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Labor Practices and Outcomes across Countries
Analysis of a Single Multinational Firm

Richard B. Freeman, Douglas Kruse, and Joseph Blasi

Consider a multinational firm producing similar goods and services in the same industry in many countries. How much do labor practices, employee attitudes, and worker behavior differ among the establishments of the firm across countries? Do workers in different countries respond similarly to policies? Are aggregate measures of labor practices across countries related to differences in worker behavior and outcomes, or do the specifics of the firm trump such measures of conditions?

This chapter examines these questions using data from a 2005 to 2006 web-based and paper survey of workers in a large multinational manufacturing firm in 272 establishments in nineteen countries. The firm convened employee meetings in each facility to induce employees to respond, which led to a sample of 29,353 respondents, with a response rate of greater than 60 percent.[1] This gives us one of the largest individual level data sets on labor practices, employee attitudes toward work, and self-reported workplace per-

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1. The web surveys were submitted directly to our website 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 a box controlled by a committee of three nonmanagement 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.

formance 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. Hofstede's surveys focused on European and Middle Eastern countries; our sample contains many observations from the United States and from countries in Latin America and Asia as well as from Europe. Hoftstede's 1968 study included many workers outside manufacturing and his 1972 sample excluded manufacturing; our data are for manufacturing. Finally, Hofstede looked at employee values and beliefs as they related to organizations and national culture or character, while our focus is on employment relations, the organization of work, and the economic behavior of workers in response to labor policies.

Our analysis shows:

1. Large cross-country differences in work practices, worker attitudes, and employee performance, evinced by significant country dummy variables for all variables.
2. Qualitatively similar responses of workers to work policies and practices across countries, as evinced in positive slope terms in regressions linking measures of worker performance to the quality of labor-management relations and the presence of a "high performance" work system, although with differing magnitudes.
3. A strong relation between reported employee performance and quality of labor-management relations at the level of establishments. This relation is similar among establishments outside the United States as among establishments within the United States.
4. Taking country as the unit of observation, countries where workers report better employee-management relations and compensation above market levels have better employee performance. In contrast, measures of worker performance are negatively or insignificantly correlated with country level indices of labor practices from the Economic Freedom of the World Index and the Global Competitiveness Index.

4.1 The Data and Research Strategy

Columns (1) and (2) of table 4.1 give the sample size and number of establishments by country in our survey. The source notes to the table show the specific questions on which we focus, and the way in which we coded them for analysis. Because the firm is headquartered in the United States and expanded from the United States to other countries, the United States has the largest number of establishments (73 percent of the total) and workers (72 percent of the total). The company began expanding internationally in the 1960s through acquisitions and accelerated its international presence

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

Table 4.1 **Country means of key variables and questions that define them**

			Workplace policies			Own performance				Coworker/facility performance	
	No. of employees	No. of facilities	Grade on ee-mgt. relations 0–4 scale	High-perf. index 0–6 scale	Total comp relative to mkt 1–5 scale	Likely to stay 1–4 scale	Willing to work hard 1–5 scale	Willing to innovate 1–4 scale	Antishirking index 4–16 scale	Coworkers work hard 0–10 scale	Facility effectiveness 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 in the appendix.

Note: ee-mgt. = employee-management.

in the 1980s and 1990s. The large number of U.S. establishments allows us to estimate with some precision the level and interrelation of variables in the United States and use this as a base for seeing how institutional and economic environments outside the United States influence operations but limits comparisons of operations among other countries. It dictates the structure of ensuing analysis in which we take the U.S. mode of operating as an "original type" and treat the practices in other countries as "varieties" that depart from the original type in response to differing regulatory and economic environments. This mimics the way Wallace and Darwin examined how species developed from existing populations across geographic areas.[3]

The survey asked about employee opinions and attitudes on the organization of work, labor-management relations, supervision, employee involvement, and compensation systems; expected turnover, behavior toward coworkers, the effort of workers at their job, and the effort of fellow employees, plus a module of unique 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. In addition, the survey contained measures of demographic and job characteristics. Most of the survey questions asked workers to rate how their establishment or they operate using a five-point Likert scale, with higher numbers reflecting more positive assessments, though some questions are dichotomous.[4]

We have structured our analysis around the distinction between policies/practices that in principle the firm's management controls, which we take as exogenous to workers, and outcome or behavioral variables that reflect worker decisions, which will in part respond to these policies/practices. One way to analyze a survey with many questions in particular domains is to focus on a subset of variables that reflect responses to specific questions. An alternative mode of analysis is to form indices of variables by compressing the data through factor analyses or through summated rating or other indices. In this chapter, we choose the former procedure in most cases, analyzing single variables as measures of practice or behavior. Where research has found that certain practices fit 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 specific variables we chose or the indices that we form, we also estimated models with variables from all of the questions in the relevant modules and note the results.

3. Alfred Russel Wallace (July 1858).

4. In addition to the worker survey, we obtained administrative records from the firm on the economic performance of seventy-nine 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.

Our primary measures of management policies/practices are employee-management relations, the work practices that contribute to high performance work systems, and total compensation relative to the market. While employer-employee relations reflects the behavior of workers and management, management usually sets the tenor of the relationship, to which workers or unions respond, by choosing work practices or policies. Since research has found complementarities in the effects of these practices (Ichniowski, Shaw, and Prennushi 1997), we formed an index of high performance workplace based on six questions relating to worker reports on: employee involvement teams, training; information sharing; employee selection; profit or gain sharing; and job rotation, as described in the source to table 4.1. Finally, management decides on pay relative to the market. While in principle it cannot obtain workers below market rates, it can pay above market rates, either to reduce turnover or give workers an incentive to work harder (Akerlof 1982).

On the workers' side, we focus on four measures of individual behavior or potential behavior: whether workers are likely to look for a new job in the next six months, their willingness to work hard for the company, their willingness to innovate, and an index of the worker's willingness to intervene with a shirking coworker. We also analyze their view on how hard coworkers work, and of the overall effectiveness of their facility. The likelihood of leaving a workplace is a widely studied variable in analyses of job satisfaction. Our question on the workers' willingness to try to develop innovative products and services is designed to get at the more creative dimension of work, which has arguably become more important over time in most workplaces.

