
The Determinants of Employee Responses to Total Quality Management: Six Case Studies*

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Abstract

Total quality management has been a central element in many efforts directed towards organizational change. Theories tend to fall into two extreme camps, which hold either that TQM transforms attitudes and behaviour or that it is nothing but a means to intensify work and tighten managerial control. More recent analysis is more balanced, but lacks quantitative data on employee responses and also neglects the varying contexts in which TQM exists. This study addresses these issues by taking six named organizations from different sectors of the UK economy and by blending qualitative interviewing with a survey of 280 employees. Findings show a wide acceptance of quality principles but (in contrast to the transformation view) little evidence of substantial empowerment of workers. Compared with the intensification view, growing work effort was not widely disliked, and, crucially, favourable views of quality were strongest, not weakest, where the monitoring of workers was most intense. Multivariate analysis supports the 'disciplined worker' thesis, that quality is most accepted where there is a controlled work environment. Case material indicates that the conditions for success in quality programmes are notably high job security and a co-operative relationship with trade unions.

Descriptors: employee involvement, loglinear analysis, total quality management, trade unions, training

Introduction

Total Quality Management is one of the leading management issues of the 1980s and 1990s. Stimulated by the work of quality consultants, the term gained rapid acceptance in North America and the UK. Surveys in the US and Britain find that around three-quarters of large firms claim to have a total quality (TQ) initiative (Mohrman et al. 1995; Wilkinson et al. 1993). The concept has spread to other countries. Fröhlich and Pekruhl (1996: 165–180) report surveys in Belgium and Germany in which between 50 and 60 percent of management respondents say they use TQM; similar proportions are reported in Sweden in respect of the related model of quality circles. Surveys of establishments, as distinct from companies, report similar interest. In his well-known US survey, Osterman (1994) used the presence of TQM as an indicator of workplace transformation. He found that 34 percent of establishments reported its use. A similar figure emerges from a postal survey of direct participation (that is, by employees directly at the

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workplace, as opposed to participation through representative structures) across ten European countries. The study did not ask about TQM as such, but it measured the incidence of consultation between management and 'permanent groups' such as quality circles, which should act as a good indicator (European Foundation 1997). It found that 31 percent of establishments reported such groups and also that there was a similar spread across countries and sectors of the economy: group consultation seems to be widespread.

Naturally, managerial reports of incidence should not be equated with practice on the ground. In the US, Weinstein and Kochan (1995: 7) draw on evidence of a high attrition rate of new work practices and of a lack of managerial commitment to suggest that such practices are 'only partially diffused within and across firms'. The European Foundation survey (1997: Tables 4.5 and 4.17) measured the 'scope' of participation in terms of the number of issues that were discussed with groups and the extent of the group's right to make decisions. It concluded that only 8 percent of all establishments attained a high scope. Issues thus remain as to the depth of the effect of TQM within organizations, though it seems to be widely prevalent.

Some effects on organizational behaviour have been widely announced. 'TQ themes', says Costigan (1995: 7), 'such as continuous improvement, quality, personal growth, self-direction, empowerment, teamwork and leadership need to be integrated into all organizational sub-systems'. The 'assumption in TQM is that where staff are empowered' by being allowed a hand in continuous quality improvement, 'they will be remotivated' (Joss and Kogan 1995: 21). Yet there have been remarkably few investigations of just what it means to employees. The few accounts of this issue have often been based on single case studies, many of them in manufacturing, or have relied on essentially qualitative assessments of the effects of TQM. Debate has also tended to be conducted in stark terms, between proponents and critics of TQM. As with any organizational initiative, however, much will depend on the context. It is time to move away from attempts to judge TQM as a whole to more nuanced analysis which considers the conditions for its success or failure.

This paper presents a quantitative analysis with the following features. First, by using survey methods, we can assess overall employee opinions, in contrast to the possibly atypical assessments deriving from qualitative work. Second, we have evidence from six, named, organizations from private and public services as well as manufacturing; and we can thus address the organizational conditions which promote or retard acceptance of quality, in contrast to the tendency to endorse or attack it in universalistic terms. Third, however, we do not present purely quantitative results. On the contrary, we derive certain patterns and associations and then use our case study evidence to explore the processes which generate these patterns. We thus aim to combine the two modes of analysis. In effect, we aim to do in the field of TQM what Marchington et al. (1994) did for employee participation schemes: examining what employees actually think across a range of cases

and explaining variation in terms of the organizational context. We offer the added benefit of statistical testing.

In view of the already heated debates about TQM, we spend little time reviewing these or elaborating a theoretical approach. The following section indicates our analytical starting point. New empirical evidence on the key issue of what employees actually make of TQM is the best means to move discussion forward.

The Debate on TQM and Employee Relations

What is TQM?

As with many new fashions, there is a lack of precision as to what TQM constitutes, though certain core ideas seem to prevail. Hill and Wilkinson (1995), for example, distil three central principles: customer orientation (a focus on meeting or exceeding the expectations of customers, be they outside or inside the organization); process orientation (identifying basic processes and linking these in quality chains); and continuous improvement (a permanent search for better and more efficient ways of working, especially by using people doing the job to identify and implement the improvements).

These principles can be put into practice in varying ways, and, particularly since so many organizations now claim to follow them, it would be inappropriate to try to lay down what constitutes a true TQM organization. This point is important since writers who became known as the TQM gurus (such as Crosby and Deming) focused on 'the statistical and operational characteristics of the system' and not the softer aspects of HR (Wilkinson et al. 1992: 3). The spread of quality principles from manufacturing to services has also led to a questioning of the value of the specific label of TQM, which has manufacturing connotations. To signal that the ideas of total quality go beyond the specific measurement aspects of Statistical Process Control, we will use Quality Management (QM) as the generic term.

The Study of TQM

As Ledford (1995: 569) points out, 'TQM does not fit conveniently into existing research domains', the result being that 'most of the evidence of TQM effectiveness is anecdotal'. In brief, there is an assumed causal chain from quality programmes, through changed employee response, to outcomes, but the employee response aspect has not been seriously addressed. There has been extensive discussion of the origins and overall significance of quality management, for example its place in efforts to promote flexibility in organizations (Dean and Bowen 1994; Wilkinson and Willmott 1995a). Our concern is specifically with the effects on employees, and we take these wider debates as read.

