

NBER WORKING PAPER SERIES

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Working Paper 13233
<http://www.nber.org/papers/w13233>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
July 2007

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The Same Yet Different: Worker Reports on Labour Practices and Outcomes in a Single Firm
Across Countries

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NBER Working Paper No. 13233

July 2007

JEL No. J0,J00

ABSTRACT

This paper examines cross-country differences in labour policies and practices and employee performance and attitudes toward work from a sample of nearly 30,000 employees in a large multinational manufacturing firm. The analysis shows: 1) large establishment and country differences in work practices, performance, and attitudes toward work across countries; 2) qualitatively similar responses of workers to work practices across countries; 3) a strong link between the establishment average of employee reports on the quality of labour-management relations and establishment average measures of employee performance 4) a positive relation between average employee performance and average employee-management relations at the country level, but no relation between country level performance in the firm and measures of the extent of national labour regulations or practices.

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Consider a multinational firm producing similar goods and services in the same industry in many countries. How much do labour practices, employee attitudes, and worker behaviour differ among the establishments of the firm? Are there identifiable differences in practices, attitudes, and behaviour across the countries? Do workers in different countries respond similarly to similar policies? Are aggregated measures of labour practices by country related to aggregated measures of worker behaviour and outcomes by country?

This paper examines these questions using data from a 2005-2006 survey of workers in 272 establishments in a single large multinational manufacturing firm that operates in 19 countries. With the assistance of the firm, we undertook a web based survey and a paper survey of the workers. The firm convened employee meetings in each facility to induce employees to respond to the survey, which gave us a sample of 29,353 respondents, with a response rate of greater than 60%.¹ This is one of the largest individual level data sets on labour practices, employee attitudes toward work, and self-reported workplace performance across countries in a single firm since Geert Hofstede's (1984, 1991) study of IBM based on surveys in 1968 and 1972.² Our study differs from Hofstede's classic work in three ways. First, whereas Hofstede's surveys focused on European and Middle Eastern countries, our sample contains a large number

1 The web surveys were submitted directly to our web site and not to company administration. To protect the confidentiality of workers who filled out paper surveys, each worker placed his or her anonymous survey in a sealed envelope that went into box controlled by a committee of 3 non-management employees who were instructed to drive it to an express mail/shipping facility immediately. These protections of confidentiality set the stage for a high "comfort zone" for open responses to the questions. In addition, the surveys were translated into the language of each country so that it would be accessible to most of the workers filling out the surveys who were native speakers. The company's policy is to rely on local management teams and workers with very selective and infrequent use of expatriates. To the extent there are immigrants in the company's workforce this will mute the estimates of country differences.

2 Hofstede collected about 60,000 employee surveys in each year for a total of 116,000 surveys.

of observations from the US and from developing and developed countries in Latin America and Asia as well as from Europe. Second, our data are for manufacturing, whereas Hofstede's 1968 study included many workers outside manufacturing and his 1972 sample excluded manufacturing. Finally, while Hofstede looked primarily at employee values and beliefs as they related to organizations and national culture or character, our focus is on employment relations, the organization of work, and the economic behaviour of workers in response to labour policies and practices in their establishment.³

Our data reveal that:

1) Workplace practices, worker reports of performance, and attitudes toward performance differ significantly across establishments and among establishments in the different countries in which the firm operates. In all of our analyses, estimated dummy variables for the establishment where a worker works show that the establishment is a major factor in responses to questions about workplace practices, attitudes toward work, and performance. Replacing establishment dummy variables with dummy variables for the country in which the establishment is located identifies significant cross-country variation in labour practices and outcomes as well.

2) Worker attitudes toward their workplace and workplace behaviour are affected by work policies and practices in qualitatively analogous ways across countries. Statistically, regressions linking measures of worker attitudes or performance to measures of the quality of labour-management relations and the presence of high performance work practices yield positive estimated slope coefficients in most countries, although with differing magnitudes.

3) Aggregating worker responses by establishments to make the establishment the unit of observation, we find that the average employee performance across establishments is strongly

³ In areas where the two surveys overlap, we compare results between Hofstede's and our analysis. See Blasi, Freeman, Kruse (forthcoming, 2007).

related to the average reported quality of labour-management relations across establishments. This relation holds for establishments outside the US and for establishments within the US.

4) Taking country as the unit of observation, workers in countries where workers report better employee-management relations and compensation above market levels also report better employee performance. By contrast, we find no relation between the average measures of worker performance among countries with widely used country level indices of labour practices.

The Data and Primary Variables

Columns 1 and 2 of Table 1 give the sample size and number of facilities by country in our survey. Because the firm is headquartered in the United States and expanded from there to other countries, the US has the largest number of establishments and workers (73% and 72% of the totals, respectively). The company began to expand internationally in the 1960s with regular acquisitions outside the US that accelerated throughout the 1980s and 1990s. The high representation of American establishments allows us to estimate the level and interrelation of variables in the US with considerable precision, which gives us a good base with which to compare the level and interrelation of variables for other countries. But the low representation of establishments in any other single country limits our ability to compare operations among the non-US countries. The difference in the number of observations for the US and other countries and the way the multinational developed its overseas operations as outgrowths of US operations dictates the research strategy with which we examine the data. Just as Darwin and Wallace (July 1858) examined how species develop “varieties” from an “original type” or existing population as it spread across geographic areas, for instance from a mainland to islands, we treat the American mode of operating as the original type and the practices in other countries as varieties that depart from the original type in response to differing national regulatory and economic

environments.

The survey asked a large number of questions about employee opinions and attitudes on the organization of work, labour-management relations, supervision, employee involvement, and compensation systems. With respect to worker behaviour, it asked about expected turnover, behaviour toward co-workers, the effort of workers at their job and the effort of fellow employees, and a unique module of questions regarding worker perception and responses to seeing fellow workers shirk, their willingness to take innovative action at their workplace, and their views of how their facility performs. Most of the questions use a five-point Likert scale, with higher numbers reflecting more positive assessments, though some questions are dichotomous.⁴

One way to analyze a survey with many questions in different domains is to select a few specific questions and focus on responses to them. This has the advantage of linking the analysis to what respondents reported without any filter or pre-processing of the data. An alternative mode of analysis is to create summary statistics of variables in the same domain, for instance through summated rating of the responses or factor analysis (Bartholomew and Knott, 1999), and to analyze those summary statistics. Averaging responses across similar items produces a latent variable that has less random measurement error than does any single item, and that can accordingly help assess models that analyze broader behaviour than responses to a single question. We use both approaches in the study. For the most part, for the sake of specificity, we examine responses to individual items. Where research has found that certain practices fit

⁴ In addition to the worker survey, we obtained administrative records from the firm on the economic performance of 79 divisions, with each division containing facilities producing a similar product, or in some cases, geographic units that report performance to top management. Here we relied on data that the firm normally gathers from its facilities to assess their performance. We have analysed these data in Blasi, Freeman, and Kruse (2007).

together in a group, such as in the form of “high performance workplaces,” however, we analyze an index of several variables. To make sure that our results do not depend on the particular variables or indices on which we focus, we also estimated models that used all of the questions in the relevant domains and note the results from these calculations.

