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 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 this Journal, Frege (2002) offers an assessment of research on works councils from the perspective of several disciplines. She does a good job in placing the labour economics ‘component’ into wider research relief in addressing the ontology, practice, and transformation of works councils. That said, her summary of the 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) fourteen (twenty-one) 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 differences in sample sizes and in the reported effects of codetermination on workplace 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 productivity² (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 – 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 still 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% 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 1 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 (gross) 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 statistically significant association is found between the extent of works council voice and the achievement of high profitability, again as assessed by the manager respondent. For its part, the conventional measure of works council presence (i.e. via a dichotomous variable) is statistically significant throughout, whether endogenised or otherwise.

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 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 coefficient 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 1 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 reduced 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 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 typically via a dummy variable indicating the existence or not of the entity (and less commonly by instrumenting that presence). The works council effect is then recouped from the coefficient estimate for works council presence, actual or predicted, in the relevant outcome equation. An immediate problem is that most firms in Germany over a certain size have works councils, and most firms under a certain size do not. (For example in 2000, just 9.1 per cent of German establishments employing between 5 and 20 employees had works councils; for 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 conventional dummy variable approach. In the absence of further 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 provide the researcher with an opportunity either 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 for example is an inherently more ambiguous performance measure than productivity, profitability, and investment. In any event, the one study to investigate an employment outcome considers labour turnover (row 7). It is also an unconventional study in eschewing use of a continuous outcome measure and substituting for it a subjective definition based on management perceptions as to whether turnover is ‘high’ or ‘low’ (row 7). However, the use of subjective indicator can be very informative, especially when it pertains to particular skill category (as here)
for which objective turnover data may not be available, and perhaps more generally in accommodating excessive reductions in turnover.

Despite some real data strengths – including the availability of workplace variables – the ultimate problem of the early research literature is that its findings may not be representative by reason of sample size. Further, the circumstances of time and place may cast a long shadow.

Phase II: Some New Large-Scale Data Sets

The hallmark of the next phase of the empirical literature is the use of large-scale data sets. This stage of the developing research literature mainly has a basis in two new data sets: 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 because 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 around 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 2,400 private-sector firms, conducted in 1987 (see Büchtemann and Höland, 1989) Reflecting its focus on employment information, this data set has been used to investigate labour fluctuation alone (see below).
A summary of results from selected second-phase studies is provided in Table 2. The big picture is that works councils now appear in rather more favourable light. The jury is still out as to whether this is a reflection of intrinsic unrepresentativeness of the earlier samples/studies or instead a practical manifestation of the 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). This is perhaps most obviously the case because the early studies generally deal with smaller firms for whom some adverse effects are still on occasion discernible in the new data sets.

The distinguishing characteristics of the Phase II studies are four-fold. 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 reason is the point made earlier that very large plants almost always have works councils and small plants seldom do. Yet another 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), report that beneficial outcomes where observed (namely, labour productivity and labour turnover) tend to be confined to establishments with more than 100 employees (see row 2 of Table 2).

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) emphasises the turnover issue, focusing on a study by Backes-Gellner, Frick, and Sadowski (1997) that uses data from the Büchtemann and Höland (1989) data base. That study argues 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. The evidence supplied by these authors is indirect, reflecting the lack of data on training in the Büchtemann and Höland (1989) data base. That is to say, rather than examining training investments directly they mainly look at quit rates and dismissals, both of which are found to be reduced in the presence of works councils. This evidence was first reported by Frick and Sadowski (1995), and the relevant magnitudes are provided in row 1 of Table 2.

Although data from the much richer Hannover Firm Panel do not point to reduced quits in smaller establishments with works councils – while indicating that management in works council plants is more prone to complain that employment levels are excessive – they tell much the same broad story. Thus, the study by Addison, Schnabel, and Wagner (2001) in row 2 reports that hires, quits and dismissals are all reduced in works council settings. The same general 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, and in testing collective voice arguments, requires matched employee and employer data, so that the effect of works councils over and above the effect of wages on quits can be determined. (This is possible with the data set used in Phase III studies.) Recalling our earlier observation that the reduction in quits/increase in training investments
might be excessive, it would also be useful to incorporate either argument in a production function test. Pending such analyses, the training argument is necessarily opaque.