The measure of workers' willingness to intervene when they see fellow workers not working up to speed is the most innovative measure of this study. It is designed to cast light on modern team production and group incentive employment systems (Kruse, Blasi, and Park 2006) that must overcome free-riding and shirking to succeed. Since workers often have better information than management on what fellow workers are doing, worker responses to shirking are critical to the success or failure of these approaches to the organization of work. The antishirking measure comes from a question about the likelihood that a worker responds to seeing a fellow employee not working as hard or well as he or she should: talking directly to the employee, speaking to a supervisor or manager, talking about it in a work group or team, or doing nothing. By asking about responses in four ways, we obtained a more finely graded measure than if we had asked about any single response. Freeman, Kruse, and Blasi (2006) provide a detailed analysis of this variable for random samples of all U.S. workers in 2002 and 2006 based on the General Social Survey and for the aggregated sample of employees across fourteen companies in this data set. The key finding is that antishirking behavior is greater when workers are paid by group incentive systems and is correlated with how workers assess the effectiveness of their workplace and the effort

of fellow workers. Building on these findings, we seek to determine whether there are any country differences in this behavior.

4.2 Empirical Strategy

We have undertaken a two-step analysis of our data. First, we seek to identify differences in employment practices, employee attitudes, and worker and establishment performance that we can attribute to operating in different countries. Without such differences, this study would come to a rapid conclusion. The statistical problem with identifying country effects in our data is that the survey has only a few establishments per country outside the United States (the largest number of establishments in a non-U.S. country is nine, while there is just one establishment in five countries). This makes it difficult to differentiate the effects of country institutions on outcomes from the effects of establishments per se. We address this problem by contrasting the variation in estimated country effects across all non-U.S. establishments with the variation in the same variables across U.S. states. Since firms in the United States operate under essentially the same legal regulations and institutions, variation among states/regions will be due to regional economic conditions or historic labor practices in geographically contiguous areas rather than to different national labor regulations. This variation is thus an indicator of differences independent of national institutions. Assuming an additive model in which regional factors are orthogonal to national institutions, and in which regional differences are comparable in countries, the variation in variables in our country analysis would equal regional differences as in the United States plus differences due to different national labor institutions. Accordingly, our research strategy is to estimate within-U.S. state/region; and then compare the variation in the U.S. regional effects with the variation in country effects. If country institutions matter, the variation across countries should exceed the variation in the same variable across U.S. states. Since regional effects are likely to be larger in the United States than in other countries, both because of the lack of national wage bargaining and geographic reach of the country, by subtracting the variation in variables in U.S. states from the variation in variables across countries to measure what we might call the "region adjusted" country variation, we potentially underestimate variation due to country effects.

We next want to see whether estimated country effects in worker outcomes are related to estimated country effects in labor practices and policies. The problem here is that the firm operates in only nineteen countries, and has only one establishment in five of them, which makes obtaining statistically trustworthy results difficult. We deal with this problem by contrasting all of the non-U.S.-based establishments with all of the U.S. establishments. In addition, we estimated the relation between country differences in labor outcomes and measures of country labor practices from the Fraser Institute's

"indices of economic freedom" and the World Economic Forum's measures of competitiveness.

Second, we assess how management practices affect worker behavior by regressing four measures of worker behavior on the measures of company policy and practice. The problem in this analysis is that both the independent and dependent variables are self-reports from workers. It is possible that workers would 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 they are willing to work hard while worker B at the same establishment might report that the establishment has bad work practices and that they are unwilling to work hard. This pattern would produce a strong relation between work practices and willingness to work hard at the individual level that would not generalize to the workplace. We deal with this problem by calculating and analyzing establishment averages, as well as the responses of individual workers. Averaging responses across establishments eliminates the danger that the happy (unhappy) worker reports only good (bad) things about the establishment even when other workers have different perceptions.

4.3 Cross-country Patterns

Columns (3) through (5) of table 4.1 report the average level of our three indicators of workplace policy: how the worker grades the firm on the quality of labor management relations; the index of high performance workplace policies; and a measure of whether the firm pays compensation above that in the local market.[5] The note to table 4.1 presents the exact questions used in each case. The means for the policy/practice measures show sizable country differences. For example, workers in the Czech Republic and Taiwan give higher ratings to the quality of labor-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 at the bottom of the table are sizable and highly significant.

Columns (6) through (9) of the table give the means for the four 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

5. These are self-reported measures and not objective measures of company practices; however, these perceptions may be the key to worker behavior because they reflect on important dimensions of the entire employment relationship.

innovative thoughts; and their willingness to take action against a shirking fellow employee. Again, the table note gives the specific questions used to 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.

Finally, columns (10) and (11) turn to how workers assess the activity of other employees and the effectiveness of their facility, based on the questions given in the table note.[6] We asked these questions to differentiate workers as observers of their workplace from their perceptions of their own behavior. To see if the reports on how other workers are doing differ from the self-reports, we correlated the two variables. The measure of perceptions of the willingness to work hard of coworkers is correlated at only .122 with the measures of the worker's own work effort, so the two measures are indeed reflecting different perceptions. The mean values for the worker assessment of the work effort of fellow employees and of the effectiveness of their facility show substantial country differences. Employees in Brazil are more likely to report that fellow workers work hard than employees in Australia. Employees in Argentina are more likely to report that their establishment operates effectively than employees in Taiwan, and so on. Because the characteristics of workers differ across establishments, however, it is possible that the differences among establishments by country in management policy/practice variables and worker behavior are due to differences in the characteristics of workers and jobs rather than to differences in institutions across the countries of concern to us. To see whether observable worker and job characteristics explain the country differences, we estimated the following equation:

$$Y_{ijc} = a + bX_{ijc} + \mathbf{D_c} + u_{ic}, \tag{1}$$

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, $\mathbf{D_c}$ is a vector of dummy variables for the country in which the establishment is located, and u_{ic} is an error term. The coefficients on $\mathbf{D_c}$ capture the country effect relative to the deleted country, which is the United States. Because establishments are located in only 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

6. 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.

