

link

LINK Working Paper Series

WP 04-08

**High Performance Work Systems,
Workforce Productivity, and
Innovation: A Comparison of
MNCs and Indigenous Firms**

**James P. Guthrie
Wenchuan Liu
Patrick C. Flood
Sarah MacCurtain**

The Learning, Innovation and Knowledge Research Centre
DCU Business School
Dublin City University
Glasnevin
Dublin 9
Ireland

link.dcu.ie

THE LEARNING, INNOVATION AND KNOWLEDGE (LINK) RESEARCH CENTRE WORKING PAPER SERIES
<http://www.link.dcu.ie/publications/workingpaperseries/>

© 2008, High Performance Work Systems, Workforce Productivity, and Innovation: A Comparison of MNCs and Indigenous Firms, James P. Guthrie, Wenchuan Liu, Patrick C. Flood and Sarah MacCurtain.

Authors are responsible for the accuracy of citations, quotations, diagrams, tables and maps.

The views expressed here do not necessarily reflect those of Learning, Innovation and Knowledge (LInK) Research Centre.

All or part of this work may be reproduced for the purposes of study, research, criticism or review provided that the author and the Learning, Innovation and Knowledge (LInK) Research Centre are fully acknowledged.

THE LEARNING, INNOVATION AND KNOWLEDGE (LINK) RESEARCH CENTRE WORKING PAPER SERIES
WP 04-08

<http://www.link.dcu.ie/publications/workingpaperseries/>
© 2008, LInK, James P. Guthrie, Wenchuan Liu, Patrick C. Flood, Sarah MacCurtain
Contact: Patrick.Flood@dcu.ie

High Performance Work Systems, Workforce Productivity, and Innovation: A Comparison of MNCs and Indigenous Firms



JAMES P. GATHRIE
 WENCHUAN LIU
 PATRICK C. FLOOD
 SARAH MACCURTAIN

ABSTRACT

Previous research has reported conflicting results on whether or not foreign-owned firms diverge from indigenous firms with respect to their human resource policies and practices. Set in the dynamic, globalized economy of the Republic of Ireland, this study examines the relative use of *high performance work systems* (HPWS) by foreign-owned versus Irish-owned firms. We also investigate the implications of HPWS use for organizational effectiveness. Results suggest substantial differences associated with country of ownership. Relative to Irish-owned firms, foreign-owned firms report higher HPWS utilization and higher rates of workforce productivity and innovation. Results suggest that the relationship between country of ownership and organizational effectiveness is mediated by the use of HPWS.

Key Words: High Performance Work Systems (HPWS); Organizational Effectiveness; Multinational Companies (MNCs)

Acknowledgment

Earlier/alternative versions of this paper were presented to the Academy of International Business Meeting, Beijing, China (June, 2006) and to the conference on HRM and Knowledge-Related Performance, Copenhagen Business School, September 2006. We wish to acknowledge the financial support of the National Centre for Partnership and Performance (NCPP) and the helpful advice of Ms. Lucy Fallon Byrne and Mr. Larry O'Connell at the NCPP. We also acknowledge the support of the Centre for International Business Education and Research (CIBER) at the University of Kansas. The second author acknowledges funding received from the Irish Research Council for the Humanities and Social Sciences.

INTRODUCTION

Historically, there has been debate regarding the extent to which multinational firms will display divergence or convergence in management and human resource practices utilized in their international operations (e.g., Boyer, 1996; Child, 2000; Kerr, 1983). The convergence argument suggests that economic pressures in tandem with global integration will eventually lead to conformance in management practice. The convergence school argues that a firm's structure is largely free from cultural influence and is more fundamentally affected by external contingencies such as industry, size, technology and competitive imperatives (Pugh, 1981). Moreover, ongoing globalisation of the economic world has increasingly freed management practices from the influence of national institutions. From this perspective, globalisation is viewed as a powerful force that will decrease diversity in HRM practices among nations that compete in global markets. But this view is subject to counter-argument and criticism from the "divergence" or "non-convergence" school. The "divergence" perspective emphasizes the contextual embeddedness of national management methods in their particular cultural and institutional milieu. As such, those with this view do not expect a rapid cross-national transmittal of "best practices". Per Harzing and Pudelko (forthcoming) this literature can be further divided into the culturalist and the institutionalist orientation. Drawing from the work of scholars such as Geert Hofstede (e.g., Hofstede, 1980), the culturalist orientation suggests that management practice – particularly HR management – is prone to "cultural imperatives" – the notion that national cultural will strongly influence the relative use and effectiveness of management policy and practice.

Institutionalists also challenge the notion that convergence in management and HR practices is inevitable. Institutionalisation "is viewed as the social process by which individuals come to accept a shared definition of social reality" (Scott, 1987:496). This perspective focuses on the social-political context in shaping organizations and vice versa (Tregaskis & Brewster, 2006). Although acknowledging increases in global integration, authors have identified multiple reasons why it is unlikely that convergence will occur (Hollingsworth & Streeck, 1994). The most important is the argument that the evolution of an institutional configuration is path-dependent and that management practice will reflect national variation in governments, regulation, culture and educational systems. Moreover, because they are particularly sensitive to both regulatory and cultural imperatives, this perspective holds that human resource practices should be particularly influenced by these institutional factors. Tregaskis and Brewster (2006: 115) note that research suggests that different HR practices may be more or less subject to the "forces of convergence or divergence" (e.g., Lane, 1989; Rosenzweig and Nohria, 1994; Sparrow et al., 1994; Ferner et al., 2001; O'sullivan, 2001).

A related discussion centers on "country of origin" effects. In this view, organizational culture and HR systems are seen as critical mechanisms for coordination and control within MNCs (Bartlett & Ghoshal, 1989).

Indeed, it leads to the view that it is the HR policies and practices that might be crucial since they help to shape the organisational culture and the people who operate within and influence that culture. However, the value systems are likely to emanate, at least in the first instance, from the home country of the multinational organisation, reinforcing the likelihood that national values and culture, embedded in the home organisational systems, will be exported. If this is the case, then among firms operating in a given country, we would expect national ownership to have a significant bearing on the choice of HR policy and practice (Guest & Hoque, 1996: 50).