Third, a rather interesting development of the Phase II literature is the emergence of a collective bargaining variable proper. Unlike their Phase I precursors, the three large-scale data sets of Phase II either fail to contain information on union density or that information is unreliable. The new variable is the presence or otherwise of a collective bargaining agreement (at regional or industry level). In its full 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 dissipate distributional squabbles at the workplace, thereby enhancing any pro-productive effect of the works council. In the dual industrial relations system in Germany, so the argument runs, collective agreements at regional or industry level will police potential rent-seeking behaviour by works councils and allow production issues to be decoupled – at least partially – from questions of distribution. Hübler and Jirjahn test the model using pooled data from two waves of the Hannover Firm Panel. Separate regressions are run for labour productivity, wages, and firm quasi-rents (or profitability). Works council presence and collective bargaining coverage are both endogenous variables, accommodated by a double-selection methodology. Consistent with the model, the authors’ results point to higher productivity in works council regimes only where the establishment is covered by a collective agreement. The wage and profitability results, however, are less compelling. Thus, wages are higher in all works council establishments irrespective of their
collective bargaining coverage. For its part, the profitability effect is frankly anomalous, being statistically insignificant throughout.

Further, it is not clear how far the results of this study reflect establishment size. Another unresolved issue is the implication of the growing tendency in Germany towards company-level collective agreements since the Freeman-Lazear model depends on a ‘centralisation’ of collective bargaining. As a practical matter, the number of firms bargaining at the company-level has tripled since 1990. We can report no analysis of this development but in the future 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 (EI) mechanisms and/or high performance work practices (HPWP) in the performance equations – variables that may complement works councils or possibly even substitute for them. The distinction is important because it was an alleged shortfall of employee involvement (strictly, codetermination of course) that prompted the recent reform of the Works Constitution Act (for the terms and a critique of which, see Addison, Bellmann, Schnabel, and Wagner, 2003). The main Phase II studies covering EI and HPWP 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) reports 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 ultimately inconclusive, it should be noted that the subtle approach of Jihrjahn is very much in the spirit of the broader collective voice model, in which improvements in firm performance are potential rather than guaranteed. That is to say, the collective voice construct is more correctly described as a collective voice-institutional response model. The gains from collective bargaining depend both on management’s response to collective bargaining and also in turn on the union’s response to reorganisation of the work process – hence the ‘institutional response’ tag.

The last two studies in Table 2 return us to the issue of non-executive EI mechanisms and HPWP. Each exploits the NIFA-Panel for the machine-tools industry, which data is of interest for three main reasons. First, it identifies a set of five HPWP. 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 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 HPWP 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 the Phase II is of no small interest. Even if they
are characterised by 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. Another result of interest is the finding of some positive effects the greater
is the involvement of the works council in decision-making. 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 neither wages nor productivity appear as consistent culprits? This ambiguity
in turn only fuels the theoretical controversy over the efficiency implications of reduced
profitability in the wider literature.

As is the case for the Phase I studies, almost all the research summarised in Table 2 is cross
section in nature. 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 distribution
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 instrument works council presence, although identification is always difficult. Further, even if the researcher can achieve identification, if some permanent unobserved plant characteristic is associated with works council presence (inter al.) and the outcome indicator, allowing for the nonrandom distribution of the works council in cross section will not suffice. In short, biases may attach to these Phase II estimates, and causality may remain an issue. A final issue is whether, despite their scale, the Hannover Firm Panel and the NIFA-Panel are truly representative given their regional and industrial composition, respectively. There is also the practical point that the information contained in each (and of course the Büchtemann/Höland database) is becoming rather dated. Fortunately, in each of the above respects this is not the end of the story. Most recently, economists have been able to work with an unambiguously nationally representative data set with greater longitudinal capability, and to which we next turn.

