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Work-Life Balance, Management Practices, and Productivity

Nick Bloom, Tobias Kretschmer, and John Van Reenen

1.1 Introduction

Does good management and higher productivity come at the expense of work-life balance (WLB), or is good work-life balance an important component of the management of successful firms? Some more pessimistic critics of globalization have argued that competition stimulates Anglo-Saxon management practices that may raise productivity but only at the expense of well-being at work. For example, Jacques Chirac, the French president, has stressed that:

> [Europe's] model is the social market economy, [the] alliance of liberty and solidarity, with the public authority safeguarding the public interest. [. . .] France will therefore never let Europe become a mere free-trade area. We want a political and social Europe rooted in solidarity.[1]

By contrast, a more optimistic view is often justified by citing the tangible and intangible business benefits of good WLB, sometimes espoused by the more optimistic Human Resource Management literature. For example, Tony Blair, the UK Prime minister, stated:

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1. Euractiv, "Blair, Chirac in drive to win citizens' support," October 27, 2005, (http://www.euractiv.com/Article?tcmuri=tcm:29-146484-16&type=News).

> The UK has shown it is possible to have flexible labour markets combined with [. . .] family friendly policies to help work/life balance [. . .]. The result has been higher growth, higher employment and low unemployment.[2]

Given the slower productivity growth of Europe relative to the United States since the mid-1990s[3] this question features prominently in the implementation of "catching-up strategies." If productivity and WLB are in direct conflict, employees may be asked to make sacrifices of the quality of their work-life balance. On the other hand, if favorable work-life balance is not in the way of high productivity growth or is even productivity-enhancing, the European social model may have a brighter future.

Recent policy debates have focused on issues surrounding or directly addressing issues of WLB. For example, the European Working Time Directive has been under intense scrutiny recently, with several governments in Continental Europe challenging workers' right to opt-out of the maximum ceiling of forty-eight hours a week. At the same time, the European Services Directive (designed to liberalize the movement of service workers between countries) has been interpreted as intensifying foreign competition, which may exert a heavy toll on the work-life balance of workers.

On both sides of the argument, there seem to be underlying assumptions regarding the interaction between productivity and WLB. The question of WLB-enhancing practices, their implementation, and effectiveness has been taken up in the management literature, which generally finds that:

1. WLB measures have a positive effect on firm or workplace performance.[4]
2. WLB measures are more effective in situations demanding high employee flexibility and responsiveness.[5]
3. Firms with a more skilled workforce are more likely to implement WLB-enhancing practices.[6]

This leaves us with a dilemma: policymakers are concerned that firms are failing to introduce sufficient measures to ensure a sensible work-life balance for their employees because the costs of doing this are too high in competitive global markets. On the other hand, the academic literature

2. Toby Helm and David Rennie, "Blair attack on 'out-of-date' Chirac," *Daily Telegraph,* March 3, 2005, (http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2005/03/25/weu25.xml&sSheet=/news/2005/03/25/ixnewstop.html).

3. See, for example, O'Mahony and Van Ark (2003).

4. Delaney and Huselid (1996); Huselid, Jackson, and Schuler (1997); Konrad and Mangel (2000); Perry-Smith and Blum (2000); Guthrie (2001); Budd and Mumford (forthcoming); Gray (2002).

5. For example, in high-technology industries (Arthur 2003) or in highly differentiated firms (Lee and Miller 1999; Guthrie, Spell, and Nyamori 2002; Youndt et al. 1996).

6. Gray and Tudball (2003); Osterman (1995). The percentage of female employees has a weakly positive effect on the implementation of WLB practices—see Harel, Tzafrir, and Baruch (2003); Gray and Tudball (2003); Miliken, Martins, and Morgan (1998); Martins, Eddleston, and Veiga (2002); Perry-Smith and Blum (2000); Guthrie and Roth (1999).

seems to believe all firms should be adopting better WLB schemes given their apparently positive impact on firm performance, particularly in more competitive markets.

Our study sheds light on these contrasting views using a new large data set on over 700 firms in Europe and the United States that contains rich firm performance, management, and WLB variables. We are able to show that many of the prior results in the literature disappear when controls for management practice are included. We have already found in previous work (Bloom and Van Reenen 2007) that well managed firms tend to be more productive and more energy efficient; in this chapter we show that better managed firms also have better WLB practices. This can be seen in figure 1.1 where we simply plot our WLB outcome measure against an overall index of firm management quality (we explain the exact definitions in more detail following). Consequently, the association between firm productivity and WLB practices found elsewhere in the literature may simply be due to omitted variable bias—these regressions do not control for management quality. We show in this chapter that once we condition on management practices in the production function there is no independent role for WLB on productivity. Failure to control for the omitted variable of management leads to the spurious associations of better WLB with productivity.

The structure of the chapter is as follows: in section 1.2 we discuss our general models of management practices and firm performance. In section 1.3 we provide a detailed discussion of our data sets and the procedures

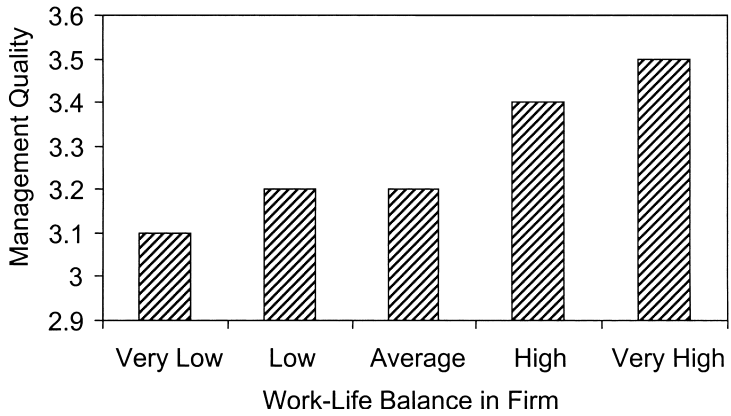

Fig. 1.1 The correlation between work-life balance outcomes and managementpractices

Notes: "Work-Life Balance in Firm" is the response to the question: "*Relative to other companies in your industry how much does your company emphasize work-life balance?*", where scores are as follows: "*Much less*" (1); "*Slightly less*" (2); "*The same*" (3); "*Slightly more*" (4); and "*Much more*" (5). "Management quality" is the average score for the eighteen individual management practice questions with scores ranging from 1 (worst-practice) to 5 (best practice). Results from 530 firm observations.

used to collect this. In section 1.4 we discuss our results and in section 1.5 we provide some concluding comments. A detailed set of empirical appendices then follows.

1.2 Modeling Approach

Consider a simple approach of characterizing work-life balance, productivity, and management:

$$w = f(X, M, D) \tag{1}$$

$$y = g(X, M, D) \tag{2}$$

where w = Work-life Balance outcomes and y = (total factor) productivity outcomes. The variable X is an index of "good" WLB practices (such as childcare flexibility and subsidies) and M is an index of "good" management practices (such as better shop-floor operations or stronger incentives). We will model these as being composite measures of several underlying practices so $M = m(M_1, M_2, M_3, \ldots)$ and $X = x(X_1, X_2, X_3, \ldots)$. Finally, D is other control variables such as firm size, firm age, industry effects and country dummies, and so forth.

We would expect that better management practices should be associated with improved productivity so $\partial y/\partial M \geq 0$ (see Bloom and Van Reenen [2007] for extensive evidence). We would also expect that better WLB practices should be associated with improved reported WLB outcomes so $\partial w/\partial X \geq 0$: this is the first thing that we examine empirically in the chapter.

What is much less clear are the cross partials in equations (1) and (2). Pessimists argue that improved WLB is costly in terms of productivity and will therefore be heavily resisted by employers, which is one reason for tough labor regulation.[7] In the context of equation (1) this implies $\partial y/\partial X \leq 0$. Similarly, pessimists argue that "Anglo-Saxon" management practices come at the expense of WLB so $\partial w/\partial M \leq 0$.

By contrast, optimists from some parts of the Human Resource Management field often argue for a win-win view that improving WLB practices will increase productivity as it improves employee well-being, leading to improved recruitment and retention (e.g., of women) and better morale and motivation. In this case, $\partial y/\partial X \geq 0$. They generally also argue that better management tends to be complementary with better WLB practices, and at a minimum, there is no obvious reason why they should be strong substitutes. Thus, $\partial w/\partial M \geq 0$.

These cross partials are with respect to endogenous variables chosen by firms, so it is not obvious how to interpret these relationships. Nevertheless,

7. Even if WLB practices improved productivity they may still be resisted by employers if the costs of implementing these policies were less than their productivity benefits.

the examination of the correlations with new data should be informative. More directly however, we also consider the more fundamental drivers of these practices. Consider a set of factors $Z(= Z_1, Z_2, Z_3, \ldots .)$ that may exogenously affect the practices. We model management practices and WLB practices as functions of the exogenous variables as:

$$X = h(Z, D) \text{ and } M = j(Z, D). \tag{3}$$

We are particularly interested in product market competition as one of the elements of Z. Under the pessimist view, tougher product competition caused by globalization, liberalization, and new technologies may increase productivity through improved management practices $\partial M/\partial Z \geq 0$, but this will be at the expense of worse WLB practices and outcomes (i.e., $\partial X/\partial Z \leq 0$). We examine these predictions directly in the empirical work. The optimists also view competition as a force promoting better management practices, but by contrast with the pessimists they argue that this should increase the use of good WLB practices. This is because, in their view, firms are making mistakes by not introducing better WLB practices and competition should make such profit-sacrificing strategies more costly.

To summarize, these two models yield a set of predictions laid out in table 1.1 that we subsequently test empirically. Of course, there can be "hybrid" positions between these positions. In short, we find that the evidence is inconsistent with the negative view: management practices are positively associated with WLB outcomes and there is no evidence that competition reduces WLB for workers. Nevertheless, the positive view does not receive unambiguous support: although better management and better WLB do sometimes go together, the positive correlation between WLB and productivity found elsewhere in the literature is not robust. Once we control for management we find no association of WLB with productivity. We find the evidence supports a hybrid view between the optimistic and pessimistic extremes.

1.3 Data

To investigate these issues we first have to construct robust measures of WLB, management practices, and competition. We discuss the collection of management and WLB data first (which was undertaken using a new firm survey tool) and then the collection of productivity and competition data (which was taken from more standard firm and industry data sources).