With respect to the impact on employee involvement, it is also possible to be brief. Wilkinson et al. (1997) have usefully categorized existing approaches into two: the proponents of QM, who proffer 'bouquets' and the critics who throw 'brickbats'. The former simply assert that QM brings empowerment, responsibility and commitment. The latter focus on management control, work intensification and increased surveillance. Among representatives of this view, McArdle et al. (1995) argue that apparent empowerment in fact involves tightened managerial control and work intensification. Sewell and Wilkinson (1992: 98) contrast a 'rhetoric of empowerment, trust and mutual dependency' with a reality of 'pervasive regimes of constant electronic and peer group scrutiny'. For Webb (1996: 270), QM is not a break from bureaucracy and control but reinforces them: it aims to 'commodify morality and turn it to the service of profit, while restricting critical debate about the substantive rationality of corporate goals'. Coyle-Shapiro (1995) reports a survey of employee attitudes at two points in time which showed that participation in a QM scheme had no effect on reported involvement in teamworking.

A third, intermediate, position has been emerging. Some theorists argue that the effects of QM depend on context. Wilkinson et al. (1992: 19) conclude that QM may represent 'another missed opportunity' for management: in three case-study firms in Britain, the potential of QM was lost because quality was merely bolted onto existing structures, there was conflict within management, and the contradiction between involvement and the managerial need for control was not resolved. Within this perspective, there is growing acceptance that QM means neither extreme empowerment nor straight intensification. Godfrey et al. (1996), Hill and Peccei (1996), Rees (1995) and Rosenthal et al. (1997) all argue from case evidence that employee involvement is tightly constrained, but that there is also an enlargement of discretion and that work effort is not necessarily intensified. This approach might be labelled one of contingency, to reflect the argument that the effects of QM programmes on employees are dependent on organizational context, and Rosenthal et al. (1997: 484), for example, refer explicitly to contingencies. To avoid confusion with contingency theory in the standard sense of the term, we call it the context-dependent approach.

A development of the third approach is what Geary (1995) calls the re-regulation of labour: initiatives like QM can give employees more involvement in specific details of the work process and may be welcomed by employees, but this does not mean that traditional distrust has been eliminated or that workers are empowered in any developed sense. This approach draws on theories of the labour process which underline the contested nature of control while also recognizing that co-operation underlies any work relationship (Hyman 1987). As was argued long before QM and empowerment were on the agenda, workers exposed to new managerial initiatives may find that they have to balance 'their interests in keeping a job and in having a job which is more enjoyable against the fact that "commitment" involves effort and obligations as well as new rights' (Edwards 1986: 80). It is this blend of perspectives which will shape responses to QM.

Leidner (1993), drawing on studies of workers in the US carrying out routine service work, points out that workers may welcome routines because they help to structure the work task. The core idea, which goes back at least to Baldamus's (1961) distinction between 'tedium' and 'traction', is that a planned, coherent set of work tasks can mean that work is perceived as enjoyable: time passes smoothly, and there is a sense of achievement at the end of the day. We term this the 'disciplined worker' thesis. As Roberts and Corcoran-Nantes (1995: 198, 210) conclude from studies of nine organizations, QM involved giving employees responsibility for more aspects of their work, and the jobs were considered better in that they were cleaner and less physically arduous, but they also involved more work effort, and the mental demands, in particular, had increased.

Many of the studies finding that QM has mixed effects can be read through the lens of the re-regulation theory. Its core message is that QM may be about asserting control, but that in some respects managers and workers have shared interests. Workers prefer an organized and disciplined environment to chaos. As a long line of studies showed, workers often have to make good the deficiencies of managerial regulations (Roy 1955; Juravich 1985). QM may give this sense of discipline, but also bring with it new demands.

Research Issues

How might these four views be tested? The optimistic, 'bouquet', model expects that workers will welcome quality initiatives and that they will be associated with a sense of trust and commitment. The intensification theory predicts, on the contrary, a link with increased work effort and managerial surveillance. Several writers also see appraisal schemes as a means to develop new forms of surveillance and control (see Grint 1993; Townley 1989). We would thus expect that experience of such schemes will be associated with a dislike of QM schemes.

A key issue for the context-dependent approach is the linkage to be expected between QM and the organizational context. It is reasonable to expect that factors such as job insecurity and poor pre-existing labour-management relations will undermine acceptance of quality programmes. The study of employee involvement by Marchington et al. (1994) shows clearly that employee views of participation schemes were strongly dependent on feelings of job security. We would expect the same to be true of responses to QM.

As for re-regulation theory, the particular expectation of a disciplined worker model is that the monitoring of work through observation or appraisal, and the setting of formal standards of work performance, may lead to favourable, and not unfavourable, views of quality, in particular, and of management more generally. Such an outcome will, however, depend on the context, with job insecurity and the other factors highlighted by the context-dependent approach being likely to undermine the sense of discipline.

In terms of evidence, few studies have looked in any detail at employee attitudes. Of those that have, some are essentially qualitative (e.g. McArdle et al. 1995; Webb 1996). Some authors (e.g. Hill 1995: 45) are prepared to admit to an absence of detailed data on employee views. There are a few longitudinal quantitative studies (e.g. Coyle-Shapiro 1995; Rosenthal et al. 1997) but very few accounts looking across organizations. Wilkinson et al. (1997) explain that they intend to carry out attitude surveys, but have yet to report the results. A careful quantitative study is long overdue.

Selection and Nature of Cases

Selection and Research Methods

In view of the concentration on manufacturing in studies of QM, organizations were studied from the three main sectors of the UK economy: private services and the public sector as well as manufacturing. To allow for variations within a sector, more than one case from each was required. Time and resources allowed for only two, or six cases in all. Given also the emphasis on certain well-known success stories, such as Xerox, we sought organizations which had made significant moves in QM, but which were not among the 'leading edge' examples. A search of press reports and listings published by leading quality institutes such as the National Society for Quality through Teamwork identified 25 cases where preliminary interviews were held with quality or HR managers. These 25, complemented by the knowledge of experts in each of the three sectors, produced an initial sampling frame from which our six cases were chosen.

These six represent a range of sectors and competitive conditions. Our main goal, though, is not to make statements about the population of firms but to examine connections and processes within the cases. All the organizations were unionized (a fact which makes them broadly representative of large UK organizations). As discussed below, all had introduced quality initiatives in response to external pressures. They also all made customer service a central feature of their initiatives.