We have structured our analysis around the distinction between policies or practices that in principle the firm’s management controls, which we take as exogenous to workers, and attitudinal or behavioural variables that reflect worker responses to the policies or practices. This structure ignores the potential feedback from worker behaviour to management’s choice of labour policies or practices. We focus on three independent variables as our primary measures of management policies or practices.

The first variable is the employee-reported quality of employee-management relations. While we recognize that employer-employee relations reflect the joint behaviour of workers and management, management sets the main tenor of the relationship with its human resource or personnel policies. As part of its overall business strategy (Boxall and Purcell, 2003), management can choose to take account of employee concerns in various ways (so-called high road labour relations) or it can ignore employee concerns and operate in a harder more hierarchical manner (so-called low road labour relations). The choice of labour policies has consequences for economic outcomes, which in our analysis are worker reports of their work performance and response to work-related events, and the performance of their co-workers and of their facility.⁵

The second measure of management policy or practices is the absence or presence of a set of the specific work practices that are considered important to high performance work

5 For an analysis of labour-relations practices and aggregate economic outcomes, see Blanchard and Philippon (2006)

systems (Appelbaum, Bailey, Berg, and Kalleberg, 2000). Since research has found that a firm needs many of these practices to improve outcomes (Ichniowski, Shaw and Prennushi 1997), we measure the extent to which a firm has a high performance workplace as an index based on questions relating to the presence of: employee involvement teams, training; information sharing; employee selection; profit or gain sharing; and job rotation, as described in the source to Table 1.

The third measure is the rate of compensation at the facility relative to compensation in the broader labour market. In principle management cannot obtain workers by going below market rates (at least for the long run) but management can pay wages above market rates, either to reduce turnover or as an efficiency wage to give workers an incentive to work harder (Akerlof, 1982).

Taking these variables as exogenous to worker behaviour, we examine how they affect four self-reported measures of worker behaviour or potential behaviour: 1) whether workers are likely or unlikely to look for a new job in the next six months (an outcome variable widely studied in analyses of job satisfaction); 2) workers' professed willingness to work hard for the company (taken as an indicator of effort); 3) workers' professed willingness to innovate products and services (taken as an indicator of the more creative dimension of work, which has arguably become more important over time in most workplaces); and 4) the worker's willingness to intervene when he or she sees a co-worker shirking. The fourth variable is one that we created to help test the hypothesis that modern team production and group incentive employment systems overcome the free rider problem inherent in any group incentive system through worker self-monitoring (Freeman, Kruse, and Blasi, 2006; Kruse, Blasi, and Park 2006). The variable is based on a four-part question that asks workers the likelihood that if they observe a fellow employee not working as hard or well as he or she should, they would undertake any of the

following actions: talk directly to the employee; speak to a supervisor or manager, talk about the worker in a work group or team, or do nothing. By asking about responses in four ways, we obtain a more finely graded measure than if we had asked about any single response. Analysing this variable for all US workers in the 2002 and 2006 General Social Survey and for workers in a sample of companies that we surveyed shows that workers are more willing to take action against shirking when they are paid by group incentive systems, and that workers who are willing to act against shirkers believe that their facility is more effective and that fellow workers work harder than do workers who are not willing to act against shirkers (Freeman, Kruse, and Blasi, 2006). Given this, we seek to determine whether there are establishment or country differences in acting against a shirking worker. Finally, to move beyond worker reports of their own behaviour or likely behaviour, we also asked about how hard their co-workers work, and how well their facility operated.

Empirical Strategy

We have undertaken a three-step analysis of our data. Each of these modes of analysis has statistical problems that we address.

In the first step we test whether employment practices and worker performance vary across establishments and countries. Without such differences, this study would come to a quick and decisive conclusion. If the only source of variation were among individual workers, there would be little point to examining how establishment practices or country labour systems affected workers. With 272 establishments, we tested for differences in variables among establishments using an ANOVA type design, and as we shall see, found statistically significant results. It is more difficult to identify country effects in our data because the survey has only a few establishments in specific countries outside the US (the largest number of establishments in

a non-US country is fourteen while there is just one establishment in five countries). These numbers make it difficult to differentiate the effects of country institutions on outcomes from the effects of establishments per se. In the cases where countries have only a single establishment, there is no way to know whether the observation reflects something about the country or about the establishment. Even in cases where the firm has more establishments in a country, it is possible that work practices or performance will differ from those in the US or in other countries for reasons beyond the country institutions of concern to us. If contiguity of establishments is associated with similarity in practices and performance, countries could differ in their practices or performance because the establishments are closer to each other geographically than they are to the establishments in the US and other countries. For instance, in the US, labour practices and performance differ between private sector firms and workers in New York and Mississippi although they are covered by the same national labour regulations.⁶ If workers in, say, Germany or Belgium report different practices and performance than workers in the US, how are we to tell if those differences are due to differences due to national labour regulations or modes of operating, or to differences that might occur among establishments in different parts of the same country?

Our data contain enough establishments in the US to allow us to address this problem by estimating the variation in practices and outcomes for the firm's establishments across US states and then using this variation as an indicator of the effect of geographically contiguous areas on practices and outcomes in the firm. If we assume that regional contiguity operates orthogonal to national institutions and is similarly sized in other countries as in the US, the variation in practices and outcomes across countries in our analysis would equal the effect of regional

⁶ This is not true for government employees. In the US federal labor law covers private sector workers but state labor laws cover government sector employees.

contiguity differences in the US plus differences due to different national labour institutions.⁷

Following this logic, we estimate the contribution of US states to the variation in practices and outcomes in the US; and then compare this variation to the variation across countries. If country institutions matter in determining a particular variable, the variation in that variable across countries should exceed the variation in the same variable across US states. Put differently, our test for whether national labour institutions affect practices or outcomes is that the variation associated with countries exceeds the variation associated with states in the US.

In the second step of our analysis, we assess the linkages of worker behaviour to management practices by regressing the four measures of employee behaviour described earlier on the measures of company policy and practice. The problem with identifying this relationship is that both the independent and dependent variables are self-reports from workers. It is possible that workers report practices/policies based on their idiosyncratic position or views rather than on the overall situation at the workplace. For instance, worker A at establishment E might report that the establishment has good work practices and that the worker is willing to work hard while worker B at the same establishment might report that the establishment has bad work practices and that the worker is unwilling to work hard. This pattern would produce a strong relation between work practices and willingness to work hard at the *individual* level but no relation between practices and working hard at the *workplace* or *establishment* level of interest. We deal with this problem by analyzing the averages of variables among establishments as well as the responses of individual workers. Averaging responses across establishments eliminates the danger that variables are correlated because individuals have consistent but different perceptions

⁷ This assumption would not be valid if, for example, cultural differences lead to greater regional variation among countries than among US states, and these cultural differences are associated with differences in labour institutions.

about the establishment and thus the correlations may not hold at the establishment level.

Third, finding country effects in our data, we relate the estimated country effects in worker outcomes (the coefficients on country dummy variables) to estimated country effects in labour practices and policies (again as reflected in the coefficients on dummy variables for countries). In addition, we estimated the relation between country differences in labour outcomes and measures of country labour practices from the Fraser Institute's indices of economic freedom and the World Economic Forum's measures of competitiveness.