The data is detailed in table 1B.1 in Appendix B. Figures 1.2 and 1.3 plot some of the key cross-country averages. Looking at figure 1.2 there is a surprisingly large cross-country variation in hours worked, with French managers working about 68 percent of the annual hours worked by U.S. managers due to a combination of fewer hours per week, longer holidays, and more sick leave. United Kingdom and German managers work about

Table 1.1 **Empirical predictions of different models**

	(1)	(2)	(3)	(4)	(5)	(6)
Symbol	$\frac{\partial w}{\partial X}$	$\frac{\partial w}{\partial M}$	$\frac{\partial y}{\partial X}$	$\frac{\partial y}{\partial M}$	$\frac{\partial X}{\partial Z}$	$\frac{\partial M}{\partial Z}$
Outcome	WLB outcomes	WLB outcomes	Productivity	Productivity	WLB practices	Management practices
Relationship	Derivative w.r.t. WLB practices	Derivative w.r.t. management practices	Derivative w.r.t. WLB practices	Derivative w.r.t. management practices	Derivative w.r.t. competition	Derivative w.r.t. competition
Pessimist	POSITIVE	NEGATIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE
Optimist	POSITIVE	POSITIVE	POSITIVE	POSITIVE	POSITIVE	POSITIVE

Note: WLB = work-life balance; w.r.t. = with respect to.

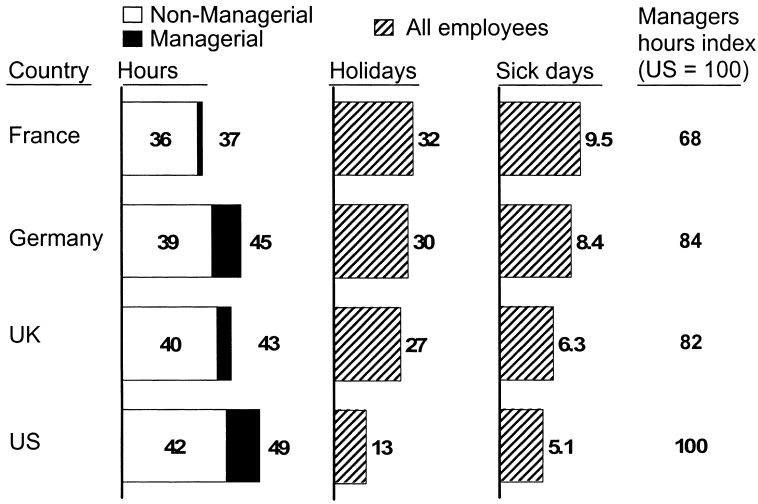

Fig. 1.2 Managerial hours vary widely by country

Notes: Country averages, per year except hours, which are per week. Average *managerial* hours. Assumes managers take "All employee" levels of holidays and sick leave, plus take ten days public holidays per year.

Source: Survey of 732 manufacturing firms.

82 percent and 84 percent of the U.S. managers' hours;[8] about equidistant between France and the United States.

In figure 1.3 we plot the share of women in the workforce at the managerial and nonmanagerial level. Looking first at *nonmanagerial* female involvement, we see this is higher in the United States, with around one third of nonmanagerial female workers in the United States, compared to about one quarter in Europe. While this difference is large, the gap at the *managerial* level is even greater. Only 12 percent of French managers are female compared to 31 percent in the United States. Hence, not only do U.S. firms have more female employees absolutely but they also appear to have relatively more female managers. Thus, at a first glance the French policy of regulating working hours does not seem to have been effective at ensuring female participation in the workforce, and particularly in the managerial workforce, which is often seen as an indirect indicator of work-life balance.

1.3.1 Scoring WLB and Management Practices

Measuring WLB and management practices requires codifying these concepts into something widely applicable across different firms. This is a hard

8. The surprisingly high hours are for German managers rather than workers—who work less than their UK counterparts.

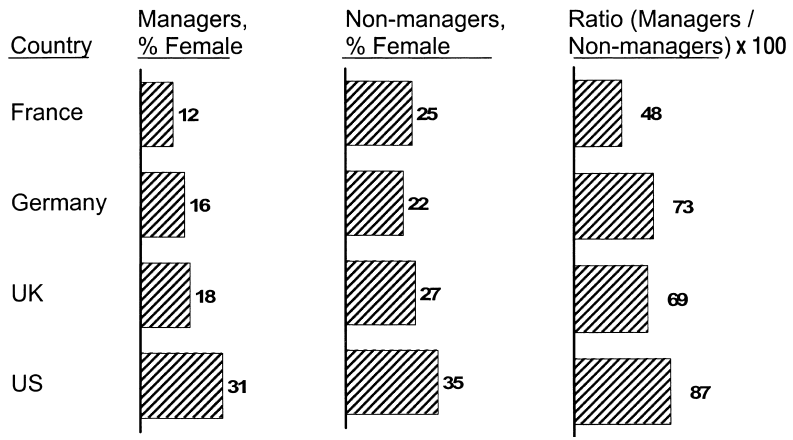

Fig. 1.3 Manager gender distribution by country
Notes: Country averages.
Source: Survey of 732 manufacturing firms.

task, as WLB and good management are tough to define. To do this we combined questions that have been used previously in the: (a) Workplace Employment Survey (WERS); (b) a management practice evaluation tool developed by a leading international management consultancy firm; and (c) the prior economics and management academic literature.

Work-Life Balance

In appendix A, table 1A.2, we detail the Human Resources Interview guide, which was used to collect a range of detailed WLB practices and characteristics from firms. We collected three types of key data:

- The first was the WLB perceptions data of individuals' on their own firms WLB versus other firms in the industry. This was used as our WLB *outcome* measure, defined as the response to the question: "Relative to other companies in your industry how much does your company emphasize work-life balance?", scored as: Much less (1); Slightly less (2); The same (3); Slightly more (4); Much more (5).
- The second was the WLB policies/practices data on key variables including childcare flexibility, home-working entitlements, part-time to full-time job flexibility, job-sharing schemes, and childcare subsidy schemes. This was used to construct our WLB *practice* measure defined as the average z-score[9] from the five questions: "If an employee needed to take

9. For comparability to the management z-score this WLB z-score (and the management z-score) were both renormalized to zero mean with standard deviation one. Hence, the coefficients on both the management and WLB practice z-scores in the tables of results both respond to one standard deviation change in both measures.

a day off at short notice due to childcare problems or their child was sick how do they generally do this?"; and the entitlements to "Working at home in normal working hours," "Switching from full-time to part-time work," "Job sharing schemes," and "Financial subsidy to help pay for childcare." These are all scored as yes/no.

- The third was workforce characteristic data on key variables including average employee age, hours, holidays, and proportion female, plus a full set of conditioning variables on skills (the proportion of college educated), training, and unionization. We used this data as a control for heterogeneity across firms.

Management Practices

In appendix A we detail the practices and the questions in the same order as they appeared in the survey, describe the scoring system, and provide three anonymous responses per question. These practices can be grouped into four areas: *operations* (3 practices), *monitoring* (5 practices), *targets* (5 practices), and *incentives* (5 practices). The *operations management* section focuses on the introduction of lean manufacturing techniques, the documentation of processes improvements, and the rationale behind introductions of improvements. The *monitoring* section focuses on the tracking of the performance of individuals, reviewing performance (e.g., through regular appraisals and job plans), and consequence management (e.g., making sure that plans are kept and appropriate sanctions and rewards are in place). The *targets* section examines the type of targets (whether goals are simply financial or operational or more holistic), the realism of the targets (stretching, unrealistic, or nonbinding), the transparency of targets (simple or complex), and the range and interconnection of targets (e.g., whether they are given consistently throughout the organization). Finally, *incentives* (or people management) include promotion criteria, pay and bonuses, and fixing or firing bad performers, where best practice is deemed to be an approach that gives strong rewards for those with both ability and effort. A subset of the practices has similarities with those used in studies on HRM practices, such as Ichniowski, Shaw, and Prenushi (1997), Black and Lynch (2001), and Bartel, Ichniowski, and Shaw (2004).

Since the scaling may vary across practices in the econometric estimation, we convert the scores (from the 1 to 5 scale) to z-scores by normalizing by practice to mean zero and standard deviation one. In our main econometric specifications, we take the unweighted average across all z-scores as our primary measure of overall managerial practice,[10] but we also experiment with other weightings schemes based on factor analytic approaches.

There is legitimate scope for disagreement over whether all of these mea-

10. This management z-score was then renormalized to zero mean and standard deviation one.

sures really constitute "good practice." Therefore, an important way to examine the external validity of the measures is to examine whether they are correlated with data on firm performance constructed from company accounts and the stock market.

1.3.2 Collecting Accurate Responses

With this evaluation tool we can, in principle, provide some quantification of firms' WLB and management practices. However, an important issue is the extent to which we can obtain unbiased responses to questions from firms. In particular, will respondents provide accurate responses? As is well known in the surveying literature (see, for example, Bertrand and Mullainathan [2001]), a respondent's answer to survey questions is typically biased by the scoring grid and anchored toward those answers that they expect the interviewer thinks is "correct." In addition, interviewers may themselves have preconceptions about the performance of the firms they are interviewing and bias their scores based on their *ex-ante* perceptions. More generally, a range of background characteristics, potentially correlated with good and bad managers, may generate some kinds of systematic bias in the survey data.

To try to address these issues we took a range of steps to obtain accurate data:

- First, the survey was conducted by telephone without telling the managers they were being scored.[11] This enabled scoring to be based on the interviewer's evaluation of the actual firm practices, rather than the firm's aspirations, the manager's perceptions, or the interviewer's impressions.[12] To run this blind scoring we used open questions (i.e., "Can you tell me how you promote your employees?"), rather than closed questions (i.e., "Do you promote your employees on tenure [yes/no]?"). These questions target actual practices and examples, with the discussion continuing until the interviewer could make an accurate assessment of the firm's typical practices. Typically, three to four questions were needed to score each practice.
- Second, the interviewers did not know anything about the firm's financial information or performance in advance of the interview. This was achieved by selecting medium-sized manufacturing firms and by providing only firm names and contact details to the interviewers (but no financial details). These smaller firms would typically not be known by

11. This survey tool has been passed by Stanford's Human Subjects Committee. The deception involved was deemed acceptable because it is: (a) *necessary* to get unbiased responses; (b) *minimized* to the management practice questions and is temporary (we send managers debriefing packs afterwards); and (c) *presents no risk* as the data is confidential.

