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Abstract

We estimate of the determinants of performance appraisal, profit sharing and employee share ownership schemes for a representative sample of German establishments. The results demonstrate that foreign owned establishments make more use of each of these HRM practices than domestically owned establishments. Moreover, the role of Germany's unique works councils varies critically by ownership. Among domestically owned establishments, works councils are associated with an increased probability of using each of the three practices but this does not hold true for foreign owned establishments. These results inform the on-going debate over the extent to which foreign firms adopt uniform practices independent of local institution and the extent to which they adapt and participate in those local institutions.

JEL: F23, J33, J53, M52.

Keywords: Foreign Owners, Works Councils, Performance Appraisal, Profit Sharing, Employee Share Ownership.

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1. Introduction

Recent decades have witnessed an enormous growth in foreign direct investment (FDI) around the world (UNCTAD 2004). The growth in corporate globalization has stimulated both substantial public and academic interest in the consequences for the national industrial relations systems. Yet, there remains surprisingly little systematic evidence on how the functioning of a country's industrial relations institutions is affected by FDI.[1] This paper provides an econometric analysis for Germany. It examines the influence of foreign ownership and the interaction effect of foreign ownership and works councils on the use of three types of HRM practices associated with variable pay: performance appraisal, profit sharing and employee share ownership.

This focus reflects our broad interest in the extent to which foreign multinational firms adapt to local institutions and the incentives that those institutions create. On the one hand, multinationals in Germany face internal pressure to conform to the standardized personnel policies of their firms, firms that cross international boundaries and are headquartered elsewhere. On the other hand, the personnel policies of multinationals may involve tensions with the institutional patterns of the host country including establishment-level codetermination. We explore this conflict, a conflict identified by Kostova and Roth (2002) as "institutional duality."

Examining the interaction effect of foreign owners with works councils is particularly interesting as previous work has shown that German works councils are an institution that can foster workers' cooperation and, hence, contribute to increased establishment performance (Freeman and Lazear 1995). Works councils play an information sharing and contract enforcement role. This role reduces the risk to workers

from unilateral management decisions making workers more willing to accept variable pay (Heywood et al. 1998, Heywood and Jirjahn 2002). Yet, cooperative and trustful relationships between management and works councils often take time to develop and, for domestic firms, this occurs in a context without institutional duality.

We hypothesize that the presence of foreign owners may greatly attenuate the influence of works councils on variable pay. As important managerial decision are made overseas and the works council of the local establishment has only limited access to information possessed by the parent company's managers, it is more difficult to create trust and cooperation. In addition, the parent company's managers may lack sufficient information about the local conditions of the subsidiary. Foreign owners may also be more familiar with foreign (often American) institutions that are less co-deterministic and feel the pull towards following a single international HRM strategy. This makes it difficult to find local solutions and increases the probability of conflict and adversarial bargaining.

Using the unusually rich data of the IAB Establishment Panel, this study provides the first econometric analysis on the intertwined roles of foreign ownership and works councils in the use of three important types of variable pay. We demonstrate that the use of individual performance appraisal, the use of profit sharing and the use of employee stock ownership share important patterns. Each scheme is more likely in foreign owned establishments. We also find that works councils play a critical role but one that is completely limited to domestically owned establishments. Hence, while the use of these three HRM practices are less likely among domestically owned establishments, the presence of a works council is associated with greater use of each of these HRM

practices. The presence of works councils plays no positive role in the use of these practices among foreign owned establishments. We see this pattern as evidence of institutional duality. Despite the presence of works councils in many foreign owned establishments, the institution appears to play a different role than in domestically owned establishments.

In the next section we provide our background discussion. We explore previous literature and establish our testable hypotheses on the role of works councils and foreign owners. The third section presents the data and variables while the fourth section presents the results and several robustness checks. The fifth section concludes and makes suggestions for future research.

2. Background Discussion

2.1 Variable Pay and Works Councils

Variable pay schemes provide incentives to exert effort by aligning workers' interests with those of firm owners. There exists a wide variety of such schemes. While, simple piece rates reward the quantity of produced output, performance appraisal systems use more comprehensive measurement of worker performance to provide incentives (Brown and Heywood 2005). The appraisal can involve objective measures of performance but often relies on subjective evaluations by superiors of dimensions of worker behavior for which objective indicators are unavailable. While performance appraisal typically measures individual worker performance, profit sharing and employee share ownership represent collective incentive schemes based on overall firm performance. Thus, they reward every type of effort that increases firm performance. Theory suggests that profit

sharing and employee share ownership provide incentives for flexibility, multitasking and helping on the job (Baker 2002, Drago and Turnbull 1988, 1991, Jirjahn 2000). At the same time, they are often thought to involve a free rider problem (Oyer 2004) that must be mitigated or solved by mutual monitoring and peer pressure (Bowles et al. 2009, Freeman et al. 2010, Kandel and Lazear 1992).

Variable pay can also entail a series of dysfunctional incentives (Heywood and Jirjahn 2006). A well known example is the ratchet effect (Charness et al. 2011). Workers, receiving variable pay, withhold effort when they anticipate that the employer will increase performance standards after a period of good performance. Performance appraisals involve a high degree of discretion which can result in arbitrary measurement. The employer may underreport workers' performance to save firm resources (Prendergast 1999). The discretion also implies that superiors' prejudices and preferences toward subordinates can enter the process (MacLeod 2003, Prendergast and Topel 1996).[2] The resulting inequality can undermine cooperation among workers and induces unproductive influence activities (Milgrom and Roberts 1988). Even profit sharing and employee share ownership may generate their own dysfunctional incentives. Collective schemes can induce excessive peer pressure (Barron and Gjerde 1997) resulting in increased conflict and distrust among workers (Heywood et al. 2005, Orr 2001). Moreover, collective schemes will not stimulate effort if workers do not trust the accounting of profit or fear that management does not pursue complementary investments designed to increase financial performance.