Cross-country Patterns

Columns 3-5 of Table 1 report the average level of our three indicators of workplace policy or practice: how the worker grades the firm on the quality of labour management relations; the index of high performance workplace policies; and a measure of whether the firm pays compensation above that in the local market.⁸ The table note gives the exact questions used and the way in which we coded them for analysis. The mean values of the three policy or practice measures show sizable country differences. For example, workers in the Czech Republic and Taiwan give higher ratings to the quality of labour-management relations than those in Italy or Australia (column 3); workers in Canada report that their establishments have more policies associated with high performance workplaces than those in France (column 4); workers in China report that their total compensation relative to the market is significantly lower than workers in the United States (column 5), and so on. The F-statistics for differences in country means given at the bottom of the table are sizable and highly significant.

⁸ These are self-reported measures and not objective measures of company practices. However, these perceptions may be the key to worker behaviour because workers will respond to what they see as reality as opposed to what management may be trying to accomplish or what policies actually are. See Chan and Steven (2003) for evidence that employee retirement decisions reflect perceptions of the rules governing pension plans rather than the actual rules.

Columns 6-9 of the table give the means for our measures of the performance of individuals at their workplace: the likelihood that they will stay at the job; their willingness to work hard; their willingness to offer innovative thoughts; and their willingness to take action against a shirking fellow employee. Again, the table note gives the specific questions that define these outcome measures. These columns also show sizable differences in the country means and F-statistics that indicate that the differences are statistically significant.

Going beyond workers' assessment of their own behaviour, column 10 records responses to our question on how they view the work effort of other employees.⁹ To see if employee reports on how hard other workers work at their facility differ from the self-reports of how hard they work, we correlated the two variables. The measure of the willingness of co-workers to work hard is correlated at 0.122 with the measure of the worker's own work effort, so the two measures are indeed reflecting different perceptions. Moreover, the mean values for the worker assessment of the work effort of fellow employees vary substantially among countries.

Employees in Brazil are more likely to report that fellow workers work hard than employees in Australia. Finally, column 11 records workers views of the effectiveness of their facility. Here too there is considerable variation among establishments and countries. Employees in Argentina are more likely to report that their establishment operates effectively than employees in Taiwan.

Because the characteristics of workers differ across establishments, it is possible that the cross-establishment and cross-country differences in management policies or practices and worker behaviour are due to differences in the characteristics of workers and jobs rather than to the differences among establishments and countries of concern to us. To see whether observable

⁹ Division performance data supplied by the company is strongly correlated with these worker reports of facility effectiveness aggregated to the division level, indicating that these reports appear to measure an operational variable.

worker and job characteristics explain the differences in response across establishments and countries, we estimated the following equations:

$$(1) Y_{ijc} = a + bX_{ijc} + D_j + u_{ijc}$$

$$(2) Y_{ijc} = a + bX_{ijc} + D_c + u_{ijc}$$

where Y is a specified practice or outcome variable; i refers to the worker; j to the establishment employing the worker, c to the country in which the establishment is located, and where X_{ijc} are covariates for the individual, D_j is a vector of dummy variables for the establishment; D_c is a vector of dummy variables for the country in which the establishment is located, and u_{ijc} is an error term. The coefficients on D_j capture the establishment effects while the coefficients on D_c capture the effects of a given country relative to the deleted country, which is the US. Since establishments are located in a single country, the estimated country effects are averages of establishment effects for the establishments in the country.

The survey gives us detailed information on employee characteristics such as age, gender, marital status, family size, number of children, education, ethnicity, and whether the employee has a disability or not. There is also detailed information on occupational and job characteristics such as fixed pay, tenure, supervisory status, managerial level, and whether the employee is hourly or salaried or is engaged in administrative support, production, professional/technical, sales or customer service work. We estimated two functional forms for equations (1) and (2): ordered probits when the outcomes have several values with a natural ordering (e.g., "not at all true, not very true, somewhat true, and very true"), and OLS regressions with the dependent variables measured from 1 to 5, reflecting the five point scales used in the survey. The statistical results were similar. For ease of presentation, we give the results of the OLS regressions in the tables.

To begin with, we examined whether the reports of workers within an establishment coalesce at the establishment level. If workers in an establishment report consistently on the quality of its labour-management relations, this is more likely to reflect establishment policy or practice than if worker reports vary greatly within the same establishment. Formally, we asked the extent to which establishment dummy variables contributed to the variation in individual responses, as given in the relevant F-statistics, conditional on the covariates used in equation (1). Table 2 summarizes the results of analyses of the variation among establishments for the policy/practice and performance variables on which we have focused. The table shows sizable F-statistics for establishments, implying that workers' reports about both practices and outcomes have a significant establishment component. The implication is that establishments truly differ in the way in which they operate.

Given that worker responses vary by establishment, we ask next whether these responses have a country component. To do this we estimated equation (2) and tested for the significance of country dummy variables (replacing the establishment dummy variables). The first column in Table 3 records the F-statistics for the country dummies with the establishments from all countries in the data set. They are sizeable and significant.¹⁰ As noted, however, with the small number of establishments outside the US, the differences could reflect differences in local management practices and employee behaviour among establishments that are closer geographically, producing regional effects separate from national institutions. To see whether the estimated country differences reflect more than the regional variation in variables found in a single country, we formed 19 dummy variables for states or groups of states in the US (thus

¹⁰ In addition, we also estimated the ANOVA model for the thirteen countries for which we have more than a single establishment and obtained larger F-statistics. The F-statistics for the 13 country sample are: 26.04, 38.00, 29.08, 20.42, 31.05, 24.30, 17.43, 26.08, and 14.30.

mimicking the number of countries in our country data set) and estimated the contribution of these dummies to the variation in US outcomes using the ANOVA model of equation (1). The computations show significant differences in the value of the variables among the US states.¹¹ But the F-statistics in column 2 of Table 3 are markedly lower than F-statistics for the country dummies in column 1 save for the measure of overall plant effectiveness, where they barely differ. With this exception, these data thus imply that the country dummies reflect more than “normal” regional variation in labour practices and outcomes across establishments.

The remainder of Table 3 examines another measure of the difference in estimated country or US state/region effects on the variables — namely, the variance in the estimated coefficients on the country dummies. This measure is independent of the number of respondents in the countries and thus resembles country comparisons that treat countries as observations irrespective of their populations. For comparison, we also calculated the variance of the estimated coefficients for the state dummy variables in the US. Columns 3 and 4 of Table 3 show huge differences between these measures: the variance of the country dummy variables is 3.8 to 13.9 times as great as the variance in state dummy variables in the US. The greater variation in outcomes across the countries than across the states in the US in which the firm operates suggests that some of the variation across countries is due to genuine country effects rather than to regional effects that occur within the same country.¹²

Finally, to make sure that our results are not dependent on the specific variables under

11 For simplicity we refer to the geographic divisions in the US as states, although in some cases we used groups of states as our measure, both because some states have few observations and we wanted to have the same number of groups as countries.