A broader issue is the relevance of a study in the UK. Here, we would simply assert that the UK stands, with the US, as a leading exemplar of a market-driven economy (Sisson 1995). As Appelbaum and Berg (1996) argue in respect of the US, the threats of take-over and pressures for short-term profit make long-term innovation difficult. We noted above Weinstein and Kochan's view of the effects in terms of workplace innovation. Studies of new forms of work organization in the UK (Elger 1990; Geary 1995) point to the very limited diffusion of new work practices and a continuing reliance on traditional forms of discipline. In line with our view that QM initiatives depend on context, the following analysis should pertain to environments of the market-driven type, but not necessarily elsewhere, though a hypothesis for future research is that some features of the results have wider relevance.

Field work was conducted during 1995. In each case-organization, around 20 interviews were held with quality managers and personnel and other functional specialists. Mission statements and quality guidelines were also reviewed. In all but one case, trade union representatives were also interviewed. In three cases, more detailed observational work, which embraced informal interviewing with shop floor employees, was possible. The core method for obtaining employee opinions was a self-completion questionnaire. The value of this instrument can be assessed through two considerations. First, several of its questions were derived from earlier studies which used face-to-face interviewing and which report satisfactory results (e.g. Edwards and Whitston 1993). Second, the questionnaire was used in a related study (Rees 1996). In some firms in that study, face-to-face interviews were used, but in others, this was not possible and self-completion was employed; there seemed to be no difference either in response rates or in the quality of the information generated.

The sample in each organization was drawn randomly, albeit in somewhat different ways. For example, in the first organization, Severn Trent Water, names were drawn randomly from a central file of all employees, whereas at the Halifax Building Society names were drawn from the 20 branches at which interviews with managers were conducted. Response rates were good, averaging 63 percent for a very detailed questionnaire running to 103 questions. The numerous open-ended questions also produced a substantial response.

Characteristics: The Quality Programmes

The case organizations are listed in Table 1. Severn Trent provides water, sewage treatment and related services to eight million people in the English Midlands. It is the second largest (by area) of the private water companies which were created when the water industry was privatized in 1989 (see O'Connell Davidson 1994). Following privatization, a mission statement was developed which underlined 'a style of management based on personal responsibility and trust'. In 1993, the Working for Quality programme was launched. It identified customer service as the key priority for all staff. A central device was the multi-functional quality improvement team, of which 170 were introduced.

The Halifax Building Society was established in 1853 to take in savings and make loans through mortgages. Such societies handled mortgages and there was virtually no competition from other organizations. In 1986, however, the Financial Services Act deregulated the industry. The Halifax now offers the full range of services in competition with banks and other firms which have entered the mortgage market; the stable world of the past has been transformed (Snape et al. 1993). Several societies have converted into public limited companies, and numerous mergers have occurred. In 1995, the Halifax merged with the Leeds, and the new society announced its intention to convert. At the time of our study, the Halifax had about 20,000 staff. As is common in the industry, the trade union is an 'enterprise union'

Table 1 Case Study of the Organizations

	Severn Trent	Halifax Building Society	Lewisham Borough Council	S. Warks NHS Trust	Philips (Hastings)	British Steel (Shotton)
Product/service	Water supply and sewage treatment	Mortgages, savings accounts, insurance	Local authority services, e.g. street cleaning, garbage removal, leisure services	Hospital services	Domestic products e.g. kettles	Basic steel
Total employees	6,000	20,200	8,676	1,328	240,000	35,000
Employees at site studied	n/a	n/a	n/a	n/a	400	1,910
Trade union membership	manual: 93% non-manual: 62%	approx. 75%	50%	approx. 80%	30%	92%
Questionnaire respondents	57	50	34	46	49	44
Response rate (%)	57	94	43	66	70	63

Note: In the first four organizations, the study embraced several sites; hence the 'n/a' in the third row.

organizing workers in this firm alone. In 1993 a new mission statement was adopted to reflect the rapidly changing environment. High quality customer service was placed at its core; one value was 'meeting or exceeding customers' expectations of us'. Customer service meetings were held each month in every branch. The managers whom we interviewed considered these to be the main facilitator of communication with staff. The fact that most staff worked in small branches encouraged a sense of teamwork without the need for any formally designated systems of team organization.

Turning to the two public-sector organizations, a major development in the sector in Britain has been a shift to market principles. Where possible, organizations have been privatized, as in the water, gas, and electricity industries. Elsewhere, market principles have been introduced through a wide array of initiatives. Local authorities have been required to put out services such as cleaning and refuse collection to competitive tendering (Compulsory Competitive Tendering, or CCT, introduced in 1988: see Colling 1993). In the health sector, reforms during the 1980s established the split between 'providers' such as hospitals and 'purchasers' (the local health authorities). Throughout the public sector, these changes have been associated with reduced staffing levels, the introduction of more managers (often from the private sector) and financial control systems typical of the private sector (Winchester and Bach 1995).

Lewisham is one of the poorer inner London boroughs. The measurement of quality has become of growing importance. The Council states its aim to be 'an empowering local authority'; this embraces 'devolving management to enable front line managers and employees to provide quality services most effectively'. Various of its functions have been awarded the government's Charter Mark for standards of service provision. Teamwork has been embraced in all areas. As was common under CCT, in-house bids won Lewisham's contracts though, as was also common, they involved worsened terms and conditions of employment. Team meetings were held at varying frequencies from weekly to six-weekly.

Our NHS case, South Warwickshire General Hospitals NHS Trust, runs hospital services for small towns and rural communities. Established in 1993, it employs around 1,300 staff, of whom 580 are nurses. The quality programme began in late 1993 with the goal of 'excellence' embracing clear assessments of patients' needs, training and qualifications for staff and a detailed quality assurance audit. Team briefings were a central means of communicating these aims.

Our first manufacturing case is the plant of Philips Electronics NV, the Dutch-based multinational, located at Hastings, Sussex. The plant, producing domestic products such as kettles and fan heaters, exports about 60 percent of its output. It has around 400 workers. In 1990 the Philips group made its first operating loss for decades, which promoted restructuring aimed at making the organization 'World Class in everything we do'. The plant's goal is to 'delight customers' with the design and quality of its products. In 1991 Hastings Improvement Teams — multifunctional groups working to improve processes — were introduced. The plant attained ISO 9001 in 1993.

British Steel, privatized in 1988, manufactures a wide range of basic and semi-finished steel products. The Shotton Works, in North Wales, is the main plant producing coated steel strip and it has the world's widest range of coil coating facilities on a single site. A Total Quality Performance programme was introduced in 1993. It embraced comprehensive training and the introduction of Quality Improvement Teams. The plant's quality assurance system is approved under British Standard 5750, which is equivalent to ISO 9002. Though we did not know it at the time, the plant had been studied in 1991 by Blyton et al. (1996). This paper described an attitude survey of 453 employees and compared the results with a study conducted during the 1950s. It argued that there was dissatisfaction about pay and about some relations with management, and it related this to a reduction of job security since the 1950s, when attitudes had been more favourable. However, it also noted satisfaction with work loads and job responsibilities, and it underlined a 'positive disposition' towards further change. This usefully sets the context for our study, conducted four years later. As we will see, a degree of distrust remained, but the quality initiative was welcomed, illustrating very clearly this positive disposition.