In summary, variable pay potentially involves both productive and dysfunctional incentive effects. Productive incentives are more likely to dominate if workers are

confident that the process of determining pay accords with procedural fairness norms and that promises made will be kept.[3] Hence, mechanisms contributing to trustful industrial relations within establishments should foster the use of variable pay schemes as they increase the positive incentive effects of these schemes. Works councils in Germany are potentially such a mechanism.

Works councils provide a highly developed mechanism for establishment-level participation (Mueller-Jentsch 1995). Their rights are defined in the Works Constitution Act (WCA). Workers in establishments with five or more employees may elect council members but the creation of the council depends on the initiative of the establishment's employees. On some issues they have the right to information and consultation, on others a veto power over management initiatives and on still others the right to coequal participation in the design and implementation of policy. Their rights are strongest in social and personnel matters such as the introduction of payment methods, the allocation of working hours and the introduction of technical devices designed to monitor employee performance. Works councils are institutionalized bodies of worker representation that have functions distinct from those of unions. They do not have the right to strike. If council and management fail to reach an agreement, they may appeal to an internal arbitration board. The aim is to restrict distributional conflicts at the establishment level so that works councils can help increase joint establishment surplus.

Theoretical analyses suggest that works councils play a role in building trust and cooperation by mitigating employer's commitment problems (Freeman and Lazear 1995, Hogan 2001). The consultation rights of the council help reduce information asymmetries between management and workers so that employees can better evaluate the employer's

behavior and intention. Moreover, the codetermination rights of the council prevent the employer from unilaterally taking action without considering workers' interests. Worker representation may not only help create a binding commitment from the firm. It may also help reduce supervisor opportunism at the various levels of the hierarchy as it provides communication between workers and top decision makers that is not filtered by immediate superiors (Kaufman and Levine 2000, Smith 1991).

This leads to the hypothesis that codetermination increases the trust workers have in any adopted variable pay scheme, making such arrangements more likely. If a council is present, the employer cannot unilaterally alter the payment terms and worker representatives can monitor the accounting of profit and participate in decisions that influence the financial performance of the establishment. Works councils can also contribute to procedural fairness by helping set clear performance standards and make performance evaluation more transparent. Indeed, previous empirical studies suggest that the presence of a council is positively associated with the use of variable pay. Heywood et al. (1998) and Heywood and Jirjahn (2002) find a positive link between works councils and the use of piece rates and profit sharing. Breuer and Zimmermann (2010) show that councils are positively associated with the use of performance appraisal.[4]

None of these previous studies recognizes that the link between works councils and performance pay can be influenced by the managerial environment. Both sociological case studies (Frege 2002) and econometric examinations (Jirjahn 2003, Jirjahn and Smith 2006, Pfeifer 2011) suggest that the positive functioning of establishment-level codetermination depends on cooperative relationships between management and works council. Moreover, Jirjahn and Mueller (2011) show that such cooperative relationships

are harder to achieve in foreign owned establishments. They estimate a negative interaction effect of works councils and foreign ownership on productivity. This fits with earlier case studies emphasizing potential conflicts between foreign owners and works councils (Looise and Drucker 2003, Mueller 1998, Raess and Burgoon 2006, Royle 1998, Wever 1995). In what follows we will systematically analyze whether there exist similar interactions effects between works councils and foreign owners on the use of variable pay.

2.2 The Role of Foreign Owners

The personnel policy of foreign owned firms differs (to a greater or lesser extent) from that of domestically owned firms (Doeringer et al. 1998, Freeman et al. 2008, Walsh 2001). Even rent sharing across borders appears to play a role within multinational enterprises (Budd and Slaughter 2004, Budd et al. 2005). Most importantly for our context, the personnel policy of multinational enterprises may be characterized by an increased use of variable pay. The existence of multinational enterprises is often explained by their superior products or production processes to which other firms have no access (Helpman 2006, Markusen 1995). Patents or other exclusive technical knowledge, copyrights or trademarks, or even more intangible assets such as management practices, know-how or the reputation of the firm give rise to foreign direct investment. However, multinational enterprises can use these firm-specific assets worldwide as a source of competitive advantage only if the managers and employees of their subsidiaries undertake complementary efforts and human capital investments. Variable pay schemes provide corresponding incentives. This is specifically important to the extent diverse

workforces and diverse environments in the various host countries make agency problems in multinational firms more severe.

Econometric studies on foreign owners and variable pay are scarce. A European cross-country study by Poutsma et al. (2006) shows that subsidiaries of foreign multinational companies are more likely to use individual performance pay. Interestingly, they find that establishments in Germany make less use of variable pay but that foreign owners within Germany make increasing use of individual incentive schemes. A within-country study by Bellmann and Moeller (2010) shows that the presence of foreign owners in Germany is associated with an increased use of profit sharing. These findings raise the question of whether or not the influence of foreign owners affects the role works councils traditionally play in the use of variable pay schemes.

On the one hand, foreign owned establishments may need worker representation to generate the trust and cooperation necessary for a successful implementation of variable pay. If the local establishment simply adopts the variable pay practices from its foreign parent company, it can introduce a high level of uncertainty and ambiguity from the employees' perspective. When there is no worker representation, employees may fear that the foreign parent company will not behave in accordance with its commitments or that it will take excessive advantage of the local establishment.