12 We also find, in results not reported here, that the variation among Continental European countries is similar to the variation among English-speaking countries, suggesting that the variation reflects real country effects and not underlying differences due to broader regional or cultural factors.

investigation, we analysed all of the relevant survey questions relating to labour practices, attitudes, and performance. There are seventy-nine such variables. The results of this analysis are reported under the heading “All 79 outcomes” at the bottom of Table 3. For the variables that give a clear linear ordering of outcomes, we use F-statistics from OLS regressions to measure the country or regional contribution to overall variation. For the remaining variables that have a clear but not necessarily linear ordering, we use chi-square statistics from ordered probit regressions. As a summary of these computations, the table gives the mean F-statistic or chi-squared statistic for the relevant variables and records the proportion of outcomes in which the variation across countries exceeds the variation across states in the US. Thus, taking all of the variables, the variation due to countries exceeds that due to states in the US, as it does for the variables on which we focus.

In short, our data show that labour practices, attitudes, and economic performance vary across establishments and among establishments across countries by more than one would expect from either of two null hypotheses: that there are no country effects; or that country effects are no larger than region effects within the US. In all cases, the F-statistics for country differences are highly significant.

Worker Responses to Practices

We turn next to the question: Do labour policies and practices affect the behaviour or performance of workers, and if so, are their effects similar across countries? Taking practices as exogenous, we estimate the following equation that relates worker reports on their performance, the performance of fellow employees, and establishment effectiveness to company practices or policies:

$$(3) P_{ic} = a + bX_{ic} + cY_{ic} + u_{ic}$$

where P_{ic} is a measure of performance, i refers to the worker; c to the country in which the establishment is located, the X_{ic} are covariates for the individual, and Y_{ic} measures the policies or practices described earlier – labour management relations, high-performance work places, compensation relative to market compensation. The error term u_{ic} is assumed to be independent and identically distributed.¹³

We estimated equation (3) separately for workers in the 14 countries in the data set that have more than a single establishment, since we cannot differentiate the establishment effect from country effects in countries with only a single establishment. Each regression contains all of the independent variables: the measures of employee-management relations, the high performance work index, and total compensation relative to the market. Thus, the results reflect the impact of each of these policies while accounting for the impact of the other policies. On the basis of studies that link good workplace policies and workplace outcomes in single-nation studies, we expect that employee-management relations and high performance work practices will be positively related (Appelbaum, Bailey, Berg, and Kalleberg 2000; Huselid 1995; Ichniowski, Shaw and Prenzushi 1997; Cappelli and Neumark 2001). On the basis of analyses of gift exchange (Akerlof, 1982), we expect that establishments with above-market compensation will also have better outcomes.

The regression coefficients in Table 4 show that in all countries the vast majority of outcomes are significantly positively related to measures of labour relations and high performance workplace practices. For example, workers who report more positive labour management relations or whose establishments have high-performance work practices are more

¹³ The establishment regressions in the next section control for correlated errors within establishments.

likely to remain with the firm, more willing to work hard, more likely to take action against fellow workers who shirk, and more willing to make innovative suggestions in almost every country. In addition, these workers are also more likely to report that their co-workers work hard, and that their establishment operates effectively. Of the 78 estimated coefficients on labour management relations in Table 4, 53 are significantly positive. Of the 78 estimated coefficients on our measure of high performance work practices, 51 are significantly positive. By contrast with these results, the estimated coefficients on the relation of outcomes to the measure of total compensation relative to the market in Table 4 show a weaker positive relation: 22 of the 78 estimated coefficients are significantly positive. The implication is that within the variation observed, labour practices are more important factors than are levels of pay. This is consistent with empirical research within single countries that compensation systems do not constitute a “silver bullet” in employment relations (see Heneman, Fay, and Wang, 2005).

The evidence in Table 4 indicates that regardless of the overall labor system in a country -- regulated Western European countries, developing countries, or the market-driven US -- workers respond similarly to workplace practices. However, there are some noticeable differences in the magnitude of the estimated coefficients in Table 4 and differences in the effects of particular policies on outcomes across countries. For example, employment relations have a smaller impact on the workers' expected turnover behaviour in China than in Canada, and a smaller impact on their willingness to work hard in Korea than in Canada. In France the estimates show a slight negative impact of employment relations on expected turnover, willingness to innovate, and the anti-shirking index, in contrast to the positive estimated impacts in most other countries. Further, that the French are willing to work harder than Americans in a high performance work system.

To see whether these differences reflect differences in behaviour across countries or random variation in the coefficients, we computed statistics that compare the variation in slope coefficients for each policy variable on each outcome across the countries. Then we estimated regressions of equation (3) for US states or groups of states and, following the logic we used earlier to analyze country dummy variables, we contrasted the variation in slope coefficients among countries to the analogous variation in slope coefficients among states and groups of states in the US. If responses truly differ by country, the variation in the slope coefficients among countries should exceed the variation in slope coefficients among US states.

Table 5 summarizes the results of these computations. Column 1 gives the F-statistics that test for equality of slope coefficients from a pooled regression with country dummy variables that allow for separate intercepts but impose identical coefficients on covariates. The F-statistics reject the equality of the slope coefficients. They show that there is significant cross-country variation in the magnitudes of coefficients estimated in Table 4. Column 2 gives F-statistics for the equality of slope coefficients from the comparable analysis for US states. These F-statistics are smaller than those for the countries, suggesting that workers responses to the relevant policies or practices differ more across countries than across states. Still, the difference in F-statistics between the country contrasts and state contrasts are smaller in the Table 5 analysis of slopes than in the Table 4 analysis of constant terms. Columns 3 and 4 of Table 5 record the variances of the estimated slope coefficients from the regressions for countries and states, respectively. The variances for the estimated coefficients are 1.2 to 8.6 times larger among countries than among US states. These differences are smaller than the analogous difference found in Table 4 between the variance in the estimated country and state dummy variables. From these statistics, it appears that country effects are greater for the level of employee

performance or work attitudes than for the response of performance or attitudes to establishment level practices and policies.

Finally, going back to the Table 4 regressions, we note that the estimated impact of particular policy variables are similar across countries on some outcomes and different on other outcomes. There are relatively modest differences across the countries (and across US states) in the impact of workplace policies on willingness to work hard. By contrast, there are noticeable differences across countries in the impact of policies and practices on the likelihood that a worker will seek a new job and in their assessment of the effectiveness of their facility. In addition, the quality of employee-management relations and total compensation relative to the market have a significant impact on country differences in workers' reports of their co-workers' willingness to work hard, while the presence of a high performance work system does not. The greatest variation across countries in the estimated slope coefficients is in the relationship of high-performance policies to workers' willingness to interfere with a shirking fellow employee. This suggests that the effects of policies on anti-shirking may be greatly affected by country cultures and institutions.

In sum, we conclude that the relationship between workers' responses and policies and practices are qualitatively similar across the countries, but that there are still notable differences in the magnitude of responses to policies and practices and in the relation between particular policies and outcomes across countries.

Establishment Level Patterns

The analyses thus far have related worker reports of their work behaviour or that of their co-workers to reports of practices and policies at their workplace. As pointed out, however, relations found in variables at the level of individuals need not generalize to the establishment,

much less to countries. Just as there are problems in making inferences about individual behaviour from correlations in regional or other aggregated data due to the ecological correlation problem¹⁴ there are problems in making inferences from analyses of responses of individuals to *workplace* policies or practices to how workers at the workplace would respond to the policies or practices. While the evidence in Table 3 that workers give broadly similar reports about their establishment suggests that regressions based on individuals should generalize to entire workplaces or facilities, the only way to see whether variables are related at the establishment level as they are among individuals is to estimate relations using establishment level measures of variables.¹⁵ Accordingly, we computed the establishment averages of the three workplace policy and practices variables and of the six employee reports of their workplace performance and regressed the establishment averages of the outcome variables on the establishment averages of the workplace practices or policies.