Extant research on the existence of differences in HR practices in indigenous versus multinational firms is somewhat equivocal. This is particularly true for the research setting for the current study, the Republic of Ireland. The first goal of this study is to contribute to research on the question of whether MNCs systematically differ from indigenous firms in the practice of HRM. The particular emphasis here is to examine differences in the relative use of a set of HR practices comprising a *high performance work system* (HPWS). An HPWS is a set of HR practices designed to equip employees with skills, information, motivation and latitude yielding a work force that is a source of competitive advantage. A growing body of empirical evidence (e.g., Datta, Guthrie & Wright, 2005; Guthrie, 2001; Huselid, 1995) suggests that using an HPWS can enhance organizational performance, with a particular emphasis on productivity. An HPWS also engenders broad perspectives and experience sets, aligned interests, information sharing and participatory mechanisms – all of which enhance prospects for spontaneity, innovation and alternative strategy-generation throughout the organization (Wright & Snell, 1999). By developing broad repertoires of skill and behavior, many high performance work system elements should also contribute to workforce intrapreneurship and innovativeness. The second goal of this study is to examine whether any found differences in HPWS use contribute to advantages in terms of workforce productivity and innovation.

HRM: MNCs vs. Indigenous Firms

In addition to the above, other arguments can be advanced related to the question of whether or not MNC HR practices will be relatively isomorphic within the MNC and different from those of indigenous organizations. This is sometimes referred to as the “standardization versus localization” debate (Pudelko & Harzing, forthcoming). Per Pudelko and Harzing, one of the “central questions” in the MNC literature is “the extent to which their HRM practices resemble those of the parent company (standardization) versus the extent to which their subsidiaries act and behave as local firms (localization).” Much of an MNC’s competitive strength comes from leveraging its internal capabilities into different markets. Thus, core HR practices in the areas of staffing, training and development, reward and performance management would be expected to be transferred around MNC’s international networks (Dowling, Schuler & Welch, 1999). These policies and practices may increase foreign subsidiaries

absorptive capacity and accelerate the transfer of knowledge (Minbaeva, Pedersen, Bjorkman, Fey & Park, 2003).

The diffusion of HR systems within a multinational can be considered a special case of the diffusion of an innovation (Flood et al., 2003). The innovation literature includes many studies of the creation, diffusion and adoption of a variety of administrative system applications to organizational settings. The introduction or alteration of a human resource management system (e.g., introduction of “high performance” HR practices) within a multinational corporation can therefore be considered an innovation. According to Rogers (1995:11), an innovation is “an idea, practice or object that is perceived as new by an individual or other unit of adoption.” A management system or process may itself not be new, but its introduction to the subsidiary organization may be perceived as new. The diffusion of an innovation concerns “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995:10). These ideas bolster the argument that MNCs may have different – and more innovative -- HR systems relative to their indigenous counterparts. As noted, a growing literature base has supported the efficacy of high performance HR practices in the U.S. (e.g., Datta et al., 2005; Huselid, 1995) and in a variety of other countries (e.g. Buck *et al.*, 2003; Rodríguez and Ventura, 2003; Guerro and Barraud-Didier, 2004; Law *et al.*, 2003; Bae *et al.*, 2003; Tsai, 2006; Guthrie, 2001). In addition, HR practices have been singled out as an important connective tissue for MNCs (Teagarden & Von Glinow, 1997). Thus, MNCs may be more likely to use high performance HR practices across their subsidiary units and these practices may also serve to offer them a comparative advantage relative to their indigenous counterparts.

A limited number of studies have focused on comparative analysis of foreign-owned and indigenous companies. In the case of the UK, Hamill (1984) analyzed numerous labour relations practices of US- and British- owned MNCs in three British industries and found some differences in their HRM practices. Purcell, Marginson, Edwards and Sisson (1987) found that while overseas establishments were more likely to use HR practices associated with gaining a high level of commitment from the workforce, these firms did not differ from their UK counterparts in relation to the recognition of trade unions or in patterns of collective bargaining.

In a study set in Belgium, Hiltrop (1999) identified many significant differences between the HRM practices of locals and MNCs. Moreover, the nationality of parent companies was found to be an important influence in the approach of MNCs to HRM, suggesting that MNCs export significant elements of home-country practice to host countries. However, Hiltrop (1999) also found many similarities, which, he argued, were largely attributable to the common cultural and institutional environment in Belgium within which both local and foreign-owned companies operated. In Germany, a country with a relatively rigorous employment regulatory environment, Muller (1998) found that firms from the UK and US had introduced Anglo-Saxon type HR techniques despite the aforementioned restrictions. US companies in

particular had innovated more vigorously than domestic and other foreign firms. A study of firms operating in Australia concluded that foreign-owned companies differ from locals in regards to HR practices but that these differences magnified during the time when Australian industrial relations system was being substantially decentralised (Walsh, 2001).

Other empirical studies of MNC subsidiaries in overseas countries, however, have failed to reveal substantial differences between MNC and indigenous firms. Rodwell and Teo (1999) compared Australian indigenous companies and overseas-owned companies and found both similarities and differences in the HR practices of MNCs vs. local firms. McGraw (2002) compared the nature of HRM functions in local and overseas firms using data from the 1999 PricewaterhouseCoopers-Cranfield Project on HR in Australia. The overall conclusion was that while overseas companies as a group differ from locals in some important ways (e.g., employee representation on company boards) in terms of formal HR practices, the two groups are substantially similar. In the US, Rosenzweig and Nohria (1994) surveyed 249 subsidiaries of foreign-based MNCs and found that in general HRM practices closely followed local practices, although these were differentiated according to their importance to internal decision-making (Rosenzweig & Nohria, 1994). Chen et al. (2005) found few differences across MNCs and locally owned firms in the relative use of high performance work HR practices in Taiwan.

Tregaskis and Brewster (2006) examined the HRM convergence-divergence debate in a sample of organizations operating in Europe (Germany, Spain, Sweden, the Netherlands and the UK), over the 10-year time period preceding 2000. More specifically, they focused on one aspect of staffing: the extent to which firms were converging in their use of contingent employment contracts. Their findings suggest that this is not the case, and that the pattern of organizational practices is more complex. Overall, organizations across the five countries have tended to increase their use of contingent employment contracts from 1991 to 2000. However, their data also show that divergence between the countries in the 1990s remains a decade later. There was no evidence that either the regional institutional pressures coming from the European Commission or regional or global competitive pressures are creating 'final' convergence in this particular organizational practice. They argue that their findings support the divergence (or at least the non-convergence or stasis) thesis. At the same time, their results illustrated that there were little differences between MNCs and non-MNCs (i.e., indigenous companies).

