

SIMILARITY, ISOMORPHISM OR DUALITY? RECENT SURVEY EVIDENCE ON THE HRM POLICIES OF MNCS

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ABSTRACT

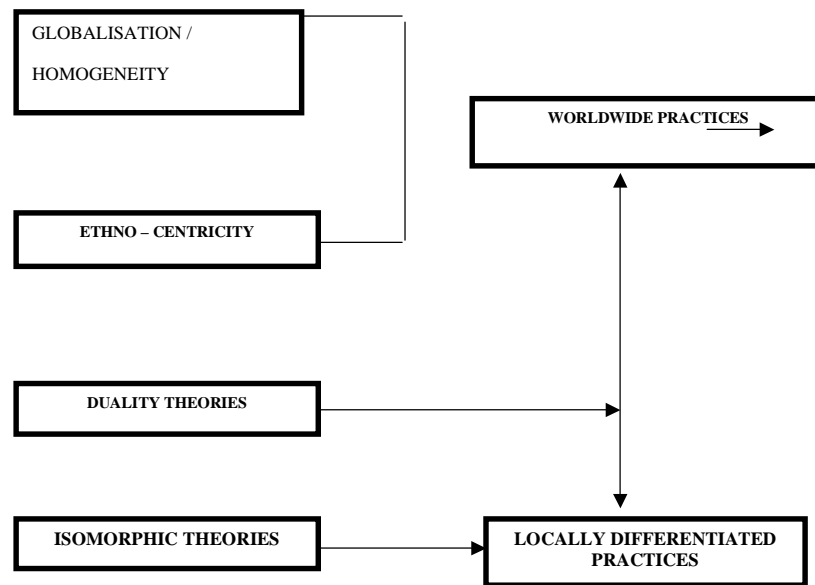
There is considerable debate as to the determinants of the HR policies of HRM: do they reflect national institutional or cultural realities, emerging common global practices, parent country effects, or the dual effects of trans-national and national realities. This paper uses an extensive international database to explore these differences, assessing variations in a range of HR practices. It finds new evidence of national differences in the manner in which indigenous firms manage their people, but also evidence of a similarity in practice amongst MNCs. In other words, MNCs tend to manage their human resources in ways that are distinct from those of their host country; at the same time, country of origin effects seem relatively weak. Whilst there is some evidence of common global practices, sufficient diversity in practice persists, suggesting that duality theories may provide the most appropriate explanation.

INTRODUCTION

This paper examines the human resource management (HRM) policies followed by multinational corporations (MNCs) within host countries. It addresses the issues of similarity and difference: to what extent do MNCs import their own approaches to host countries, to what extent do they adopt those of the host country or, perhaps, where do they fall between these two extremes? How different are they from their local indigenous counterparts and how are we to explain these positions?

There is an extensive debate on these issues. Three broad schools of thought can be identified (see Figure 1). First, there are theories that suggest that MNCs will tend to follow common practices whichever country they are in, either because of *global homogeneity* or because of *ethnocentricity*. In either case the implication is that the geographic host country will have little effect. Second, there are theories of *local isomorphism*, arguing that firms will invariably adjust their policies to reflect prevailing cultural and/or institutional realities in the countries in which they operate. Thirdly, *duality theories* would suggest that firms face conflicting pressures both towards and away from the local practices, which may be exacerbated by regulatory issues or rational determinants such as size, structure, market conditions and/or the strategic choices made by managers.

Figure 1: Theories of international HRM practice



It has been argued that HRM is likely to be a key test-bed for such theories (Rosenzweig and Nohria, 1994). Using extensive international survey data, we aim to shed further light on the relevance of each of these theories for explaining the specific HR strategies and policies followed by MNCs' subsidiaries in specific host countries, and the underlying causes of the choices made. The paper explores these three schools of thought, attempts a summary and examines the employment practice implications of these debates. The methodology and the database used to identify empirical evidence on these issues is explained, relevant findings are presented and conclusions are drawn about the extent of similarity, isomorphism and duality.

CONVERGENCE OR SIMILARITY THEORIES

Theories of Globalisation:

The term "globalisation" is widely deployed and often differently understood: in most accounts it refers to the recent process of unification that has taken place in markets and consumer tastes, increasingly mobile investor capital, and rapid technological change. Within and between firms, actions are increasingly grounded in a perspective that views the whole world as being nationless and borderless (Ohmae, 1990, 1996).