Table 6 records the estimated regression coefficients and standard errors for the policy or practice variables. To allow for any differences between the US and other countries, these regressions include a dummy variable for the US. The results in the first column show that the average quality of employee-management relations in establishments has a statistically significant effect on the establishment average of the six outcome variables. Figures 1 to 3 display the positive relation between the establishment average employee assessment of the quality of labour-management relations and a) employee perceptions of the effort of co-workers

14 http://en.wikipedia.org/wiki/Ecological_correlation. Also, see http://en.wikipedia.org/wiki/Ecological_fallacy.

15 See Lubinski, D., & Humphreys, L. G. (1996). Seeing the Forest From the Trees: When Predicting the Behavior or Status of Groups, Correlate Means. Psychology, Public Policy, and Law, Volume 2, pps. 363-376.

at the work site; b) employee willingness to engage in anti-shirking activity; and c) facility effectiveness. The figures differentiate between US and non-US establishments. Both show similar positive slopes for the relation between the quality of labour-management relations and the outcomes. The pattern for the outcome variables not given in the figure is similar.

The regressions in Table 6 show much weaker results for the impact of high performance work places and compensation above market levels on the outcome variables. In only one of the six regressions is the coefficient on high performance work systems a significant predictor of an establishment level outcome. Also, in only one of the six regressions is the coefficient on total compensation relative to the market a significant predictor of the establishment level outcome variables.

Should we take the establishment level regressions as valid, showing that worker perceptions of labour-management relations is the key factor in differentiating employee behaviour and work performance within the firm, while high performance workplaces and compensation are of minor importance? If each establishment had a single set of practices that affected all workers the same, the calculations in Table 6 would provide the best estimate of the effect of those policies or practices in our data. But some of the variation in worker reports of policies or practices within an establishment could reflect genuine differences in practices within the establishment rather than measurement error or idiosyncratic reporting by workers. Workers who report bad employee-management relations when the majority of workers say employee-management relations are good, or who report that their firm has high performance workplace practices, or that compensation is above average when other workers report the opposite, may in fact be accurately reporting their situation. On average, supervisors may be good, but the individual's supervisor may be horrible. On average, the firm may have the practices that

constitute a high performance workplace at some worksites but not at others. And so on. If all of the within-establishment variation in reported policies or practices were due to within-facility differences in the presence or absence of the policies or practices, the correlations among variables at the individual level would give a more accurate picture of relations than the correlations at the establishment level. In this case, it is the analyses of the establishment level variables that would be subject to measurement error and underestimate the impact of policies and practices on behaviour and outcomes. Given that variation of worker reports on establishment practices is likely to reflect both genuine within-establishment variation and idiosyncratic reporting by workers, the two estimates are likely to bound the true behavioural impact of the policies or practices.

These considerations offer an explanation for the weaker estimated effect of high performance workplaces in the establishment level regressions in Table 6 than in the individual level regressions in Table 3. High performance workplaces are likely to cover only part of establishments – the activity of production workers using a particular technology or engaged in particular tasks, for example. If high performance workplaces have good effects on various outcomes, the workers in that part of the establishment would report those outcomes, giving strong results in the regressions for individuals. If the high performance workplace increased the effectiveness of the overall facility, which all workers recognized, the result would be a stronger result on that outcome in establishment level regressions than on outcomes such as the likelihood of leaving the workplace that presumably depend solely on whether the individual worker was covered by the high performance practices. This could produce differential estimated effects of high performance workplaces on particular outcome variables of the type found in Table 6 – a positive link between worker reports on the effectiveness of their facility and the proportion

reporting a high performance workplace but no such link between some of the other outcomes connected with high-performance practices found in the regressions for individuals. To determine whether this interpretation is correct would require information on the actual variation of practices within facilities, which we do not have.

The weak relation between total compensation relative to the market and outcome variables in Table 6, by contrast, is consistent with the story told at the individual worker level in Table 3, where worker reports on total compensation relative to the market were the most weakly related policy variable to measures of success. This underlines the conclusion from Table 3 that compensation systems do not constitute a “silver bullet” in employment relations systems.

Country Level Patterns

Finally, to see whether the relations between practices and policies and outcomes hold for country aggregates, we examine the correlations between the estimated coefficients on the country dummy variables for each of the policies/practices under study and the estimated coefficients on the country dummy variables for each of the country level outcomes from the estimates of equation (2) underlying Table 3. The coefficients on the dummy variables show whether a country is relatively high or low in a given practice or outcome compared to the omitted country, the US. The correlation between the coefficients thus gives the cross-country relation between the relevant variables.

The correlations in the top panel of Table 7 show moderately sized positive relations between each of the policy/practice variables and the performance or outcome measures at the country level of aggregation. Consistent with the results for establishments, the strongest correlation is between the country measures of employee-management relations and the country measure of facility effectiveness. In addition, the country level calculations show that employee-

management relations is moderately positively correlated with country measures of being likely to stay with the firm, and with the willingness of workers to innovate and the likelihood that they would intervene with shirking co-workers. As with the establishment level analyses, the country-level measure of the high performance work system index is not correlated with country-level outcomes, possibly for the same reason -- that high performance work systems are concentrated among certain groups of workers and firms. Total compensation relative to the market at the country level is highly correlated with country-level measures of willingness to innovate and moderately correlated with country-level measures of anti-shirking. Overall, given the small number of establishments used to obtain the estimated country effects, the results are reasonably consistent with the patterns found within countries.

The bottom panel of Table 7 relates the country dummy measures of performance or outcomes to indicators of the strength of institutions in country labour markets from the Economic Freedom Index of the Fraser Institute and the Global Competitiveness Reports of the World Economic Forum. The Fraser Institute's index rates countries with less labour market regulation of wages, dismissal, employment, and collective bargaining as having higher scores in economic freedom.¹⁶ The Market Efficiency component of the Global Competitiveness Index (Lopez-Claros, 2006), based on a poll of 11,000 business executives, gives higher scores to countries where executives report that: wages are not determined by a centralized bargaining process, labor-employer relations are cooperative, hiring and firing of workers is flexibly

16 To earn high marks in the labor market regulation index (5B), a country must allow market forces to determine wages and establish the conditions of dismissal, avoid excessive unemployment benefits and refrain from the use of conscription” (Gwartney and Lawson 2006, p. 12) Many of the Fraser Institute measures of economic freedom use data from the Global Competitiveness Index See Gwartney and Lawson (2006: 181-182).

determined by employers, and pay is related to worker productivity.¹⁷

The correlations in the bottom panel of Table 7 show that these global indicators of country labor market institutions are not correlated positively with the worker reports of economic performance in the establishments in the firm under study. The Fraser Institute's Labor Market Regulation score (for which higher values indicate less labor market regulation) is negatively correlated with the country measure of the work effort of co-worker. The World Economic Forum's Global Competitiveness Index is negatively correlated with the country measures of willingness to work hard, willingness to innovate, and perceived co-worker effort and facility effectiveness. As for the more detailed measures of institutional practices, the countrywide measure of regulation in hiring and firing practices is negatively correlated with the country measures of willingness to innovate, anti-shirking, and seeing co-workers as working hard; the countrywide measure of flexibility of wage determination is negatively correlated with the anti-shirking index; the measure of pay being closely tied to productivity is negatively correlated with country measures of willingness to innovate, anti-shirking, seeing co-workers as working hard, and facility effectiveness; and so on. These patterns do not imply that the aggregate measures of country practices are invalid, but rather that what matters within a firm are its own establishment workplace relations and practices, as opposed to country-level regulations and reputation affecting competitiveness.