On the other hand, works councils in foreign owned establishments may be less capable of generating trust and cooperation. The works council's power to influence decisions and to protect workers' interests is weakened to the extent foreign owners can more easily threaten to transfer production abroad.[5] Hence, it is more difficult for the council to create binding commitments from the firm. Moreover, as important managerial

decisions are made overseas and the council of the local subsidiary has only limited access to information possessed the parent company's managers, establishment-level codetermination is less effective in reducing information asymmetries. Moreover, the managers of the foreign parent company often lack sufficient information about local conditions of the establishment. As a consequence, even if the works council and local management find solutions in adjusting variable pay schemes to the specific circumstances, it may be difficult to convince the managers of the head office. Instead of approving local solutions the parent company's managers may prefer to unilaterally implement unified variable pay schemes that follow company-wide policy standards. This may also be the case if foreign owners with a strong focus on shareholder value or little experience with codetermination view works councils simply as an obstacle.[6]

This line of logic suggests that a council in a foreign owned firm is more likely to perceive variable pay as a threat to its remaining bargaining strength. As the council has only limited influence on the design of individual incentives, it may fear that increased dispersion and individualization in earnings further reduces bargaining power by undermining cohesion and solidarity among workers. Moreover, profit sharing and employee share ownership can change workers' attitudes. To the extent workers come to perceive themselves primarily as co-owners rather than employees, they are more likely to call into question the justification of worker representation. Collective incentive schemes may specifically induce such attitudinal changes if management promotes the concept of shareholder value. This may lead the works council to refuse to actively support foreign owners in implementing variable pay schemes.

In summary, we anticipate that the role of works councils in the use of variable

pay differs between foreign owned and domestically owned establishments. While the trust-building role of works councils should foster the use of variable pay schemes in domestically owned establishments, the influence of works councils should be attenuated in foreign owned establishments.

3. Data and Variables

3.1 The Data Set

We draw data from the IAB Establishment Panel of the Institute for Employment Research (Fischer et al. 2009). The IAB Establishment Panel is a representative sample of establishments (with at least one employee covered by social insurance) from all sectors in the German economy. Infratest Sozialforschung, a professional survey and opinion research institute, conducts the interviews. The data are collected on the basis of a questionnaire and personal interviews with the owner or top manager of the establishment. Each year since 1993 (1996), the IAB Establishment Panel has surveyed several thousand establishments in Western (Eastern) Germany. Basic information on the establishment and a core set of questions are asked annually. Additional topics are introduced in specific waves. We take data from the 2007 wave because of its unique combination of indicators on performance appraisal, profit sharing and share ownership and its unusually extensive relevant establishment characteristics. For our analysis we focus on privately owned commercial establishments. We exclude establishments with dispersed ownership. This allows us comparing establishments under dominant foreign ownership with establishments under dominant domestic ownership. Furthermore, as the WCA only applies to establishments with at least five employees, the analysis is

restricted to establishments that meet this minimum size.

3.2 Key Variables

Studies on variable pay often consider only a single type of payment scheme or combine different types in a single indicator. Our data allow differentiating between three important types of incentive schemes: performance appraisal, profit sharing, and employee share ownership. The establishment's use of these schemes is captured by dummy variables. Table 1 provides variable definitions and descriptive statistics.[7] In the sample 53 percent of establishments conduct written performance evaluations of employees. 31 percent have a profit sharing plan for employees and 6 percent provide employee share ownership. As the dependent variables are dichotomous, our estimates fit cumulative normal distributions using the probit procedure. Thus, the critical estimates present the influences of changes in the independent variables on the probability of the establishment using the respective incentive scheme.

Our first key explanatory variable is a dummy variable for the presence of a works council. Works councils are present in 53 percent of the establishments. Second, we include a dummy for the presence of a dominant foreign owner. The reference category comprises establishments with dominant domestic owners. 11 percent of the establishments have dominant foreign owners. As the interaction effect of works councils and foreign owners plays a key role in our analysis we also take into account an interaction term of both indicator variables.

3.3 Control Variables

The data set provides an unusually rich set of control variables that help isolate the effects of works councils and foreign owners. Descriptive statistics by Kurdelbusch (2002) indicate that firms with a high percentage of foreign sales are more likely to use variable pay. Hence, we include the share of establishment sales generated by exports. As the variable on the share of exports has a larger number of missing values, both estimates with and without this variable are provided.

We also control for the use of alternative forms of worker representation that the employer can voluntarily implement and are not mandated by law. Examples are staff spokesmen, round tables or worker committees (Stettes 2008). As these forms are often viewed as substitutes for establishment-level codetermination, we will examine if they play a role similar to works councils.

Establishment-level codetermination is part of a broader industrial relations system which involves worker representation through unions. A dummy for the coverage by a collective bargaining agreement captures this broader industrial relations environment. Employers are covered by a collective agreement if they are members of an employers' association. Collective agreements regulate wage rates and general aspects of the employment contracts such as working hours. They can also contain more or less detailed regulations concerning the design of individual based variable pay such as piece rates or performance appraisal (Bispinck 2000). The consequences of collective bargaining coverage for the use of variable pay schemes are ambiguous (Jirjahn 2002). On the one hand, collective agreements may limit the establishment's flexibility and, hence, may reduce the employer's incentive to use variable pay (Franz et al. 2000). On

the other hand, collective agreements define only minimum standards. Employers are free to pay wages or to improve working conditions above the level specified by the agreements. Moreover, the standards defined in a collective agreement may provide a clear guidance for the design of variable pay schemes and, thus, may reduce the employer's uncertainty how to implement these schemes.

As emphasized, each of our variable pay measures is likely to be used when workers perform complex and multi-faceted tasks that cannot be captured by a simple piece rate. Thus, we include a series of indicators for the nature of production. These capture the vintage of production technology, investment in information and computer technology, and the presence of research and development to account for technological change. A remarkable number of empirical studies have shown that technological change is skill biased (Machin 2008) and is associated with more complex tasks. Similarly, there is evidence that organizational change toward a more participatory work organization can be skill biased (Caroli and Van Reenen 2001, Bresnahan et al. 2002). Organizational change is captured by variables for the introduction of self-managed teams, the delegation of decisions to lower levels of hierarchy, and the reorganization of departments and jobs within the last two years. Moreover, variables for employer provided further training and the share of university graduates and skilled employees are included as indicators of multiskilling. As multitasking presupposes that workers comprehend important elements of the production process, multiskilling and multitasking are closely related (Morita 2005).