Whilst acknowledging that we start from regionally based economic systems, globalisation theories hold that economies are becoming globally integrated, resulting in the proliferation of global management structures, and the convergence of management techniques around shared notions of "best practice" (Sera, 1992). This has placed renewed pressures on firms to enhance their competitiveness. As their power to set prices is eroded in the face of competition, profitability increasingly depends on cutting the costs of inputs and enhancing productivity. Firms that operate across national boundaries are most exposed to the forces of globalization, and hence are likely to fall in line with dominant practices aimed at enhancing competitiveness in world markets.

There is a body of literature that focuses on the role of the multinational firm, and the desire to promote integrated international standards, versus pressures to be locally responsive (Ashkenas, Ulrich, Jick and Kerr, 1995; Hamal and Prahalad, 1985; Yip, 1995). The ability to deploy similar organizational practices worldwide, and to utilize the capacities of the entire firm is likely to encourage greater homogenisation on efficiency grounds (Kostova and Roth,

2002: 215; c.f. Zeira and Harari, 1977: 328). Grounded in the rational choice tradition, this perspective assumes that firms pursue economic advantage through choices “guided by unambiguous preferences and bounded rationality” (Gooderham et al., 1999: 507). Industries will adopt practices that promote the maximisation of economic goals; this will result in a set of best practices diffusing across the parent economy and worldwide. Whilst the diffusion process may be slow or uneven, this will make for inter-industry and international practices that are to a large degree uniform. Firms will either try to enforce their own view of the most efficient ways of handling HRM in other countries; or they will all gradually drift towards HRM policies that mirror the most efficient, the US, model (Jain et al., 1998; McDonough, 2003; Smith and Meiksins, 1995).

The process of globalisation is a two faceted one, leading to increased competition on global product markets and increased cooperation in the form of joint ventures, reciprocal share ownership and tight subcontracting (McDonough, 2003). Global markets create new homogenous environments where the conditions in which companies operate become similar in terms of products, competition and the rate of technological change (Duysters and Hagedoorn, 2001). Global competition places greater demands on the co-ordination of resources, equipment, finance and people (Sparrow, Brewster and Harris, 2004). For example, it is important to co-ordinate pricing, service and product support worldwide as a multinational customer can compare prices in different regions. In response, the global enterprise adopts a global business strategy transcending both internal (people, processes and structure) and external (time and country) factors (Parker, 1998). Traditional business boundaries become increasingly permeable, accelerating the rate of convergence. Hence, in-firm practices become decoupled from setting, challenging national mindsets and assumptions (Sparrow and Hiltrop, 1997).

Critics of the globalisation thesis have contested the assumption that globalisation represents a new or unprecedented process (Parker, 1998). Others have suggested that even multinational firms are extremely local in terms of key areas such as employment practices: 85% of multinationals produce more than two-thirds of their output in their home market, with two-thirds of their employees being nationals of their home country (Economist, 2000b). Indeed, most MNCs cannot easily be defined as stateless (Hu, 1992); the United Nations Conference on Trade and Development (UNCTAD) index of transnationality lists only six organizations scoring above 90 out of a 100 (Brewster, Sparrow and Harris, 2001)¹. Again, Whitley (1999: 134) argues that the possibility that MNCs might pioneer a new transnational business system, “dominating existing strongly institutionalized ones, seems rather limited”

Theories of Ethnocentricity:

Alternatively, it can be argued that specific MNCs will tend towards ethnocentricity, mirroring the dominant practices of the country of origin (c.f. Zeira and Harari 1977: 327) and applying them wherever they operate (see, eg, Bae et al., 1998; Ferner, 1997; Horwitz and Smith, 1998; Ngo et al., 1998). It has been proposed that MNCs might adopt different approaches towards human resource management in such circumstances (see for example, Perlmutter, 1969, and Heenan and Perlmutter, 1979, who argue that MNCs tend to adopt one of four main approaches towards human resource management: ethnocentric; polycentric; regional; and geocentric). Later writers such as Mayrhofer and Brewster (1996) argued that, in practice, the vast majority of firms are ethnocentric. Similarly, Lao and Ngo (2001: 108) suggest that the country of origin of MNCs is likely to have a significant impact on their practices in other countries (c.f. Duysters and Hagedoorn 2001:349). In HRM, “Few foreign subsidiaries have any autonomy; strategic decisions are made at headquarters. Key positions at the domestic and foreign operations are held by headquarters’ management personnel.” (Harris, Brewster and Sparrow, 2003: 134), though other writers have argued for a more nuanced view (Edwards and Ferner, 2002; Ferner, 1997).

