

Workplace Innovations in the Republic of Ireland*

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Abstract: Many explanations have emerged for Ireland's dramatic economic recovery, but virtually all have taken a macroeconomic perspective. This paper enriches our understanding of recent progress by presenting original survey data on establishment-level work organisation and human resource innovations. The survey indicates that most Irish establishments are actively reorganising work arrangements. There is also strong evidence to show that they are supporting these developments with complementary human resource management innovations. A key driving force behind these changes appears to be economic openness; high exporters and branches of multinational corporations are more innovative. So too are establishments adopting high value added corporate strategies. Under certain circumstances, however, unionisation is negatively associated with work systems innovation.

I INTRODUCTION

A sea-change has occurred in Irish economic performance. Ten years ago the picture was nearly all gloom and doom. Unemployment and migration were disturbingly high and the public finances were in a mess. Now the situation is much brighter: economic growth is galloping ahead at 5 per cent per annum and inflation and government debt are under control.

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*This paper contains the personal views and opinions of the authors independently of their respective affiliations.

Perhaps not everything is rosy in the economic garden, unemployment still remains too high for example, but it would be exceptionally hard nosed to say that the fortunes of the Irish economy have not been transformed. Explanations are beginning to emerge for this transition from bust to boom. Some have turned to endogenous growth theory and emphasised factors such as the educational quality of the local labour force, while others put more store by institutional innovations such as the national pay agreements. These accounts are insightful and deepen our understanding of the recent economic upturn, but on their own they fail to tell the full story. Thus the search is still on for a comprehensive explanation as to why the Republic has moved from laggard to "celtic tiger".

One matter that has received little attention has been the role of the corporate sector in the economic revival. Apart from a number of well-worn clichés about the hyper-performance of foreign-owned companies relative to domestic ones, there is a dearth of information about the conduct and behaviour of enterprises: the competitive strategies they pursue, the types of technology they use, and their internal structure remain for the most part a black box. But without greater detail about the ground-level activities of firms any narrative about the new found success of the Irish economy would be incomplete. In an attempt to gain more insights into the micro-economic foundations of modern Ireland, this paper presents original survey data on establishment-level work organisation and human resource management innovations. Specifically, it has three main objectives; (a) to quantify the diffusion of high performance work practices in Ireland; (b) to model the determinants of their adoption; and (c) to test the hypothesised association between the use of innovative human resource management techniques and the adoption of high performance work practices. The paper focuses on the internal employment systems of enterprises because there is a virtual consensus that the organisation of productive systems and the utilisation of human resources have a determining impact on national economic performance. On its own this paper may not redress the many shortcomings associated with the lack of reliable empirical information on enterprises in Ireland, but it should provide a richer understanding of how companies are using their human resources.

II THE MOVEMENT TOWARDS HIGH PERFORMANCE WORK ORGANISATION

High performance work organisation (HPWO) is a term invented in the USA to capture the shift by enterprises away from Fordist or Taylorist methods of work organisation to more flexible employment systems. For the

most part, this shift reflects the increasing obsolescence of mass production techniques. During the Fordist era, products were standardised for easier manufacturability, processes were highly automated, work was fragmented and scientifically managed employees operated efficiently by specialising in narrowly prescribed roles. This system was spectacularly successful when markets for homogenous products were stable and sufficiently large to provide scale economies. But these commercial conditions no longer prevail: markets have become more customised and volatile due to the fragmentation of demand, intensified competition and the rapid diffusion of technological innovations. Nowadays, the more firms can make continuous improvements to both products and processes, the more successful they will be.

In an effort to realise these competitive qualities, firms need to move towards a work organisation that simultaneously promotes worker flexibility and employee involvement. Being able to rapidly deploy staff between different job tasks allows firms to more effectively face a competitive environment where unanticipated events and commercial shocks are frequent. On the other hand, greater employee involvement improves the problem-solving capacities of the organisation and is more likely to foster commitment from workers to the commercial objectives of the enterprise. HPWO is an attempt to capture the growing importance of flexibility and involvement in the management of human resources. However, because firms are using various strategies to secure these twin objectives, there is some debate about what actually constitutes a HPWO. In the current paper we sidestep this argument and adopt a fairly loose definition of the term. In particular, we regard a HPWO as consisting of Job Rotation (JR); Quality Circles (QCs); Total Quality Management (TQM) and Teamworking.¹

III SURVEY METHODOLOGY

The paper is based on 1996 survey data from private sector establishments in the Republic of Ireland. Each had fifty or more employees in one of three industries; food/drink/tobacco, electronics, and banking and finance. Establishments rather than firms were chosen as the units of analysis because their respondents are likely to possess more detailed knowledge of ground-level employment practices, and because practices often differ between branches of the same organisation in ways which are difficult to capture in a corporate level investigation (Florida and Kenney, 1991, p. 384; Osterman, 1994, p. 174; Snell and Dean, 1992, p. 477).

