statistically significant. The impact of works councils on financial performance is negative for all establishments and smaller establishments, but is not statistically significant where the degree of engagement of the council in technological/organisational change exceeds benchmark levels.

Notes: [a] See also Backes-Gellner, Frick, and Sadowski (1997); Frick (1997); and Gerlach and Jirjahn (2001).

[b] See also Addison, Schnabel, and Wagner (1996, 1998); Addison, Siebert, Wagner, and Wei (2001).

TABLE 3

The Economic Impact of the Works Council – Phase III Studies[a]

Study	Data	Dependent variable(s)	Methodology	Findings
1. Frick (2001b, 2002)	IAB Establishment Panel, using data on 2,640 western German and 2,119 eastern German establishments.	Log value added.	A works-council-in-the-production-function test (Cobb-Douglas, CES, and translog specifications). Separate results given for eastern and western Germany in two cross sections (1998 and 2000). Establishment controls include capital, as proxied by replacement investment.	Works council presence is associated with sharply higher labour productivity of 25% (30%) for western (eastern) Germany. Disaggregations by manufacturing and service sectors confirm this basic result for eastern Germany; but for west German manufacturing industry the works council coefficient estimate is statistically insignificant.
2. Wolf and Zwick (2002)	As above, 1999 and 1996-99. Gross sample contains 6,397 establishments.	Log value added.	Production function test. Main focus of study is on the output effects of (six) high performance workplace practices (HPWP) rather than codetermination per se. Cross section estimates – with and without correction for selection into (grouped) HPWP arrangement – are provided for the 1999 wave. Panel estimates, again controlling for the endogeneity of the broad HPWP arrangement, follow a two-stage procedure, and use data from the 1996-99 waves. Detailed plant controls.	The coefficient estimate for works council presence is positive and highly statistically significant in the basic cross-section model. But the point estimate is not robust with correction for selection on the personnel measures. In the panel estimates, works council presence has a strongly positive impact on the establishment-specific fixed effect.
3. Schank, Schnabel, and Wagner (2002)	As above, 1993-2000. Unbalanced (n=2,301) and balanced (n=592) sample of west German establishments with 21-100 employees.	Log total sales.	Fixed effects estimation of a stochastic frontier production function. The comparison is between the technical efficiency estimates – and their 95% confidence intervals – of the median works council plant and its works council free counterpart.	There are no statistically significant differences in efficiency between establishments with and without work councils. Results are robust to outliers.
4. Addison, Bellmann, Schnabel, and Wagner (2002)	As above, 1996-2000. Initial sample of 1,544 establishments, all without works councils in 1996.	Changes in quits, sales per employee, employment, and profitability.	Nonparametric propensity score matching model. 'Treated' group comprises all plants in which a works council was set up between 1996 and 1998. Matched plants derived from the 1,513 controls.	Mean values for the performance indicators in establishments that introduced works councils are not statistically different from those of comparator plants that remained works council free. Results are robust to outliers.

Note: [a]See also Addison, Bellmann, and Kölling (2002).

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