12. If an interviewer could not score a question it was left blank, with the firm average taken over the remaining questions. The average number of unscored questions per firm was 1.3 percent, with no firm included in the sample if more than three questions were unscored.

name and are rarely reported in the business media. The interviewers were specially trained graduate students from top European and U.S. business schools, with a median age of twenty-eight and five years prior business experience in the manufacturing sector.[13] All interviews were conducted in the manager's native language.

- Third, each interviewer ran over fifty interviews on average, allowing us to remove interviewer fixed effects from all empirical specifications. This helped us to address concerns over inconsistent interpretation of categorical responses (see Manski 2004), standardizing the scoring system.
- Fourth, the survey instrument was targeted at plant managers, who are typically senior enough to have an overview of management practices but not so senior as to be detached from day-to-day operations of the enterprise.
- Fifth, a detailed set of information was also collected on the interview process itself (number and type of prior contacts before obtaining the interviews, duration, local time-of-day, date, and day-of-the week), on the manager (gender, seniority, nationality, company and job tenure, internal and external employment experience, and location), and on the interviewer (we can include individual interviewer fixed effects, time-of-day, and a subjective reliability score assigned by the interviewer). Some of these survey controls are significantly informative about the management score (see table 1B.2),[14] and when we use these as controls for interview noise in our econometric evaluations the coefficient on the management score typically increased (see Bloom and Van Reenen 2006).

1.3.3 Obtaining Interviews with Managers

The interview process took about fifty minutes on average, and was run from the London School of Economics. Overall, we obtained a high response rate of 54 percent, which was achieved through four steps.

- First, the interview was introduced as "a piece of work"[15] without discussion of the firm's financial position or its company accounts, making it relatively uncontroversial for managers to participate. Interviewers did not discuss financials in the interviews, both to maximize the par-

13. Thanks to the interview team of Johannes Banner, Michael Bevan, Mehdi Boussebaa, Dinesh Cheryan, Alberic de Solere, Manish Mahajan, Simone Martin, Himanshu Pande, Jayesh Patel, and Marcus Thielking.

14. In particular, we found the scores were significantly higher for senior managers when interviews were conducted later in the week and/or earlier in the day. That is to say, scores were highest, on average, for senior managers on a Friday morning and lowest for junior managers on a Monday afternoon. By including information on these characteristics in our analysis, we explicitly controlled for these types of interview bias.

15. Words like "survey" or "research" should be avoided as these are used by switchboards to block market research calls.

ticipation of firms and to ensure our interviewers were truly "blind" on the firm's financial position.

- Second, management questions were ordered to lead with the least controversial (shop-floor management) and finish with the most controversial (pay, promotions, and firings). The WLB questions were placed at the end of the interview to ensure the most candor in the response to this.
- Third, interviewers' performance was monitored, as was the proportion of interviews achieved, so they were persistent in chasing firms (the median number of contacts each interviewer had per interview was 6.4). The questions are also about practices within the firm that any plant manager can respond to, so there were potentially several managers per firm who could be contacted.[16]
- Fourth, written endorsement of the Bundesbank (in Germany) and the Treasury (in the United Kingdom), and a scheduled presentation to the Banque de France, helped demonstrate to managers this was an important exercise with official support.

1.3.4 Sampling Frame and Additional Data

Since our aim was to compare across countries we decided to focus on the manufacturing sector, where productivity is easier to measure than in the nonmanufacturing sector. We also focused on medium-sized firms, selecting a sample where employment ranged between fifty and 10,000 workers (with a median of 700). Very small firms have little publicly available data. Very large firms are likely to be more heterogeneous across plants, and it would be more difficult to get a picture of managerial performance in the firm as a whole from one or two plant interviews. We drew a sampling frame from each country to be representative of medium-sized manufacturing firms and then randomly chose the order of which firms to contact (see appendix B for details). We also excluded any clients of our partnering consultancy firm from our sampling frame.[17]

Comparing the responding firms with those in the sampling frame, we found no evidence that the responders were systematically different to the nonresponders on any of the performance measures. They were also statistically similar on all the other observables in our data set. The only exception was on size, where our firms were slightly larger than average than those in the sampling frame.

16. We found no significant correlation between the number, type, and time span of contacts before an interview is conducted and the management score. This suggests while different managers may respond differently to the interview proposition, this does not appear to be directly correlated with their responses or the average management practices of the firm.

17. This removed thirty-three firms out of our sampling frame of 1,353 firms.

1.3.5 Evaluating and Controlling for Potential Measurement Error

To quantify possible measurement error in the WLB and management practice scores obtained using our survey tool, we performed repeat interviews on management practice data on sixty-four firms—contacting different managers in the firm, typically at different plants, using different interviewers. To the extent that our measures are truly picking up general company-wide practices these two scores should be correlated, while if our measures are driven by noise these should be independent.

Figure 1.4 plots the average firm-level management scores from the first interview against the second interview, from which we can see that they are highly correlated (correlation 0.734 with p-value 0.000). Furthermore, there is no obvious (or statistically significant) relationship between the degree of measurement error and the absolute score. That is to say, high and low scores appear to be as well measured as average scores, and firms that have high (or low) scores on the first interview tend to have high (or low) scores on the second interview. Thus, firms that score below two or above four on the 1 to 5 scale of composite management scores appear to be genuinely badly or well managed rather than extreme draws of sampling measurement error.

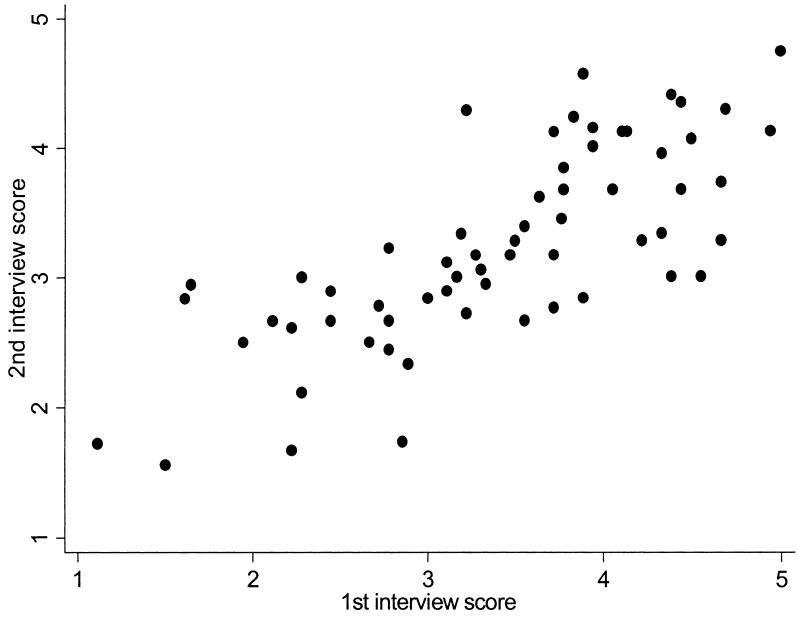

Fig. 1.4 The management scoring appears reliable

Note: Scores from sixty-four repeat interviews on the same firm with different managers and different interviewers.

1.3.6 Productivity and Competition Data

Quantitative information on firm sales, employment, capital, materials, and so forth came from the company accounts and proxy statements, and was used to calculate firm level productivity. The details are provided in appendix B. To measure competition we follow Nickell (1996) and Aghion et al. (2005) in using three broad measures. The first measure is the degree of import penetration in the country by three-digit industry measured as the share of total imports over domestic production. This is constructed for the period 1995 to 1999 to remove any potential contemporaneous feedback. The second is the country by three-digit industry Lerner index of competition, which is (1 – profits/sales), calculated as the average across the entire firm level database (excluding each firm itself).[18] Again, this is constructed for the period 1995 to 1999 to remove any potential contemporaneous feedback. The third measure of competition is the survey question on the number of competitors a firm faces (see appendix A, table 1A.2), valued zero for "no competitors," one for "less than 5 competitors," and two for "5 or more competitors".[19]

1.4 Results

The first thing we look at is whether our key measures of WLB outcomes were correlated with the practices that we might expect to improve employee WLB. If this did not turn out to be true, we would suspect that the WLB outcome measure was not really reflecting the actual events on the ground but rather some other unobservable firm-specific characteristic.

1.4.1 WLB Practices and WLB Outcomes

Table 1.2 examines this issue by regressing the WLB outcome indicator on a number of variables that we would expect to be associated with better work-life balance. Reassuringly we find that all the associations are sensible.

Column (1) simply correlates WLB with average hours worked per week in the firm across all employees. An extra ten hours a week worked is associated with a 0.4 points lower WLB score (about 12 percent lower than the mean of 3.21). This association is significant at the 5 percent level. In the second column we control for four country dummies, firm size, whether the firm is publicly listed, and firm age. With the exception of the country dummies[20]

18. Note that in constructing this we draw on firms in the population database, not just those in the survey.

19. This question has been used by inter alia Nickell (1996) and Stewart (1990).

20. The pattern of the country dummies suggests that conditional on other factors, Germans report the worst work-life balance and Americans report the best work-life balance. It is difficult to interpret these results, however, as the WLB question is relative to the industry

Table 1.2 **Work-life balance outcomes and WLB practices (dependent variable = WLB outcome score)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Explanatory variable	Hours (all employees)	Hours (all employees)	Days holiday per year	WLB practices *z*-score	Working from home	Full-time/ part-time job	Job sharing	Childcare flexibility	Childcare subsidy	Share female managers
Explanatory coefficient	–0.038** (0.012)	–0.037** (0.012)	0.026** (0.007)	0.230*** (0.041)	0.286** (0.098)	0.185* (0.094)	0.369** (0.151)	0.321** (0.094)	0.265** (0.106)	0.005** (0.002)
Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firms	525	525	523	477	489	489	484	513	486	521

Notes: In all columns, standard errors are in parentheses under coefficient estimates and allow for arbitrary heteroskedasticity. WLB outcome score is the response to the question: "Relative to other companies in your industry how much does your company emphasize work-life balance?", where scores are as follows: "Much less" (1); "Slightly less" (2); "The same" (3); "Slightly more" (4); and "Much more" (5). WLB practices *z*-score is the average *z*-score for the five practice "working from home allowed," "job switching allowed," "job sharing allowed," "childcare flexibility," and "childcare subsidy," normalized so this measure has a mean of 0 and standard deviation of 1. Controls include country dummies, log of employees, a dummy for public listing, and the ln(age) of the firm.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

and firm size[21] all other variables are insignificant. The coefficient on managerial hours stays essentially the same.[22] Column (3) includes the number of days' holiday per year—more holidays are associated with a higher WLB score.