From a random sample of 157 establishments stratified by sector, age and size, a response rate of 65 per cent yielded 102 useful observations. This

1. For precise definitions as used in Osterman (1994) see Appendix A.

response level is excellent given the nature and detail of the required information, and exceeds those typically reported in the literature.²

The data were collected using an extensive and in-depth questionnaire on employment issues such as manpower profiles, work organisation, hiring and promotion; pay; training and industrial relations. As well as providing the only source of data on many of these issues in Ireland, the survey addresses two problems characteristic of previous work in this field (see Fernie and Metcalf, 1995, pp. 391-393). First, it allows a close look at the texture of workplace reforms rather than simply at their incidence. Second, it contains data on a wide array of variables which provide the controls necessary for statistical analysis and permit the testing of diverse hypotheses.

IV THE EXTENT OF HPWO ADOPTION IN IRELAND

Table 1 reports the average use of the four practices for core workers in Irish establishments.³ The immediate impression is of a relatively high overall adoption level. Column 1 indicates that two-thirds of establishments use TQM, and a comfortable majority engage in JR. Almost half have at least one quality circle, and more than one-quarter of surveyed sites use teamworking.

The widespread adoption of TQM may reflect a strategic reliance on quality as Irish firms have moved out of low value added, cost-competitive commodity markets into more quality sensitive export niches. Conversation with managers emphasises the importance of this factor; on average respondents rated competing on quality as 139 per cent more important than competing on variety, 74 per cent more important than competing on cost, and 14 per cent more important than competing on service. At the same time, TQM's popularity may also reflect its relatively low implementation, "competence destroying" and time dependent costs (Pil and MacDuffie, 1996; Tushman and Anderson, 1986); introducing TQM does not require root-and-branch organisational reform.

The converse argument might explain the low adoption of teamworking, as the fundamental changes associated with this practice imply substantial

2. Location, age, size and industry proportions showed no significant differences between the Dun and Bradstreet "IRDATA" sampling frame and the drawn sample, indicating representative selection.

3. The impracticality of collecting such detailed information for all occupations means that some questions ask only about a set of "core" employees. Following Osterman (1994, p. 175), core workers are defined as: "The largest group of non-supervisory, non-managerial workers at this location who are directly involved in making the product or providing the service". This definition is distinct from the label core workers as applied to an elite body of key employees who are afforded preferential pay and conditions (Atkinson, 1985).

Table 1: *Adoption of HPWO in Ireland*

<i>Practice</i>	<i>Any Core Employees Involved?*</i>	<i>Mean Participation (All Establishments)</i>	<i>Mean Participation (Adopters Only)</i>
TQM	68.7 (33.5)	51.9	77.4
Job Rotation	56.9 (43.4)	36.2	50.8
Quality Circles	44.1 (40.8)	30.2	68.6
Teamworking	27.5 (54.5)	18.2	65.6
None	10.8 (21.8)		

*Percentage of establishments adopting. Osterman's (1994) values in parentheses.

training and reorganisation costs. Resistance costs might also be high; core employees may oppose teamwork as it threatens traditional craft based work forms and could imply peer group policing and work intensification. For their part, managers might favour alternative HPWO practices because the fundamental shifts in power relations associated with teams may undermine the wide ranging discretion they have traditionally enjoyed (Appelbaum and Batt, 1994). As we shall see, teams may also threaten job security for both echelons.

Job Rotation is surprisingly common. A priori, the direct costs and short-run productivity reductions associated with cross training would be expected to dampen adoption. Moreover, as with teamworking, influential core workers would be expected to resist JR. By effectively limiting demarcation, JR exposes "insider" wages to competitive pressures, threatening incumbents of privileged positions with material and social losses. The most obvious interpretation of this finding is that a proportion of reported JR refers to the *ad hoc* redeployment of workers in simple tasks (e.g., janitorial). For these establishments the motive is not flexibility or involvement, but cost cutting; downtime and indirect labour can be eliminated using this strategy.