Performance appraisal is often used to provide contemporaneous incentives (Brown and Heywood 2005). Similarly, profit sharing in Germany is usually a

contemporaneous payment whereas employee share ownership provides rather long-term incentives (Heywood et al. 2010). Thus, specifically performance appraisal and profit sharing may provide incentives for workers with shorter expected tenure who are less motivated by deferred compensation (Goldin 1986). This suggests that establishments with high personnel turnover should be more likely to implement performance appraisal systems and profit sharing but not employee share ownership. We use the churning rate as a measure of personnel turnover. The churning rate is designed to capture the share of worker flows that is not part of growth or decline in the size of the establishment workforce and it varies from zero to one. Furthermore, the share of women workers, the share of part time workers, the share of temporary workers and the use of temporary agency work are controlled for. On the one hand, these variables may also be seen as indicating a low expected tenure of the workforce and an increased need to use contemporaneous incentives. On the other hand, they may indicate a high share of peripheral workers who protect a core group of workers with greater tenure and deferred compensation (Drago and Heywood 1995). This may result in a reduced use of contemporaneous pay schemes.

We also control for establishment size to capture returns to scale. Implementing variable pay schemes may involve a fixed cost, and the fixed cost per employee diminishes with the number of employees subject to the pay scheme (Brown and Medoff 1989, Kruse 1996). This, in turn, may increase the net benefits of the scheme. Finally, we control for industry, legal form, age of the establishment, and a location in East Germany.

4. Results

4.1 Performance Appraisal

Column 1 of Table 2 presents the initial results for performance appraisal. Many of the controls take statistically significant coefficients of the expected sign. The estimates confirm that complex and multi-faceted tasks are associated with the use of performance appraisal systems. Reorganization of work, self-managed teams, research and development, and up-to-date production technology are positive determinants. Employer provided further training as an indicator of multiskilling is also positively associated with the use of performance appraisal. Furthermore, establishments with larger shares of women, making use of temporary help agencies and having greater personnel turnover are more likely to use appraisal. This conforms to the notion that performance appraisal can be used for contemporaneous incentives provided to workers with short expected tenure. Moreover, establishment size increases the probability of performance appraisal, but at a decreasing rate. The location and the legal form of the establishment play a role, too. Establishments in the former East Germany are more likely to use appraisal all else equal. The legal forms of limited liability and stock corporations are associated with greater use of performance appraisal.

Turning to the variables for industrial relations, collective bargaining coverage is associated with a higher probability of using performance appraisal while alternative worker representation implemented voluntarily by the employer plays no statistically significant role. By contrast, works councils emerge as a critical predictor of the use of performance appraisal. The presence of a works council is associated with an increase in the likelihood of appraisal. This fits with the hypothesis that worker involvement can

make appraisal schemes more palatable to workers as the context and use of the appraisals can be examined and jointly determined and reviewed.

Those establishments that are foreign owned are also more likely to use performance appraisal systems, all else equal. This fits past survey and case study evidence and supports the view that multinationals may have standard practices on performance appraisal that they bring to their German operations. They may view these as critical for comparing across plants and they may be more familiar with such practices from their home countries.

We now search for evidence of institutional duality by examining an interaction between foreign ownership and the presence of a works council. This is presented in column 2. The inclusion of the interaction variable does not change the general pattern of results but does influence the coefficients on works councils, a modest increase, and on foreign ownership, a very large increase. The interaction itself is very large and negative. The critical point is that the size of the coefficient is actually slightly larger in magnitude than the positive coefficient on the works council variable itself. As a consequence, the presence of a works council in a foreign owned establishment has no influence on performance appraisal use. The net coefficient is slightly negative but not significantly different from zero. This is not a function of using the interaction specification. We estimated a separate but otherwise identical specification limited to only establishments with foreign owners confirming that the coefficient on works councils is insignificant. In the subsample limited to domestic owners, the coefficient on work councils remained large and statistically significant.

Thus, the presence of a works council is associated with a greater likelihood of

performance appraisal among domestically owned establishments but with no influence on appraisal among foreign owned establishments. This obliquely supports the notion that domestic establishments are able to work with councils to improve performance while foreign owned establishments are more unilateral. In the Appendix Table A1, we use the estimates to predict the probability of the use of performance appraisal. In domestically owned establishments, the presence of a works council is associated with a 15 percentage point higher probability of performance appraisal. Given that the mean of appraisal is 53 percent, this is a substantial influence.

Again, we are emphasizing the role of the works council among foreign owned firms not making a statement about the role of foreign ownership itself. Foreign ownership is associated with an increase in the likelihood of using appraisals. However, the size of that increase depends on the presence of a works council. Among establishments without works councils, foreign ownership is associated with a much larger increase in the likelihood of using appraisals than it is among establishments with works councils. As Table A1 shows, the increase amounts to almost 30 percentage points in establishments without works councils and it is only 7 percentage points in establishments with works councils. This reflects institutional duality with the presence of a works council generating frictions for foreign owners' unilateral implementation performance appraisal.

Finally, to account for general exposure to international markets, we include a variable measuring the share of sales that are exported from Germany for each establishment. As this information is missing for some establishments, the sample size is smaller. The new estimate is shown in column 3 and largely reproduces what was shown

in column 2. The new measure of exports is positively associated with the likelihood of performance appraisal supporting the notion that exposure to international markets is associated with using appraisals. Critically, the role for works councils is unchanged and its relationship with foreign ownership also remains unchanged.

4.2 Profit Sharing

In Table 3 we replicate the same series of estimates using the presence of profit sharing for employees as the dependent variable. The critical point is that the basic pattern of results for our variables of interest is repeated. Foreign owned establishments are more likely to use profit sharing. Works councils also appear to be associated with greater use of profit sharing but that result is completely unique to the sample of domestically owned establishments. They again appear to play no positive role among the foreign owned firms. Indeed, the negative interaction is so large that it hints that works councils play a negative role among foreign owned firms. Adding the export share does nothing to change this pattern and takes an insignificant coefficient itself.