Theories of Localisation:

Institutional Theories

Institutional theories suggest that organizations sharing the same environment will gradually adopt similar characteristics, and hence become “isomorphic” with each other (Kostova and Roth, 2002: 215). Three forms of isomorphism may be identified: coercive (where the firm is forced to adopt specific practices); mimetic (specific practices associated with success are adopted to avoid uncertainty) or normative (behaviour considered appropriate

¹ see also Dunning, 1997; Gray, 1998; Hirst and Thompson, 1999; Prakash and Hart, 2000; Strange, 1998 Farnham, 1994; Williamson, 1996; Moore and Lewis, 1999; Rugman’s, 2001 for sceptical views on globalisation

to the environment) (Di Maggio and Powell, 1983). Firms will conform to both the formal rules and unwritten norms of specific institutional contexts both for efficiency and legitimacy (Haveman, 1993; Kostova and Roth, 2002; Haveman, 1993; Marsden, 1999). Social transactions remain embedded in specific social contexts (Boyer and Hollingsworth, 1997:190). This is likely to encourage the adoption of certain practices and discourage others within a particular context; those seen to be successful will be taken on board by other firms and those associated with failure discarded (Haveman, 1993: 595). Contingent on the nature of their embeddedness – the extent to which specific practices are likely to be seen to be the most appropriate or “done thing” - there will be variations in the forms of governance and management. Conceptions of fairness and related societal norms will impact on even the most insular management style, and influence income differentials and the relative amount of resources allocated to the different strata of management (Boyer and Hollingsworth, 1997: 191; c.f. Haveman, 1993). This is reflected directly in the HR literature too (Boxall, 1999; Brewster, 2001; Brewster, Mayrhofer and Morley, 2004; De Cieri and Dowling, 1999; Ferner and Qunitanilla, 1998; Saka, 2002). The varieties of capitalism literature suggests that particular patterns of corporate governance are likely to predominate in national contexts reflecting the embedded nature of practices, and the need to for effective organizational interaction and cooperation within a particular national setting (Hall and Soskice, 2001; Dore, 2000; Lincoln and Kalleberg, 1990).

The regulationist critique of the varieties of capitalism literature suggests that whilst specific features of production regimes may indeed be complementary, regulation can never completely eliminate imbalances (Boyer, 2001; Hopner, 2005). As Marsden (1999) notes, whether in the form of legislation or informal practices, rules make for greater efficiency, in that parties to a deal can take much for granted. Whilst firms may be quick to take on board international innovations, they will, in turn, have different implications in different contexts (Boyer and Hollingsworth, 1997; Kostova and Roth, 2001:213; Maurice, Sellier and Sivestre, 1986). Regulationist accounts would link norms and habits with broader objective pressures towards compatibility with a national mode of regulation, or assembly of institutions designed to stabilise a specific growth process (Aglietta, 1998:72; Dacin, Ventresca and Beal, 1999; Grahl and Teague, 2000: 162). Such mediation is, however, likely to be temporally confined, and likely to be punctuated by interregnum periods of experimentation (Boyer 2001). Individual behaviours need to be consistent with the dominant schema of production (Lipietz 1986). In specific national contexts, multinational firms may be encouraged to adopt particular sets of practices in line with national government policies and industrial strategies (and the associated needs of nationally-based large firms) or be granted a relatively free rein in an attempt to attract investment. Again, the responses of key interests in society are likely to mould the practices adopted by MNCs’ subsidiaries (Guillen, 2000).

Hence, contemporary institutionalist accounts would suggest that MNCs’ subsidiaries are likely to adopt similar HR practices to the countries in which they operate. However, regulationists would caution that the predominant practices within individual national settings are themselves prone to both evolution and rupture, and that owing to their disproportionate power MNCs may be better equipped to contest any form of institutional mediation not in line with their changing interests.

Cultural Perspectives

These critical institutional perspectives have been contrasted (Brewster, 2004; Sorge, 2004) with the cultural approaches, most closely associated with the writings of authors such as Hofstede (1991), Fukuyama (1995) and Sako (1998). The latter writers accord particular prominence to the possibility that organizations represent “cultural communities” of rational utility maximizing individuals (c.f. Cooter, 2000). Variations in practices will be in line with different cultural contexts (rather than institutional setting), which will cut across national boundaries (Lao and Ngo, 2001: 95): Bartlett and Ghoshal called this the pressure for “multi-culturalism” within international organisations.