The use of quality circles is as expected given existing international survey evidence. An adoption figure of 44 per cent substantiates the above conclusion that quality is a high priority on the agenda of Irish management. Column 2 reports the mean proportion of core workers in each establishment that participate in the four practices. These figures reinforce the sense of widespread adoption in Ireland. In the final column, which measures mean employee participation in each practice solely for establishments which use that practice, the rank order established in earlier columns is upset. Notably, teamworking moves up from last to third position, and JR falls from second to fourth. This suggests that, although relatively few establishments use teams, those that do so involve a high proportion of their core workers. One

interpretation is that managers who entertain the most far reaching HPWO practices are more committed to inclusive forms of worker involvement. At the same time, the more minimalist interpretation that practical considerations of internal co-ordination and scale economies are responsible for the depth of the change cannot be discounted.

The opposite pattern is evident in JR. Adopters are plentiful, but inclusion of core workers is relatively modest.⁴ This result is open to contrasting interpretations. First, extending rotation beyond a critical mass of core employees with suitable behavioural, cognitive, and skills profiles may be impractical. This implies that JR is limited to "insiders". Alternatively, as suggested above, reported JR may refer to "multi-tasking" rather than true "multi-skilling". In this scenario, while more skilled employees adhere to their specialism, less skilled "outsiders" may shift between simple tasks in order to eliminate buffers of contingency workers and downtime. Clearly JR can facilitate contrasting modes of functional and numerical flexibility (Atkinson, 1985).⁵

V THE DETERMINANTS OF HPWO ADOPTION IN IRELAND

The determinants of HPWO adoption were modelled using ordinary least squares. A dependent variable "HPWO" was created by adding the percentage of each establishment's core workers involved in the four practices.⁶ This index was regressed hierarchically on four discrete blocks of independent variables. The first contained control variables measuring the impact on adoption of structural and ambient influences e.g., establishment age and size, industrial sector, competitive environment etc. The second block focused on the influence of Ireland's characteristic openness. Dummies labelled IRL, UK, and USA test the hypothesis that MNCs diffuse innovative work practices to their Irish subsidiaries. An additional variable OSEXP1, proxying for the use of expatriate managers, refines this hypothesis by investigating whether MNCs' global management strategies affect the rate of diffusion. The variable OSEXP2 controls for the simple demonstration effect on adoption of employing managers with previous foreign experience outside their current organisation. This effect is also tested by a measure of establishments' propensity to export.

The third block adds four variables testing the key influence of industrial

4. Although, notably, still greater than 50 per cent.

5. While space limitations prevent detailed discussion of this point, the findings of an unreported cluster analysis suggest that both strategies are being used simultaneously in Ireland.

6. Precise definitions and means of all the model's variables are presented in Table 2.

Table 2: *HPWO Adoption Model: Variable Definitions, Means, and Standard Deviations*

<i>Variable</i>	<i>Definition</i>	<i>Mean</i>	<i>S.D.</i>
HPWO	% core in TQM + % core in JR + % core in QCs + % core in teams	134.41	107.77
WORKERS	Total no. of workers	306.08	490.97
ATYPICAL	1 = Use P/T or temporary workers	.56	.50
YREST	Year established	1959.50	49.49
FININS	1 = Finance/insurance	.18	.38
ELEC	1 = Electronics manufacturing	.35	.48
LOCATION	1 = Dublin	.42	.50
SKILCORE	1 = Very/extremely skilled workforce	.28	.45
GRANTAID	1 = Received grant for training	.75	.43
NUMCOMPS	1 = Many/very many competitors	.47	.50
STYLE	1 = Extremely appropriate to help with family/personal matters	.21	.41
IRL	1 = Establishment founded in Ireland	.43	.50
UK	1 = Establishment founded in UK	.13	.34
USA	1 = Establishment founded in USA	.31	.47
OSEXP1	1 = Some managers have foreign experience within the organisation	.46	.50
OSEXP2	Per cent of managers with foreign experience outside the organisation	20.59	26.24
EXPORTS	Per cent of sales = exports	51.76	40.03
UNION	Per cent Total employees registered trade union members	55.10	39.03
RECOGTUS	1 = Establishment recognises trade union	.76	.43
SUB1	0 = Establishment has neither suggestion scheme nor JCC	.60	.71
	1 = Establishment has one of the above 2 = Establishment has both		
INDUNRST	1 = Industrial unrest within last 5 years	.20	.40
STRATADD	Mean of points (0-999) for importance of each of variety, quality and service relative to cost	132.76	66.92

relations on workplace innovation. The effects of union strength within enterprises, management strategies for dealing with unions, and the enterprise's industrial relations history are all estimated. Finally, in the fourth step of the model, a single index STRATADD tests the common hypothesis that enterprises which have high value added, high skills

corporate plans adopt HPWO to a greater extent than those pursuing cost based competitive strategies.⁷