We next consider the composite WLB practices z-score (the average z-score across the five practices—working from home, job switching, job sharing, childcare flexibility, and childcare subsidy). When we include this WLB practice score in the regression in column (4), the variable is positive and highly significant. The next five columns show the correlation of WLB with each of the five practices individually.

Firms that are flexible and allow some working from home (column [5]), job switching (column [6]), and job sharing (column [7]) also have higher reported WLB outcomes. The next two columns show that firms who have more family-friendly policies with regard to allowing flexibility for employees to take time off for children[23] or offer childcare subsidies also score more highly on WLB. All of these correlations are significant and consistent with the notion that the WLB outcome measure reflects something real about the WLB policies in the firm.

The final column includes the proportion of female managers in the regression. Firms who have a greater proportion of female managers are also more likely to report a higher WLB outcome. This correlation is specifically related to the proportion of female managers, not females in the workplace as a whole. The share of females in nonmanagerial positions is not correlated with WLB. This suggests that the correlation does not simply arise from the fact that women are more or less attracted to different firms. More likely is some combination of: (a) in firms with more female managers there is greater decision-making support for improved WLB because the balance of power is more with women; and (b) female managers are attracted to firms with better WLB.

1.4.2 Work-life Balance and Management

Table 1.3 examines the correlation between WLB and our composite measure of good management described in the previous section. In previous

average so this implicitly removes the country effect if managers compare themselves to other firms in the same sector in the same country. The systematically lower score in Germany could reflect a "more negative" cultural bias in answering these questions.

21. Firm size is always strongly correlated with WLB, for example in column 2 of table 1.2 the coefficient (standard error) on log of employees is 0.104 (0.036), respectively.

22. If we split total hours into average hours worked by managers and average hours worked by nonmanagers both variables are negatively related to WLB at the 10 percent significance level or higher, suggesting WLB is related to the hours worked by both workers and managers.

23. Response to the question "If an employee needed to take a day off at short notice due to childcare problems or their child was sick how do they generally do this?", where this variable was ordered conceptually as: 1 = Not allowed; 2 = Allowed but unpaid; and 3 = Allowed and paid. Hence, we allocated the responses to the scores as follows: A score of 1 for "Not Allowed" or "Never been asked;" a score of 2 for "Take as leave without pay" or "Take time off but make it up later;" and a score of 3 for "Take as annual leave" or "Take as sick leave."

Table 1.3 **Work-life balance outcome scores, WLB practices, and management best practices (dependent variable = WLB outcome score)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Management practices	0.139***	0.106***	0.097**	0.079*				
z-score	(0.039)	(0.039)	(0.043)	(0.044)				
WLB practices *z*-score		0.219***	0.206***	0.187***	0.196***	0.191***	0.191***	0.176***
		(0.037)	(0.045)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
Type of management								
Operations					0.023			
					(0.035)			
Monitoring						0.035		
						(0.037)		
Targets							0.042	
							(0.037)	
People								0.113**
								(0.045)
Standard controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Full controls	No	No	No	Yes	Yes	Yes	Yes	Yes
Firms	477	477	477	477	475	475	475	475

Notes: In all columns, standard errors are in parentheses under coefficient estimates and allow for arbitrary heteroskedasticity. WLB outcome score is the response to the question: "Relative to other companies in your industry how much does your company emphasize work-life balance?", where scores are as follows: "Much less" (1); "Slightly less" (2); "The same" (3); "Slightly more" (4); and "Much more" (5). Management practices *z*-score is the average *z*-score for the eighteen individual management practice scores, normalized so this measure has a mean of 0 and standard deviation of 1. WLB practices *z*-score is the average *z*-score for the five practice "working from home allowed," "full-time/part-time job switching allowed," "job sharing allowed," "childcare flexibility," and "childcare subsidy," normalized so this measure has a mean of 0 and standard deviation of 1. Standard Controls include country dummies, a dummy for public listing, the ln(age) of the firm plus the management measure noise controls. Full Controls includes controls for percentage employees with degrees, percentage of employees with MBAs, and a U.S. multinational and a non-U.S. multinational dummy.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

work, we have found this a reliable metric of the overall degree of managerial quality in the firm and the management score is strongly correlated with superior firm performance. Is it the case that firms who adopt these better "Anglo-Saxon" management practices do so at the expense of employees' work-life balance?

In the first column of table 1.3, we regress our WLB outcome measure on the average management score and nothing else. There is a strong positive and significant correlation between the two variables. The second column then includes the composite score of the WLB practices. This is also positive and highly significant. The third column includes the "standard" vector of controls (firm size, firm age, country dummies, listing status, and controls for measurement error in the survey such as interviewer fixed effects). Both variables remain positive and significant. The fourth column includes skills and multinational status as additional controls. The skills measure—the proportion of workers with degrees—is significant at the 5 percent level. Hence, firms with higher skilled employees also tend to have better work-life balance practices. After including these additional controls, the management coefficient falls further and is now only significant at the 10 percent level. Hence, while WLB practices play a strong role in influencing the WLB outcomes, management practices per se play only a weak role in influencing these, after including a full set of control variables.

We then disaggregate our management measure into four components—operations, monitoring, targets, and people management (incentives). Interestingly, the WLB measure is correlated with each of these positively when entered individually into the regression (columns [5] through [8]), but only people management/incentives is significant at the 5 percent level. Thus, it appears that while WLB practices are linked with good management, this is much stronger for people management practices than other types of management practices.

1.4.3 Competition, Work-Life Balance, and Management

Having established the correlations of WLB with several factors, we now turn to the key hypotheses on competition and productivity. Our previous research found that tougher product market competition drives higher productivity[24] and at least part of this seems to work through improving management practices (Bloom and Van Reenen 2006). Nevertheless, does competition damage work-life balance?

Table 1.4 examines this question in detail. We measure competition by the degree of openness to trade (columns [1] and [2]), the degree of "excess profit" in the industry (columns [3] and [4]), or simply the number of competitors (columns [4] and [5]). In column (1) import competition is weakly

24. On the relationship between productivity and competition see also inter alia Nickell (1996) and Syverson (2004a, 2004b).

Table 1.4 **Work-life balance outcomes and product market competition (OLS estimation, dependent variable = WLB outcome score)**

	(1)	(2)	(3)	(4)	(5)	(6)
Import penetration (5-year lagged)	0.147* (0.079)	0.073 (0.145)				
Lerner index of competition (5-year lagged)			0.463 (0.858)	0.306 (1.118)		
Number of competitors					0.009 (0.081)	–0.000 (0.084)
Firms	492	492	486	486	524	530
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Full controls	No	Yes	No	Yes	No	Yes

Notes: Coefficients from OLS regressions with standard errors in parentheses (robust to arbitrary heteroskedasticity and clustered by country × industry pair); single cross-section. Country controls includes four country dummies. Full controls includes ln(firm size), ln(firm age), a dummy for being listed, the share of workforce with degrees, the share of workforce with MBAs, a dummy for being consolidated, and the survey noise controls. Import Penetration = ln(Import/Production) in every country industry pair. Average over 1995 to 1999 used. Lerner index of competition constructed, as in Aghion et al (2005), as the mean of (1 – profit/sales) in the entire database (excluding the firm itself) for every country industry pair. Number of competitors constructed from the response to the survey question on number of competitors, and is coded as 0 for "none" (1 percent of responses), 1 for "less than 5" (51 percent of responses), and 2 for "5 or more" (48 percent of responses). Columns (4) through (6) include the "noise controls" of column (2) in table 1A.2 (seventeen interviewer dummies, the seniority, gender, tenure, and number of countries worked in of the manager who responded, the day of the week the interview was conducted, the time of the day the interview was conducted, the duration of the interviews, and an indicator of the reliability of the information as coded by the interviewer).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

and positively associated with better WLB, but this association disappears when we include the additional controls in column (2). A similar picture emerges in the other columns—competition is essentially uncorrelated with WLB outcomes. We conclude that although competition seems to improve management, it does *not* seem to reduce WLB.

We also estimated the relationship between competition and the WLB practices examined later in section 1.4.4—working from home flexibility, job switching flexibility, flexibility for childcare time off, and childcare subsidies—and found *no* significant relationships. We could not find any relationship between average hours worked per week or days holidays per year and competition. So we confirm the earlier conclusion that although competition seems to improve management, it does *not* seem to be associated with worse WLB outcomes or practices. While higher competition appears to increase management practices by removing the worst managed/least productive firms from the market it does not seem to affect WLB. This is presumably because—as we show in the next section—WLB practices and

Table 1.5 **Work-life balance practices are unrelated to productivity (All countries, OLS estimation, dependent variable = Ln ($Sales_{it}$))**

	(1)	(2)	(3)
WLB practices *z*-score	0.048**	0.034	–0.005
	(0.023)	(0.023)	(0.018)
Management *z*-score		0.064***	0.038***
		(0.023)	(0.015)
Ln($Labor_{it}$)	0.983***	0.978***	0.500***
	(0.018)	(0.018)	(0.032)
Ln($Capital_{it}$)			0.122***
			(0.027)
Ln($Materials_{it}$)			0.370***
			(0.032)
Basic Controls	Yes	Yes	Yes
Full controls	No	No	Yes
Firms	481	481	481

Notes: In all columns, standard errors are in parentheses under coefficient estimates and allow for arbitrary heteroskedasticity. Basic controls include country and industry dummies, log(firm age), public listing, and consolidated dummy. Full controls include industry dummies, log(firm age), public listing, percent of workforce with degrees, percent of employees with MBAs, U.S. multinational dummy and non-U.S. multinational dummy. Management practices *z*-score is the average *z*-score for the eighteen individual management practice scores, normalized so this measure has a mean of 0 and standard deviation of 1. WLB practices *z*-score is the average *z*-score for the five practice "working from home allowed," "full-time/part-time job switching allowed," "job sharing allowed," "childcare flexibility," and "childcare subsidy," normalized so this measure has a mean of 0 and standard deviation of 1.

Source: Bloom, Kretschmer, and Van Reenen (2008).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

productivity are essentially unrelated, so that the selection effects of competition have no bearing on typical WLB practices.