All six organizations, then, faced significant external challenges deriving from competition or from the introduction of market-like mechanisms. All had made the quality of service a central response, and teamworking was a common mechanism. That said, the organizational context of the quality programmes varied widely.

Quality and Its Context

Attitudes to Quality Programmes

Despite these differences in context, there was remarkable uniformity in workers' overall evaluations of quality programmes. Table 2 reports four items.

Under the first item, initial reaction to the quality programme, 70 percent of the sample said that they had been in favour, with only Lewisham returning a level of below 50 percent. We also asked about changes in view, to allow for the familiar point from the quality circle literature, that disillusionment may set in. About half the sample reported no change and only 8 percent had become less supportive of the quality initiative.

The second item was the perceived importance of quality in the organization. Here, 82 percent said that it was a crucial or very important issue in their organizations. An open-ended question captured some of the thinking here: 'the single most important issue is the providing of the highest levels of customer service standards' (Halifax).

Third, perceived employee influence over quality was also strong. Almost two-thirds of the respondents felt that workers had a great deal or a fair degree of influence over quality, with only Philips standing out at a lower level. Finally, personal involvement in problem solving was also felt to

Table 2
Attitudes to
Quality

	Severn- Trent	Halifax	Lewisham	S.Warks	Philips	British Steel	Total
1. Initial attitude to quality programme							
In favour	80	83	48	70	70	65	70
Neutral	18	17	48	28	28	23	27
Opposed	2	0	3	3	2	12	4
2. Importance of concept of quality							
Crucial issue	14	21	9	7	21	26	16
Very important	68	73	56	76	66	58	66
Fairly important/ not important	18	6	35	18	13	16	18
3. Employee influence over quality							
Great deal or fair	64	66	65	67	38	72	62
Some	26	30	31	24	47	26	31
Little or none	10	5	4	10	16	3	8
4. Change in own involvement in problem solving over 5 years							
Great increase	27	33	36	27	18	26	27
Increase	54	49	48	49	36	36	45
No change or decrease	20	19	16	24	47	39	28

Note: Because of different sample sizes, data in all tables have been weighted to produce a weighted N in each organization of 50 (overall weighted $N = 300$; unweighted $N = 280$). The total figures thus give averages across the six organizations. This gives a more meaningful summary figure than averages across individual replies.

Base: Section 2: all employees; $N = 294$. Rest of table: non-managerial employees, $N = 254$.

have increased (over the previous five years) in all organizations, with the smallest growth being at Philips and British Steel. Of the mechanisms underlying this, task-based participation seemed widespread. Eighty-five percent of employees reported the presence of problem-solving meetings (a proportion reaching 95 percent at the Halifax, Lewisham and South Warwickshire, the low being 53 percent at British Steel). A similar proportion reported having made an informal efficiency suggestion during the previous year, and over half the respondents felt that their managers gave a great deal, or reasonably serious, consideration to the suggestions that were made. An open-ended question on the value of meetings elicited 264 replies, of which only 17 (6 percent) were negative.

There were also clear indications that training provision was substantial. Sixty-five percent of respondents reported at least a week's training in the previous year, with only Philips having a notably lower level. As Green and Felstead (1994: 207) show from a survey of firms, those which were increasing training were often registered with the quality standards institute and the connection with quality was often 'explicitly made by respondents'. Our organizations stand as exemplars of this point.

Our survey produced some concerns, however. When asked about the main purpose of training, only a fifth of respondents specifically mentioned training in teamworking or quality. We found that experience of this specific

type of training was important in attitudes to quality. We created variables indexing the presence of training in basic skills and in the use of new technology. Neither was related to attitudes to the quality programme. However, a measure on whether teamworking or quality was mentioned at all was strongly associated with perceived influences over quality ($p < 0.001$). We pursue this issue when we assess more formally the determinants of attitudes to quality.

Quality and Work Measurement

Involvement in quality programmes did not, however, extend to the fuller autonomy of workers implied by the language of empowerment. We asked employees about awareness of being observed or monitored at work and the perceived managerial approach to discipline. As Table 3 shows, more than half the sample expressed clear awareness of being monitored and felt that discipline had become more strict. Plainly, any serious empowerment would run against such impressions. It is notable that monitoring was particularly marked at the Halifax; the positive linkages between a favourable view of quality and such monitoring implied here begin to illustrate a 'disciplined worker' view.

Third, as the table shows, workers were asked what made them work hard. Empowered workers might focus on freedom or responsibility. In fact, the

Table 3
Monitoring of
Work
Performance, Use
of Discipline and
Stress

	Severn- Trent	Halifax	Lewisham	S.Warks	Philips	British Steel	Total
Awareness of work being observed or monitored							
To a great extent	31	52	19	15	15	24	26
To a reasonable extent	26	30	39	24	24	47	32
To some extent	33	18	31	46	33	11	29
Not at all	10	0	12	15	28	18	14
Change in management approach to discipline							
More strict	54	39	79	50	61	52	56
No change or less strict	46	61	21	50	40	48	44
Percent citing factor as 'important influence' on working hard							
Targets for output or volume	60	68	47	37	59	50	54
Customers outside workplace	35	36	41	34	37	50	39
Managers	46	62	56	41	35	46	48
Reports and appraisal	23	64	12	13	14	23	25
Pay	16	24	12	13	20	46	22
Frequency of feeling stress at work							
Constantly	5	14	15	15	20	13	14
Very often	24	30	33	42	29	15	29
Often	21	34	22	20	11	13	20
Sometimes	41	18	26	20	31	44	30
Rarely/never	10	5	4	5	9	15	8

Base: Non-managerial employees; $N = 254$.

main influences on working hard were the traditional direct one of managerial expectations and the newer indirect ones of performance targets or appraisal systems. Workers were operating in a constrained environment. Fourth, we also asked about stress. As the table shows, 43 percent of employees reported feeling stressed constantly or very often, the figure being lowest in British Steel and highest in South Warwickshire.

Management-Worker Relations and Work Effort

Using a question employed successfully in Edwards and Whitston's (1993) study of discipline and attendance in four organizations and also used in Rees' (1996) study of QM, we assessed the overall state of management-worker relations by asking for a view on the amount of trust between the two 'sides', and how this had changed.