Two studies in the U.K. also failed to find substantial differences between MNCs and indigenous firms. Beaumont et al. (1990) found that German companies operating in the UK abandoned many of their typical home-country practices, such as union recognition and works councils, in favour of a more deregulated, British model. In a study focusing on issues similar to the present research, Guest and Hoque (1996) studied greenfield sites in the UK to examine whether MNCs made more extensive use of HRM and whether any revealed differences advantaged the MNCs. Based on

their results, Guest and Hoque vigorously reject the notion that MNCs are superior or different relative to indigenous British firms: “The central finding of this study is that the anticipated positive impact of foreign ownership on HR policy, practice and outcomes has not been revealed” (1996: 68).

The work of Gunnigle, Murphy, Cleveland, Heraty and Morley (2002) offers support for both the standardization and localization perspectives. More specifically, they found that MNCs will tend to be more similar to local/indigenous firms when a host country’s institutional context (more specifically, the extent of labor market regulation) is stronger or more rigorous. Thus, the relative “strength” of the institutional context serves as a moderator, with MNCs more likely to “localize” when labor regulations are relatively strong and more likely to “standardize” when labor regulations are relatively weak.

The Context of Ireland

Because of its proximity to the European market and other reasons (education/skill levels, labor market demographics, aggressive industrial development policy), foreign direct investment (FDI) in Ireland has grown tremendously over the last decade. Approximately 60% of all gross output and 45% of all manufacturing employment is accounted by foreign-owned firms, with the U.S. leading this friendly invasion. Per the A.T. Kearney Globalization Index, Ireland was rated as having the most globalized economy of any nation in the world during the years 2001-2004 (Singapore eclipsed Ireland in 2005, see http://www.atkearney.com/shared_res/pdf/2004G-index.pdf). Ireland ranks among the world leaders as a recipient of foreign direct investment. For example, Ireland ranks 5th among all countries as a destination for U.S. FDI. Some industry examples include: financial services, where some 260 U.S. companies account for 30% of total employment; electronics, where U.S. MNCs employ 24,000 Irish citizens and where Ireland accounts for 40% of all U.S. electronics FDI in Europe; health care/medical devices, where over 100 U.S. firms employ more than 16,000 Irish workers. According to the U.S. Department of Commerce, "Ireland, with one percent of the EU's population, attracted twenty-five percent of all new U.S. investment in the EU over the last decade. In 2003, U.S. investment flow into Ireland was roughly USD 9.1 billion, two-and-a-half times the amount of U.S. investment flow into China."

Ireland also has one of the most unfettered markets in the world. The 2006 Heritage Foundation/Wall Street Journal *Index of Economic Freedom* ranked Ireland third among 161 countries evaluated on 50 variables (<http://www.heritage.org/research/features/index/indexoffreedom.cfm>). Economic freedom is generally defined “as the absence of government coercion or constraint on the production, distribution, or consumption of goods and services beyond the extent necessary for citizens to protect and maintain liberty itself. In other words, people are free to work, produce, consume, and invest in the ways they feel are most productive.”

As a highly internationalized, robust economy with a relatively unregulated labor market, Ireland offers a rather unique setting for exploring the research questions of interest to this study. Previous work in the Irish context has provided conflicting results. Early studies by Enderwick (1986) and Kelly and Brannick (1985) reported that HRM practices of MNCs operating in Ireland did not significantly diverge from Irish-owned companies. More recently, Turner, D'Art and Gunnigle (1997) rejected the "MNC dominance thesis" and adopted a "new conformance thesis" (Geary & Roche, 2001), to argue that there is little reason to expect significant differences between MNC and indigenous Irish firms. Using data from the Price Waterhouse Cranfield Survey, these authors concluded that few, if any, significant differences existed when comparing HR practices of foreign- vs. Irish-owned firms operating in Ireland.

In sharp contrast with Turner et al. (1997), Roche and Geary (1996) and Geary and Roche (2001) identify significant HR differences between Irish indigenous companies and foreign-owned companies. The latter paper, based on University College Dublin survey data obtained from several hundred establishments, was specifically published to rebut the claims of Turner et al. (1997). Geary and Roche pointedly conclude that their results substantiate their arguments: "In sum, the data from the UCD workplace survey very clearly support the view that there are differences in the IR/HR practices used by Irish and foreign-owned firms. What is remarkable from the higher-quality data now available is how substantial these differences are" (2001: 120).

In the pages that follow, we present additional results related to this issue, with a specific focus on the propensity to adopt high performance works systems. We also examine performance implications resulting from relative HPWS use. We first describe our research method then present and discuss results.

RESEARCH METHOD

Sample

The intended sample was a representative, multi-industry set of Irish-based operations. The sample was drawn from the "The Irish Times Top 1000 Companies" (see <http://www.businessworld.ie/>) and "Ireland's Top 1000 Companies" (Kompas Ireland Publishers, <http://www.kompas.ie/>). These represent the "top" firms in terms of size (based on sales revenue/assets). These sources provide a comprehensive, authoritative listing of firms having operations in Ireland. Moreover, they provide the names and addresses of members of the top management group (e.g., MD/CEO, head of finance, head of marketing, head of HR, etc.). There were 1338 firms in the intended sample.

Procedure

The basic procedure was to solicit survey-based measures of organizational characteristics and HR practices. To achieve this objective, two separate survey instruments focusing on “General Management Practices” and “Human Resource Practices” were sent to the Managing Director (MD) and to the top HR manager, respectively. The GM survey obtained measures on a variety of organizational characteristics. In addition to repeating some of these same measures (to assess measurement reliability), the HR Practice survey asked respondents to “describe HR practices in your operations in Ireland during 2003-04”. After pilot testing, surveys were mailed in mid-year 2004 to the executives identified in the sample firms. This was followed by reminder letters, a second survey and finally, a telephone reminder. We received 204 completed HR surveys and 246 completed GM surveys representing 285 separate companies. For the purposes of this paper, we utilize the 165 companies for which we have both the HR and GM survey responses. This represents a response rate of 12.3%. Although somewhat low, our response rate is within the range of other survey-based studies of “high performance work systems”. Becker and Huselid (1998) reviewed studies having response rates ranging from 6% to 28%. A test for non-response bias is reported below. The median firm in the final sample had 323 employees and €75 million in annual sales.