**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 Service (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. It 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 Service, and so its focus is on employment-related matters such as 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, additional information on training, and the purpose of training programmes (all of which variables have been used to identify 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. (To repeat, the vintage of this material explains why it is missing from Frege’s survey.) 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. Frick provides 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). He 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 less flamboyant ones than are obtained by Frick. Wolf and Zwick are more concerned with the effects of HPWP on output than those of codetermination and with the biases that will attach to these coefficient estimates if, for example, unobserved firm fixed effects are correlated with productivity and HPWP. In this context, the authors provide panel estimates of a simple (Cobb-Douglas) production function for 1996-99 to calculate an unobserved time invariant fixed effect for each establishment in their sample. In a second stage, these fixed effects are regressed on bundles of HPWP and other covariates including the presence or otherwise of a works council. Again, the works council effect is positive and statistically significant. Note that this amounts to a cross section test of the works council effect. Also note that the fixed component of the unobserved heterogeneity in the second stage may still be correlated with the observed firm-level characteristics. The bottom line is that a positive works council effect may have no causal interpretation.

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.\textsuperscript{5}

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 (2003) 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.\textsuperscript{6} 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 Phase III results, 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. Interpretation

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 course of the research displays 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 drama (but see Addison, Bellmann, Schnabel, and Wagner, 2003).

The research while structured is not tidy. That does not mean that it has stalled or otherwise reached a dead end. The following lines of 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 – even if the impact of the degree of involvement of the works council and works council type continues to be hampered by data limitations. 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 former. And other forms of employee involvement might be pro-productive in works council regimes. That being said, the interaction between plant size, collective bargaining coverage, and employee
involvement mechanisms is palpably not yet transparent. (But note that the Anglo-Saxon research on the unions and economic performance nexus is scarcely superior in this regard.) In short, such interactions – and investigation of the role of works council involvement – are the stuff of a future research agenda. Third, excessive admiration of the institution is as misplaced as excessive revulsion towards it. Here we must caution that some of the very most recent estimates of the beneficial effect of works councils on labour productivity have to be taken with more than a pinch of statistical salt. Thus, we have reported other production function estimates and results from nonparametric propensity score matching models using the IAB Establishment Panel that cast serious doubt on the finding of a substantive, positive works council effect. Furthermore, in ongoing research using the selfsame IAB data, but not reported here, we are finding that the conventional works council effects are (a) highly unstable in individual years, (b) not robust to disaggregation by broad sector and region, and (c) do not survive reestimation in first differences.

We are aware that some may nevertheless choose to interpret these cautionary remarks as ultimately highly favourable to the institution. Even if the consequences of works councils turn out to be neutral rather than benign, so the argument might run, the case for requiring works councils is still decisive because the economic case has always been much less compelling than the demands of equity (i.e. industrial democracy). We would basically resist this interpretation on the grounds of its generality. As far as the specifically German case is concerned, recent changes in the law might be expected to bring about an increase in works council penetration and thus offer a promising environment for assessing the impact of the institution on the performance of establishments and firms that have long been free of codetermination.
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. Measured as the residuals from a three-factor Cobb-Douglas production function.

3. Actually, the interplay between works councils and employee involvement mechanisms may prove to be the 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 that works councils in firms practising profit-sharing are positively associated with productivity. Among their counterparts in non profit-sharing regimes, however, the works council effect on productivity is still negative and statistically significant.

4. 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 (2003).

5. Interestingly, for an auxiliary OLS specification of the same production function, estimated across both regimes, the authors obtain a positive and statistically significant coefficient estimate for the works council dummy (at least in one of their samples). This may suggest that the row 1 estimates are biased due to a correlation of unobservables with the works council variable.