Results

The results of the adoption model are presented in Table 3. While space limitations prevent detailed examination of the control variables, some interesting points are worth mentioning. The coefficient on SKILCORE confirms that establishments with highly skilled core workers are much more likely to diffuse HPWO practices. This is unsurprising given the greater skills needs implied by flexibility and employee involvement, and is in line with comparable international research (Osterman, 1994, p. 182). Equally unsurprising given the case-study evidence of workplace transformation in some electronics plants in Ireland is the positive and significant coefficient on the variable ELEC. Also consistent with Osterman's findings, paternalistic management styles have a positive influence. However, adoption is unrelated to the structural measures of establishment size and age.

A rise in R^2 from .36 to .52 in the second step of the regression exercise indicates that the collective effect of the economic openness variables is significant at 1 per cent. When IRL, UK and USA are measured against an omitted base category,⁸ their coefficients suggest that indigenous and American owned plants are significantly greater users of HPWO practices. In contrast, the coefficient on the variable UK is insignificant at conventional levels. This finding implies that overseas ownership is an important influence on Irish HPWO use. However the direction and strength of this influence depend on the precise origin of the corporation. In particular, UK owned plants appear more likely to import traditional organisational forms than their more innovative US owned counterparts. OSEXP1, which measures the extent of managers' overseas experience *within their corporation*, sheds more light on the relationship between MNCs and their subsidiaries, and how this affects HPWO diffusion. Proxying for the use of expatriate managers and overseas placements for host country managers, its positive and significant coefficient suggests that multinationals which follow global management strategies are more effective carriers of HPWO. In other words, it is those MNCs which regard their plants as part of an integrated world-wide value-added chain that are more likely to be adopters of workplace innovations. At

7. STRATADD = The average of points given to variety, quality and service in response to the following question (see Osterman, 1994, p. 179): "If you assigned 100 points to the importance of competing on cost, on the same scale, how many points would you assign to the following goals for your establishment... Competing on variety, quality and service?"

8. Omitted category consisted of one establishment from The Netherlands, two from Japan, three from Germany, and seven from an assortment of "other" countries.

Table 3: *OLS Model of HPWO Adoption*

<i>Variable</i>	<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>	<i>Step 4</i>
Constant	98.783 (.229)	160.913 (.400)	278.537 (.691)	303.855 (.771)
WORKERS	.031 (.328)	-.089 (.983)	-.043 (.505)	-.019 (.226)
ATYPICAL	.117 (1.305)	.121 (1.465)	.155** (1.993)	.176** (2.300)
YREST	.001 (.003)	-.040 (.451)	.075 (.866)	-.090 (1.055)
FININS	-.188 (1.424)	-.114 (.905)	-.179 (1.476)	-.173 (1.462)
ELEC	.343*** (3.209)	.235* (1.774)	.278** (2.189)	.300** (2.416)
LOCATION	.164 (1.550)	.341*** (3.256)	.327*** (3.373)	.315*** (3.327)
SKILCORE	.311*** (3.470)	.291*** (3.539)	.255*** (3.280)	.231*** (3.021)
GRANTAID	-.177 (1.501)	-.199* (1.816)	-.176* (1.719)	-.125 (1.214)
NUMCOMPS	-.105 (1.113)	-.088 (1.001)	-.141* (1.713)	-.142* (1.771)
STYLE	.191** (2.060)	.200** (2.282)	.245*** (2.946)	.259*** (3.176)
IRL		.368** (2.258)	.373** (2.455)	.357** (2.401)
UK		.141 (1.122)	.211* (1.779)	.194 (1.664)
USA		.400*** (3.187)	.361*** (3.032)	.350*** (3.005)
OSEXP1		.146* (1.681)	.154* (1.784)	.163* (1.930)
OSEXP2		-.163* (1.810)	-.167* (1.976)	-.177** (2.139)
EXPORTS		.369*** (2.735)	.377*** (2.895)	.330** (2.554)
UNION			-.363** (2.575)	-.352** (2.557)
RECOGTUS			.344** (2.611)	.341*** (2.657)
SUB1			.247*** (3.106)	.253*** (3.252)
INDUNRST			.045 (.557)	.040 (.511)

Table 3 (cont'd): *OLS Model of HPWO Adoption*

Variable	Step 1	Step 2	Step 3	Step 4
STRATADD				.168** (2.151)
N	99	99	99	99
R ²	.364	.516	.610	.634
Adjusted R ²	.287	.415	.504	.527
F	4.748***	5.124***	5.718***	5.937***
F Change	4.748***	4.021***	4.437***	4.628**