Measures

High Performance Work Systems

A variety of approaches to measuring high performance work systems exist in the literature. Our measure is explicitly based on the work of Datta et al. (2005) and asked HR survey respondents to describe their firm’s relative use of 18 practices (Table 2 provides more complete information on the individual HR items). Since practices vary across employee groups, questions relating to HR practices were asked separately for two categories of employees. *Group A employees* comprised production, maintenance, service and clerical employees. *Group B employees* comprised executives, managers, supervisors and professional/technical employees. Respondents indicated the proportion of each group covered by each practice. For each firm, these proportions were used in conjunction with the number of employees in each category to compute a weighted average. Higher scores for a particular practice (i.e., closer to 100%), indicate more intensive use of that practice. Cronbach's alpha for the composite HPWS scale was .76. A high score on the high performance work system measure indicates relatively intensive use of a high performance work system; lower scores on this measure indicate less extensive use of a high performance work system. The use of a single HPWS system index is supported by arguments made by Becker and Huselid (1998) and is consistent with the approach used in previous work (e.g., Guest et al., 2003; Datta et al., 2005). It is also consistent with the aims of this study: Comparing MNCs and indigenous firms in terms of their relative use of a *system* of high performance HR policies and practices and whether or not there are organizational consequences associated with differential HPWS use.

Workforce Productivity/Innovation

We focus on two aspects of workforce performance: *workforce productivity* (sales revenue per employee) and *workforce innovation* (sales from new products/services per employee). While a number of outcome measures have been used to ascertain the effectiveness of HR systems, a primary focus on workforce productivity is warranted for a number of reasons. First, labour productivity is a crucial organizational outcome. At a general level, labour productivity, defined as "total output divided by labour inputs" (Samuelson & Nordhaus, 1989), indicates the extent to which a firm's labour force is efficiently creating output. Second, because connections between human capital and productivity -- especially labour productivity -- are relatively direct, the face validity for this measure of firm success is also relatively high (Dyer & Reeves, 1995). Third, SHRM theorists have identified labour productivity as the crucial indicator of "work force performance" (Delery & Shaw, 2001). Finally, productivity has been the most frequently used outcome variable in a large body of work in the SHRM literature (Boselie, Dietz & Boone, 2005). Citing Guest's (1997) point that "we would expect the impact of HRM to become progressively weaker as other factors intervene" (p. 269), Boselie et al. (2005) advocate that future research focus on productivity as the "bridge in future research between the often labeled 'soft' HRM outcomes (e.g., employee satisfaction, commitment and trust) and 'hard' financial outcomes (e.g., sales, profits, ROI)." We obtained the components used to calculate workforce productivity (sales revenue, number of employees) from respondents to both the HR and General Management surveys. The estimates provided by the HR and GM respondents were used to calculate workforce productivity (log of sales per employee) and this measure showed strong agreement across respondents and the mean of these estimates was used as the measure of labour productivity ($ICC_2 = .779$).

Another aspect of workforce performance is the ability to efficiently generate revenue through the introduction of new products and services. *Workforce innovativeness* was operationalized using data on number of employees, sales revenue and responses to the question: "What proportion of your organisation's total sales (turnover) comes from products or services introduced within the previous 12 months?" The response to this question was multiplied by total sales to yield an estimate of sales revenue generated by new sales. This sales figure was then divided by the number of employees to obtain our measure of workforce innovativeness – an indication of per capita sales derived from recently introduced products or services. The mean of the estimates provided by the HR and GM respondents were used as the measure of workforce innovation ($ICC_2 = .643$). These two measures of employee performance (workforce productivity and innovation) capture a workforce's ability to work both smart (i.e., impacting organizational efficiency and innovation through process and product innovations) and hard (impacting revenue generation through increased effort).

Country of Ownership

This information was obtained from survey response to the question: “In what country is your corporate headquarters located?” The distribution of ownership included Ireland (57%), U.S./Canada (20%), Germany (7%), United Kingdom (5%), Holland (4%), France (2%), East Asia (Japan/China – 2%), and Other European (3%). For analytical purposes, we code all Irish-owned firms =1 and all foreign-owned firms= 0.

Control variables. We include *firm size* as a control because it may be associated with the use of HPWS as well as workforce outcomes (Datta et al., 2005). Consistent with previous studies (e.g., Guthrie, 2001; Huselid, 1995), we use the logarithm of the number of employees to operationalize firm size. We used the average of the GM and HR estimates for this purpose ($ICC_2 = .970$). The *age of each firm* is included to control for any advantages associated with increased time for the evolution or adoption of HPWS or learning curve advantages in organizational outcomes. We use the mean of the GM and HR survey responses for age (corrected for skewness via a log transformation) in analyses ($ICC_2 = .954$).

Authors have also argued that by fostering collective input and improved management practices, *unions* will tend to enhance firm productivity and performance (Freeman & Medoff, 1984). Unionization rates may also be associated with country of ownership and/or the relative use of HPWS. As such, in this study the HR survey collected data on extent of union coverage for each of the two employee groups (*What proportion of your workforce is unionized?*) and created a weighted average to reflect the proportion of employees represented by a union.

Since an emphasis on research and development may be associated with both product and managerial innovations (such as HPWS), we controlled for firms’ *R&D intensity*. The HR and GM survey respondents’ estimates of R&D as a percentage of sales were quite consistent and we used the average of these responses. ($ICC_2 = .957$). For similar reasons, we controlled for *competitive strategy*. Firms emphasizing a competitive strategy of differentiation, may be more inclined to utilize HPWS and emphasize product innovations. Based on previous work (Huselid, 1995; Guthrie & Olian, 1991), we measure strategic orientation by providing respondents with generic descriptions of the low cost and differentiation strategic archetypes and ask them to indicate the proportion of revenue derived from these respective strategies. We use responses to the differentiation orientation item (“Creating products or services perceived industry-wide as unique”) from the GM survey as our measure of competitive strategy. To control for the possibility that top manager’s *entrepreneurial orientation* (EO) may influence study outcomes, we measure this construct using items based on Covin and Slevin (1989) and Lyon, Lumpkin & Dess (2003). EO is assessed via both surveys using ten items focusing on risk taking, innovation, and proactiveness. Cronbach's alpha for the composite GM survey respondent’s scale was .83 and for the HR survey respondent’s scale was .82. We use the average of these two scales in our study analyses ($ICC_2 = .680$).