6. 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.
References


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

<table>
<thead>
<tr>
<th>Study</th>
<th>Data</th>
<th>Dependent variable(s)</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FitzRoy and Kraft (1985)</td>
<td>Pooled data for 1977 and 1979 on 61/62 firms in the metal-working industry.</td>
<td>Profitability, union density, wages, and salaries.</td>
<td>Four-equation system estimated by 3SLS. Detailed firm controls. Work council presence not endogenised.</td>
<td>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.</td>
</tr>
<tr>
<td>2. FitzRoy and Kraft (1987)</td>
<td>As above.</td>
<td>Total factor productivity and works council presence.</td>
<td>Two-equation system.</td>
<td>Work council presence associated with a significant reduction in productivity. Union density effects positive and statistically significant throughout.</td>
</tr>
<tr>
<td>3. FitzRoy and Kraft (1990)</td>
<td>57 metal-working firms, 1979.</td>
<td>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.</td>
<td>Two-equation system.</td>
<td>Organised labour covariate is associated with a statistically significant reduction in innovative activity.</td>
</tr>
<tr>
<td>5. Addison, Kraft, and Wagner (1993)</td>
<td>c. 50 establishment sample from same data as in row 4 study above.</td>
<td>Profitability, value added, and investment.</td>
<td>Single-equation specifications estimated by least median of squares/reweighted least squares.</td>
<td>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.</td>
</tr>
<tr>
<td>6. Addison and Wagner (1997)</td>
<td>74 manufacturing establishments in one German state, 1993.</td>
<td>Subjective measure of ‘high profitability’ and an innovation measure (introduction of a new product in 1992).</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>7. Kraft (1986)</td>
<td>As for the studies in rows 1 and 2.</td>
<td>Subjective measure of ‘high quits’ and a synthetic measure of ‘individual voice’, in each case for unskilled workers.</td>
<td>Simultaneous system of probit equations.</td>
<td>Individual voice, but not collective voice (as proxied by works council presence), serves to significantly reduce high turnover.</td>
</tr>
</tbody>
</table>
TABLE 2
The Economic Impact of the Works Council – Phase II Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Data</th>
<th>Dependent variable(s)</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Frick and Sadowski (1995)</td>
<td>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</td>
<td>Quit and dismissal rates.</td>
<td>Single-equation log-odds model estimated by OLS.</td>
<td>Works council presence associated with statistically significant reductions in quits and dismissals (2.4 and 2.9 percentage points, respectively).</td>
</tr>
<tr>
<td>2. Addison, Schnabel, and Wagner (2001)</td>
<td>c. 900 establishments from the 1994 wave of the Hannover Firm Panel (see text). Detailed establishment and industry controls.</td>
<td>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).</td>
<td>Single-equation estimates. Separate results for all establishments and a subset of plants with 21-100 employees</td>
<td>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.</td>
</tr>
<tr>
<td>3. Hübler and Jirjahn (2001)</td>
<td>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.</td>
<td>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).</td>
<td>Bivariate probit maximum likelihood estimates of works council presence and coverage by a collective agreement to form selection arguments in the outcome equations</td>
<td>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.</td>
</tr>
<tr>
<td>4. Jirjahn (2002)</td>
<td>As above. Detailed establishment and industry controls, including whether or not plant management covered by a profit sharing arrangement.</td>
<td>Value added per employee.</td>
<td>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.</td>
<td>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</td>
</tr>
</tbody>
</table>
| 5. Frick (2001a) | 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'.

| 6. Dilger (2002) | 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>
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<tr>
<td>1. Frick (2001b, 2002)</td>
<td>IAB Establishment Panel, using data on 2,640 western German and 2,119 eastern German establishments.</td>
<td>Log value added.</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>2. Wolf and Zwick (2002)</td>
<td>As above, 1999 and 1996-99. Gross sample contains 6,397 establishments.</td>
<td>Log value added.</td>
<td>Production function test. Main focus of study is on the output effects of (six) high performance works 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.</td>
<td>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 positive impact on the establishment-specific fixed effect.</td>
</tr>
<tr>
<td>3. Schank, Schnabel, and Wagner (2002)</td>
<td>As above, 1993-2000. Unbalanced (n=2,301) and balanced (n=592) sample of west German establishments with 21-100 employees.</td>
<td>Log total sales.</td>
<td>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.</td>
<td>There are no statistically significant differences in efficiency between establishments with and without work councils. Results are robust to outliers.</td>
</tr>
<tr>
<td>4. Addison, Bellmann, Schnabel, and Wagner (2003)</td>
<td>As above, 1996-2000. Initial sample of 1,544 establishments, all without works councils in 1996.</td>
<td>Changes in quits, sales per employee, employment, and profitability.</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

Note:  "See also Addison, Bellmann, and Kölling (2003)."