1.4.4 Productivity, Work-Life Balance, and Management

Perhaps the most important issue is the association of WLB with productivity. We address this issue in table 1.5, which shows the results from simple production functions. We must always remember the caveat that these are associations and *we cannot infer causality.*[25] The dependent variable is the log of real sales and because we control for the factor inputs (labor, capital, and materials) the coefficient on WLB practices should be interpreted as the association with Total Factor (or revenue) Productivity (TFP). These variables are taken from company accounts as measured by the number of employees for labor, the net-tangible fixed assets for capital, and the reported materials

25. We are currently running field experiments in India to randomize improvement in management practices across firms to evaluate its causal impact on energy use.

costs. For labor we also control for the average hours worked in the firm. Of course one issue is the measurement error around these inputs that could lead to attenuation, which could potentially bias the results, particularly if this was correlated with the WLB measures (e.g., Siegel 1997).

Column (1) of table 1.5 reports the first specification that also includes country and industry dummies and basic controls (firm age, listing status, and a consolidation dummy). The association of WLB and productivity is positive and significant at the 5 percent level. This is the kind of regression highlighted in the Human Resource Management literature that is often used to justify policies to introduce better WLB practices.

Column (2) of table 1.5 simply conditions on our management *z*-score, which enters the production function with a positive and highly significant coefficient. The WLB practices variable, by contrast, falls in magnitude and is no longer significant at even the 10 percent level. When we condition on a wider set of controls in the next column (skills, multinational status, listing, and firm age), the management variable remains positive and significant (see Bloom and Van Reenen 2006) but the WLB practices variable is now negative, albeit completely insignificant.

Table 1.5 suggests that the significant association of WLB with productivity is spurious and arises because WLB is correlated with an important omitted variable—good management. Firms with better management practices will tend to have both higher productivity and better work-life balance. This gives rise (in column [1]) to the mistaken impression that better WLB causes higher productivity.

1.4.5 Multinationals, Work-Life Balance, and Management

Finally, in table 1.6 we examine some of the cross-country differences in WLB practices and management practices. The first column simply regresses the composite WLB practice measure on the country dummies (the United States is the omitted base). It is clear that the United States has less generous WLB practices than the European countries and France has more generous WLB practices than the United Kingdom or Germany. The second column includes dummy variables indicating whether for the European based firms they are a U.S. multinational or a non-U.S. multinational (European domestic firms are the omitted base).[26] The WLB does not seem worse in U.S. multinationals located overseas as indicated by the insignificant variable on the dummy than on the local domestic firms (and indeed the non-U.S. multinational dummy). This does not change when we condition on the more extended covariate set in column (3). Therefore, U.S. multinationals in Europe appear to adopt local work-life balance practices.

In contrast, columns (4) to (6) show that U.S. multinationals in Europe

26. Our U.S. firms are all publicly traded so we have no multinational subsidiaries in the U.S. Hence, these regressions compare between different types of European firms. Restricting the estimates to only European firms thus does not change the point estimates on the U.S. and non-U.S. multinationals.

Table 1.6 **Work-life balance and management practices in domestic and multinational firms (All countries, OLS estimation)**

	Dependent variable = WLB practices z-score			Dependent variable = Management practices z-score		
	(1)	(2)	(3)	(4)	(5)	(6)
Baseline is U.S.						
Country is France	1.066***	1.052***	1.284***	–0.270***	–0.302***	–0.091
	(0.0115)	(0.117)	(0.179)	(0.103)	(0.104)	(0.156)
Country is Germany	0.306***	0.288***	0.368**	–0.093	–.0142	–0.067
	(0.109)	(0.111)	(0.155)	(0.098)	(0.099)	(0.156)
Country is UK	0.336***	0.320***	0.439***	–0.359***	–0.396***	–0.290**
	(0.120)	(0.121)	(0.166)	(0.099)	(0.100)	(0.138)
U.S. Multinational in (Europe)		0.229	–0.059		0.828***	0.679***
		(0.255)	(0.215)		(0.220)	(0.242)
Non-U.S. multinational (in Europe)		0.149	0.059		0.077	–0.223
		(0.286)	(0.291)		(0.251)	(0.316)
Basic controls	No	No	Yes	No	No	Yes
Firms	492	492	492	732	732	732

Notes: In all columns, standard errors are in parentheses under coefficient estimates and allow for arbitrary heteroskedasticity. Basic controls include country and industry dummies, log(firm age), public listing, percent of workforce with degrees, and percent of employees with MBAs. Management practices z-score is the average z-score for the eighteen individual management practice scores, normalized so this measure has a mean of 0 and standard deviation of 1. WLB practices z-score is the average z-score for the five practice "working from home allowed," "full-time/part-time job switching allowed," "job sharing allowed," "childcare flexibility," and "childcare subsidy," normalized so this measure has a mean of 0 and standard deviation of 1.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

bring over their better U.S. *management* practices. So in column (4) we see that on management practices the United Kingdom and France have significantly worse management practices than the United States and Germany. Including the multinational controls in column (5) we see when U.S. multinationals are located in Europe they appear to have significantly better management practices than equivalent non-U.S. multinationals and domestic firms (column [5]). In column (6), we see this result is robust to including additional covariates.

An interpretation of table 1.6 is that U.S. firms in general have better management practices but worse WLB policies. There are many complex reasons for these patterns. For example, although competition appears to be a reason for better U.S. management practices it cannot seem to explain its worse WLB outcomes as we showed that competition was unrelated to WLB in table 1.4. What is clear is that although U.S. firms appear to be able to transport their better management practices to Europe (column [6]), they do *not* transfer their worse WLB practices to Europe (column [3]). One rationale for this could be that European regulations require U.S. multinationals

based in Europe to adopt these more worker-friendly practices. However, the work-life balance practices we measure—working from home, job-sharing, switching from full- to part-time, childcare flexibility, and childcare subsidies—are typically not directly regulated in Europe. Thus, our belief is that social norms explain much of this localization by U.S. multinationals, with this an area of ongoing research.

1.5 Conclusions

A debate is raging all over the developed world about quality of work issues. As unemployment has fallen in the United States and United Kingdom, attention has focused more on the quality rather than quantity of jobs. This has sharpened as women's participation has risen and issues of work-life balance and family-friendly policies have risen up the political agenda. This chapter has tried to shed some empirical light on these debates.

We characterized two opposing views of globalization, entitled the pessimistic and the optimistic view. The pessimists argue that "savage neo-liberalism" encapsulated by tougher product market competition, globalization, and "Anglo-Saxon" managerial policies are undesirable. Although these forces will raise productivity, they come at the expense of misery for workers in the form of poor work-life balance (long hours, job insecurity, and intense and unsatisfying work). The optimistic Human Resource Management literature argues that better work-life balance will, in fact, improve productivity (and even profitability) and employers are mistakenly failing to treat their workers as assets and implement better work-life balance policies.

We find evidence for a hybrid view between these two extremes. Using originally collected data, we show that we have a useful firm specific measure of WLB. The pessimists' argument that "Anglo-Saxon" management practices are negatively associated with worse WLB is rejected—there is a positive association as suggested by the optimists. Similarly, the pessimists' theory that competition is inevitably bad for workers' WLB is also rejected: there is no significantly negative relationship. Larger firms—which are typically more globalized—also have better WLB practices on average. However, the view that WLB will improve productivity is also rejected: there is no relationship between productivity and WLB once we control for good management. Neither is there support for the pessimists' prediction that WLB is negatively associated with productivity.

Finally, looking at U.S. multinationals based in Europe we find an intriguing result that these firms appear to bring over their superior U.S. management practices with them to Europe but then adopt more worker-friendly European work-life balance practices. Why U.S. firms internationalize their management practices but localize their work-life balance practices appears to be due to a combination of regulations and social norms, an area of ongoing research.

Appendix A

Management practice interview guide and example responses

Any score from 1 to 5 can be given, but the scoring guide and examples are only provided for scores of 1, 3, and 5. Multiple questions are used for each dimension to improve scoring accuracy.			
(1) Modern manufacturing, introduction a) Can you describe the production process for me? b) What kinds of lean (modern) manufacturing processes have you introduced? Can you give me specific examples? c) How do you manage inventory levels? What is done to balance the line? What is the Takt time of your manufacturing processes?			
	Score 1	Score 3	Score 5
Scoring grid:	Other than JIT delivery from suppliers few modern manufacturing techniques have been introduced, (or have been introduced in an ad-hoc manner).	Some aspects of modern manufacturing techniques have been introduced, through informal/isolated change programs.	All major aspects of modern manufacturing have been introduced (Just-in-time, autonomation, flexible manpower, support systems, attitudes, and behavior) in a formal way.
Examples:	A UK firm orders in bulk and stores the material on average six months before use. The business focuses on quality and not reduction of lead-time or costs. Absolutely no modern manufacturing techniques had been introduced.	A supplier to the army is undergoing a full lean transformation. For twenty years, the company was a specialty supplier to the army, but now they have had to identify other competencies forcing them to compete with lean manufacturers. They have begun adopting specific lean techniques and plan to use full lean by the end of next year.	A U.S. firm has formally introduced all major elements of modern production. It reconfigured the factory floor based on value stream mapping and 5-S principles, broke production into cells, eliminated stockrooms, implemented Kanban, and adopted Takt time analyses to organize workflow.
(2) Modern manufacturing, rationale a) Can you take me through the rationale to introduce these processes? b) What factors led to the adoption of these lean (modern) management practices?			
	Score 1	Score 3	Score 5
Scoring grid:	Modern manufacturing techniques were introduced because others were using them.	Modern manufacturing techniques were introduced to reduce costs.	Modern manufacturing techniques were introduced to enable us to meet our business objectives (including costs).
Examples:	A German firm introduced modern techniques because all its competitors were using these techniques. The business decision had been taken to imitate the competition.	A French firm introduced modern manufacturing methods primarily to reduce costs.	A U.S. firm implemented lean techniques because the chief operating officer (COO) had worked with them before and knew that they would enable the business to reduce costs, competing with cheaper imports through improved quality, flexible production, greater innovation, and just in time (JIT) delivery.

(3) Process problem documentation
a) How would you go about improving the manufacturing process itself?
b) How do problems typically get exposed and fixed?
c) Talk me through the process for a recent problem.
d) Do the staff ever suggest process improvements?