Because results may vary by *industry* sector, analyses controlled for this factor. Dummy codes representing seven industries were created. These industries and the percentage of sample firms in each industry are: transportation and communications (7%), financial services (13%), chemical products (4%), retail/wholesale (8%), agriculture, energy or construction (20%), service (15%) and manufacturing (33%). Along with specifying a primary industry sector, respondents were also asked to estimate the proportion of total sales derived from this industry. The average firm derived 96% of its sales from the designated primary industry. This lack of diversification supports the designation of a primary industry for sample firms.

ANALYSES AND RESULTS

The threat of non-response bias exists whenever significant numbers of the targeted population fail to respond. Given a relatively low response rate, we first checked for possible non-response bias using a “time trend extrapolation test” in which “late” versus “early” respondents are compared along key study variables (first suggested by Oppenheim, 1966). The assumption behind this test is that “late” respondents (those responses received after the second round of mailing and follow-up telephone calls) are very similar to non-respondents, given that they would have fallen into that category without the follow-up efforts (Armstrong & Overton, 1977). T-tests conducted showed no significant differences between “early” and “late” respondents along any of the key study variables. In addition, we were able to compare responding versus non-responding firms on a limited number of data available from the 2003 version of the Irish Times database. Specifically, we compared respondents versus non-respondents on sales revenue, number of employees and one of our key outcome variables, labor productivity. Although responding firms had slightly higher values for sales revenue and number of employees and were somewhat less productive, none of these small differences achieved statistical significance (the respective t-values for the mean difference tests were -.68, -.76 and .29, all $p > .10$). While these analyses suggest sample representativeness, we cannot ascertain whether respondents and non-respondents differ on unmeasured variables that also correlate with our independent and dependent variables.

Table 1 provides operationalizations and descriptives for study variables. Table 2 presents descriptive information on the individual high performance HR practices utilized by Irish versus foreign-owned firms. Per Table 2, foreign-owned firms make significantly greater use of 12 of the 18 high performance work practices relative to Irish-owned firms. In terms of the HPWS scale, the difference across foreign-owned and Irish-owned is fairly substantial (53.3% vs. 41.4%; $t = -5.63$, $p < .001$). To isolate ownership effects beyond the influence of other factors, we confirmed these results in an OLS model in which the HPWS variable was regressed across all study control variables (Table 3). These multivariate results confirmed the t-tests: The country of ownership variable accounted for a significant amount of additional variance ($\Delta R^2 = 7\%$; $\Delta F = 13.79$; $p < .001$) of variance in HPWS use beyond the industry and organization controls. Thus, results strongly support the argument that MNCs and indigenous

firms differ with respect to HPWS use, with foreign-owned firms making significantly greater use ¹.

[Insert Tables 1 - 3 about here]

Table 4 presents findings related on the association between HPWS use and organizational effectiveness. Models 1 and 2 present results relative to workforce productivity. Model 1 shows that country of ownership is significant ($p < .05$), with workforce productivity in Irish firms being lower than those in foreign-owned firms. Model 2 is the full model, including the HPWS variable, which has a positive and significant association with workforce productivity ($\Delta F = 4.933$; $p < .05$), explaining an additional 2.6% of variance. With the inclusion of HPWS in model 2, country of ownership is no longer significant. According to Baron and Kenny (1986), three regression equations should be employed to test for mediating relationships. The first equation should indicate that the independent variable significantly influences the dependent variable. The second equation should indicate a significant influence of the independent variable on the mediator. Finally, the dependent variable should be regressed on both the mediator and the independent variable, with the mediator having a significant regression weight. A significant mediator coupled with a non-significant independent variable indicates support for a complete mediation model. A partial mediation model is indicated if the mediator is significant with the independent variable also remaining significant. Model 1 supports step one and, as reported above, country of ownership has a significant, negative effect on HPWS use. Model 2 shows that the mediator (HPWS) has a significant association with workforce productivity, with the affect of the independent variable (country of ownership) becoming non-significant. This indicates a mediating role for HPWS.

[Insert Table 4 about here]

Models 3 and 4 contain results of relevance to workforce innovativeness. Again, country of ownership has a significant and negative affect on this workforce outcome ($p < .05$). The inclusion of the HPWS variable in model 4 accounts for an additional 2.5% of variance ($\Delta F = 4.383$; $p < .05$) and substantially reduces the influence of country of ownership such that it is no longer significant. The Baron and Kenny procedure confirms that HPWS mediates the impact of country of ownership on workforce innovation.

DISCUSSION AND CONCLUSION

Debate has existed as to whether MNCs will diverge from indigenous firms in terms of HR policies and practices. Streeck (1991) viewed the dissemination by MNCs of HRM practices as one expression of “regime competition”. Streeck was concerned with the issue of “social dumping”, wherein firms will tend to move operations from

more highly regulated labor markets to countries with less protected labor markets. Streeck implied that these firms are “exploitive” in the sense that they are seeking venues allowing for low-road, low-cost approaches to employment. As argued by Ferner, however, one can “turn Streeck’s question on its head by asking whether MNCs from strong regulatory systems adopt and export the practices of their parent country, and whether this gives them a competitive advantage in the host countries where they operate” (1997: 20). Others have made similar arguments. Nohria and Ghoshal (1997) note that the ability to effectively transfer HRM practices which have proved successful at parent companies to MNCs’ overseas subsidiaries is a key characteristic of successful MNCs. This transferability may convey a special competitive capability for MNCs that may be difficult for indigenous firms to imitate (Flood et al, 2003; Liu, 2004).

The results of this study support these latter positions. In comparison to Irish-owned firms, we find that MNCs operating in the “economically free” environment of Ireland elect to make relatively greater use of high performance work systems. This may reflect isomorphism within MNCs and/or the conscious diffusion of this HR “innovation”. Per Ferner (1997), study results suggest this approach to HR yields competitive advantage in terms of workforce productivity and innovativeness. If we were to conduct this study in a more highly regulated labor market context, we may observe greater similarity between MNCs and indigenous firms (Gunnigle et al., 2002).

A number of factors argue for caution in interpreting study results. First, we cannot claim that the use of particular HR practices *causes* workforce productivity or innovation, since data on HR practices and these outcomes were collected simultaneously. Thus, our results may be artificially inflated due to the contemporaneous data collection. While it is more plausible to argue that strategic HR systems and management practices influence these workforce outcomes, it is certainly possible that firms experiencing greater success are better positioned to invest in practices comprising a high performance work system. Second, despite our test for non-response bias, whenever survey response rates are less than 100%, bias may be introduced into the data. Third, although we show a positive association between HPWS and workforce outcomes, we do not explicate the pathways (i.e., the proverbial “black box”) leading from one to the other. Finally, our study relies upon a sample from the Republic of Ireland and may not necessarily generalize to other settings.