Conclusion

This study has examined work practices, employee performance, and attitudes toward work at the level of individual workers, establishments, and countries using a survey of nearly

¹⁷ The individual country data and the text of the questions asked in the poll can be found on pps. 485-489. (Lopez-Claros, 2006, Chapter 1.1)

30,000 employees in a large US multinational manufacturing firm that operates 272 establishments in 19 countries. The survey is one of the largest surveys of workers across countries in a single firm.

Our analysis found that employment policies and practices, and employee performance and attitudes toward work, vary among establishments and across countries. To help identify any independent effect of country labour institutions or practices on workers and establishments, we compared the variation in practices and outcomes across the countries in which the firm operates with the variation in practices and outcomes across states or groups of states in the US in which the firm operates. This comparison revealed greater variation across countries than across states – a pattern consistent with the notion that country institutions have an independent effect on labour practices and performance, beyond any effects related to contiguity of facilities. We also found that worker performance and attitudes were strongly related to policies and practices in broadly similar ways across these countries, though we noted some divergences for particular policies or outcomes.

To deal with the problem that patterns found among individuals need not generalize to establishments or countries, we analysed the relation among establishment level averages of variables. This analysis found a strong relation between the quality of labour-management relations and employee behaviour and outcomes consistent with our analysis of data for individuals. But the analysis of establishment averages also found weak or negligible relations between high performance work places and employee behaviour and outcomes, whereas the analysis of individuals found stronger relations. This could reflect genuine variation in workplace policies or practices within establishments, or idiosyncratic reports on policies, practices, and performance by individuals that biases upward the estimates of the relation

between policies/practices and outcomes at the level at which those policies and practices are set. We found only weak relations in both the individual and establishment analyses between the worker reporting above-market compensation and performance or attitude toward work.

At the country level, our analysis revealed a positive relation between the average quality of employee-management relations at the country level and average employee performance. By contrast, we found no relation between our measures of employee behaviour or attitudes and measures of national labour relations that differentiate countries by their degree of institutional vs. market determination of outcomes. This suggests that the establishment level policies and practices of the multinational trump the effect of these broader features of labour markets in determining how workers behave within the firm.

Overall, our analyses support the idea that while labour practices and performance vary across countries, good labour management relations is an important factor in worker behaviour and workplace performance in virtually all situations, while the effects of high performance practices and compensation on performance and attitudes are weaker. Moreover, employee-management relations has a strong relation not only to standard performance measures such as likely turnover and willingness to work hard, but also to our innovative measure of how workers would respond to a shirking co-worker. Further research is needed to identify the specific ways in which management treats workers and communicates with them that underlies worker feelings that labour-management relations are good.

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Table 1: Country Means of Key Variables and Questions that Define them

	No. of employees	No. of facilities	WORKPLACE POLICIES			OWN PERFORMANCE				CO-WORKER/FACILITY PERFORMANCE	
			Grade on ee-mgt. relations	High-perf. index	Total comp relative to mkt	Likely to stay	Willing to work hard	Willing to innovate	Anti-shirking index	Co-workers work hard	Facility effectiveness
			0-4 scale	0-6 scale	1-5 scale	1-4 scale	1-5 scale	1-4 scale	4-16 scale	0-10 scale	0-4 scale
Overall	29,353	272	2.27	2.93	2.69	0.59	3.94	3.01	9.78	6.89	2.69
Argentina	28	1	2.96	3.33	2.50	3.46	4.27	3.39	12.13	8.00	3.16
Australia	103	2	1.72	2.83	2.46	2.96	3.44	2.94	9.75	6.07	2.31
Brazil	1,126	5	2.31	3.38	2.75	3.21	4.04	3.16	10.68	8.19	2.52
Canada	415	2	2.46	3.98	2.94	3.60	3.95	3.06	9.66	6.79	2.84
China	937	7	2.01	3.14	1.98	3.04	3.94	2.86	10.13	7.62	2.66
Czech Republic	87	1	2.55	3.69	2.61	3.47	3.88	3.12	11.16	7.18	2.75
Finland	101	1	2.28	2.45	2.58	2.63	3.28	2.76	9.16	7.08	2.57
France	215	5	2.08	3.32	2.55	3.52	3.33	2.66	9.60	5.80	2.63
Germany	479	14	2.46	3.19	2.75	3.60	3.69	3.35	11.15	7.04	2.53
Italy	808	3	1.79	2.35	2.43	3.50	4.14	2.94	10.45	7.20	2.79
Korea	445	3	2.08	2.92	2.38	3.43	3.88	2.60	9.18	7.55	2.60
Mexico	2,460	7	2.32	2.98	2.69	3.25	3.97	3.03	11.05	7.34	2.92
Netherlands	74	6	2.39	2.67	2.52	3.68	2.96	3.07	11.65	6.79	2.51
South Africa	49	1	2.70	2.83	2.59	3.65	4.43	3.33	10.47	7.50	3.09
Sweden	234	4	2.13	2.91	2.24	3.47	3.48	2.52	9.02	7.03	2.51
Switzerland	115	1	2.33	3.66	2.31	3.62	3.67	2.68	9.91	6.27	2.74
Taiwan	27	1	2.52	3.63	2.48	2.89	4.00	2.78	9.32	6.63	2.33
United Kingdom	415	9	2.08	3.41	2.66	3.33	3.78	3.35	10.10	6.85	2.56
United States	21,235	199	2.29	3.28	2.75	3.44	3.95	3.01	9.59	6.72	2.67
F-stat. for differences			18.20	29.49	38.39	30.86	25.24	24.13	32.63	49.56	24.06
P-value for differences			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Obtained from firm-based survey questions as given below:

WORKPLACE POLICIES

Grade on Employee-Management Relations. 0-4 scale. "If you were to rate how well this company takes care of workers on a scale similar to school grades, what grade would you give in these areas? (C is an average grade.) Overall relations with employees." (A=4, B=3, C=2, D=1, F=0).