	Score 1	Score 3	Score 5
Scoring grid:	No, process improvements are made when problems occur.	Improvements are made in one week workshops involving all staff, to improve performance in their area of the plant.	Exposing problems in a structured way is integral to individuals' responsibilities and resolution occurs as a part of normal business processes rather than by extraordinary effort/teams.
Examples:	A U.S. firm has no formal or informal mechanism in place for either process documentation or improvement. The manager admitted that production takes place in an environment where nothing has been done to encourage or support process innovation.	A U.S. firm takes suggestions via an anonymous box, they then review these each week in their section meeting and decide any that they would like to proceed with.	The employees of a German firm constantly analyze the production process as part of their normal duty. They film critical production steps to analyze areas more thoroughly. Every problem is registered in a special database that monitors critical processes and each issue must be reviewed and signed off by a manager.

(4) Performance tracking
a) Tell me how you track production performance.
b) What kind of KPI's would you use for performance tracking? How frequently are these measured? Who gets to see this KPI data?
c) If I were to walk through your factory could I tell how you were doing against your KPI's?

	Score 1	Score 3	Score 5
Scoring grid:	Measures tracked do not indicate directly if overall business objectives are being met. Tracking is an ad-hoc process (certain processes are not tracked at all).	Most key performance indicators are tracked formally. Tracking is overseen by senior management.	Performance is continuously tracked and communicated, both formally and informally, to all staff using a range of visual management tools.
Examples:	A manager of a U.S. firm tracks a range of measures when he does not think that output is sufficient. He last requested these reports about eight months ago and had them printed for a week until output increased again.	At a U.S. firm every product is bar-coded and performance indicators are tracked throughout the production process; however, this information is not communicated to workers.	A U.S. firm has screens in view of every line. These screens are used to display progress to daily target and other performance indicators. The manager meets with the shop floor every morning to discuss the day past and the one ahead and uses monthly company meetings to present a larger view of the goals to date and strategic direction of the business to employees. He even stamps napkins with key performance achievements to ensure everyone is aware of a target that has been hit.

(*continued*)

(5) Performance review

a) How do you review your KPI's?
b) Tell me about a recent meeting.
c) Who is involved in these meetings? Who gets to see the results of this review?
d) What are the typical next steps after a meeting?

	Score 1	Score 3	Score 5
Scoring grid:	Performance is reviewed infrequently or in an unmeaningful way (e.g., only success or failure is noted).	Performance is reviewed periodically with successes and failures identified. Results are communicated to senior management. No clear follow-up plan is adopted.	Performance is continually reviewed, based on indicators tracked. All aspects are followed up ensure continuous improvement. Results are communicated to all staff.
Examples:	A manager of a U.S. firm relies heavily on his gut feel of the business. He will review costs when he thinks there is too much or too little in the stores. He admits he is busy so reviews are infrequent. He also mentioned staffs feel like he is going on a hunt to find a problem, so he has now made a point of highlighting anything good.	A UK firm uses daily production meetings to compare performance to plan. However, clear action plans are infrequently developed based on these production results.	A French firm tracks all performance numbers real time (amount, quality, etc.). These numbers are continuously matched to the plan on a shift-by-shift basis. Every employee can access these figures on workstations on the shop floor. If scheduled numbers are not met, action for improvement is taken immediately.

(6) Performance dialogue

a) How are these meetings structured? Tell me about your most recent meeting.
b) During these meetings do you find that you generally have enough data?
c) How useful do you find problem-solving meetings?
d) What type of feedback occurs in these meetings?

	Score 1	Score 3	Score 5
Scoring grid:	The right data or information for a constructive discussion is often not present or conversations overly focus on data that is not meaningful. Clear agenda is not known and purpose is not stated explicitly.	Review conversations are held with the appropriate data and information present. Objectives of meetings are clear to all participating and a clear agenda is present. Conversations do not, as a matter of course, drive to the root causes of the problems.	Regular review/performance conversations focus on problem solving and addressing root causes. Purpose, agenda, and follow-up steps are clear to all. Meetings are an opportunity for constructive feedback and coaching.
Examples:	A U.S. firm does not conduct staff reviews. It was just "not the philosophy of the company" to do that. The company was very successful during the last decade and therefore did not feel the need to review their performance.	A UK firm focuses on key areas to discuss each week. This ensures they receive consistent management attention and everyone comes prepared. However, meetings are more of an opportunity for everyone to stay abreast of current issues rather than problem solve.	A German firm meets weekly to discuss performance with workers and management. Participants come from all departments (shop floor, sales, R&D, procurement, etc.) to discuss the previous week's performance and to identify areas to improve. They focus on the cause of problems and agree topics to be followed up the next week, allocating all tasks to individual participants.

(7) Consequence management a) What happens if there is a part of the business (or a manager) who is not achieving agreed upon results? Can you give me a recent example? b) What kind of consequences would follow such an action? c) Are there are any parts of the business (or managers) that seem to repeatedly fail to carry out agreed actions?			
	Score 1	Score 3	Score 5
Scoring grid:	Failure to achieve agreed objectives does not carry any consequences.	Failure to achieve agreed results is tolerated for a period before action is taken.	A failure to achieve agreed targets drives retraining in identified areas of weakness or moving individuals to where their skills are appropriate.
Examples:	At a French firm no action is taken when objectives are not achieved. The president personally intervenes to warn employees but no stricter action is taken. Cutting payroll or making people redundant because of a lack of performance is very rarely done.	Management of a U.S. firm reviews performance quarterly. That is the earliest they can react to any underperformance. They increase pressure on the employees if targets are not met.	A German firm takes action as soon as a weakness is identified. They have even employed a psychologist to improve behavior within a difficult group. People receive ongoing training to improve performance. If this does not help they move them in other departments or even fire individuals if they repeatedly fail to meet agreed targets.
(8) Target balance a) What types of targets are set for the company? What are the goals for your plant? b) Tell me about the financial and nonfinancial goals. c) What do CHQ (or their appropriate manager) emphasize to you?			
	Score 1	Score 3	Score 5
Scoring grid:	Goals are exclusively financial or operational.	Goals include nonfinancial targets, which form part of the performance appraisal of top management only (they are not reinforced throughout the rest of organization).	Goals are a balance of financial and nonfinancial targets. Senior managers believe the nonfinancial targets are often more inspiring and challenging than financials alone.
Examples:	At a UK firm performance targets are exclusively operational. Specifically, volume is the only meaningful objective for managers, with no targeting of quality, flexibility, or waste.	For a French firm strategic goals are very important. They focus on market share and try to hold their position in technology leadership. However, workers on the shop floor are not aware of those targets.	A U.S. firm gives everyone a mix of operational and financial targets. They communicate financial targets to the shop floor in a way they found effective—for example, telling workers they pack boxes to pay the overheads until lunchtime and after lunch it is all profit for the business. If they are having a good day the boards immediately adjust and play the "profit jingle" to let the shop floor know that they are now working for profit. Everyone cheers when the jingle is played.

(*continued*)

(9) Target interconnection

a) What is the motivation behind your goals?
b) How are these goals cascaded down to the individual workers?
c) What are the goals of the top management team (do they even know what they are!)?
d) How are your targets linked to company performance and their goals?

	Score 1	Score 3	Score 5
Scoring grid:	Goals are based purely on accounting figures (with no clear connection to shareholder value).	Corporate goals are based on shareholder value but are not clearly communicated down to individuals.	Corporate goals focus on shareholder value. They increase in specificity as they cascade through business units ultimately defining individual performance expectations.
Examples:	A family-owned firm in France is only concerned about the net income for the year. They try to maximize income every year without focusing on any long term consequences.	A U.S. firm bases its strategic corporate goals on enhancing shareholder value, but does not clearly communicate this to workers. Departments and individuals have little understanding of their connection to profitability or value with many areas labeled as "cost-centers" with an objective to cost-cut despite potentially disproportionately large negative impact on the other departments they serve.	For a U.S. firm, strategic planning begins with a bottom-up approach that is then compared with the top-down aims. Multifunctional teams meet every six months to track and plan deliverables for each area. This is then presented to the area head that then agrees or refines it and then communicates it down to his lowest level. Everyone has to know exactly how they contribute to the overall goals or else they will not understand how important the ten hours they spend at work every day is to the business.

(10) Target time horizon

a) What kind of time scale are you looking at with your targets?
b) Which goals receive the most emphasis?
c) How are long-term goals linked to short-term goals?
d) Could you meet all your short-run goals but miss your long-run goals?

	Score 1	Score 3	Score 5
Scoring grid:	Top management's main focus is on short term targets.	There are short- and long-term goals for all levels of the organization. As they are set independently, they are not necessarily linked to each other.	Long-term goals are translated into specific short-term targets so that short-term targets become a "staircase" to reach long-term goals.
Examples:	A UK firm has had several years of ongoing senior management changes—therefore senior managers are only focusing on how the company is doing this month versus the next, believing that long-term targets will take care of themselves.	A U.S. firm has both long- and short-term goals. The long-term goals are known by the senior managers and the short-term goals are the remit of the operational managers. Operations managers only occasionally see the longer-term goals so are often unsure how they link with the short-term goals.	A UK firm translates all their goals—even their five-year strategic goals—into short-term goals so they can track their performance to them. They believe that it is only when you make someone accountable for delivery within a sensible time frame that a long-term objective will be met. They think it is more interesting for employees to have a mix of immediate and longer-term goals.

(11) Targets are stretching

a) How tough are your targets? Do you feel pushed by them?
b) On average, how often would you say that you meet your targets?
c) Are there any targets that are obviously too easy (will always be met) or too hard (will never be met)?
d) Do you feel that on targets that all groups receive the same degree of difficulty? Do some groups get easy targets?

	Score 1	Score 3	Score 5
Scoring grid:	Goals are either too easy or impossible to achieve; managers provide low estimates to ensure easy goals.	In most areas, top management pushes for aggressive goals based on solid economic rationale. There are a few "sacred cows" that are not held to the same rigorous standard.	Goals are genuinely demanding for all divisions. They are grounded in solid economic rationale.
Examples:	A French firm uses easy targets to improve staff morale and encourage people. They find it difficult to set harder goals because people just give up and managers refuse to work people harder.	A chemicals firm has two divisions, producing special chemicals for very different markets (military and civil). Easier levels of targets are requested from the founding and more prestigious military division.	A manager of a UK firm insisted that he has to set aggressive and demanding goals for everyone—even security. If they hit all their targets he worries he has not stretched them enough. Each KPI is linked to the overall business plan.