Table 4.2 **Statistical tests for country effects compared to regional effects in U.S. establishments**

	F-stat for country diffs. (1)	F-stat for U.S. state diffs. (3)	Variance of dummy coefficients: Countries (4)	Variance of dummy coefficients: U.S. states (5)	Ratio (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
Antishirking index	12.50	10.34	0.687	0.081	8.51
Coworker/facility performance					
Coworkers 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	

Notes: ee-mgt. = employee-management. Based on regressions that control for job and demographic 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 equation (1): 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 ordinary least squares (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. Here we use the OLS regressions for ease in comparing F-statistics.

The first column in table 4.2 presents the F-statistics for the country dummies with the establishments from all countries in the data set. They are sizable and significant.[7] As noted, however, with the small number of establish-

7. 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 thirteen country sample are: 26.04, 38.00, 29.08, 20.42, 31.05, 24.30, 17.43, 26.08, and 14.30.

ments outside the United States, the differences could reflect differences in local management practices and employee behavior among establishments that are closer geographically within a country than those in a foreign country. To see whether the estimated country differences reflect more than the regional variation in practices/performance in a single country, we estimated the state/region effects in practices and outcomes in the United States. We formed nineteen state/regional dummy variables for the United States (thus mimicking the number of countries in our country data set) and estimated the contribution of these dummies to the variation in U.S. outcomes using the analysis of variance (ANOVA) model of equation (1). The computations show significant differences in the value of the variables among the U.S. regions. But the F-statistics in column (2) of table 4.2 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. These data thus imply that for all but overall plant effectiveness the country dummies reflect more than "normal" regional variation in labor practices and outcomes across establishments.

The remainder of table 4.2 examines another measure of the difference in estimated country or U.S. state/region effects on the variables: the unweighted variance of the estimated coefficients on the country dummies. For comparison, we also calculated the unweighted variance of the estimated coefficients for the state/region dummy variables in the United States. Columns (3) and (4) of table 4.2 show huge differences between these measures: the variance of the country dummy variables is from 3.8 to 13.9 times as great as the variance in state/regional dummy variables within the United States. The greater variation in outcomes across the countries in which the multinational operates than across the states/regions in the United States in which it 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.[8]

Finally, to make sure that our results are not dependent on the specific variables under investigation, we analyzed all of the survey questions relating to labor 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 4.2. For the variables that give a clear ordering of outcomes, we use F-statistics to measure the country or regional contribution to overall variation. For variables without such an ordering, we use chi-square statistics. 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

8. 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.

across countries exceeds the variation across states/regions in the United States. The results show that taking all of the variables, the variation due to countries exceeds that due to U.S. regions, as it does for the variables on which we focus.

In short, our data show that labor practices, attitudes, and economic performance vary across establishments by country 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 United States.

4.4 Worker Responses to Practices

We turn next to this question: do these policies have the same relationship to the behavior or performance of workers in different countries? Taking practices as exogenous, we estimate the following equation that relates company practices/policies to worker reports on their performance and on the behavior of fellow employees and establishment effectiveness.

$$P_{ic} = a + bX_{ic} + c\,Y_{ic} + u_{ic}, \tag{2}$$

where P is a measure of performance, i refers to the worker; c to the country in which the establishment is located,a is a constant, the X_{ic} are covariates for the individual, and Y_{ic} measures the policies/practices described earlier—labor management relations, high-performance workplaces, compensation relative to market compensation. The error term u_{ic} in this specification is assumed to be independent and identically distributed. (The establishment regressions in the next section control for correlated errors within establishments.)

We estimated equation (2) separately for workers in the fourteen countries in the data with more than a single establishment, so as to reduce the danger that the calculations reflect establishment effects rather than country effects. Each regression contains all three of the independent variables: the measures of employee-management relations, the high performance work index, and total compensation relative to the market, so that 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 et al. 2000; Huselid 1995; Ichniowski, Shaw, and Prennushi 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 4.3 show that the vast majority of outcomes are significantly positively related to measures of labor relations and high performance workplace practices in all countries. For example, in

Table 4.3 **Regression coefficients linking policies to performance measures**

	Likely to stay	Willing to work hard	Willing to innovate	Antishirking index	Coworkers work hard	Facility effectiveness
			Ee-mgt rels. coefficient			
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***
			Hi-perf. index coefficient			
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***
			Total comp relative to market			
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

Notes: Regressions are done separately by country. Each regression contains the three dependent variables at left, plus basic job and demog. characteristics.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

almost every country, workers who report more positive management labor relations or whose establishments have high-performance work practices are more 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 addition, these workers are also more likely to report that their coworkers work hard, and that their establishment operates effectively. Of the seventy-two estimated coefficients on labor relations in table 4.3, forty-seven are significantly positive. Of the seventy-two estimated coefficients on our measure of high performance work practices, forty-five are significantly positive. By contrast, just nineteen of the estimated coefficients on the measure of total compensation relative to the market are significantly positive. The implication is that labor practices are more important factors in the outcome variables than levels of pay. This is consistent with empirical research within countries that compensation systems do not constitute a "silver bullet" in employment relations (see Heneman, Fay, and Wang 2002).

It is important to note that many of these estimated relationships are economically significant as well as statistically significant. For example, the coefficients for the full sample indicate that one-standard-deviation improvements in employee-management relations, high performance policies, and total compensation relative to market increase the likelihood of staying by 0.27, 0.10, and 0.10 standard deviations of that variable. The effect of employee-management relations on facility performance is especially large, with a standard deviation increase in employee-management relations linked to a 0.45 standard deviation improvement in facility performance. Across the six outcomes the effects of one-standard-deviation increases for the full sample range from 0.04 to 0.45 for employee-management relations, 0.09 to 0.15 for high-performance policies, and –0.01 to 0.10 for total compensation relative to market.

The estimated relationships show similar patterns of response to management policies or practices across countries in table 4.3 but the estimated coefficients differ in magnitude across countries. For example, employment-relations have a smaller impact on the workers' expected turnover behavior 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 relation between employment-management relations and expected turnover, willingness to innovate, and the antishirking index, in contrast to the positive estimated impacts in most other countries. But the estimates indicate that the French are willing to work much harder than Americans in a high performance work system, which suggests that even the highly regulated French labor market workers will respond to a coherent system of workplace practices in a positive manner. To assess the extent of the differences in the slope coefficients across countries, we computed statistics that compare the variation in slope coefficients for each policy variable on each outcome

across the countries. For comparison, we estimated regressions of equation (2) for each U.S. state/region with the standard demographic and job characteristic control variables and with all three workplace policies as independent variables. Finally, following the logic we used to analyze country dummy variables, we contrasted the variation in slope coefficients among countries to the analogous variation among states/regions in the United States. If responses truly differ by country, the cross-country variation among the slope coefficients will exceed the variation among slope coefficients among U.S. states/regions.