From Table 4, three features stand out. First, the overall amount of trust did not seem very high. Two-fifths of respondents felt that there was not much or no trust between themselves and management. This figure puts the level of trust rather lower than that recorded by Edwards and Whitston. Two of the organizations in that study, a financial services firm and a hospital, are directly comparable to two of the present cases, while a third, a manufacturer, employed semi-skilled workers similar to those of Philips. Second, there was no evidence of marked changes in trust since the quality programmes were introduced, suggesting that there was no marked shift in attitude as a result of the programmes. Third, there were clear differences between organizations. Trust was high in the Halifax, and also quite high in South Warwickshire. Lower levels were recorded in all the other organizations, in particular Severn Trent.

Such results support the intensification thesis, in showing that quality does not change underlying relationships, and the context-dependent approach, in that quality often operates within narrow limits. It is the issue of working harder or smarter which particularly interests advocates of the former. It is accepted from several studies that, although work effort has been connected with many other developments such as the introduction of new

Table 4
Degree of Trust
between
Management and
Workers

	Severn-Trent	Halifax	Lewisham	S.Warks	Philips	British Steel	Total
Current level of trust							
Complete/most of time	10	49	19	20	11	16	21
Fair amount	21	44	35	55	31	41	38
Not much/none	69	7	46	25	58	43	41
Change since introduction of quality programme							
Increase	11	40	7	26	13	36	22
No change	56	58	70	55	78	46	60
Decrease	33	2	23	18	9	18	17

Base: Non-managerial employees; $N = 254$.

technology, increased work effort has been an important trend in many parts of the economy (Elger 1990; Winchester and Bach 1995). Our own results are consistent with these findings, as Table 5 shows. We went further, however, by asking whether workers liked working as hard as they did. The table combines the two sets of replies to indicate three types of worker: the 'committed', who are working harder and like doing so; the 'stable' (no change or less effort, and that they like this); and the 'pressured' (same or increased effort and that they dislike this level of intensity). As can be seen, the last category, emphasized by a work intensification thesis, comprised under 20 percent of the sample, while the committed were in the majority in all cases, except Philips.

How workers felt about work effort is brought out in replies to an open-ended question on why they were working as hard as they did and on the positive and negative aspects of this. Of 246 responses, the most common single reply (28 percent) identified staff reductions as reasons for more effort, but 30 percent made some reference to new work practices or the devolution of responsibility:

'more tasks taken on as a result of re-organizing and less staff' (Lewisham).

'because I care more about my responsibilities' (Philips).

Particularly notable are replies putting costs and benefits together:

'teamworking can be fun — and the outputs can be owned and shared by all the members. [But] so many genuinely useful jobs outside of teamworking just don't get done or, worse, half done' (Severn Trent).

'[There is satisfaction] because the day goes faster and I achieve better results for the products [but there is also] tiredness and stress, and work down the drain for cost-cutting purposes' (Philips).

Table 5
Effort Levels

	Severn-Trent	Halifax	Lewisham	S.Warks	Philips	British Steel	Total
Change in level of effort over 3 years							
Lot harder	46	71	50	61	37	34	50
A little harder	25	14	29	24	25	34	25
About same/less hard	30	14	21	15	39	32	25
Changes in effort and whether like working as hard as this							
'Committed' (working harder and like this)	61	61	67	62	39	54	57
'Stable' (no change in effort or less effort, and enjoy this)	29	17	12	16	34	35	24
'Pressure' (working same or harder and do not like this)	10	22	21	22	27	11	19

Note: The second panel combines replies from the first question with a separate question on enjoyment of work effort. There was a close, but not exact correspondence between the 'stable' category and all those working at the same or less intensity.

Base: Non-managerial employees; $N = 254$.

Two conclusions stand out. First, in line with an intensification thesis and other evidence, work effort had increased. Second, however, this brought benefits as well as costs, as the re-regulation of control thesis would suggest and as case study work (Hill and Peccei 1996) is also finding.

Determinants of Attitudes to Quality

How far were attitudes towards quality programmes and management more generally shaped by the context of labour relations? Specifically, do job insecurity, increased work intensity and closer monitoring of performance shape these views and, if so, in what ways are they consistent with the intensification or disciplined worker theses? We addressed these questions by identifying two key dependent variables. The first is perceived influence over quality, chosen because it gives a reasonably close and direct measure of how far employees feel that they themselves can affect quality programmes. The second is trust in management, which we take as an overall indicator of the pattern of labour-management relations.¹

We proceeded in three ways. First, the dependent variables have ordered categories. Probit models are the appropriate technique to identify, in a multivariate context, the key independent variables. Second, however, our preliminary analyses implied that important interaction effects were at work. For example, a cross-tabulation of influence over quality by stress within each organization showed significant associations in some organizations, but not in others. We therefore turned to loglinear models. These models identify interaction effects particularly clearly. Given sample numbers, we generally used three variables: e.g. Influence, Stress and Organization (terms capitalized in this way are variables). Third, we use our qualitative data to explain the patterns observed.

Influence over Quality

The operationalizations of the variables are listed in Table 6. We have discussed each of these above, so further explanation is hardly needed. With respect to work intensity, we created one measure showing whether or not workers felt that they were working harder (Intensity) and a second (Enjoy) which shows whether they liked working as hard as this. We also include one measure not discussed above, job satisfaction. To obtain a measure of overall satisfaction, we asked simply whether respondents had become more or less satisfied over the previous three years; 46 percent reported an improvement and 32 percent a worsening, with little variation between organizations. Two binary variables (called in Table 6 JOBSATUP and JOBSATDN) reflect these two conditions.