Within the context of these limitations, we hope study results help inform the debate regarding HR systems utilized by foreign-owned versus indigenous firms. We are hopeful that this study will stimulate further research on these topics.

Endnotes

1 We compared Irish indigenous companies (n=95) separately to US /Canada, German, and UK companies in their use of high performance work practices and HPWS. Sixty-six percent

of respondent foreign-owned companies came from these three countries. Results indicated that Irish indigenous firms, in general, made significantly lower use of high performance work practices relative to any of these foreign-owned companies. Moreover, subsidiaries of firms from these three geographic locations did not differ substantially in their relative use of HPWS. This result suggests that a single category of “foreign-owned” is appropriate.

REFERENCES

- Armstrong, S.J. and Overton, T.S., Estimating non-response bias in mail surveys, *Journal of Marketing Research* 14, 1977, pp. 396-402.
- Bae, J., Chen, S.J., Wan, T.W.D., Lawler, J.J. and Walumbwa, F.O., Human Resource Strategy and Firm Performance in Pacific Rim Countries, *International Journal of Human Resource Management* 14(8), 2003, pp. 1308-32.
- Baron, R.M. and Kenny, D.A., The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations, *Journal of Personality and Social Psychology*, 51, 1986, pp.1173-1182.
- Beaumont, P. B., Cressey, P. and Jakobsen, P., Key industrial relations: West German subsidiaries in Britain, *Employee Relations*, 12(6), 1990, pp. 3-7.
- Becker, B.E. and Huselid, M.A., High performance work systems and firm performance: A synthesis of research and managerial implications. In Rowland, K.M. and Ferris, G.R. (eds.) *Research in Personnel and Human Resource Management*, JAI Press: Greenwich, CT. 1998
- Brewster, C., Strategic Human Resource Management: The Value of Different Paradigms, *Management International Review*, 39 (3), 1999, pp. 45-64.
- Boselie, P., Dietz, G., and Boone, C., Commonalities and contradictions in HRM and performance research, *Human Resource Management Journal*, 15(3), 2005, pp. 67-94.
- Boyer, R., The convergence hypothesis revisited: Globalization, but still the century of nations, In S. Berger and R. Dore (Eds.) *National diversity and global capitalism*, Cornell University Press: Ithaca, NY1996.
- Buck, T., Filatotchev, I., Demina, N. and Wright, M., Insider Ownership, Human Resource Strategies and Performance in a Transition economy, *Journal of International Business Studies*, 34(6), 2003, pp. 530-49.
- Child, J., Theorizing about organizations cross-nationally, In J. L. Cheng and R. B. Peterson (Eds.) *Advances in international comparative management*, JAI Press: Stanford, Conn. 2000
- Covin, J.G. and Slevin, D.P., Strategic management of small firms in hostile and benign environments, *Strategic Management Journal*, 10, 1989, pp. 75-87.

- Datta, D.K., Guthrie, J.P. and Wright, P.M., HRM and labor productivity: Does industry matter? *Academy of Management Journal*, 48(1), 2005, pp.135-145.
- Delery, J.E. and Shaw, J.D., The strategic management of people in work organizations: Review, synthesis and extension, In Rowland, K.M. and Ferris, G.R. (eds.) *Research in Personnel and Human Resource Management*, JAI Press: Greenwich, CT, 2001, pp. 165-197.
- Dowling, P. J., Schuler, R. S., and Welch, D. E., *International human resource management(3rd ed.)*, South-Western: Cincinnati. 1999
- Dyer, L and Reeves T., Human resource strategies and firm performance: What do we know and where do we need to go? *The International Journal of Human Resource Management*, 6, 1995, pp. 656-670.
- Enderwick, P., Multinationals and labour relations: The case of Ireland, *Journal of Irish Business and Administrative Research*, 8, 1986, pp. 1-11.
- Ferner, A., Country of origin effects and HRM in multinational companies, *Human Resource Management Journal*, 7(1), 1997, pp. 19-37.
- Ferner, A., Quintanilla, J. and Varul, M.Z., Country of Origin Effects, Host-country Effects and the Management of HR in Multinationals: German Companies in Britain and Spain, *Journal of World Business*. 36(2), 2001, pp. 107-127.
- Flood, P., Ramamoorthy, N. and Liu, W., Knowledge and innovation: diffusion of HRM systems' *Scandinavian Journal of Business Research*. 27, 2003, pp. 59-68.
- Freeman, R.B. and Medoff, J.L., *What do unions do?* Basic Books: New York, NY. 1984
- Geary, J. F., and Roche, W. K., Multinationals and human resource practices in Ireland: A rejection of the 'new conformance thesis'. *International Journal of Human Resource Management*, 12(1), 2001, pp. 109-127.
- Ghoshal, S. and Bartlett, C. A., Creation, adoption, and diffusion of innovations by subsidiaries of multinational corporations, *Journal of International Business Studies*, Fall, 1988, pp.365-388.
- Grant, R.M., Towards a knowledge-based theory of the firm, *Strategic Management Journal*, 17, 1996, pp. 109-122.
- Guerrero, S., and Barraud-Didier, V., High-Involvement Practices and Performance of French Firms, *International Journal of Human Resource Management*, 15(8), 2004, pp. 1408-23.
- Guest, D.E., The nature and causes of effective human resource management: A review and research agenda, *The International Journal of Human Resource Management*, 8, 1997: pp. 263-276.