Table 4.4 summarizes the results of these computations. Column (1) gives the F-statistics from the test of equality of slope coefficients from a pooled regression with country dummy variables to allow for separate intercepts and with identical coefficients imposed on covariates. The F-statistics reject the equality of the slope coefficients. They show significant cross-country variation in the magnitudes of coefficients estimated in table 4.3. Column (2) gives F-statistics for the equality of slope coefficients from the comparable analysis for states/regions in the United States. The F-statistics for the regions are smaller than those for the countries. Following the logic that we used earlier to test for the existence of country intercept effects above and beyond those potentially due to regional variation within a country, we interpret this pattern to mean that there are substantial cross-country differences in the relationship between workers' responses and the relevant policies or practices. However, the differences in the estimated response parameters between the country regressions and the state regressions are smaller than the differences found in table 4.2 for the country dummy variables. This is shown most clearly in columns (3) and (4), which report the variances of the estimated slope coefficients for the countries and U.S. states/regions, respectively. The variances for the estimated coefficients are 1.2 to 9.7 times larger among countries than among U.S. states/region.

Finally, there are also differences in the consistency of the estimated relationship of policy variables to outcomes among the variables. There are relatively weak differences across the countries and across U.S. states/regions on the impact of workplace policies on willingness to work hard, implying that the policies and practices have relatively similar relationships to this outcome measure. By contrast, there are relatively strong differences across countries in the likelihood of seeking a new job and in assessment of the effectiveness of their facility. In addition, the grade on employee-management relations and total compensation relative to the market have a strong significant impact on country differences in workers' report of their coworkers' willingness to work hard, while the presence of a high performance work system does not. This pattern also exists in the U.S. states/region but the differences are more pronounced across countries. The greatest variation across countries is in the relationship of high-performance policies to workers' willingness to interfere with a shirker, which suggests that the effects

Table 4.4 Statistical analysis of slope coefficients

Dependent variable	Independent variable	F-stats. for equality of coefficients: All countries (1)	F-stats. for equality of coefficients: U.S. state diffs. (2)	Variance of coefficients across countries/states: Countries (3)	Variance of coefficients across countries/states: 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
Antishirking 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
Coworkers 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: Based on separate regressions for each country and state, controlling for job and demographic characteristics.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

of policies on antishirking may be greatly affected by country cultures and institutions.

In sum, we conclude that although the relationship between workers' responses and the policies and practices are qualitatively the same across the countries, the greater differences in the variation of responses across countries than across states suggests that the magnitude of responses differs across countries—that is, that slope as well as intercept terms have a country dimension.

4.5 Establishment Level Patterns

The analyses thus far have related workers' reports of practices and policies at their workplace to their reports of actual or expected behavior or that of their coworkers. As pointed out, however, relations found among individuals need not generalize to the establishment, much less to countries. Just as there are problems in making inferences about individual behavior from correlations in regional or other aggregated data—the ecological correlation problem[9]—there are problems in making inferences from individual level data about the responses to policies for groups. If workers at the same establishment report differently on establishment practices, we cannot readily infer from regressions based on individuals how changes in establishment policies would impact the establishment.

One way to assess the importance of this problem is to examine the consistency of workers' reports on their establishment's practices and performance within a given establishment. If workers in an establishment report consistently on the quality of its labor-management relations, this is more likely to reflect establishment policy or practice than if worker reports vary greatly within the same establishment. To see whether the reports of workers within an establishment coalesce at the establishment level, we used an ANOVA analysis to determine the extent to which establishment contributed to the variation in individual responses to particular questions conditional on the covariates used in equation (1).

Table 4.5 gives the results of this analysis 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 practices and outcomes have a significant establishment component. The implication is that the results from the analysis of the data for individuals are likely to generalize, at least in part, to the establishment level that are arguably more appropriate for judging how establishment level policies and practices may affect outcomes than the correlations among individuals.[10]

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

10. See Lubinski and Humphreys (1996).

Table 4.5 Statistical tests for establishment level effects in labor practices/policies

	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***
Antishirking index	4.14***
Coworker/facility performance	
Coworkers work hard	5.28***
Facility effectiveness	10.77***

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

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

If each establishment had a single set of practices that affected all workers the same, this would be the best way to estimate the effect of those policies or practices. But it is possible that some of the variation among individuals within an establishment reflects genuine differences in practices within the establishment. Some workers may report bad employee-management relations because their supervisor is horrible while others may report good employment-relations because their supervisor is good. If all of the within-establishment variation in reported practices were due to this, the correlations at the individual level would be superior to the correlations at the establishment level. This suggests that analyses at the level of mean establishment practices and mean levels of performance are likely to provide an underestimate of the relationship of policies and practices to behavior and outcomes.

The analyses in table 4.6 of establishment averages show that the relation between policies and practices and outcomes holds up at this level of aggregation. The top panel of table 4.6 records the regression coefficients and standard errors for the impact of our three policy or practice variables and, to allow for any differences between the United States and other countries, a dummy variable for the United States. Looking at the first column, the results show the average grade on employee-management relations in establishments is significantly associated with the average score on all six outcomes measured at the establishment level. By contrast, only one of the coefficients on high performance work systems and only one of the coefficients on total compensation relative to the market are significantly linked to the establishment level outcome variables.