Bivariate analysis found two results running against an intensification thesis. First, Influence over quality was not related to Intensity. Second, experience of Performance Targets and Appraisal did not lead to a poor evaluation of Influence. On the contrary there was, as the disciplined worker

Table 6
Determinants of
Influence over
Quality
 (Dependent
 variable: 3
 categories of
 influence in
 Table 2; 0 = low;
 2 = high)

Variable	Definition	Coeff.	Sig. level
ST	Severn Trent	-0.05	0.86
HALIFAX	Halifax	-0.74	0.04
LEWISHAM	Lewisham	0.21	0.56
SWARKS	South Warwickshire	-0.00	0.99
PHILIPS	Philips	-0.67	0.06
STRESS	Stress constant or very often (Table 3) (1, 0)	-0.14	0.48
JOBSATUP	Increased job satisfaction (1, 0)	0.24	0.34
JOBSATDN	Reduced job satisfaction (1, 0)	-0.65	0.01
HITRUST	Trust complete or most of time (1, 0)	-0.18	0.47
LOTRUST	Little or no trust (1, 0)	-0.50	0.02
HJOBSEC	Job security high or very high (1, 0)	0.19	0.47
INTENSITY	Increase in intensity of work effort (1, 0)	0.05	0.84
ENJOY	Enjoys working at current intensity (1, 0)	0.02	0.78
TARGETS	Performance targets important influence on working hard (Table 3) (1, 0)	0.10	0.62
APPRAISAL	Appraisal important influence on working hard (Table 3) (1, 0)	0.61	0.01
MONITORING	Worker very aware of monitoring of performance (1, 0)	0.24	0.31
TRAIN	Training involves quality or teamwork (1, 0)	0.32	0.10
N	238		
Chi-square/sig. level	72.5/0.00		
Log likelihood	-169.4		

thesis would expect, a direct relationship (chi-square significant at 1 per cent). The relevance of appraisal is indicated in respondents' comments:

'Levels of [pay] increase depend on achieving targets and the way you achieve them' (Severn Trent).

'Everything is evaluated: through quarterly reviews and appraisal everything we do is closely monitored' (Halifax).

Table 6 shows the ordered probit results for Influence over quality, low scores showing low influence. A fall in job satisfaction (JOBSATDN) and a low level of trust in management (LOTRUST) were associated with a low level of Influence. All the theories which we have been considering would expect such relationships, though little empirical evidence yet exists on the point. Still less is it clear why the relationships hold, a point we pursue below in relation to our qualitative data.

Particularly interesting were results in relation to intensity of effort and measurement. The multivariate analysis confirms the bivariate finding of no effect for Intensity and also a positive effect for Appraisal, as a disciplined worker thesis would expect. The results also confirm the importance of training in teamworking and quality. There was a tendency for experience of such training to promote a favourable view of quality programmes.

Turning to the effects of organization, we take British Steel as the refer-

ence category, a choice reflecting the fact that this organization came closest to the average on most of our measures. In line with the descriptive analysis, Philips had a negative coefficient. Surprisingly, so did the Halifax. The most likely explanation is that factors such as Appraisal and Monitoring were particularly prevalent here. It seems that, once they are taken into account, any further effects of working in the Halifax were to reduce perceived influence.

The lack of distinction between the other organizations, their large differences notwithstanding, is also notable. Extant case studies appear to have reflected situations such as that at Philips, for most of them were in manufacturing sites and work appears to have been of a routine kind. In other situations, QM seems to have more positive potential.

Table 7 summarizes some loglinear results which amplify these conclusions.² In each case, we give the variables involved and the best-fitting model. 'Best' was assessed by starting with a saturated model containing all interaction terms and then eliminating terms until any further elimination reduced the degree of fit below conventionally acceptable levels. We report the overall goodness of fit statistic and a second indicator of fit, namely, in respect of the number of cells where the model performed poorly.

The first row shows the relationship between Influence, Job Security and Organization. The best-fitting model, which just attained the conventional level of significance of 0.05, indicated that the three variables were related to each other, but that there was no significant interaction effect. The substantive conclusion is that Job Security promotes a favourable view of quality across all the organizations. An examination of the cells which fitted poorly showed that they both involved Severn Trent and high job security, with one having moderate Influence and another one low Influence. High job security did not translate into favourable views of quality at the same rate as elsewhere; we explain why below.

Table 7
Selected Loglinear
Results

Model	Variables	Best fitting model	G ²	Poorly fitting cells
1.	Influence (I: 3 categories) Organization (O: 6 categories) Job Security (J: 3 categories)	[I, O] [I, J] [O, J]	0.05	2 of 54
2.	I, O, Appraisal (A: 2 categories)	[I, A] [O, A]	0.39	1 of 36
3.	O, A, Effort (E: 3 categories)	[O, A] [O, E]	0.25	0 of 36
4.	I, O, Trust (T: 3 categories)	[I, O, T]	1.00	n.a.

Note: G² shows goodness of fit; it is analogous to chi-square. A good fit is conventionally taken to be a figure of 0.05 or higher.

A poorly fitting cell is one whose standardized residual falls outside the conventional limits of ± 2 standard deviations from zero. A small number of such cells indicates a model which fits the data well.

Saturated models (those where all possible interaction terms are included, for example three-way interactions where there are three variables) necessarily fit the data exactly and thus attain a G² of 1.0.

Results for Appraisal (row 2) point in a similar direction. The very strong fit confirms the general importance of the use of appraisal schemes in promoting acceptance of quality programmes, regardless of organizational context. The fact that Appraisal and Organization were also connected, with appraisal being especially common in the Halifax, adds some weight to our explanation of why, in the probit analysis, the Halifax returned a negative coefficient in the explanation of views of quality programmes: the effects of Appraisal are linked to organizational context, and in the probit the Appraisal variable was picking up this effect. The one poorly fitting cell represented Philips, low Influence and the presence of Appraisal. In this organization, the appraisal–influence link was attenuated, for reasons explored below.

To allow for the possibility that the effect of Appraisal was in some way dependent on levels of work effort, we also looked at links between these two variables (row 3). In fact, a very well-fitting model was produced in which Appraisal and Intensity were each related to organizational context, but there was no link between the two variables themselves. This strengthens the view that the effects of Appraisal on Influence were robust.

The Influence–Trust Relationship

Finally, we turn to the relationship between Influence and Trust in each organization. As row 4 of Table 7 shows, there were strong interaction effects between these three variables. In Severn Trent, the most notable fact was that the largest group identified low levels of trust, but a high degree of influence over quality. In this case, it seems that employees can feel that they can have some influence over quality, despite their distrust in management. British Steel displays a similar, but less marked pattern. In these two large organizations, each with a long-established way of doing things, quality initiatives have had some clear effects, but the context has meant that some traditional sources of distrust remained.

In the Halifax, there were both high levels of trust and a high role in quality, so that there was little variation *within* this organization. It may well be that trust promoted acceptance of quality in this case. There was a similar pattern at South Warwickshire. In the cases of Lewisham and Philips, particularly so in the latter, there was a strong tendency for low levels of trust to reduce perceived influence over quality. In both cases, it is reasonable to conclude that low trust may have limited acceptance of the quality programmes.