The pattern of control variables confirms a role of multiskilling and multitasking in the use of profit sharing. The share of university graduates, employer provided further training, reorganization of work, delegation of decisions, up-to-date production technology, research and development, and investment in information and computer technology are all positive covariates of profit sharing. Furthermore, establishment size, high personnel turnover, the use of agency workers, and the legal forms of limited liability and stock corporations are positively associated with profit sharing. Compared to performance appraisal estimates, collective bargaining coverage and alternative forms of

worker representation take reversed roles. Collective bargaining coverage does not take a statistically significant coefficient. This may reflect unions' skepticism about profit sharing and, hence, the typical absence of guiding rules of implementation in collective bargaining agreements. By contrast, the incidence of alternative forms of worker representation emerges as a positive covariate of profit sharing use.

While these patterns are interesting, our central point continues to be that domestic firms appear to work with works councils to create profit sharing but foreign firms seemingly implement profit sharing without this cooperation. In turn, this suggests that institutional duality by foreign firms creates incomplete adaption and potential resistance to local industrial relations institutions. Again, Table A1 confirms that the magnitudes are economically interesting. The net influence of the works council on the likelihood of profit sharing is roughly 7 percentage points among domestically owned firms and about -6 percentage points among foreign owned firms. Indeed, the magnitudes are such that among firms that have works councils, there is very little influence of foreign ownership.

4.3 Employee Share Ownership

Table 4 again reproduces the series of three estimates using share ownership as the dependent variable. For a third time, the basic pattern is repeated and may be even the more dramatic. Foreign owners continue to be more likely to have share ownership schemes. Domestically owned establishments with works councils are also more likely to have share ownership schemes. The interaction is very large and negative. Thus, works councils have a positive role that is unique to sample of domestic firms. In these

estimations, the interaction coefficient is large and negative enough that absent the interaction variable, a significant influence of foreign ownership cannot be identified. The addition of the variable for export share changes nothing in these estimates.

The projections in Table A1 show that among domestically owned firms without works councils there are virtually no share ownership plans (only about 1 percent) while among foreign owned firms without works councils the figure reaches a high of over 10 percent. As in the two previous projections, the presence of a works council is reflected in an increase the probability among domestically owned firms but not among foreign owned firms.

The results on the control variables show a strong role of the qualification of the workforce. Employer provided further training, the share of university graduates, and the share of skilled workers (with completed apprenticeship training) are positive determinants of employee share ownership. While the variables for organizational change do not take significant coefficients, two indicators of technological change, the state-of-the-art technology and investment in information and communication technology, are positively associated with the provision of employee share ownership. Establishment size and the legal of form of a stock corporation also increase the likelihood of employee share ownership. Confirming the pattern for the use of profit sharing, collective bargaining coverage has no significant influence while the use of alternative forms of worker representation is a positive covariate of share ownership.

4.4 Robustness Checks

In summary, we identify a common pattern for all three HRM practices associated with

variable pay that fits our basic hypothesis. While works councils are associated with increasing the likelihood of each practice, this is a role unique to domestic firms. Among foreign firms, the practices are more likely but the works council plays, at best, no role. This appears consistent with the notion that foreign firms behave in a more unilateral fashion with incomplete adaptation to local institutions.

In this section, we provide two important robustness checks that increase confidence in the pattern of determinants identified for the three HRM practices. First, we explore the issue of whether the role identified for works councils is uniquely associated with foreign ownership or is more broadly associated with establishments engaged in the global economy. Greater international exposure by German firms may bring the ability to threaten moving work overseas and that this may change the employer's relation with the works council. In addition, exposure overseas could bring alternative views of managerial roles. Thus, in addition to the interaction of works councils with foreign ownership we add an interaction of works councils with the establishment's export share. This allows us to investigate the role of increased international exposure in more detail and to see whether our hypotheses about foreign ownership retain support.

We summarize the estimates for all three practices in Table 5. The new interaction presents a mixed picture. It emerges with an insignificant coefficient in the performance appraisal estimate but shows a significantly positive coefficient in the regression of profit sharing and a significantly negative coefficient in the regression of employee share ownership. Critically, the pattern demonstrated earlier remains. The practices are more common among foreign firms. They are also more common among firms with works councils but this role of works councils is unique to domestically owned establishments.

The presence of a works council among foreign owned firms is not associated with any greater likelihood of the practices. This suggests that foreign ownership remains as critical determinant of the role of works councils.

As a second robustness examination, we return to the original estimates and examine the role of alternative forms of worker representation in more detail. We investigate if the role of foreign ownership is unique in its interaction with works councils or if it applies more broadly across other types of representation. Thus, in addition to the interaction of foreign ownership with works councils we add an interaction of foreign ownership with the presence of alternative forms of worker representation. Again, at issue is whether the new interactions emerge as important and whether the interactions with works councils remain.

The estimations for the three practices are summarized in Table 6. The new interactions are routinely positive but none achieve statistical significance. The interactions with works councils remain negative and significant. Thus, the pattern remains. Foreign owned establishments are more likely to engage in each practice. Domestic establishments that have works councils are more likely to engage in the practices but this role for works councils does not carry over to foreign establishments. Our robustness checks continue to make clear there is no positive role played by works councils among foreign owned establishments.

5. Conclusions

This paper examines whether or not the role of works councils appears to differ in domestically and foreign owned establishments. We note that appraisal and variable pay

are increasingly important aspects of multinational HRM practices and hypothesize that, as a consequence, there may be institutional duality in which foreign firms adapt less than completely to domestic industrial relations institutions. Earlier work has argued that works councils provide a mechanism for detailed worker participation and that councils have the potential to help build the trust needed to adopt or modify HRM practices in general and variable pay practices in particular. Yet, institutional duality implies that this role of works councils may not carry over to foreign owned establishments.