Table 4.6 **Relation between establishment average policies and establishment average outcomes**

	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	–0.035	0.244	–0.007
	(0.050)***	(0.035)	(0.049)***	(0.038)
Willing to work hard	0.248	0.047	–0.037	0.233
	(0.051)***	(0.035)	(0.049)	(0.039)***
Willing to innovate	0.152	0.058	–0.055	–0.032
	(0.053)***	(0.037)	(0.052)	(0.041)
Antishirking index	0.824	0.145	0.034	–0.793
	(0.187)***	(0.131)	(0.182)	(0.143)***
Coworkers work hard	0.497	–0.043	–0.033	–0.291
	(0.124)***	(0.087)	(0.121)	(0.095)***
Facility effectiveness	0.378	0.068	0.060	0.017
	(0.051)***	(0.035)*	(0.049)	(0.039)
Division level regressions predicting company-reported data				
On-time delivery percentage	–0.012	0.0426	0.0079	
	(0.025)	(0.017)**	(0.026)	
Accident rate	4.628	–5.735	–0.0779	
	(3.808)	(2.289)**	3.493	
Monthly change in unit labor costs	0.0005	0.0004	–0.0024	
	(0.0010)	(0.0007)	(0.0011)**	
Monthly change in ln(sales/ employee)	–0.0041	0.0025	0.0016	
	(0.0074)	(0.0049)	(0.0077)	
Monthly change in days sales outstanding	–0.0154	0.3216	–0.7151	
	(0.306)	(0.203)	(0.310)**	

Note: n = 258 in establishment level regressions, and 79 in division level regressions. Each row represents separate regression, with dependent variable at left.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Figures 4.1 through 4.3 illustrate the strong relation between the average grade on employee-management relations across facilities and worker reports on behavior and outcomes. Figure 4.1 shows the positive link between the employee relations grade on average perception of worker effort at the work site. Figure 4.2 shows the average score on antishirking activity, while figure 4.3 shows the average perception of facility effectiveness. Differentiating establishments outside the United States from those within the United States shows no noticeable difference in the slopes of these relations.

Finally, we complemented the analysis of worker reports on their behavior and that of their workplace with analysis of company-based data on the performance of its divisions. The company provided us with measures of on-time deliveries by division, accident rates, changes in unit later costs, in sales per worker, and in sales outstanding. Because divisions encompass several

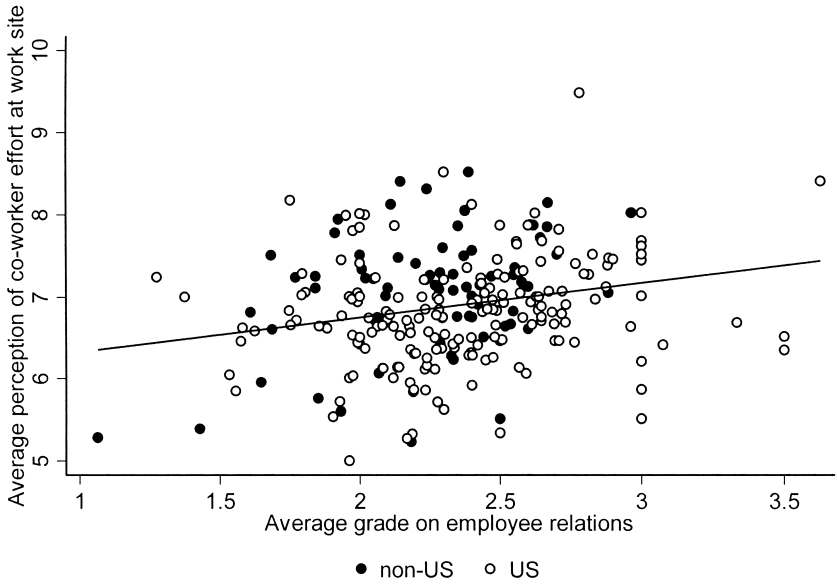

Fig. 4.1 Employee relations and coworker effort

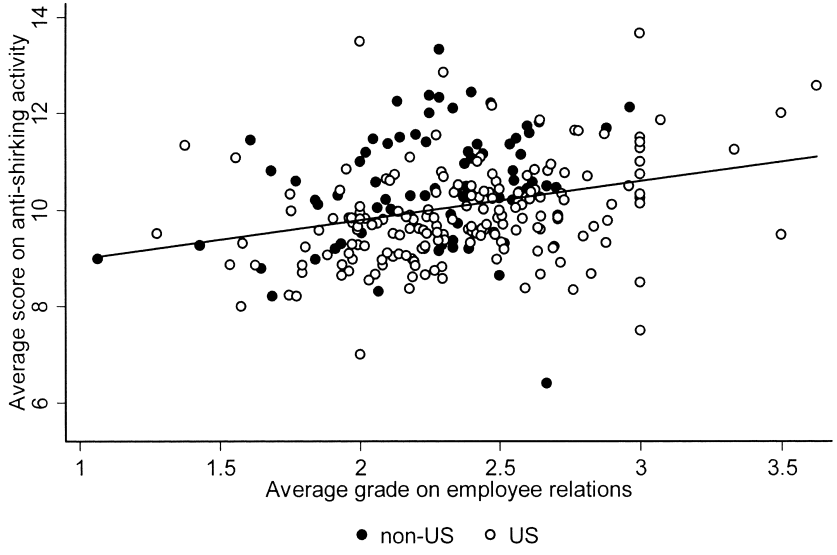

Fig. 4.2 Employee relations and antishirking activity

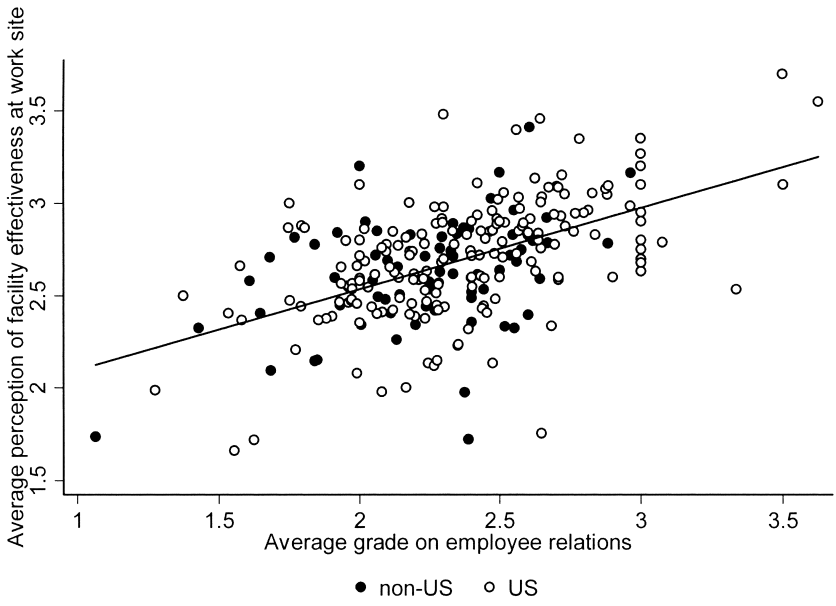

Fig. 4.3 Employee relations and facility effectiveness

establishments, we obtained usable data for just seventy-nine divisions. We aggregated our measures of company policies and practices to the division level and estimated equations linking policies and practices at the division level to division level outcomes. The results of these calculations are shown in the bottom panel of table 4.6. The results give a weaker and somewhat different picture of the effect of policies/practices on outcomes than in the establishment level analysis of worker-reported outcomes. The grade on employee-management relations is not significantly related to any of the outcomes. The high-performance index is associated with better outcomes for on-time delivery and accident rate while total compensation relative to market is associated with better smaller increases in unit labor costs and days sales outstanding.