Explaining the Patterns

In short, we have indicated some of the conditions which link quality programmes to wider aspects of transformation. In some cases, such as Philips, QM was undercut by its circumstances. Why did low trust and criticism of quality seem to go together here? In others, notably the Halifax, quality

was promoted by the environment. Why was trust in management so high, and why did it seem to interact so strongly with perceived influence over quality? In a third set, such as Severn Trent, QM was disconnected from wider developments. Why were job security and trust so low here and why were they disconnected from favourable views of quality? We use these three organizations to illustrate how we can make sense of the quantitative data.

At Philips, the context of QM was a traditional Fordist work organization. Most shop floor workers worked on assembly lines carrying out routine tasks. Despite the goal of multifunctional teams, divisions between production and design staff remained sharp. We observed how these worked by participating in the firm's 'Town Meeting', an annual event at which all staff were invited to meet off site to question managers. A problem with components of kettles was raised; this was felt to be a long-standing grievance, and it continued at least two weeks after the meeting. As two managers confirmed in separate interviews, design staff had to meet tight deadlines, and they lacked the time to respond to shop floor requests; shop floor workers, for their part, expressed some skepticism about managerial competence. Managerial concerns about meeting tight production deadlines conflicted with the goals of QM.

Such problems were underpinned by traditional distrust between management and workers. One symbol of this was white-collar workers' successful refusal to wear the company uniform. Another was the policy on smoking. There was an assigned room for smoking, which was near the shop floor, but managers and white-collar workers refused to use it, instead going outside the building. As one worker complained, 'we are not allowed to leave the building at all and yet managers can step outside to smoke and no one says anything'. Such attitudes help to explain the attenuation of the appraisal-influence link in this organization. Pay was not linked to performance, and appraisal of shop floor staff is unlikely to have had any significant impact on the deeper distrust in management.

Unionization at Philips had been falling, and was currently around 30 percent. Managers did little to disguise their contempt for what they saw as the unions' 'ineffectiveness' and felt that unions had very little power. Union representatives acknowledged the difficulty of bargaining effectively, even on such basic issues as pay. They felt that pressures for output were undermining any efforts at employee involvement.

The contrast here with British Steel is interesting. As a traditional heavy industry with powerful unions, the steel industry would be expected to display more antipathy to workplace change. Yet acceptance of quality was quite high at British Steel. This reflects three factors. First, there was a climate of job security. The plant was now enjoying a period of stability after a major re-organization during the 1980s when, in common with much of British Steel, there were massive job losses; Shotton shed over 8,000 jobs. After privatization, there was renewed investment, and between 1990 and 1995 employment levels were stable; new investment was felt to give the plant a secure future. Second, there was a co-operative relationship with the

union, which reflects the industry's long-established traditions. According to managers at Shotton, 'if anything, it [union involvement] has helped oil the wheels of change' and some felt that 'it is important for workers to have a voice through the union'. Third, this co-operation was activated through a strong focus on training. This involved a new initiative known as TOPICS which re-organized the shop floor into multi-disciplinary teams that included managers. This initiative helps to explain why 77 percent of British Steel respondents identified an increase in training over the previous three years. At the time of the study, then, QM remained, as at Severn Trent, rather distant from day-to-day relationships, but all sides felt that this situation was improving.

In the case of the Halifax, the close working relationships between managers and staff in the small branches facilitated communication and a sense of teamwork. This was highly valued by managers. As one branch manager put it, 'Shirley has worked here for 15 years. She was born and bred here and knows everyone. If she left she would take a lot of customers with her'. A second feature of work organization was the specific set of products provided. Customers of building societies expect to conduct a particular transaction effectively and they have no wider expectations of the organization. There were two main effects: it was relatively easy to appraise workers because there were clear standards of service delivery; and staff had well-defined relationships with customers. A third key feature of the organization was job security. This was underlined by management at the time of the merger with the Leeds. Figures were given to the staff showing that the new organization would have far more customers, with fewer staff, than a typical bank. The Society also committed itself to a policy of avoiding compulsory lay-offs. More generally, the Society is regarded as a well-run organization. A study of its use of information technology, for example, describes its approach as exemplary (Dyerson 1994).

A final feature of the Halifax was the working relationship between management and the trade union. In large parts of the British financial services sector, membership is low. At the Halifax, the union represents most staff. As Table 1 shows, 89 percent of our sample were members. The union was also directly involved in the quality process. The 'union is involved constantly in working practices' and in 'a lot of the Society's decisions', to quote two managers. Managers felt that the union helped to facilitate change.

By contrast, Severn Trent was going through a period of retrenchment. At the time of the study, a programme of redundancy involving 750 staff was in train. Not surprisingly, job security was low. Why, then, did the quality programme retain any degree of employee support? The reason would appear to lie in the way in which it was introduced and in the context of the initiative. There was a sustained effort to communicate beliefs in quality, and many employees did feel that their own involvement had increased. Sixty-five percent of employees reported an increase in communication from management, which was not much different from the average for all organizations (72 percent). We also asked about the value of communica-

tion devices. The key device of team briefing received a slightly better score at Severn Trent than across all the organizations. Workers accepted that, as one put it, 'this Working for Quality has more of a grip than previous initiatives'.

However, as the raw figures on Trust in Table 4 show, there remained high levels of distrust between management and workers. In addition to low job security, this reflected feelings of division between top management and the rank-and-file. There was concern that 'managers just don't talk to workers enough' and that 'managers at the top are quite detached'. Workers spoke of a 'culture of blame' in which the rank-and-file had to take responsibility for outcomes over which they had no control. A key event was what became known as the 'Worcester incident'. A private company had allowed a colourless chemical that was odourless when cold to enter into the River Severn above the treatment works at Worcester; the workers did not detect it; and it was finally noticed when the water entered houses and reached room temperature. The workers were held accountable, even though they felt that they had no control over the affair.

A further source of grievance was top management pay. There were highly publicized pay awards in the whole of the water industry. As well as irritating workers directly, this affected their relations with customers. As one worker explained: 'the customer complains about the same issue, the pay of the people at the top. It can be very difficult at times, trying to be diplomatic while ... getting the job done in the time allotted'.

The water industry was rarely out of the public gaze during 1994 and 1995, with attention focusing on price increases, the pay of managers, and service standards. On average, prices rose 5 percent faster than inflation during the years since privatization. In 1994 Severn Trent's chief executive received a compensation payment of £0.5 million at the end of his contract; his salary had been £230,000. Such salaries were between three and seven times the levels paid before privatization. In August 1995, the company was accused by the official industry regulator, Ofwat, of 'arrogance beyond belief' in rejecting calls for compensation to customers, even if water supplies were curtailed. In November, Prime Minister John Major accepted that high pay awards to directors in privatized companies were 'distasteful' (see *Financial Times*, 16 July 1994 and 31 March, 23 August and 14 November 1995).