Dependent Variable = HPWO. Absolute t-statistics in parentheses. ***Significant at .01, **Significant at .05, *Significant at .1. Pairwise deletion of missing values.

the same time, OSEXP2, measuring the percentage of managers with overseas experience *outside* the organisation for which they now work, is negative. Thus there is little support for the hypothesis that managers' exposure to HPWO while abroad increases the likelihood that they will be effective advocates for the diffusion of such practices on their return to Ireland.⁹ However, the strong positive relationship between EXPORTS and adoption does support the notion that demonstration effects from foreign adopters can influence domestic innovation levels, especially as overall levels of competition are controlled for in the first step of the model.¹⁰

Four variables testing the influence of industrial relations on HPWO use are added in Equation 3. Again their collective effect is significant at 1 per cent. Examining each variable individually reveals some interesting findings. The coefficient on UNION is negative, large, and significant. Independent of structural influences like size, age and sector, and of related industrial relations factors e.g., union recognition and avoidance strategies, a 1 per cent increase in core workforce unionisation is associated with a .4 per cent decline in HPWO use. However, the finding that, all things equal, unions are

9. Once again however, any hypothesised effect is likely to depend on the venue of managers' foreign experience. Tayeb (1995) suggests that "high repertoire" nations offer greater demonstration effects. The survey did not collect information on where managers received their foreign experience, but, given the mobility of labour between Ireland and the apparently low repertoire UK, the possibility of managers' importing innovative techniques learned abroad cannot be discounted on this evidence.

10. The possibility of simultaneity between HPWO and exports was raised by a conference delegate. In this situation it would be unclear whether exports caused or were caused by the adoption of innovative work practices. If the latter were true, the model would artificially inflate the influence of exports. Intuitively, however, the former would seem more likely. The exporting decision is such a fundamental strategic objective that it is likely to drive operational practice rather than vice versa. This logic was verified by a Hausman (1978) test confirming causality to run from exports to HPWO use.

negatively associated with work systems innovation, must be qualified by an important caveat. RECOGTUS and SUB1, which measure the trade union recognition and incorporation strategies of management respectively, are both positive and significant. These results suggest that union resistance to HPWO can be overcome by appropriate management action. In particular, where management actively seeks the co-operation of trade unions for workplace change, opposition from organised labour appears to fade away. In other words, the oppositional stance of workers in some establishments says as much about the prevailing management style as it does about the behaviour of trade unions. The message is that the greater the trade union voice in corporate change the lower the probability of worker resistance.

INDUNRST remains insignificant in all equations. This may be because cathartic effects of past conflicts which pave the way for mutual gains employment practices in some enterprises are cancelling out continued adversarial relations in others. But the most plausible explanation is that the relatively peaceful industrial relations climate of the past decade or so has led to any history of unrest within establishments having a negligible impact on present day worker-management relations.

Finally, the variable STRATADD is positive and significant when introduced in step four. This confirms that establishments pursuing the "high road" to corporate success are more likely to adopt innovative work practices. It also suggests that managers have a fair degree of discretion in the commercial and organisational strategies that they follow irrespective of market imperatives and the wider corporate environment.

VI THE LINK BETWEEN HPWO AND HRM; COMPLEMENTARY BUNDLES

Many commentators argue that HPWO reforms will not produce big performance gains unless employees are sufficiently competent and motivated to operate in the new innovative working environment. Flexibility and employee involvement require workers to develop wide ranging specific and general skills. In the former case, each employee must learn not only more of the traditional core routines, but also maintenance, quality control and administrative jobs previously performed by other groups. More generally, they must understand the modern organisational philosophy, and develop communication, problem solving and interpersonal skills. HPWO also demands highly motivated workers. For a start, their greater impact on economic performance means that workers' effort becomes more important under HPWO. Broader job specifications require workers to be sufficiently motivated to work "beyond contract" and unsupervised. Furthermore, the

greater human capital investments of HPWOs mean that they must motivate their employees to remain with the firm.

Neither skills nor motivation will occur spontaneously however. The former require workers' effort while the latter may be undermined by threats to pay, conditions and job security associated with HPWO. Consequently, it is hypothesised that HPWO adoption will be accompanied by human resource management (HRM) practices specifically designed to increase skills and motivation (Arthur, 1992; Cappelli, 1995; Cappelli and Rogovsky, 1994; Huselid, 1995; Ichniowski and Shaw, 1995; Kochan and Osterman, 1995; MacDuffie, 1995; MacDuffie and Kochan, 1995; Osterman, 1994, 1995; Pil and MacDuffie, 1996).