(12) Performance clarity

a) What are your targets (i.e., do they know them exactly)? Tell me about them in full.
b) Does everyone know their targets? Does anyone complain that the targets are too complex?
c) How do people know about their own performance compared to other people's performance?

	Score 1	Score 3	Score 5
Scoring grid:	Performance measures are complex and not clearly understood. Individual performance is not made public.	Performance measures are well defined and communicated; performance is public in all levels but comparisons are discouraged.	Performance measures are well defined, strongly communicated, and reinforced at all reviews; performance and rankings are made public to induce competition.
Examples:	A German firm measures performance per employee based on differential weighting across twelve factors, each with its own measurement formulas (e.g., Individual versus average of the team, increase on prior performance, thresholds, etc.). Employees complain the formula is too complex to understand, and even the plant manager could not remember all the details.	A French firm does not encourage simple individual performance measures as unions pressure them to avoid this. However, charts display the actual overall production process against the plan for teams on regular basis.	At a U.S. firm, self-directed teams set and monitor their own goals. These goals and their subsequent outcomes are posted throughout the company, encouraging competition in both target setting and achievement. Individual members know where they are ranked, which is communicated personally to them biannually. Quarterly company meetings seek to review performance and align targets.

(*continued*)

(13) Managing human capital a) Do senior managers discuss attracting and developing talented people? b) Do senior managers get any rewards for bringing in and keeping talented people in the company? c) Can you tell me about the talented people you have developed within your team? Did you get any rewards for this?			
	Score 1	Score 3	Score 5
Scoring grid:	Senior management do not communicate that attracting, retaining, and developing talent throughout the organization is a top priority.	Senior management believe and communicate that having top talent throughout the organization is a key way to win.	Senior managers are evaluated and held accountable on the strength of the talent pool they actively build.
Examples:	A U.S. firm does not actively train or develop its employees, and does not conduct performance appraisals or employee reviews. People are seen as a secondary input to the production.	A U.S. firm strives to attract and retain talent throughout the organization, but does not hold managers individually accountable for the talent pool they build. The company actively cross-trains employees for development and challenges them through exposure to a variety of technologies.	A UK firm benchmarks human resources practices at leading firms. A cross-functional HR excellence committee develops policies and strategies to achieve company goals. Bimonthly directors' meetings seek to identify training and development opportunities for talented performers.
(14) Rewarding high-performance a) How does you appraisal system work? Tell me about the most recent round. b) How does the bonus system work? c) Are there any nonfinancial rewards for top performers? d) How does your reward system compare to your competitors?			
	Score 1	Score 3	Score 5
Scoring grid:	People within our firm are rewarded equally irrespective of performance level.	Our company has an evaluation system for the awarding of performance-related rewards.	We strive to outperform the competitors by providing ambitious stretch targets with clear performance-related accountability and rewards.
Examples:	An East Germany firm pays its people equally and regardless of performance. The management said to us that "there are no incentives to perform well in our company." Even the management is paid an hourly wage, with no bonus pay.	A German firm has an awards system based on three components: the individual's performance, shift performance, and overall company performance.	A U.S. firm sets ambitious targets, rewarded through a combination of bonuses linked to performance, team lunches cooked by management, family picnics, movie passes, and dinner vouchers at nice local restaurants. They also motivate staff to try by giving awards for perfect attendance, best suggestion, etc.

(15) Removing poor performers a) If you had a worker who could not do his job what would you do? Could you give me a recent example? b) How long would underperformance be tolerated? c) Do you find any workers who lead a sort of charmed life? Do some individuals always just manage to avoid being fixed/fired?			
	Score 1	Score 3	Score 5
Scoring grid:	Poor performers are rarely removed from their positions.	Suspected poor performers stay in a position for a few years before action is taken.	We move poor performers out of the company or to less critical roles as soon as a weakness is identified.
Examples:	A French firm had a supervisor who was regularly drinking alcohol at work but no action was taken to help him or move him. In fact, no employee had ever been laid off in the factory. According to the plant manager HR "kicked up a real fuss" whenever management wanted to get rid of employees, and told managers their job was production not personnel.	For a German firm it is very hard to remove poor performers. The management has to prove at least three times that an individual underperformed before they can take serious action.	At a U.S. firm, the manager fired four people during last couple of months due to underperformance. They continually investigate why and who are underperforming.
(16) Promoting high performers a) Can you rise up the company rapidly if you are really good? Are there any examples you can think of? b) What about poor performers—do they get promoted more slowly? Are there any examples you can think of? c) How would you identify and develop (i.e., train) your star performers? d) If two people both joined the company five years ago and one was much better than the other would he/she be promoted faster?			
	Score 1	Score 3	Score 5
Scoring grid:	People are promoted primarily upon the basis of tenure.	People are promoted upon the basis of performance.	We actively identify, develop, and promote our top performers.
Examples:	A UK firm promotes based on an individual's commitment to the company measured by experience. Hence, almost all employees move up the firm in lock step. Management was afraid to change this process because it would create bad feelings among the older employees who were resistant to change.	A U.S. firm has no formal training program. People learn on the job and are promoted based on their performance on the job.	At a UK firm each employee is given a red light (not performing), amber light (doing well and meeting targets), a green light (consistently meeting targets, very high performer), and a blue light (high performer capable of promotion of up to two levels). Each manager is assessed every quarter based on his succession plans and development plans for individuals.

(*continued*)

(17) Attracting human capital a) What makes it distinctive to work at your company as opposed to your competitors? b) If you were trying to sell your firm to me how would you do this (get them to try to do this)? c) What don't people like about working in your firm?			
	Score 1	Score 3	Score 5
Scoring grid:	Our competitors offer stronger reasons for talented people to join their companies.	Our value proposition to those joining our company is comparable to those offered by others in the sector.	We provide a unique value proposition to encourage talented people to join our company above our competitors.
Examples:	A manager of a firm in Germany could not give an example of a distinctive employee proposition and (when pushed) thinks the offer is worse than most of its competitors. He thought that people working at the firm "have drawn the short straw."	A U.S. firm seeks to create a value proposition comparable to its competitors and other local companies by offering competitive pay, a family atmosphere, and a positive presence in the community.	A German firm offers a unique value proposition through development and training programs, family culture in the company, and very flexible working hours. It also strives to reduce bureaucracy and seeks to push decision making down to the lowest levels possible to make workers feel empowered and valued.
(18) Retaining human capital a) If you had a star performer who wanted to leave what would the company do? b) Could you give me an example of a star performer being persuaded to stay after wanting to leave? c) Could you give me an example of a star performer who left the company without anyone trying to keep them?			
	Score 1	Score 3	Score 5
Scoring grid:	We do little to try and keep our top talent.	We usually work hard to keep our top talent.	We do whatever it takes to retain our top talent.
Examples:	A German firm lets people leave the company if they want. They do nothing to keep those people since they think that it would make no sense to try to keep them. Management does not think they can keep people if they want to work somewhere else. The company also will not start salary negotiations to retain top talent.	If management of a French firm feels that people want to leave the company, they talk to them about the reasons and what the company could change to keep them. This could be more responsibilities or a better outlook for the future. Managers are supposed to "take-the-pulse" of employees to check satisfaction levels.	A U.S. firm knows who its top performers are and if any of them signal an interest to leave it pulls in senior managers and even corporate HQ to talk to them and try and persuade them to stay. Occasionally they will increase salary rates if necessary and if they feel the individual is being underpaid relative to the market. Managers have a responsibility to try to keep all desirable staff.

Table 1A.1 Question level averages by country

Countries	Question number	Question type	Average value by country (United States = 100) (1) United Kingdom	(2) Germany	(3) France	Regression coefficients (4) All
Modern manufacturing, introduction	1	Operations	90.0	86.4	101.3	0.017**
			(3.50)	(3.47)	(3.63)	(0.008)
Modern manufacturing, rationale	2	Operations	92.9	101.5	101	0.012
			(3.35)	(3.32)	(3.47)	(0.009)
Process documentation	3	Operations	89.0	106.9	99	0.030***
			(3.51)	(3.49)	(3.64)	(0.009)
Performance tracking	4	Monitoring	98.3	109.5	111	0.018**
			(3.19)	(3.17)	(3.32)	(0.009)
Performance review	5	Monitoring	94.7	110.2	104	0.016*
			(2.99)	(2.97)	(3.10)	(0.009)
Performance dialogue	6	Monitoring	93.0	103.3	99	0.019**
			(3.19)	(3.11)	(3.27)	(0.009)
Consequence management	7	Monitoring	96.5	108.7	94	0.019**
			(3.02)	(3.01)	(3.13)	(0.009)
Target breadth	8	Targets	91.1	93.3	94	0.027***
			(3.53)	(3.51)	(3.66)	(0.009)
Target interconnection	9	Targets	93.7	97.3	78	0.023***
			(3.56)	(3.54)	(3.68)	(0.009)
Target time horizon	10	Targets	91.9	98.6	92	0.021**
			(3.69)	(3.66)	(3.83)	(0.009)
Targets are stretching	11	Targets	87.8	104.9	101	0.015*
			(3.34)	(3.32)	(3.45)	(0.009)
Performance clarity and comparability	12	Monitoring	93.7	80.7	83	0.008
			(3.53)	(3.49)	(3.65)	(0.009)
Managing human capital	13	Targets	89.4	99.0	89	0.023**
			(3.94)	(3.92)	(4.08)	(0.009)
Rewarding high performance	14	Incentives	81.6	85.2	85	0.022**
			(3.42)	(3.42)	(3.55)	(0.010)
Removing poor performers	15	Incentives	89.4	92.5	83	0.011
			(3.04)	(3.02)	(3.15)	(0.009)
Promoting high performers	16	Incentives	90.2	104.9	92	0.017*
			(2.86)	(2.85)	(2.97)	(0.010)
Attracting human capital	17	Incentives	90.4	95.1	85	0.029***
			(2.89)	(2.88)	(2.99)	(0.009)
Retaining human capital	18	Incentives	93.6	97.7	97	0.007
			(2.74)	(2.73)	(2.84)	(0.009)
Unweighted average			91.5	98.7	93.8	0.019
						(0.009)