- Guest, D. and Hoque, K., National ownership and HR practices in UK greenfield sites, *Human Resource Management Journal*, 6(4) , 1996, pp. 50-74.
- Guest, D.E., Michie, J., Conway, N. and Sheehan, M., Human resource management and corporate performance in the UK, *British Journal of Industrial Relations*, 41, 2003, pp. 291-314.
- Guthrie, J.P., High involvement work practices, turnover and productivity: Evidence from New Zealand, *Academy of Management Journal*, 44, 2001, pp. 180-190.
- Gunnigle, P., Murphy, K. R., Cleveland, J. N., Heraty, N. and Morley, M., Localization in Human Resource Management: comparing American and European multinational corporations, *Advances in International Management*, 14, 2002, pp. 259-284.
- Hamill, J., Multinational corporations and industrial relations in the UK, *Employee Relations*, 6(5), 1984, pp. 12-16.
- Hiltrop, J. M., The use of HRM practices in international and domestic organizations, *New Zealand Journal of Industrial Relations*, 24(1) , 1999, pp. 47-61.
- Hofstede, G., *Culture's Consequences: International Differences in Work-related Values*. Sage: London. 1980
- Hollingsworth, J. R. and Streeck, W., *Countries and sectors: Concluding remarks on performance, convergence and competitiveness* (Eds.), Oxford University Press: New York. 1994
- Huselid, M. A., The impact of human resource management practices on turnover, productivity, and corporate financial performance, *Academy of Management Journal*, 38, 1995, pp. 635-672.
- Kelly, A. and Brannick, T., Industrial relations practices in multinational companies in Ireland, *Journal of Irish Business and Administrative Research*, 7, 1985, pp. 98-111.
- Kerr, C., *The future of industrial societies: Convergence or continuing divergence*. Harvard University Press: Cambridge. 1983
- Law, K.S., Tse, D.K. and Zhou, N., Does Human Resource Management Matter in a Transitional Economy? China as Example, *Journal of International Business Studies*, 34(3), 2003, pp. 255-65.
- Lane, C., *Management and Labour in Europe: the Industrial Enterprise in Germany, Britain and France*. Edward Elgar: Aldershot. 1989
- Liu, W. , 'The cross-national transfer of HRM practices in MNCs: An integrative research model, *International Journal of Manpower*, 25(6), 2004, pp.500-517.

- Lyon, D.W., Lumpkin, G.T. and Dess, G.G., Enhancing entrepreneurial orientation research: Operationalizing and measuring a key strategic making process, *Journal of Management*, 26, 2000, pp. 1055-1085.
- McGraw, P., The HR function in local and overseas firms: Evidence from the pricewaterhousecoopers-cranfield HR project (1999), *Asia Pacific Journal of Human Resource*, 40(2), 2002, pp. 205-227.
- Minbaeva, D., Pedersen, T., Bjorkman, I, Fey, C.F. and Park, H.J., MNC knowledge transfer, subsidiary absorptive capacity, and HRM, *Journal of International Business Studies*, 34, 2003, pp. 586-599.
- Muller, M., Human resource and industrial relations practices of UK and US multinationals in Germany, *International Journal of Human Resource Management*, 9(4), 1998, pp. 732-749.
- Nohria, N., and Ghoshal, S., Differentiated fit and shared values: Alternatives for managing headquarters-subsidiary relations, *Strategic Management Journal*, 15(6), 1994, pp. 491-502.
- Oppenheim, A.N., *Questionnaire design and attitude measurement*. Basic Books: New York, NY. 1966
- O'Sullivan, M.A., *Contests for Corporate Control: Corporate Governance and Economic Performance in the United States and Germany*, Oxford University Press: Oxford. 2001
- Pudelko, M. and Harzing A. (forthcoming) 'HRM Practices in Subsidiaries of US, Japanese and German MNCs: Country-of-origin, Localization or Dominance Effect?' *Human Resource Management*.
- Pugh, D. S., The Aston program perspective: Retrospect and prospect, In A. H. Ven and W. F. Joyce (Eds.) *Perspectives on organization and behaviour*. John Wiley: New York. 1981
- Purcell, J., Marginson, P., Edwards, P., and Sisson, K., The industrial relations practices of multi-plant foreign owned firms, *Industrial Relations Journal*, 18(2), 1987, pp. 130-137.
- Roche, W. K., and Geary, J. F., Multinational companies in Ireland: Adapting to or diverging from national industrial relations practices and traditions? *Journal of Irish Business and Administrative Research*, 17, 1996, pp. 14-31.
- Rodwell, J. J., and Teo, S. T. T., The value of employment relations in multinationals: Finding the right balance, *International Business Review*, 8(3), 1999, pp. 309-321.
- Rodríguez, J.M. and Ventura, J., Human Resource Management Systems and Organizational Performance: An Analysis of the Spanish Manufacturing

- Industry, *International Journal of Human Resource Management*, 14(7), 2003, pp. 1206-26.
- Rogers, E., *Diffusion of innovations*, the Free Press: New York. 1995
- Rosenzweig, P.M. and Nohria, N., Influence on Human Resource Development Practices in Multinational Corporation, *Journal of International Business Studies*, 25(2), 1994, pp. 229-251.
- Salop, S.C., A model of the natural rate of unemployment, *American Economic Review*, 69, 1979, pp.117-125.
- Samuelson, P.A. and Nordhaus, W.D., *Economics* (13th ed.), McGraw-Hill: New York, NY. 1989
- Scott, W.R., The adolescence of institutional theory, *Administrative Science Quarterly*, 32(4), 1987, pp. 493-511.
- Streeck, W., *Social institutions and economic performance: Studies of industrial relations in advanced capitalist economies*, Sage: London. 1991
- Sparrow, P. Schuler, R.S. and Jackson, S.E., Convergence or Divergence: Human Resource Practicces and Policies for Competitive Advantage Worldwide', *International Journal of Human Resource Management*, 5(2), 1994, pp. 267-299.
- Teagarden, M. B. and Von Glinow, M. A., Human Resource Management in Cross-cultural Contexts: Emic Practices versus Etic Philosophies, *Managament International Review*, 37, 1997, 7-20.
- Tregaskis, O. and Brewster C., Converging or Diverging? A Comparative Analysis of Trends in Contingent Employment Practice in Europe over a Decade, *Journal of International Business Studies*, 37, 2006, pp. 111-126.
- Tsai, C.J., High Performance Work Systems and Organizational Performance: An Empirical Study of Taiwan's Semiconductor Design Firms, *International Journal of Human Resource Management*, 17(9), 2006, pp. 1512-30.
- Turner, T., D'Art, D., and Gunnigle, P., Pluralism in retreat? A comparison of Irish and multinational manufacturing companies, *International Journal of Human Resource Management*, 8(6), 1997, pp. 825-840.
- Walsh, J., Human resource management in foreign-owned workplaces: Evidence from Australia, *International Journal of Human Resource Management*, 12(3), 2001, pp. 425-444.