In this paper we test the association between HPWO and the following areas of HRM: hiring and selection; training; payment systems; job security; promotions; employee voice and socialisation. Following Arthur (1992, p. 497); Cooke (1994, p. 603); MacDuffie (1995, p. 211) and Osterman (1994, pp. 184-186) the sample is therefore split into two groups: establishments which have involved at least half of their core workers in two or more of the HPWO practices, and those which have not. T-tests are then used to compare differences in the groups' mean adoption of the specific HRM indices outlined below.

Hiring and Selection

Because the environment is demanding and supervision is difficult, HPWOs are more likely to use rigorous selection procedures in an effort to reduce moral hazard. Moreover, their need for adaptable workers suggests that they will emphasise "soft skills" as hiring criteria. The index *HIRING* measures the rank importance of teamworking ability and interpersonal skills as criteria for selecting workers.¹¹

Training

HPWO establishments are hypothesised to make greater investments in training as, on paper at least, they require workers to have more firm specific skills (Snell and Dean, 1992, p. 469, p. 473). A wide range of information was collected and an index *TRAIN*, bringing together 14 separate activities, was constructed to summarise differences in training behaviour between high and low HPWO adopters.¹²

11. Details of all index items and their construction are included in Appendix B.

12. High HPWO adopters were significantly greater trainers on all dimensions except "days of training for core employees". Given that they included a greater number of core workers in training than did low HPWO adopters, but did not involve them for longer, training dispersion might be seen to be more equitable under high HPWO.

Pay Systems

In order to motivate workers to accept HPWO, to work productively under the regime, and to remain with the establishment subsequent to receiving HPWO related training, it is asserted that incentive pay schemes are likely to accompany successful work systems transformation. An index GROUPPAY measuring the use of profit sharing and stock ownership plans in surveyed establishments tests the association between HPWO and group based incentives. The index INDPAY, combining indicators of pay-for-skills and discretionary bonus schemes, is also constructed to test for complementarity between HPWO and individual incentive schemes.

Job Security

HPWO may be perceived as a threat to workers' job security because it raises the possibility of downsizing (constant or increasing output using fewer workers). Many authors therefore predict that explicit or implicit guarantees of job security will be used to reduce employee resistance to work reorganisation (Cappelli, 1995; Kochan, Katz, and McKersie, 1986; Osterman, 1994; Ichniowski and Shaw, 1995). JOBSEC measures employers' espoused level of job security using three items; indicators of explicit and of implicit guarantees, and a rating of the importance of reducing employment levels relative to a base goal of otherwise controlling labour costs.

Job security is also evaluated by examining institutional arrangements which give incumbents "job ownership" rights. These include grievance procedures which offer protection from unfair dismissal and a voice alternative to quitting, and seniority policies which reinforce incumbency through last in-first out and preferential recall rights etc. (Cappelli 1995, p. 565; Huselid 1995, p. 657). These elements are combined in the index JOBOWN.

Promotion Systems

An evergreen in HRM studies is that the motivation of workers is linked to their promotion prospects in an establishment (Cappelli, 1995; Osterman, 1995). Therefore it is hypothesised that high adopters of HPWO are more likely to have well developed internal advancement systems. The index PROMOTE characterises workers' mobility prospects within establishments, including a measure of the minimum time it would take an excellent core worker to reach supervisory level.

Employee Voice

Channels of upward communication are expected to increase motivation because they give workers an input into decisions which ultimately affect

them (Arthur, 1992; Huselid, 1995; Kochan, Katz and McKersie, 1986). They are therefore expected to be positively associated with HPWO. However, a distinction must be drawn between two types of employee voice. On one hand, "employee involvement" systems are normally initiated by management to achieve quality, efficiency and responsiveness gains by soliciting workers' advice on job related matters only. On the other hand, "employee participation" systems are usually initiated by labour. Rather than just consulting with workers, these systems give them decision making rights on a broad range of issues. Employee involvement is measured by the index EI which is the first principle component of 3 indicators; regular meetings between management and all workers, regular surveys on work related issues, and suggestion schemes. Employee participation is summarised by the index EP which comprises an indicator for use of a JCC which covers corporate strategy and financial plans, and a measure of managements' perception of the importance of employee voice in their final decision making.

Socialisation

Policies that reduce status distinctions between management and core workers may directly improve motivation and the efficacy of employee involvement/participation schemes (MacDuffie, 1995; Pil and MacDuffie, 1996; Snell and Dean, 1992). The index STATUS includes a dummy which measures the difficulty of distinguishing worker-management status differences in attire, offices, pension rights, company cars and parking. It also includes an indicator of whether or not both groups are paid at the same time intervals.