Overall, while the establishment level data and the division level data confirm the positive link between management practices and policies, particularly the set of practices that create a high performance workplace, and behavior or outcomes, the effects are noticeably weaker in the establishment level regressions in table 4.6 than in the individual level regressions in table 4.3. Why is this? The most likely explanation for the weaker effects of the high performance workplace measure at the more aggregated levels is that only part of establishments, much less divisions, in fact meet that criterion. This means that some of the effect gets lost when we move from workers to

more aggregate units. For example, in a 200 person establishment, the 100 workers doing final assembly of a complex mechanical device may work in a high performance work system but the other workers do not. Workers as a whole rate the facility effectiveness high (the only outcome for which high performance workplaces obtained a significant positive coefficient in table 4.6), but the workers not in the high performance work system are not especially motivated to stay with the company, work hard, innovate, or intervene with shirkers. This would produce weaker establishment level and division level correlations between high performance practices and those outcomes. From this perspective, the association between the greater use of high performance policies with better division level performance on two outcome measures is surprising.

The weak relation between total compensation relative to the market and outcome variables in table 4.6, by contrast, is consistent with the story told at the individual worker level in table 4.3, 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 4.3 that compensation systems do not constitute a "silver bullet" in employment relations systems. Employee-management relations are linked to outcomes at the facility level as well as the individual level, while the compensation and high performance work system scores are not linked to outcomes at the facility level, showing that the effects of these high performance work system policies will be weakened when they do not cover a broad group of employees in a facility.

4.6 Country Level Patterns

Finally, to see whether the relations between policies/practices and outcomes also 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 for each of the country level outcomes. 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 United States. The correlation between the coefficients thus gives the cross-country relation between the relevant variables.

The correlations in the top panel of table 4.7 show moderately sized positive relations between each policy/practice variable and the performance or outcome measures as aggregate country variables. The strongest correlation is between the country measures of employee-management relations and the country measure of facility effectiveness. Better employee-management relations is moderately correlated with country measures of being likely to stay, and willingness to innovate and intervene with shirking coworkers. As with the establishment level analyses, the country-level measure of the high per-

Table 4.7 Correlations among policies and economic outcomes at the country level

Outcomes[a]	Likely to stay	Willing to work hard	Willing to innovate	Antishirking index	Coworkers work hard	Facility effectiveness
Worker reports on labor practices at their facilities[a]						
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[b]						
Labor Market Regulations part	0.061	0.090	–0.004	–0.096	–0.442	0.082
Global Competitiveness Report[c]						
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
Culture scores[d]						
Power distance	0.051	0.145	–0.245	–0.124	0.195	0.120
Individualism	0.192	–0.064	0.253	0.370	–0.498**	0.075
Masculinity	–0.024	0.613***	0.482*	0.216	0.123	0.323
Uncertainty avoidance	0.213	0.137	0.058	0.245	0.155	0.251
Long-term orientation	–0.308	–0.108	–0.412*	–0.552**	0.348	–0.448*

Note: Based on nineteen countries.

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

[b]Gwartney and Lawson (2006).

[c]Lopez-Claros (2006).

[d]Hofstede and Hofstede (2005).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

formance work system index is not correlated with country-level outcomes, presumably for the same reason—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 antishirking. 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.

4.7 Relationship to Competitiveness Indices and Cultural Indices

The middle of table 4.7 relates the country dummy measures of performance or outcomes to aggregate measures of labor market institutions produced by the Fraser Institute as part of its Economic Freedom of the World Index and by the World Economic Forum as part of its report on global competitiveness. The Fraser Institute's index gives countries with less labor market regulation of wages, dismissal, employment, and union extension of contracts to nonparticipating parties higher scores in economic freedom.[11] The Market Efficiency component of the Global Competitiveness Index (Lopez-Claros 2006), based on public data sources and a poll of 11,000 business executives, gives higher scores to countries where executives responded that: wages are not determined by a centralized bargaining process, labor-employer relations are cooperative, hiring and firing of workers is flexibly determined by employers, and pay is related to worker productivity.[12]

The correlations in the middle of table 4.7 between global country measures of labor market institutions and this study's country-level measures of worker outcomes do not fit the view that "economic freedom" and "global competitiveness" means more economic success. The Fraser Institute's Labor Market Regulation score (for which higher values indicate less labor market regulation) is not significantly correlated with any of our estimated country measures of outcomes, and the largest correlation is a negative relation between the low levels of regulations and perceived coworker effort. The World Economic Forum's Global Competitiveness Index does even worse. It is significantly negatively correlated with the country measures of willingness to work hard, willingness to innovate, and perceived coworker effort and facility effectiveness. Similarly, the measures of individual regulations

11. "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, 12). Many of the measures of the Economic Freedom of the World Index (EFWI) rely on the Global Competitiveness Index. See Gwartney and Lawson (2006, 181–82).

12. The individual country data and the text of the questions asked in the poll can be found on pp. 485–89 (Lopez-Claros 2006, chapter 1.1).

are generally negatively correlated with our outcome measures, which given the coding implies that less regulation produces worse outcomes. We do not interpret these results as indicating that less regulation indeed reduces workplace performance, but rather as demonstrating that widely cited indicators of labor practices at the aggregate level are poor measures of what goes on at the workplaces of this multinational, and potentially other firms as well. Workplace relations and practices at the establishment level are related to outcomes as opposed to more indicators of country level practices or policies.