High Performance Work System Index. 0-6 scale. Composed of one point for each of the following components: **Employee Involvement Team:** "Some companies have organized workplace decision-making in ways to get more employee input and involvement. Are you personally involved in any team, committee or task force that addresses issues such as product quality, cost cutting, productivity, health and safety, or other workplace issues?" (0=no, 1=yes), 1 point; **Training.** "In the last 12 months have you received any formal training from your current employer, such as in classes or seminars sponsored by the employer?" (0=no, 1=yes), 1 point; **Information Sharing:** "If you were to rate how well this company takes care of workers on a scale similar to school grades, what grade would you give in these areas? (C is an average grade.) Sharing information with employees." (A, B, C, D, F), 1 point for A, .75 for B, .5 for C, .25 for D, and 0 for F; **Employee Selection:** "On a scale of 1 to 7 please evaluate how effective your work area or team functions in the following areas: Selecting the very best people to be part of our team/area." (1=very ineffective, 4= neutral, 7=very effective)," 1 point for a score of 7, .83 points for a score of 6, .66 points for a score of 5, .5 points for a score of 4, .33 points for a score of 3, .17 points for a score of 2, 0 points for a score of 1; **Profit or Gain Sharing:** "In your job are you eligible for any type of performance-based pay such as individual or group bonuses or any type of profit sharing? (0=no, 1=yes), 1 point; **Job Rotation:** "How frequently do you participate in a job rotation or cross-training program where you work or are trained on a job with different duties than your regular job?" (1=never, 2=occasionally, 3=frequently), 1 point for "frequently", .5 points for "occasionally", 0 points for "never",

Total compensation relative to the market. 1-5 scale. "Do you believe your total compensation is higher or lower than those of employees with similar experience and job descriptions in other companies in your region? (1=lower, 2,3,4, 5=higher).

OWN PERFORMANCE

Unlikely to Look for New Job. 1-4 scale. "How likely is it that you will decide to look hard for a job with another organization within the next twelve months? (1= already looking; 2= very likely, 3= somewhat likely, 4= not at all likely)."

Willing To Work Hard. 1-5 scale. “To what extent do you agree or disagree with this statement? “I am willing to work harder than I have to in order to help the company I work for succeed.” (1= strongly disagree; 2=disagree; 3= neither agree nor disagree; 4= agree; 5= strongly agree).”

Willing to Innovate. 1-4 scale. “I would be willing to be more involved in efforts to develop innovative products and services. (1= Not at all, 2= very little, 3= to some extent, 4= to a great extent).”

Anti-shirking Index. 4-16 scale. “If you were to see a fellow employee not working as hard or well as he or she should, how likely would you be to: a) Talk directly to the employee, b) Speak to your supervisor or manager, c) Talk about it in a work group or team, d) Do nothing. (reverse-coded) (Answers on all four parts of this question were coded on 1-4 scale for a summated rating with 1= not at all likely, 2= not very likely, 3=somewhat likely, 4= very likely).”

EVALUATION OF CO-WORKERS AND FACILITY PERFORMANCE

Co-workers Work Hard. 0-10 scale. “At your workplace, how hard would you say that people work? Please rate on a scale of 0 to 10. (0= not at all hard, 10= very hard).

Facility Effectiveness. 0-4 scale. “If you were to rate the facility you work in on a scale similar to school grades, what grade would you give in these areas? Getting the job done that has to get done efficiently. (C is an average grade.) (4=A, 3=B, 2=C, 1=D, 0=F).”

Table 2: Statistical Tests for Establishment Level Effects in Labor Practices/Policies

Based on regressions that control for job and demog. characteristics, with 245 establishment dummy variables

	F-stat. for establishment differences
Policies	
Grade on ee-mgt relations	8.52
High-perf. index	10.15
Total comp relative to mkt.	6.75
Own performance	
Likely to stay	7.70
Willing to work hard	5.00
Willing to innovate	3.73
Anti-shirking index	4.14
Co-worker/facility performance	
Co-workers work hard	5.28
Facility effectiveness	10.77

Table 3: Statistical Tests for Country Effects Compared to Regional Effects in US Establishments

Based on regressions that control for job and demographic characteristics

	F-stat for	F-stat for	Variance of dummy coeffs.		
	country	U.S. state	Countries	U.S. states	Ratio (4/5)
	diffs.	diffs.			
	(1)	(3)	(4)	(5)	(6)
Policies					
Grade on ee-mgt relations	18.43	11.27	0.072	0.015	4.94
High-perf. index	26.85	10.13	0.168	0.026	6.48
Total comp relative to mkt.	20.27	10.78	0.053	0.014	3.78
Own performance					
Likely to stay	18.17	15.36	0.075	0.011	6.85
Willing to work hard	23.56	8.93	0.111	0.008	13.91
Willing to innovate	18.06	6.05	0.055	0.005	10.17
Anti-shirking index	12.50	10.34	0.687	0.081	8.51
Co-worker/facility performance					
Co-workers work hard	18.47	6.22	0.292	0.041	7.04
Facility effectiveness	11.65	10.90	0.051	0.011	4.45
All 79 outcomes					
Average F-statistic (37 outcomes)	24.86	10.43	7.891	1.904	4.14
Average Chi-sq. statistic (42 outcomes)	259.65	160.34	0.078	0.013	5.84
Percent of outcomes with higher statistics for country dummies (79 outcomes)		83%			100%
No. of country/state dummies	19	19	19	19	

Table 4: Regression Coefficients Linking Policies to Performance Measures

Regressions are done separately by country. Dependent variables are at the top of each column. Each regression contains the three independent variables at left, plus basic job and demog. characteristics.

	Likely to stay	Willing to work hard	Willing to innovate	Anti-shirking index	Co-workers work hard	Facility effectiveness
<u>Ee-mgt rels. coeff.</u>						
All countries	0.22 ***	0.19 ***	0.03 ***	0.32 ***	0.34 ***	0.32 ***
Australia	0.10	0.18	-0.01	0.36	0.99 *	0.56 ***
Brazil	0.15 ***	0.16 ***	0.01	0.30 ***	0.08	0.33 ***
Canada	0.30 ***	0.21 ***	-0.05	0.63 ***	0.29 **	0.35 ***
China	0.17 ***	0.14 ***	0.09 **	0.13	0.37 ***	0.27 ***
France	-0.04	0.25 **	-0.15	-0.08	0.88 ***	0.24 ***
Germany	0.28 ***	0.20 ***	0.01	0.17	-0.04	0.34 ***
Italy	0.14 ***	0.16 ***	-0.02	0.22	0.14	0.17 ***
Korea	0.32 ***	0.12	0.11	0.09	0.61 ***	0.21 ***
Sweden	0.20 ***	0.10	-0.10	0.02	-0.06	0.27 ***
United Kingdom	0.38 ***	0.24 ***	0.10 **	0.09	0.38 ***	0.31 ***
United States	0.25 ***	0.21 ***	0.02 ***	0.34 ***	0.38 ***	0.34 ***
Mexico	0.10 ***	0.13 ***	0.08 ***	0.18 **	0.20 ***	0.19 ***
<u>Hi-perf. index coeff.</u>						
All countries	0.06 ***	0.08 ***	0.07 ***	0.31 ***	0.13 ***	0.08 ***
Australia	0.32	0.24	-0.03	0.00	0.34	0.22 *
Brazil	0.08 ***	0.10 ***	0.04 *	0.14	0.05	0.06 ***
Canada	0.03	0.17 ***	0.08 *	0.44 **	0.31 ***	0.13 ***
China	0.02	0.07 **	0.15 ***	0.52 ***	0.09	-0.01
France	0.23 ***	0.14 *	0.25 ***	0.45	-0.06	0.03
Germany	0.00	0.13 ***	0.04	0.06	0.19 *	0.05 *
Italy	0.10 **	0.09 **	0.12 ***	0.32 **	0.03	0.07 *
Korea	0.06	0.06	0.14 **	0.12	0.06	0.19 ***
Sweden	0.21 ***	0.16 **	0.13 **	0.13	0.30 **	0.06 *
United Kingdom	0.06	0.08	0.02	0.34 *	0.21 **	0.07 *
United States	0.05 ***	0.07 ***	0.07 ***	0.32 ***	0.16 ***	0.08 ***
Mexico	0.08 ***	0.08 ***	0.06 ***	0.35 ***	0.08	0.10 ***
<u>Total comp relative to market</u>						
All countries	0.09 ***	0.05 ***	-0.01	0.00	0.02	0.03 ***
Australia	0.05	0.17	-0.01	-0.01	-0.04	-0.15
Brazil	0.14 ***	0.05	-0.05	-0.06	-0.10	0.02
Canada	0.11 **	0.01	-0.02	-0.33	-0.01	-0.06
China	0.12 ***	0.05	0.02	0.18	-0.14	-0.04
France	0.10	0.19 *	-0.09	0.09	-0.31	0.12
Germany	0.06	0.10	-0.02	0.04	-0.20	-0.01