Results

Table 4 sets out the overall mean for each index listed above, and the group means for high and low HPWO adopters. As these figures have been standardised for easier interpretation, overall means all equal zero, and group means are measured in standard deviation units. The hypothesis that HPWO and HRM innovations are complementary is strongly supported. In all but two of the practices examined, high HPWO adopters are also more innovative HRM users. This conclusion is consistent with international evidence (Ichniowski and Shaw, 1995; pp. 9-19, MacDuffie, 1995, p. 211; and Osterman, 1994, p. 185), and suggests that the internal logic which links work innovations with HRM may transcend contrasting national social and institutional settings.

The t-statistics in Table 4 indicate that the largest differences between high and low HPWO adopters are in the use of high intensity training systems and employee involvement mechanisms e.g., meetings, surveys and

suggestion schemes. This is hardly surprising since the basic thrust of HPWO innovations is to increase labour flexibility and intensify information flows between workers and managers.

Table 4: *Mean of HRM Indices, by HPWO Adoption Level*

<i>Variable</i>	<i>Mean, All Establishments</i>	<i>Mean High Adopters</i>	<i>Mean Low Adopters</i>	<i>T-Statistic</i>
HIRING	.000	.247	-.189	2.19**
TRAIN	.000	.520	-.380	4.68***
GROUPPAY	.000	.253	-.192	2.18***
INDPAY	.000	-.149	.113	1.32
JOBSEC	.000	.189	-.137	1.62
JOBOWN	.000	-.255	.197	2.42**
PROMOTE	.000	.257	-.195	2.23**
EI	.000	.341	-.259	3.13***
EP	.000	.260	-.215	2.36**
STATUS	.000	.258	-.196	2.32**

High adopters: ≥ 50 per cent core workforce involved in 2 or more HPWO practices. Low adopters: < 50 per cent core involved in 2 or more practices. All indices standardised i.e., overall mean = 0. Index definitions in Appendix B. ***Significant at .01, **significant at .05.

At the same time, the table shows that not all the HRM practices identified as important are actually associated with innovative work organisations. Individual performance pay, for example, is negatively related to high HPWO use.¹³ The most plausible explanation for this result is that rewards based on individual performance can sometimes pit workers against each other, thereby cutting against the wider objective of creating consensual relationships inside the enterprise. Furthermore, despite a heavy emphasis in the literature, like Osterman (1994, p. 185), the survey finds no significant relationship between job security guarantees and high HPWO use. This may reflect two influences. First, workers in innovative establishments may consider that HPWO adoption implies increased rather than reduced job security as is often assumed. The improved economic performance of HPWO establishments may be seen by workers as the best way to secure their jobs. Second, higher investments in firm specific human capital under HPWO may be seen as an incentive for employers to keep existing workers. The other [indirect] job security index, measuring institutional aspects of job ownership, is negatively associated with high HPWO adoption at 5 per cent. The most obvious explanation for this is that the institutional mechanisms associated

13. Although this relationship is not significant at conventional levels.

with the job ownership index JOBOWN, particularly formal seniority and automatic service promotions, are considered inappropriately restrictive for a HPWO that is seeking greater labour flexibility.

VII CONCLUSIONS

A number of key points emerge from this analysis. First, it is clear that the vast majority of Irish firms are experimenting with workplace reorganisation. Indeed, some 90 per cent of the surveyed establishments reported using at least one of the HPWO practices to some degree. Moreover, it is clear that the more intensive HPWO adopters are also making complementary adjustments to their HRM systems. With regard to the big innovators, workplace change appears to be a neo-Schumpeterian response to Ireland's economic openness. Thus, Irish exporters seem sensitive to and influenced by the organisational reforms pursued by foreign competitors. In addition, MNCs, especially those following ethnocentric global management strategies, are actively diffusing advanced employment systems in Ireland, giving a further boost to workplace reform. All in all, the evidence is that important, and in some cases, far-reaching changes are occurring to ground-level employee relations in Ireland. As a result, the improved economic performance currently being enjoyed by the country has solid corporate foundations.

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APPENDIX A

HPWO Practice Definitions

- TQM:** A quality control approach that concentrates on getting things right first time and seeks to achieve constant improvements in products/services and processes through teamwork, communication, and the mobilisation of workers knowledge.
- JOB ROTATION:** Regular rotation of core workers between jobs.
- QUALITY CIRCLES:** Small groups of core employees led by a foreman/supervisor, which meet regularly to discuss and develop solutions to job related quality problems.
- TEAMWORKING:** Self-directed teams in which core employees have the autonomy to set their own pace and methods.