The bottom panel in table 4.7 examines the relation between our measures of outcomes across countries and a different set of indices: the five national measures of culture that Hofstede (1984) created from his analysis of the values of IBM employees in different countries, and that have been replicated since (Hofstede and Hofstede 2005, 23, 26). These measures of cultural differences among countries are different from the Fraser Institute and the World Economic Forum measures because they are based on data on individual workers rather than judgments of how the labor economy operates. Describing the creation of these indices, Hofstede and Hofstede say, "At first sight it might look surprising that employees of a multinational—a very specific kind of people—could serve for identifying differences in national value systems. From one country to another, however, they represented almost perfectly matched samples: they were similar in all respects except nationality, which made the effect of nationality differences in their answers stand out unusually clearly." (Hofstede and Hofstede 2005, 23)

The Hofstede indicators of culture are designed to measure how national cultures address five common problems as outlined in *Cultures and Organizations: Software of the Mind* (2005).

1. *Social inequality including the relationship to authority.* This is measured by the *Power Distance Index,* which is based on research on the emotional distance that separates subordinates from their bosses with high scores indicating greater power distance.
2. *The relationship between the individual and the group.* This is measured by the *Individualism Index,* indicating that the ties between individuals are loose as opposed to societies where people are integrated into strong cohesive in-groups that protect them in exchange for unquestioning loyalty throughout their lifetimes. It is based on various work goal items with high scores indicating more individualism.
3. *Concepts of masculinity and femininity: the social and emotional implications of having been born a boy or a girl.* This is measured by the *Masculinity Index,* with higher scores indicating more masculinity. This was the sole dimension where men and women consistently scored differently, with men attaching greater importance to earnings and challenge as work goals and

women attaching greater importance to having a good working relationship with the manager and cooperation as work goals.[13]

4. *Ways of dealing with uncertainty and ambiguity.* This is the *Uncertainty Avoidance Index,* which reflects employees' level of job stress, orientation toward company rules, and intent to stay with the company over the long-term. Higher scores indicate the degree to which members of a culture feel threatened by ambiguous or unknown situations.

5. *Whether the culture is long-term or short-term oriented.* This is the *Long-Term Orientation Index,* which reflects fostering virtues oriented toward future rewards such as perseverance and thrift versus a short-term orientation of respect for tradition, saving "face," and fulfilling social obligations. This dimension expresses a "dynamic orientation towards the future" in contrast to a "static orientation towards the past and the present." Higher scores indicate an orientation toward future rewards and against tradition.[14]

The bottom of table 4.7 gives the correlations between these "Culture scores" and outcome variables. The majority of the correlations (twenty-four of thirty) are not statistically significant, indicating again the considerable gap between country-level measures and outcomes at a particular firm. Still, there are some suggestive results. The degree of individualism in the country-level culture measure is significantly negatively correlated with how hard coworkers work. Because Hofstede's measure of individualism is based on work goals that reflect a desire to *not* work for the collective, this may fit with his culture score. The degree of masculinity in a national culture is positively associated with "Willingness to work hard" and "Willingness to innovate." Because the masculinity measure is based on the importance of earnings, recognition, advancement, and challenge as work goals, this also makes sense, although the term "masculinity" seems dated as an indicator of these attributes. The Hofstede measure of uncertainty avoidance in a national culture is also not associated with any country-level economic

13. The "Masculinity" label for this index is not the label that the authors of this article would choose, because it is strongly suggestive of a strong and enduring level of differences between the sexes on these bases rather than cultural differences in how these characteristics get distributed. What we have written here is a summary of Hofstede's own description of the index. Obviously, the authors do not accept the notion that men mainly care about some aspects and women mainly care about other aspects of the workplace, or that these aspects define men or women. It is open to question whether men and women would score this differently on these items if the studies were done today.

14. This section is adapted completely from Hofstede and Hofstede (2005) as noted following. For a description of the respective dimensions and survey items along with the raw scores for the countries, see: the Power Distance Index, pp. 41–44 with country raw scores and rankings in table 2.1 on pp. 43–44; the Individualism Index, pp. 75–79 with country raw scores and rankings in table 3.1 on pp. 78–79; the Masculinity Index, pp. 118–121 with country raw scores and rankings in table 4.1 on pp. 120–21; the Uncertainty-Avoidance Index, pp. 166–69 with country raw scores and rankings in table 5.1 on pp. 168–69; the Long-term Orientation Index, pp. 210–11 with country raw scores and rankings in table 6.1 on p. 211.

outcomes, although all the outcomes are positive. Hofstede based this index on "The percentage of employees expressing their intent to stay with the company for a long-term career" (Hofstede and Hofstede 2005, 166). It is modestly positively correlated with our measure of "Likely to stay" with the firm. Finally, the cultural indictor that is most highly correlated with the outcome measures is Hofstede's "long-term orientation." This is negatively associated with the country-level economic outcomes of willing to work hard, willing to innovate, and the antishirking index, which does not seem to fit with what it is seeking to measure. Again, the lesson we draw is that workplace practices and policies trump measures of national characteristics.

Finally, we examine the relationship of the competitiveness and cultural indices to the slopes found in table 4.3, addressing the question "Do policies have a different effect on outcomes in countries with different labor market institutions or cultures?" One might think, for example, that workplace practices will have a smaller effect in countries where it is more difficult to hire and fire workers, since workers will be hard to motivate when it is difficult to fire them. The results in table 4.8 focus on slope coefficients that differed significantly among countries (table 4.4, column [1]). There are few correlations that are significantly different from zero, and the patterns do not tell a simple story, with most indices having mixed correlation signs across the six outcomes. One set of exceptions in the top third of the table are the Fraser economic freedom index, the wage flexibility index, the hiring and firing index, the pay and productivity index, and the "masculinity" score: as each of these increases, it is more likely that employee-management relations makes a difference in the outcomes. The remaining exceptions regard total compensation relative to market, which has a stronger effect on outcomes in cultures with greater "power distance" and "long-term orientation."