Examining the determinants of performance appraisal, profit sharing and employee share ownership, the estimates provide broad support for this hypothesis. Foreign owned establishments are more likely to use the three HRM practices but appear to do so in a more unilateral fashion. While works councils are associated with an increased likelihood of the practices, this is only true among domestically owned establishments but not among foreign owned establishments. This suggests profound differences in the role of works councils in the two subsamples and fits, at least in part, with the view that increase foreign direct investment serves to alter traditional industrial relations institutions.

We recognize the need for continued research within the theme. Future research might fruitfully examine the dynamics of the interaction between foreign ownership and establishment-level codetermination. Recent research by Jirjahn et al. (2011) shows that cooperation between works council and management improves with the age of the relationship and foreign owners and works councils are likely to have shorter relationships. Thus, it would be interesting to examine whether or not the evidence of institutional duality diminishes as both parties accumulate experience with each other.

Table 1: Variable Definitions and Descriptive Statistics (2007 IAB Sample)

Variable	Description (mean, standard deviation)
Performance Appraisal	Dummy variable equals 1 if the establishment conducts written performance evaluations of employees in your company (.533, .499)
Profit Sharing	Dummy variable equals 1 if the firm provides profit sharing for employees (.314 .464)
Employee Share Ownership	Dummy variable equals 1 if the firm provides employee share ownership (.060, . 237)
Works Council	Dummy variable equals 1 if the establishment has a works council (.529, .499)
Foreign Ownership	Dummy variable equals 1 if the establishment has a dominant foreign owner (.111, .315)
Collective Bargaining	Dummy variable equals 1 if the establishment is covered by a collective bargaining agreement (.596, .491)
Other Representation	Dummy variable equals 1 if management has implemented alternative forms of worker representation such as staff spokesmen, round tables or worker committees (.114, .317)
Export Share	The share of establishment sales accounted for by exports in percent (14.17, 24.73)
Technology	An ordered variable for the vintage of technology where 1 = very old…5= state of the art (3.91, .736)
R&D	Dummy variable equals 1 if the establishment engages in research and development (.248, .432)
Computer	Dummy variable equals 1 if the establishment invested in information and computer technology within the last year (.698, .459)
Training	Dummy variable equals 1 if the establishment provides further training to workers (.843, .364)
Reorganization	Dummy variable equals 1 if the establishment has reorganized departments and jobs within the last two years (.359, .480)
Delegation	Dummy variable equals 1 if decisions have been delegated to lower tiers of the establishment hierarchy within the last two years (.212, .409)
Teams	Dummy variable equals 1 if self-managed teams have been introduced within the last two years (.123, .329)
Women	The share of the establishment's workforce that is female (.418, .282)
Part time	The share of the establishment's workforce that is part time (.205, .235)
Churning	A churning rate based on the first half of 2007. H = number of hires and S = number of separations. The rate is equal to $1 - (H-S)^2/(H+S)^2$ if $H + S > 0$ and equal to 0 if $H+S = 0$ (.556, .428)
Temporary	The share of the establishment's workforce that is on temporary contract (.119, .157)
Agency	Dummy variable equals 1 if the establishment uses agency workers

	(.335, .472)
Size	Number of employees at the establishment (295, 1073)
Skilled	The share of the workforce with completed apprenticeship training (.601, .256)
University	The share of the workforce with university degrees (.106, .168)
Limited	Dummy variable equals 1 if the establishment is a private limited company (.723, .447)
Stock Corporation	Dummy variable equals 1 if the establishment is a stock corporation (.063, .244)
Age 1990	Dummy variable equals 1 if the establishment was founded in the 1990s (.294, .456)
Age 2000	Dummy variable equals 1 if the establishment was founded 2000 or later (.137, .344)
East	Dummy variable equals 1 if the establishment is located in the former East Germany (.319, .466)
Industrial Dummies	8 industry dummies are included

N= 3575

Table 2: The Likelihood of Formal Performance Appraisal (Probit estimation)

	1	2	3
Constant	-1.553 (8.71)**	-1.564 (8.75)**	-1.472 (7.62)**
Foreign Ownership	.2940 (3.78)**	.5301 (3.55)**	.5280 (3.45)**
Works Council	.2952 (5.26)**	.3145 (5.47)**	.3233 (5.16)**
Foreign Ownership X Works Council		-.3052 (1.77)*	-.3460 (1.95)*
Export Share			.0033 (2.68)**
Other Representation	.0678 (0.96)	.0682 (0.96)	.0398 (0.51)
Collective Bargaining	.0998 (1.97)**	.1027 (2.03)**	.1269 (2.32)**
Training	.6104 (8.91)**	.6145 (8.94)**	.6167 (8.61)**
University	-.0004 (0.01)	-.0067 (0.04)	.1495 (0.82)
Skilled	-.0522 (0.53)	-.0449 (0.46)	-.1405 (1.33)
Size	.0002 (2.22)**	.0002 (2.24)**	.0002 (1.86)*
Size Squared	$-4.9x10^{-9}$ (2.27)**	$-4.9x10^{-9}$ (2.29)**	$-4.5x10^{-9}$ (1.94)*
Women	.2788 (2.37)**	.2761 (2.35)**	.1771 (1.41)
Churning	.0957 (1.75)*	.0921 (1.68)*	.0610 (1.03)
Temporary	.1989 (1.26)	.2038 (1.29)	.2512 (1.44)
Agency	.2011 (3.50)**	.2022 (3.52)**	.2094 (3.46)**
Part time	-.1937 (1.51)	-.1915 (1.48)	-.2117 (1.49)
Reorganization	.1355 (2.63)**	.1335 (2.59)**	.1658 (2.99)**
Delegation	.0822 (1.37)	.0840 (1.40)	.0929 (1.43)
Teams	.2160 (2.93)**	.2148 (2.91)**	.1763 (2.19)**
Technology	.0832 (2.68)**	.0822 (2.65)**	.0927 (2.76)**