Notes: In columns (1) to (3) standard deviation of each question's average response are reported below in brackets. Calculated from full sample of 732 firms. Management *z*-scores used in these calculations. In column (4) results from eighteen OLS estimations following exactly the same specification as column (1) in table 1.2 except estimated with each individual question *z*-score one-by-one rather than the average management *z*-score. So every cell in column (4) is from a different regression with 5,350 observations from 709 firms where: standard errors in parentheses allow for arbitrary heteroskedacity and correlation (clustered by firm), and regression includes "full controls" comprising of "firm" controls and "noise controls" as detailed in table 1.2.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Table 1A.2 **Human Resources interview guide (Run in parallel as the management survey but targeted at the HR department)**

Workforce characteristics	
Data field	Breakdown
Total number of employees (cross check against accounts)	(All employees)
% with university degree	(All employees)
% with MBA	(All employees)
Average age of employees	(All employees)
% of employees	(Managerial/Nonmanagerial)
Average training days per year	(Managerial/Nonmanagerial)
Average hours worked per week (including overtime, excluding breaks)	(Managerial/Nonmanagerial)
Average holidays per year	(All employees)
Average days sick-leave	(All employees)
% part-time	(Managerial/Nonmanagerial)
% female	(Managerial/Nonmanagerial)
% employees abroad	(All employees)
% union membership	(All employees)
Are unions recognized for wages bargaining [yes / no]	(All employees)
Work-life balance outcome measure:	
Question	Response choice (all employees)
Relative to other companies in your industry how much does your company emphasize work-life balance?	[Much less / Slightly less / The same / Slightly more / Much more]
Work-life balance practices:	
Question	Response choice (managerial/nonmanagerial)
If an employee needed to take a day off at short notice due to childcare problems or their child was sick how do they generally do this?	[Not allowed / Never been asked / Take as leave without pay / Take time off but make it up later / Take as annual leave / Take as sick leave]
What entitlements are there to the following	Breakdown
Working at home in normal working hours?	(Managerial/Nonmanagerial)
Switching from full-time to part-time work?	(Managerial/Nonmanagerial)
Job sharing schemes?	(Managerial/Nonmanagerial)
Financial subsidy to help pay for childcare?	(Managerial/Nonmanagerial)
Organizational Characteristics	
Question	Response choice (all employees)
Who decides the pace of work?	[Exclusively workers / Mostly workers / Equally / Mostly managers / Exclusively managers]
Who decides how tasks should be allocated?	[Exclusively workers / Mostly workers / Equally / Mostly managers / Exclusively managers]
Do you use self-managing teams?	[V. heavily / Heavily / Moderately / Slightly / None]

Table 1A.2 (continued)

Market and firm questions:	Response choice
No. of competitors	[None / Less than 5 / 5 or more]
No. of hostile take-over bids in last three years	[None / One / More than one]
Interviewer's assessment of the scoring reliability	

1 to 5 scoring system calibrated according to:
1 = Interviewee did not have enough expertise for interview to be valuable; I have significant doubts about most of the management dimensions probed.
3 = Interviewee had reasonable expertise; on some dimensions I am unsure of scoring.
5 = Interviewee had good expertise, I am confident that the score reflects management practices in this firm.

Appendix B

Data

Sampling Frame Construction

Our sampling frame was based on the Amadeus data set for Europe (United Kingdom, France, and Germany) and the Compustat data set for the United States. These all have information on company accounting data. We chose firms whose principal industry was in manufacturing and who employed (on average between 2000 and 2003) no less than fifty employees and no more than 10,000 employees. We also removed any clients of the consultancy firm we worked with from the sampling frame thirty-three out of 1,353 firms).

Our sampling frame is reasonably representative of medium-sized manufacturing firms. The European firms in Amadeus include both private and public firms whereas Compustat only includes publicly listed firms. There is no U.S. database with privately listed firms with information on sales, labor, and capital. Fortunately, there are a much larger proportion of firms listed on the stock exchange in the United States than in Europe so we were able to go substantially down the size distribution using Compustat. Nevertheless, the U.S. firms in our sample are slightly larger than those of the other countries, so we were always careful to control for size and public listing in the analyses. Furthermore, when estimating production functions we could allow all coefficients to be different on labor, capital, materials, and consolidation status by country.

Another concern is that we conditioned on firms where we have information on sales, employment, and capital. These items are not compulsory for firms below certain size thresholds so disclosure is voluntary to some extent

for the smaller firms. Luckily, the firms in our sampling frame (over fifty workers) are past the threshold for voluntary disclosure (the only exception is for capital in Germany).

We achieved a response rate of 54 percent from the firms that we contacted: a very high success rate given the voluntary nature of participation. Respondents were not significantly more productive than nonresponders. French firms were slightly less likely to respond than firms in the other three countries and all respondents were significantly larger than nonrespondents. Apart from these two factors, respondents seemed randomly spread around our sampling frame.

Firm Level Data

Our firm accounting data on sales, employment, capital, profits, shareholder equity, long-term debt, market values (for quoted firms), and wages (where available) came from Amadeus (France, Germany, and the United Kingdom) and Compustat (United States). For other data fields we did the following.

Materials. In France and Germany these are line items in the accounts. In the United Kingdom these were constructed by deducting the total wage bill from the cost of goods sold. In the United States these were constructed following the method in Bresnahan, Brynjolfsson, and Hitt (2002). We start with costs of goods sold (COGS) less depreciation (DP) less labor costs (XLR). For firms who do not report labor expenses expenditures we use average wages and benefits at the four-digit industry level (Bartelsman, Becker, and Gray [2000] until 1996 and then Census Average Production Worker Annual Payroll by four-digit North American Industry Classification System [NAICS] code) and multiply this by the firm's reported employment level. This constructed measure is highly correlated at the industry level with materials. Obviously there may be problems with this measure of materials (and therefore value-added), which is why we check robustness to measures without materials.

Industry Level Data

This comes from the Organization for Economic Cooperation and Development (OECD) STAN database of industrial production. This is provided at the country International Standard Industrial Classification (ISIC) Rev. 3 level and is mapped into US Standard Industrial Classification (SIC) (1997) three (which is our common industry definition in all four countries).

Table 1B.1 Descriptive statistics

	All	France	Germany	United Kingdom	United States
Number of firms	732	135	156	151	290
Work-life balance	3.21	3.44	3.03	3.19	3.22
Management (mean z score)	–0.001	–0.084	0.032	–0.150	0.097
Employment (mean)	1,984	1,213	1,816	1,735	2,569
Labor share of output (%)	26.4	23.5	28.2	27.2	28.0
Tobin's Q	1.71	1.16	1.86	2.01	0.88
Nominal sales growth rate (%)	6.0	5.4	3.8	6.8	7.2
Age of firm (years)	53.4	38.6	86.8	44.7	48.4
Listed firm (%)	57.2	16.1	41.0	28.5	100
Multinational subsidiary (%)	5.1	8.9	7.1	9.3	0
Share workforce with degrees (%)	21.2	15.5	14.3	14.0	31.0
Share workforce with an MBA (%)	1.36	0.23	0.09	1.28	2.73
Sickness, days per year	6.80	8.16	8.51	6.21	5.01
Hours, hours per week	40.7	35.6	38.6	40.8	44.1
Holidays, days per year	22.7	32.2	29.7	26.9	12.4
Union density (%)	19.9	9.7	41.4	25.3	9.4
Number of competitors index, 1 = none, 2 = a few, 3 = many	2.47	2.32	2.35	2.53	2.56
Lerner index, excluding the firm itself	0.055	0.040	0.071	0.040	0.060
Trade openness (imports/output)	0.31	0.33	0.32	0.42	0.24
Childcare flexibility (see table 1A.2; 1 is none and 3 is maximum)	2.82	2.75	2.85	2.82	2.85
Working from home (% that allow this)	31.6	23.4	31.7	44.1	30.1
Switching from full-time to part-time (% that allow this)	48.0	76.5	61.5	43.7	27.8
Job-sharing (% that allow this)	10.0	21.0	7.7	15.5	3.6
Childcare subsidy (% that provide this)	16.6	58.5	5.3	3.4	8.4

Notes: Data descriptive calculated on the full sample of 732 firms for which management information is available.

Table 1B.2 Controls for measurement error

Explanatory variable	Definition	Mean	Coefficient (s.e.)	Coefficient (s.e.)
Male	Respondent is male	0.982	–0.277 (0.128)	–0.298 (0.127)
Seniority	The position of manager in the organization (1 to 5)	3.08	0.074 (0.026)	0.073 (0.026)
Tenure in this post	Years with current job title	4.88	–0.011 (0.007)	–0.009 (0.006)
Tenure in the company	Years with the company	11.7	0.002 (0.004)	
Countries	Total number of countries worked in over last ten years	1.19	0.085 (0.048)	0.092 (0.043)
Organizations	Total number of organizations worked in over last ten years	1.66	–0.009 (0.032)	
Manager is foreign	Manager was born outside the country s/he works	0.032	–0.048 (0.142)	
Ever worked in United States	The manager has worked in the United States at some point	0.425	0.103 (0.152)	
Location of manager	Manager based onsite (rather than in corporate HQ)	0.778	0.011 (0.063)	
Tuesday	Day of the week that interview was conducted (Monday base)	0.181	0.011 (0.062)	0.016 (0.086)
Wednesday	Day of the week that interview was conducted (Monday base)	0.280	0.017 (0.084)	0.014 (0.080)
Thursday	Day of the week that interview was conducted (Monday base)	0.195	0.183 (0.088)	0.176 (0.088)
Friday	Day of the week that interview was conducted (Monday base)	0.165	0.059 (0.090)	0.054 (0.090)
Local time for manager	The time of the day (24 hour clock) interview conducted	12.45	–0.023 (0.010)	–0.022 (0.010)
Days from start of project	Count of days since start of the project	39	0.001 (0.001)	
Duration of interview	The length of the interview with manager (in minutes)	46.0	0.008 (0.003)	0.007 (0.003)
Number of contacts	Number of telephone calls to arrange the interview	5.73	0.007 (0.006)	
Reliability score	Interviewer's subjective ranking of interview reliability (1 to 5)	4.15	0.326 (0.034)	0.327 (0.033)
17 Interviewers Dummies			F(15,699) = 3.05 p-value = 0.000	F(15,699) = 3.46 p-value = 0.000

Notes: Dependent variable is Management z-score. Coefficients from ordinary least squares (OLS) regressions with standard errors (s.e.) in parentheses (robust to arbitrary heteroskedasticity); single cross section; 3 country dummies and 108 three-digit industry dummies included in the regression; 732 observations.

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