TABLES AND FIGURES

Table 1: Constructs, Operationalizations and Descriptive Statistics

Construct	Operationalization	Mean	s.d.
1. Firm Age	l_n (Years since founding)	3.75	.79
2. Firm Size	l_n (Number of employees)	6.05	1.31
3. R&D Intensity	R&D as a percentage of sales revenue	3.81	4.14
4. Chemical Prods. Industry	1 if firm primarily in chemical/pharmaceutical industry; 0 otherwise	.05	.21
5. Retail Industry	1 if firm primarily in retail/wholesale industry; 0 otherwise	.09	.27
6. Financial Industry	1 if firm primarily in finance industry (e.g., banking, insurance); 0 otherwise	.13	.34
7. Mfg. Industry	1 if firm primarily in manufacturing industry; 0 otherwise	.33	.47
8. Service Industry	1 if firm primarily in service industry; 0 otherwise	.15	.35
9. Transport/Commun. Industry	1 if firm primarily in transportation or communications industry; 0 otherwise	.06	.25
10. Agric/Energy/Const. Industry	1 if firm primarily in agriculture, energy or construction industry; 0 otherwise	.19	.40
11. Ownership	1 = Irish-owned; 0 = foreign-owned	.58	.49
12. Entrepreneurial Orientation	Composite of ten survey items	4.32	.72
13. Union%	Wgtd average of percentage of employees represented by a labour union	33.63	32.03
14. Competitive Strategy	Per cent of sales revenue from differentiation strategy	53.08	28.2
15. HPWS	Wgtd average of 18 High Performance Work Practices	47.03	15.03
16. Workforce Productivity	l_n (Firm Sales/Number of employees)	-1.10	1.28
17. Workforce Innovativeness	l_n (Sales from new products/Number of employees)	.074	.26

Table 2: HPWS: Comparison of Irish vs. Foreign-Owned Firms

What proportion of your employees....	<i>Irish- Owned</i>	<i>Foreign- Owned</i>	<i>Sig.</i>
Are administered one or more employment tests (e.g., skills tests, aptitude tests, mental/cognitive ability tests) prior to hiring?	20.2	43.7	***
Are hired on the basis of intensive/extensive recruiting efforts resulting in many qualified applicants?	46.4	66.5	***
Hold non-entry level jobs as a result of internal promotions (as opposed to hired from outside of the organisation)?	37.1	31.4	n.s.
Hold non-entry level jobs due to promotions based upon merit or performance, as opposed to seniority?	41.6	40.4	n.s.
Receive formal performance appraisals or evaluations on a routine basis?	55.8	72.7	***
Receive formal performance feedback from more than one source (i.e., feedback from several individuals such as supervisors, peers etc.)?	24.7	26.6	n.s.
Receive compensation partially contingent on group performance (e.g., profit-sharing, gainsharing, team-based)?	28.3	51.5	***
Are paid primarily on the basis of a skill or knowledge-based pay system, versus a job-based system? (That is, pay is primarily determined by a person's skill or knowledge level as opposed to the particular job that they hold.)	26.0	23.0	n.s.
Have been trained in a variety of jobs or skills (are "cross trained") and/or routinely perform more than one job (are "cross utilised")?	47.0	49.6	n.s.
Have received intensive/extensive training in company-specific skills (e.g., task or firm-specific training)?	58.7	74.7	***
Have received intensive/extensive training in generic skills (e.g., problem-solving, communication skills, etc.)?	26.4	42.6	***
Are involved in programmes designed to elicit participation and employee input (e.g., quality circles, problem-solving or similar groups)?	28.2	38.8	*
Are provided with relevant operating performance information (e.g., quality, productivity, etc.)?	61.6	81.7	***
Are provided with relevant financial performance information?	43.2	66.4	***
Are provided with relevant strategic information (e.g., strategic mission, goals, tactics, competitor information, etc.)	47.2	72.6	***
Are routinely administered attitude surveys to identify and correct employee morale problems?	22.8	43.5	***
Have access to a formal grievance/complaint resolution procedure?	85.2	98.1	***
Are organised in self-directed work teams in performing a major part of their work roles?	39.7	30.9	n.s.
High Performance Work System Index	41.4	53.3	***

*** p < .001

** p < .01

* p < .05; two-tailed tests.

**Table 3: OLS Regression Results:
Country of Ownership and Use of HPWS^{a,b,c,d}**

VARIABLES	
	β
Firm Size	.098
Firm Age	-.096
Mfg. Industry	-.305**
Retail Industry	-.165†
Agric/Energy/Const. Industry	-.442***
Financial Industry	-.082
Transport/Commun. Industry	-.080
Chemical Prods. Industry	-.059
Union%	-.143†
Differentiation Strategy	-.030
R & D Intensity	.023
Entrepreneurial Orientation	.209*
Country of Ownership	-.289***
Model R ²	.378
Model F	5.792***
N	137

^a Service Industry is the omitted benchmark industry variable.

^bR² values are unadjusted.

^cStandardized regression coefficients are shown.

^dMissing data and listwise deletion reduced the sample to n = 137 for OLS analyses.

*** p < .001

** p < .01

* p < .05

† p < .10; all tests are two-tailed.

**Table 4: OLS Regression Results:
Country of Ownership, HPWS & Organizational Outcomes^{a,b,c, d}**

VARIABLES	<u>Productivity</u>		<u>Innovation</u>	
	Model 1	Model 2	Model 3	Model 4
	β	β	β	β
Firm Size	-.410***	-.430***	-.298***	-.318***
Firm Age	.168*	.190*	.146	.168*
Mfg. Industry	.022	.078	-.062	-.006
Retail Industry	.115	.149	.072	.105
Agric/Energy/Const. Industry	.061	.147	-.036	.049
Financial Industry	.065	.081	.171	.186†
Transport/Commun. Industry	.151†	.168†	.206*	.223*
Chemical Prods. Industry	.244*	.259**	.199*	.213*
Union%	-.067	-.049	.047	.065
Differentiation Strategy	.052	.057	-.011	-.005
R & D Intensity	.006	-.004	.128	.118
Entrepreneurial Orientation	-.035	-.071	.118	.083
Country of Ownership	-.186*	-.128	-.155*	-.087
HPWS	---	.201*	---	.198*
ΔR^2	---	.026*	---	.025*
Model R^2	.332	.358	.273	.298
Model F	4.703***	4.869***	3.551***	3.701***
N	137	137	137	137

^a Service Industry is the omitted benchmark industry variable.

^b R^2 values are unadjusted.

^c Standardized regression coefficients are shown.

^d Missing data and listwise deletion reduced the sample to n = 137 for OLS analyses.

*** p < .001

** p < .01

* p < .05

† p < .10; all tests are two-tailed.