R&D	.1366 (2.12)**	.1359 (2.11)**	.0569 (0.81)
Computer	.0447 (0.86)	.0443 (0.85)	.0098 (0.17)
Limited Liability	.1638 (2.60)**	.1604 (2.54)**	.1437 (2.00)**
Stock Corporation	.4182 (3.56)**	.4146 (3.54)**	.5794 (4.34)**
Age 1990	.0800 (1.33)	.0786 (1.30)	.0827 (1.28)
Age 2000	-.0151 (0.21)	-.0164 (0.23)	-.0161 (0.21)
East	.2012 (3.50)**	.2037 (3.54)**	.2170 (3.47)**
Industrial Dummies	Yes	Yes	YES
Pseudo R-squared	.1225	.1231	.1308
N	3575	3575	3070

Notes: Robust z-statistics are in parentheses.
*Statistically significant at ten percent.
**Statistically significant at five percent.

Table 3: The Likelihood of Profit Sharing (Probit estimation)

	1	2	3
Constant	-2.399 (11.87)**	-2.421 (11.91)**	-2.185 (10.16)**
Foreign Ownership	.1721 (2.29)**	.4681 (2.94)**	.4437 (2.74)**
Works Council	.1785 (3.03)**	.2083 (3.44)**	.2145 (3.32)**
Foreign Ownership X Works Council		-.3775 (2.12)**	-.3819 (2.08)**
Export Share			.0009 (0.73)
Other Representation	.1338 (1.69)*	.1336 (1.69)*	.2056 (2.50)**
Collective Bargaining	-.0638 (1.17)	-.0601 (1.10)	-.0535 (0.93)
Training	.4147 (5.19)**	.4220 (5.28)**	.4438 (5.43)**
University	.3578 (2.26)**	.3491 (2.19)**	.5813 (3.21)**
Skilled	.0901 (0.85)	.1004 (0.95)	.1108 (1.00)
Size	.0002 (3.19)**	.0002 (3.23)**	.0002 (3.50**
Size Squared	$-3.2x10^{-9}$ (2.44)**	$-3.3x10^{-9}$ (2.47)**	$-4.9x10^{-9}$ (3.12)**
Women	-.1963 (1.52)	-.1993 (1.54)	-.3026 (2.23)**
Churning	.1752 (3.00)**	.1709 (2.92)**	.1898 (3.07)**
Temporary	.1641 (0.94)	.1724 (0.98)	.2977 (1.60)
Agency	.1295 (2.25)**	.1299 (2.25)**	.1309 (2.12)**
Part time	-.1291 (0.86)	-.1271 (0.85)	-.0799 (0.50)
Reorganization	.1306 (2.47)**	.1276 (2.41)**	.0882 (1.56)
Delegation	.1814 (2.88)**	.1844 (2.92)**	.2454 (3.68)**
Teams	-.1111 (1.43)	-.1137 (1.46)	-.1180 (1.42)
Technology	.0628 (1.92)*	.0617 (1.88)*	.0528 (1.52)

R&D	.1719 (2.70)**	.1689 (2.65)**	.1595 (2.30)**
Computer	.2867 (4.96)**	.2870 (4.97)**	.2603 (4.25)**
Limited Liability	.3743 (5.11)**	.3697 (5.03)**	.2878 (3.48)**
Stock Corporation	.7471 (6.38)**	.7418 (6.34)**	.7371 (5.55)**
Age 1990	.0581 (0.88)	.0600 (0.85)	.0597 (0.87)
Age 2000	.0623 (0.83)	.0611 (0.81)	.0482 (0.61)
East	-.0480 (0.76)	-.0449 (0.71)	-.0467 (0.69)
Industrial Dummies	Yes	Yes	Yes
Pseudo R-squared	.1435	.1446	.1308
N	3590	3590	3083

Notes: Robust z-statistics are in parentheses.
*Statistically significant at ten percent.
**Statistically significant at five percent.

Table 4: The Likelihood of Employee Share Ownership (Probit estimation)

	1	2	3
Constant	-3.616 (10.49)**	-3.658 (10.44)**	-3.473 (9.31)**
Foreign Ownership	.1180 (1.11)	.5309 (2.36)**	.5568 (2.48)**
Works Council	.3938 (4.39)**	.4454 (4.84)**	.4321 (4.42)**
Foreign Ownership X Works Council		-.5026 (2.02)**	-.5145 (2.05)**
Export Share			.00005 (0.02)
Other Representation	.2101 (1.85)*	.2073 (1.82)*	.2556 (2.15)**
Collective Bargaining	.0018 (0.02)	.0058 (0.07)	.0329 (0.38)
Training	.2636 (1.90)*	.2731 (1.96)*	.2385 (1.69)*
University	.4139 (1.65)*	.3936 (1.57)	.4035 (1.55)
Skilled	.4117 (2.34)**	.4166 (2.36)**	.3679 (2.02)**
Size	.0002 (4.18)**	.0002 (4.25)**	.0002 (2.89)**
Size Squared	$-4.6x10^{-9}$ (3.98)**	$-4.7x10^{-9}$ (4.10)**	$-1.2x10^{-9}$ (1.47)
Women	.3492 (1.80)*	.3498 (1.79)*	.2654 (1.28)
Churning	.0510 (0.56)	.0437 (0.48)	.0650 (0.68)
Temporary	-.0829 (0.25)	-.0679 (0.21)	-.1934 (0.59)
Agency	-.0234 (0.28)	-.0272 (0.33)	-.0228 (0.25)
Part time	-.3963 (1.53)	-.3998 (1.15)	-.2032 (0.77)
Reorganization	.0894 (1.13)	.0835 (1.05)	.0905 (1.08)
Delegation	.0082 (0.09)	.0075 (0.08)	.0409 (0.41)
Teams	-.0605 (0.52)	-.0653 (0.56)	-.0502 (0.40)
Technology	.1067 (2.16)**	.1068 (2.15)**	.0977 (1.83)*