A second feature was the approach to unions. Perhaps the most common approach in Britain (again like the US) is the marginalization of unions in change processes (Daniel 1987). Severn Trent illustrated this: as one manager explained, 'the unions are not recognized as part of the TQM process'. A union representative stated that the union was not really involved in defining the quality initiative; he also highlighted the 'blame culture' as a constraint on worker empowerment. In short, the union was detached from the QM initiative, and this mirrored a wider separation between the process and an underlying atmosphere of distrust.

This discussion of the context in these four cases indicates the processes underlying the statistical analysis. QM means different things in different

circumstances. Much of the case study work has produced results like those from Philips, but even there, the basic principles of QM were accepted, and it was not simply a matter of work intensification. At the Halifax, by contrast, acceptance of quality was supported by trust in management, which, in turn, rested on job security, a role for the union, and a context in which customer expectations were manageable. In other cases, notably Severn Trent, more diffuse customer pressures led to difficulties for workers. Across all the organizations, there seemed to be a clear tendency for a union role to have a positive effect on the quality programme, as the contrast between the Halifax and British Steel, on the one hand, and Philips, on the other, suggests.

Conclusions

This analysis of quality management has deployed quantitative and qualitative techniques across a range of organizations, in an attempt to deepen understanding of the linkages with employee involvement. We have shown, first, that neither the optimistic thesis of empowerment nor the pessimistic model of intensification is applicable. Empowerment, we show elsewhere, was not on the managerial agenda, and QM meant involvement in decision making, but an involvement constrained by a continued reliance on discipline and monitoring (Collinson et al. forthcoming). Such constraints did not fully comply with the intensification thesis, since there were genuine benefits to workers in problem solving, since most workers were satisfied with their level of work effort, and since acceptance of quality and trust in management went along with more, and not less, strict controls. Hence the disciplined worker thesis is sustained. As the old aphorism has it, if you are going to be exploited, better that it is done well rather than badly.

Second, the effectiveness of quality programmes varies according to context. Across our six organizations, two conditions stood out. Job security promoted a favourable view of quality initiatives. Taking the organization rather than the individual as the unit of analysis, it also seemed clear that a positive union-management relationship helped in the acceptance of QM: acceptance was greatest at the Halifax where the union had the closest relationship with management, weaker in such cases as Severn Trent and Lewisham where the union was being marginalized, and weakest at Philips, where managerial antipathy to unions was most intense. Detailed case-study evidence supports this interpretation (Davies and Fitzgerald Moore 1997). This is not to say that a union is a necessary condition, but where, as in our firms, workers have strong union traditions, it does seem that working with and not against the union helps to generate the trust necessary for quality principles to take root.

There are many other conditions specific to each organization that promote or retard acceptance of QM. For example, at Severn Trent a climate of distrust was promoted by job losses, but also by specific conditions such as

workers' discomfort about customer complaints over top management salaries. At Philips, divisions between shop-floor workers and development staff, themselves a product of tight schedules for the development and production of each new model, tended to reinforce traditional distrust. In both organizations, there was acceptance of the broad principles of quality, but their translation into practice was blocked.

In line with context dependency, workers have no inherent opposition to the principles of quality, and acceptance of specific initiatives seems to depend on context. This is not, however, to say that, given appropriate conditions, 'win-win outcomes' can be generated. Such an assumption neglects the point which the critics of QM rightly make, namely, that antagonism between capital and labour remains central. QM is not about dissolving this antagonism but is, as the thesis of re-organization of control asserts, a means of managing it. For example, even at the Halifax, QM did not mean benefits for all, in all respects. Workers were working harder, they were under stress, and they were more closely monitored. Moreover, the conditions of growth which underpinned job security were not guaranteed in the future. There may well be a limit beyond which tighter demands on workers provoke an overt response.

Proponents and critics have been too eager to take the rhetoric of QM at face value. The former have seen QM as a complete shift from bureaucratic management, while the latter have criticized the deification of the customer. However, workers are not cultural dopes who accept new ideologies without question (Tausky and Chelte 1991). Seen more pragmatically, QM can be a useful tool in the constant endeavour of management to release workers' creativity while at the same time controlling them. Workers, for their part, seem to accept quality principles while also being aware of the costs and limitations. In a sense, there is nothing very new in this, for workers have always had an interest in the quality of what they produce and, as we noted at the outset, QM ideas have strong resonances with established management theory. QM is more evolutionary than revolutionary. That said, it is new in its efforts to be integrated and to make explicit, through the customer focus, the linkages between an organization and its environment. It exemplifies the collapse of the insulated internal labour market and the incorporation of market pressures directly within the enterprise.

To develop understanding of these points, research needs to move on from the polarized debate in terms of success and failure. Quantitative studies could explore the determinants of workers' acceptance of QM and also the linkages with organizational outcomes. More qualitative work needs to assess the ways in which workers experience new dynamics of control, in particular, how appraisal and monitoring systems work in practice and how norms of behaviour are created and enforced. An important part of this agenda is international comparison. We stressed above the environmental constraints facing organizations in market-driven economies. The cost-cutting pressures observed in some of our organizations, and the resulting negative effects on QM programmes, illustrate these constraints. To the

extent that other countries experience similar pressures, such programmes there may face similar problems. One might also argue that the key factors that we have identified as sustaining QM, notably job security and employee representation systems, have a general relevance, though, of course, the precise nature and role of such systems will vary between countries. In Germany, for example, the works council system will be important and, as Wever (1994) demonstrates, though the councils generally can be effective in interest representation there is also great variation between them. As managements continue to experiment with new forms of work organization, the issue of gaining employee commitment is likely to be increasingly significant. Our results point to some factors which need to be borne in mind in addressing this issue.

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1. For reasons of space, we do not present the detailed results for trust. They generally support the evidence for views of quality programmes. Results are available on request.

2. Our approach to loglinear modelling is that recommended by Gilbert (1993). Essentially, the technique takes a number of categorical variables and generates models which are tested for their fit with the data. The most complicated model is a saturated one involving all possible interactions and necessarily fitting the data exactly. Consider, for example, the three variables Influence, Organization and Job Security. Writing the variables as I, O and J, a saturated model is represented as [I, O, J]. The next simplest range of models allows only two-way relationships, of which there could be three. A model having only two of these associations, between I and O and between O and J, would be written as [I, O] [O, J], and so on.

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