APPENDIX B

HRM Index Definitions and Construction

HIRING	<i>Standardised hiring and selection index:</i> Importance of ability to work well in a team as a criterion for hiring core workers (5 = most important criterion, 1 = least important), + Importance of interpersonal skills as hiring criterion for core (5 = most important, 1 = least important).
GROUPPAY	<i>Standardised group based performance pay index:</i> Profit sharing scheme?; (1 = yes, 0 = no), + Employee stock ownership scheme?; (1 = yes, 0 = no).
INDPAY	<i>Standardised individual based performance pay index:</i> Pay-for-skills programme?; (1 = yes, 0 = no), + Discretionary bonus scheme?; (1 = yes, 0 = no).
JOBSEC	<i>Standardised espoused job security index = 1st principle component of following three items (PC weights in parentheses)...</i> Importance of reducing employment relative to controlling labour costs in other ways; (0-999) * (.742), + Implicit policy to prioritise job maintenance; (1 = yes, 0 = no) * (.746), + Explicit no-layoff guarantee; (1 = yes, 0 = no) * (.041).
JOBOWN	<i>Standardised institutional job protection index = 1st principle component of following three items (PC weights in parentheses)...</i> Z(Importance of length of service for promotion; 4 = extremely important, 0 = unimportant) * (.757), + Z(Formal grievance procedure?; 1 = yes, 0 = no) * (-.629), + Z(Formal seniority promotion policy?; 1 = yes, 0 = no) * (.540).
TRAIN	<i>Standardised overall training index = 1st principle component of following 14 items (PC weights in parentheses)...</i> Z(Extent to which core receive training directed at promoting participation skills e.g. group problem solving; 4 = v. great, 0 = v. little) * (.698), + Z(Extent to which core receive training directed at promoting flexible behaviour; 4 = v. great, 0 = v. little) * (.717), + Z(Extent to which core receive training in non-specific skills not directly required for adequate execution of regular job tasks; 4 = v. great, 0 = v. little) * (.714), + Z(% core who receive formal on-the-job training) * (.592), + Z(Annual average days core spend on formal on-the-job training) * (.199), + Z(% core who receive formal off-the-job training) * (.591),

+ Z(Annual average days core spend on formal off-the-job training) * (.327),
 + Z(% core who receive informal on-the-job training) * (.455),
 + Z(Z(% managers who receive formal off-the-job training)) + (Z(Annual average days managers spend on formal off-the-job training)) * (.396),
 + Z(Core receive statistics training?; 1 = yes, 0 = no) * (.555),
 + Z(Extent to which core receive cross training; 4 = v. great, 0 = v. little) * (.364),
 + Z(Extent to which off-the-job training is provided onsite; 4 = v. great, 0 = v. little) * (.503),
 + Z(Extent to which off-the-job training is provided by outsiders; 4 = v. great, 0 = v. little) * (.505),
 + Z(Importance of increasing skills relative to controlling wages/benefits; 0-999) * (.201).

PROMOTE *Standardised promotions index = 1st principle component of the following four items (PC weights in parentheses)...*

Z(Importance of promoting from within; 4 = extremely important, 0 = unimportant) * (.041),
 + Z(Importance of individual's performance for promotion; 4 = extremely important, 0 = unimportant) * (.504),
 + Z(Formal performance evaluation system?; 1 = yes, 0 = no) * (.798),
 + Z(Minimum years for excellent core worker to become supervisor?) * (-.674).

EI *Standardised employee involvement index = 1st principle component of following three items (PC weights in parentheses)...*

Regular meetings between management and all sections of the workforce?; (1 = yes, 0 = no) * (.509),
 Regular surveys/ballots of core workers' opinions on work related issues?; (1 = yes, 0 = no) * (.707),
 Anonymous suggestion scheme?; (1 = yes, 0 = no) * (.654).

EP *Standardised employee participation index:*

Z(JCC which has remit to discuss corporate strategy and corporate financial plans; (1 = yes, 0 = no),
 + Influence of upward communication systems in shaping management decisions; (4 = v. great, 0 = v. little).

STATUS *Standardised socialisation index:*

Z(Difficulty in distinguishing between core and management on basis of attire, office, car/car parking and pension rights; 1 = difficult, 0 = not difficult),
 + Z(Management and core paid at same intervals?; 1 = yes, 0 = no).