R&D	-.0633 (0.68)	-.0674 (0.73)	-.0663 (0.66)
Computer	.1551 (1.64)	.1573 (1.66)*	.1491 (1.47)
Limited Liability	.0426 (0.37)	.0336 (0.29)	.0329 (0.25)
Stock Corporation	.7324 (4.96)**	.7223 (4.89)**	.7796 (4.71)**
Age 1990	-.0091 (0.09)	-.0153 (0.14)	-.0270 (0.24)
Age 2000	.1179 (1.03)	.1100 (0.96)	.1418 (1.19)
East	.0879 (0.89)	.0955 (0.96)	.1336 (1.29)
Industrial Dummies	Yes	Yes	Yes
Pseudo R-squared	.1357	.1381	.1356
N	3588	3588	3077

Notes: Robust z-statistics are in parentheses.
*Statistically significant at ten percent.
**Statistically significant at five percent.

Table 5: Works Councils, Foreign Ownership and Exports

	1 Performance Appraisal	2 Profit Sharing	3 Share Ownership
Constant	-1.471 (7.62)**	-2.181 (10.14)**	-3.496 (9.35)**
Foreign Ownership	.5348 (3.47)**	.4854 (3.01)**	.4970 (2.11)**
Works Council	.3143 (4.79)**	.1707 (2.49)**	.5003 (4.89)**
Foreign Ownership X Works Council	-.3569 (1.98)**	-.4412 (2.40)**	-.4367 (1.65)*
Export Share	.0027 (1.36)	-.0023 (1.11)	.0050 (1.61)
Export Share X Works Council	.0010 (.042)	.0046 (1.93)*	-.0067 (1.91)*
Other Representation	.04122 (0.53)	.2122 (2.59)**	.2401 (2.04)**
Industrial Dummies	Yes	Yes	Yes
Pseudo R-squared	.1309	.1318	.1381
N	3070	3083	3077

Notes: All estimates include the full set of control variables as shown in Tables 2 – 4.
Robust z-statistics are in parentheses.
*Statistically significant at ten percent.
**Statistically significant at five percent.

Table 6: Works Councils, Foreign Ownership and Other Forms of Representation

	1 Performance Appraisal	2 Profit Sharing	3 Share Ownership
Constant	-1.472 (7.62)**	-2.181 (10.14)**	-3.467 (9.29)**
Foreign Ownership	.5253 (3.31)**	.3831 (2.30)**	.4637 (2.02)**
Works Council	.3231 (5.15)**	.2109 (3.27)**	.4252 (4.35)**
Foreign Ownership X Works Council	-.3444 (1.92)*	-.3424 (1.85)*	-.4534 (1.81)*
Export Share	.0033 (2.68)**	.0009 (0.75)	.00001 (0.04)
Other Representation	.0385 (0.47)	.1703 (1.98)**	.1969 (1.52)
Foreign Ownership X Other Representation	.0197 (0.07)	.4213 (1.37)	.4324 (1.26)
Industrial Dummies	Yes	Yes	Yes
Pseudo R-squared	.1308	.1314	.1367
N	3070	3083	3077

Notes: All estimates include the full set of control variables as shown in Tables 2 – 4.
Robust z-statistics are in parentheses.
*Statistically significant at ten percent.
**Statistically significant at five percent.

Appendix

Table A1: Projected Probabilities

	Performance Appraisal	
	No Council	Council
Domestic Owned	.436	.585
Foreign Owned	.733	.652
	Profit Sharing	
Domestic Owned	.264	.340
Foreign Owned	.425	.361
	Employee Share Ownership	
Domestic Owned	.009	.026
Foreign Owned	.104	.089

All values are kept at their means and the four values are computed using the coefficients from the variables on foreign ownership, works councils and the interaction.

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ENDNOTES

[1] A handful of econometric studies examine the potential influence of national industrial relations systems on the inflow of FDI (Bognanno et al. 2005, Cooke 1997, Cooke and Noble 1998, Ham and Kleiner 2007). Other studies investigate the effect of FDI on domestic unionization (Cooke 2001, Dreher and Gaston 2007, Slaughter 2007) and the desire of workers for works councils (Schmitt 2003). None of these studies examines the interaction of foreign ownership and domestic industrial relations on economic outcomes or HRM practices.

[2] Empirical studies provide evidence of a gender and a race bias in performance appraisal (Castilla 2008, Elvira and Town 2001, Maas and Torres-Gonzalez 2011).

[3] See Dolan et al. (2007) and Frey et al. (2004) for a general discussion on procedural fairness.

[4] One might argue that works councils should in general oppose variable pay as variable pay increases the wage inequality and, hence, may undermine worker solidarity. While there is indeed a negative link between works councils and intra-establishment wage dispersion (Jirjahn and Kraft 2007, 2010), this does not necessarily imply that works councils always oppose variable pay. The available studies suggest that works councils support variable pay as long as they can contribute to increased trust and cooperation. In what follows we argue that this depends on the type of ownership.

[5] A related reasoning has been made in the context of unionization (Caves 1996, Fabbri et al. 2003, Slaughter 2007).

[6]Jackson et al. (2005) argue that foreign owners in Germany have a stronger focus on shareholder value as Germany has experienced a rise of Anglo-American investors.

[7] The survey design stratifies by establishment size and oversamples larger establishments. We do not use weighted regressions as we appropriately account for stratification by including the stratification characteristic (establishment size) as an explanatory variable in all estimations (Winship and Radbill 1994). The descriptive statistics are also not weighted in order to relate them to the multivariate analysis.