4.8 Conclusion

This study has found country differences in the labor practices, attitudes toward work, and the economic performance of workers and establishments in a data set that covers 29,353 workers in a single multinational firm. The data set has a rich variety of measures, including an innovative measure of responses to coworker shirking with results from nineteen countries. The employment relations, worker attitudes, and performance of workers varied more across countries than among states/regions in the United States and were linked in ways that suggested that workers across these countries respond to policies in broadly similar ways. Analysis of establishment averages showed that the strong relation between good labor management relations and employee behavior or outcomes holds at the establishment level as well, while the relationship of high performance workplaces and above market compensation to employee behavior generally fails to generalize to the establishment. Our comparison of country level differences showed a

Table 4.8 **Correlations with country-specific effects of policies on performance**

	Unlikely to look for new job	Willing to work hard	Willing to Innovate	Antishirking index	Coworkers work hard	Facility effectiveness
			Effect of ee-mgt. rels.			
Fraser Institute[b]						
Economic freedom index	0.093	0.555*	0.061	[a]	0.482	0.308
Global Competitiveness Report[c]						
Overall Global Competitiveness Index	–0.382	–0.390	0.342	[a]	–0.142	–0.317
Hiring and firing practices	0.448	0.199	0.567*	[a]	0.280	0.233
Cooperative labor-employer relations	0.509*	–0.006	0.192	[a]	–0.397	0.394
Flexibility of wage determination	0.252	0.237	0.469	[a]	0.506*	0.036
Pay and productivity	0.463	0.396	0.376	[a]	0.420	0.390
Overall mkt efficiency	0.424	0.559*	–0.181	[a]	0.149	0.562*
Restrictive labor regulations	–0.233	0.182	–0.633**	[a]	–0.088	0.070
Innovative factors	–0.377	–0.447	0.417	[a]	0.000	–0.257
Culture scores[d]						
Power distance	–0.518*	–0.264	0.251	[a]	0.126	–0.507*
Individualism	0.084	0.641	–0.491	[a]	0.134	0.491
Masculinity	0.028	0.379	0.498*	[a]	0.105	0.095
Uncertainty avoidance	–0.405	0.007	–0.045	[a]	0.172	–0.389
Long-term orientation	–0.108	–0.511	0.479	[a]	0.046	–0.287
			Effect of high-perf. index			
Fraser Institute[b]						
Economic freedom index	0.061	[a]	–0.241	0.359	[a]	0.306
Global Competitiveness Report[c]		[a]			[a]	
Overall Global Competitiveness Index	–0.207	[a]	0.020	0.224	[a]	–0.173
Hiring and firing practices	–0.337	[a]	–0.320	0.350	[a]	0.249
Cooperative labor-employer relations	–0.129	[a]	–0.685**	–0.248	[a]	0.113
Flexibility of wage determination	–0.214	[a]	0.028	0.489	[a]	0.198
Pay and productivity	–0.182	[a]	–0.201	0.130	[a]	0.200
Overall mkt efficiency	0.120	[a]	–0.345	–0.111	[a]	0.156
Restrictive labor regulations	0.352	[a]	0.169	–0.453	[a]	–0.073
Innovative factors	–0.143	[a]	0.034	0.335	[a]	–0.116

(*continued*)

Table 4.8 (continued)

	Unlikely to look for new job	Willing to work hard	Willing to Innovate	Antishirking index	Coworkers work hard	Facility effectiveness
Culture scores[d]						
Power distance	–0.162	[a]	0.440	0.456	[a]	–0.286
Individualism	0.362	[a]	–0.300	–0.093	[a]	0.100
Masculinity	–0.379	[a]	–0.389	0.272	[a]	–0.046
Uncertainty avoidance	0.025	[a]	0.238	–0.119	[a]	0.208
Long-term orientation	–0.281	[a]	0.343	0.241	[a]	–0.262
		Effect of total comp. relative to market				
Fraser Institute[b]						
Economic freedom index	–0.086	[a]	0.073	[a]	0.323	–0.242
Global Competitiveness Report[c]		[a]		[a]		
Overall Global Competitiveness Index	0.466	[a]	0.254	[a]	0.082	–0.121
Hiring and firing practices	–0.338	[a]	0.377	[a]	0.546*	–0.250
Cooperative labor-employer relations	–0.391	[a]	0.466	[a]	0.058	–0.135
Flexibility of wage determination	–0.399	[a]	0.205	[a]	0.601**	0.085
Pay and productivity	–0.714***	[a]	0.304	[a]	0.385	0.055
Overall mkt efficiency	–0.503*	[a]	0.088	[a]	–0.033	0.023
Restrictive labor regulations	–0.094	[a]	–0.276	[a]	–0.512*	0.250
Innovative factors	0.344	[a]	0.410	[a]	0.113	–0.243
Culture scores[d]						
Power distance	0.251	[a]	0.261	[a]	0.080	0.282
Individualism	–0.027	[a]	–0.203	[a]	–0.274	–0.251
Masculinity	–0.002	[a]	0.309	[a]	0.258	–0.521*
Uncertainty avoidance	0.068	[a]	–0.237	[a]	0.219	0.230
Long-term orientation	0.120	[a]	0.227	[a]	0.095	0.070

[a]Difference among country-specific coefficients on this predictor was not statistically significant, so prediction of variation among coefficients is not appropriate.

[b]Gwartney and Lawson (2006).

[c]Lopez-Claros (2005).

[d]Hofstede and Hofstede (2005).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

similar correlation of measures of policies/practices and performance. The findings of worker and establishment level differences are striking since the company strives to implement its employment system globally through many frequent international meetings of managers and employees. By contrast, aggregate measures of labor market institutions common to global "economic freedom" and "competitiveness" scores across countries are either insignificantly or negatively correlated with our measures of performance, indicating that these variables fail to capture the reality of labor market operations on the ground in this firm.

The individual, establishment, and country comparisons support the idea that what matters are policies and practices at workplaces. Worker views of employee-management relations had, in particular, 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 coworker. The results on high performance practices and compensation, however, were more mixed. While we found strong evidence of country differences in behavior and outcome within the same firm, these differences were not well-related (or were inversely related) to national indicators of labor conditions and, in some cases, culture. To understand workplace outcomes, one does best to examine workplace policies and practices.

Appendix

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, B, C, D, F). (4 = A, 0 = F).

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).

Antishirking 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." (Answers on all four parts of this question were coded on a 1–4 scale for a summated rating with 1 = not at all likely; 2 = not very likely; 3 = somewhat likely; 4 = very likely. The last item was reverse-coded).

Evaluation of Coworkers and Facility Performance

Coworkers 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).

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