Italy	0.18	***	-0.01		-0.14	***	-0.01		-0.02		-0.09	**
Korea	0.03		0.13		-0.12		0.53	*	0.57	**	0.04	
Sweden	0.10		0.12		-0.06		0.40		-0.33	*	0.07	
United Kingdom	0.03		0.05		-0.09	*	0.12		0.35	**	0.00	
United States	0.09	***	0.05	***	0.00		0.00		0.01		0.03	*
Mexico	0.08	***	0.06	**	0.06	***	0.05		0.21	***	0.02	

* Significantly different from zero at $p < .10$ ** $p < .05$ *** $p < .01$

Table 5: Statistical Analysis of Slope Coefficients

Based on separate regressions for each country and state, controlling for job and demographic characteristics

Dep. var.	Indep. var.	F-stats. for equality of coeffs.		Variance of coeffs. across countries/states		
		All countries (1)	U.S. state diffs. (2)	Countries (3)	U.S. states (4)	Ratio (3/4) (5)
Likely to stay	Grade on ee-mgt relations	9.90***	2.20**	0.014	0.002	8.543
	High-perf. index	3.08***	1.98**	0.006	0.001	6.747
	Total comp relative to mkt.	1.89**	1.69	0.005	0.001	3.505
Willing to work hard for co.	Grade on ee-mgt relations	1.97**	1.38	0.002	0.001	1.234
	High-perf. index	1.16	0.43	0.001	0.000	2.844
	Total comp relative to mkt.	1.22	0.69	0.007	0.001	9.660
Willing to innovate	Grade on ee-mgt relations	3.11***	2.50**	0.006	0.002	3.241
	High-perf. index	3.10***	3.05***	0.004	0.001	3.456
	Total comp relative to mkt.	2.52**	1.68	0.005	0.001	3.948
Anti-shirking index	Grade on ee-mgt relations	1.13	1.31	0.085	0.016	5.346
	High-perf. index	2.85**	1.82	0.045	0.012	3.807
	Total comp relative to mkt.	0.78	1.24	0.055	0.014	3.887
Co-workers work hard	Grade on ee-mgt relations	4.25***	2.31**	0.066	0.013	5.153
	High-perf. index	1.46	0.78	0.010	0.002	4.640
	Total comp relative to mkt.	3.12***	1.62	0.063	0.010	6.163
Facility effectiveness	Grade on ee-mgt relations	13.57***	3.49***	0.013	0.001	8.624
	High-perf. index	4.77***	1.25	0.002	0.000	6.854
	Total comp relative to mkt.	2.60**	1.80	0.004	0.001	4.181
No. of countries/states		12	12	12	12	

Note: * Significantly different from zero at $p < .10$ ** $p < .05$ *** $p < .01$

Table 6: Relation Between Establishment Average Policies and Establishment Average Outcomes

Each row represents separate regression, with dependent variable at left.

	Grade on ee-mgt. relations	High- perf. Index	Total comp relative to mkt	U.S. dummy
Establishment-level regressions predicting survey measures				
Likely to stay	0.433 (0.050) ***	-0.035 (0.035)	0.244 (0.049) ***	-0.007 (0.038)
Willing to work hard	0.248 (0.051) ***	0.047 (0.035)	-0.037 (0.049)	0.233 (0.039) ***
Willing to innovate	0.152 (0.053) ***	0.058 (0.037)	-0.055 (0.052)	-0.032 (0.041)
Anti-shirking index	0.824 (0.187) ***	0.145 (0.131)	0.034 (0.182)	-0.793 (0.143) ***
Co-workers work hard	0.497 (0.124) ***	-0.043 (0.087)	-0.033 (0.121)	-0.291 (0.095) ***
Facility effectiveness	0.378 (0.051) ***	0.068 (0.035) *	0.060 (0.049)	0.017 (0.039)

Note: * Significantly different from zero at $p < .10$ ** $p < .05$ *** $p < .01$; $n=258$

Table 7: Correlations Among Policies and Economic Outcomes at the Country Level.

Based on 19 countries

Outcomes [^] :	Likely to stay	Willing to work hard	Willing to innovate	Anti-shirking index	Co-workers work hard	Facility effectiveness
Worker reports on labor practices at their facilities [^]						
Grade on ee-mgt relations	0.344	0.230	0.352	0.384	0.187	0.606
High-perf. index	0.143	0.118	-0.150	-0.027	-0.147	0.020
Total comp relative to mkt.	0.103	0.239	0.613	0.346	0.071	0.228
Country indicators of labor conditions						
Fraser Institute EFI ^{^^}						
Labor Market Regulations part	0.061	0.090	-0.004	-0.096	-0.442	0.082
Global Competitiveness Report ^{^^^}						
Overall Global Competitiveness Index	0.010	-0.571	-0.399	-0.213	-0.693	-0.391
Hiring and firing practices	-0.240	-0.105	-0.313	-0.415	-0.343	-0.211
Cooperative labor-employer relations	-0.073	-0.458	-0.107	0.001	-0.451	-0.396
Flexibility of wage determination	-0.091	-0.039	-0.287	-0.470	-0.208	-0.173
Pay and productivity	-0.222	-0.252	-0.407	-0.507	-0.456	-0.420
Overall mkt efficiency	-0.057	-0.406	-0.177	-0.221	-0.691	-0.352
Restrictive labor regulations	0.262	-0.347	0.014	0.325	-0.288	-0.048
Innovative factors	0.121	-0.434	-0.346	-0.194	-0.590	-0.336

[^] The outcomes and worker reports on labor practices are based on 19 country coefficients, controlling for basic job and demographic characteristics (occupation, supervisory status, hours, tenure, union, gender, race, marital status, education, disability status).

^{^^}The Economic Freedom of the World 2006 Annual Report, James Gwartney and Robert A. Lawson. Vancouver, B.C.: The Fraser Institute, 2006.

^{^^^} The Global Competitiveness Report 2006-2007, Dr Augusto Lopez-Claros, Editor. NY: Palgrave Macmillan, 2006.