This is a very broad school of thought and is by no means a totally discrete category. Key distinctions in different approaches to understanding culture in different natural settings are the concepts of etics and emics. Etic approaches seek to “describe phenomena in constructs that apply across cultures” (Morris et al., 1999: 782). Regional or national variations in culture are described in terms of some general or external standard or yardstick. Hence, Hofstede’s (1980) framework for understanding cultural variations seeks to identify key values, and the extent of variation thereof in different national settings, is firmly rooted in the etic tradition (Morris et al 1999: 782). In contrast, emic approaches hold that culture is best understood as an integrated whole or social system, rather than trying to identify specific components thereof (Giddens, 1990; c.f. Parsons, 1950); within this, individual and group understandings are societally and historically defined, and are best understood by attempting to see things from “the insider’s point of view” (Morris et al., 1999: 781). Whilst sometimes deployed as alternative approaches (Helfich, 1999: 131), emic

and etics are not necessarily conflicting or alternative conceptualisations for understanding culture, convergence and difference on a comparative basis, but can be deployed in a complementary fashion: aspects of behaviour, for example, may incorporate both emic and etic dimensions (Berry, 1999: 165; Helfich, 1999: 131-154).

What these approaches have in common is treating culture as a given; whilst it may be possible for a society to enhance its “social capital”, it is not possible to develop social trust deliberately and systematically, or radically depart from established rules and norms (Fukuyama, 1995; Lane, 1998). Culture is seen as a specific component of reality, shared by individuals as a means of conferring meaning, to add sense to social interactions. Whilst its composition may be relatively fluid and subjective, it provides a persistent boundary, horizon or “segment” to the life-world of individuals and group (Weber, 2000:207).

Both institutional and cultural theories would suggest that the need for MNCs to obtain legitimacy or adapt their activities in specific contexts is likely to make for isomorphism in line with local practices (Kostova and Roth, 2002: 215). Giacobbe-Miller et al., (2003) suggest that individual and group cultural orientations reflect specific cultural characteristics, whilst firms will vary within specific cultures according to institutional realities. Hence, as with institutional accounts, cultural theories suggest that MNCs’ subsidiaries are likely to adopt HR practices in line with their host country; however, they differ in that their conceptualisations of culture would suggest a greater degree of continuity in national practices than would be suggested by the former.

Duality Theories

Duality theories suggest that firms face conflicting pressures towards global integration *and* local adaptation (Evans et al., 2002; Gooderham et al., 1998: 47; Kostova and Roth, 2002: Rosenweig and Singh, 1991; Davis et al., 2000: 239) and that the speed at which different sets of practices are diffused is likely to vary from context to context and may vary between practices (c.f. Guler et al., 2002: 207; and, with specific reference to HRM, Hannon, Huang and Jaw, 1995; McGuaghey and De Cieri, 1999; Schuler, Dowling and de Cieri, 1993). Some writers have tried to introduce the term “glocalisation” (Svensson, 2001) arguing that whilst firms may strive to homogenize activities across national boundaries in line with a global strategy, invariably countertendencies will impel firms to take account of local difference; the outcome will invariably incorporate both national and global dimensions. Again, the extent of susceptibility to local pressures is likely to be framed by the mode of entry to a specific market, and factors such as whether or not the local subsidiary is engaged in joint or licensing ventures with local partners (Davis et al., 2000: 239).

Hence, the organization’s positioning on the nature and extent of adoption of local practices can be explained in terms of regulatory institutions, or rational determinants such as local market conditions, ownership structures, the state of the external market and/or behavioural or attitudinal variables (c.f. Brewster, 1995; Gooderham et al., 1999).

Rational Determinants - Local Market Conditions: The relative strength of local competitors may force firms to tailor their products to meet local taste or regulations, necessitating specific production policies. The ability of firms to establish a sustained competitive advantage is contingent on their ability to implement strategies that competitors are not immediately able to duplicate; such strategies vary from context to context (Park et al., 2003: 1392). Marginson et al. (1993) suggest that the relative size of a firm may impact on practices; this would encompass relative receptiveness to external environmental pressures. Complex social systems, like human resource management systems, are not so easy to imitate and may be the best sources of competitive advantage (Pfeffer, 1994; Snell, Youndt & Wright, 1996; Ulrich & Lake, 1990; Wright & McMahan, 1992).

Rational Determinants - Ownership Structures: In contrast to the Varieties of Capitalism literature that focus on a dominant mode of corporate governance within specific national contexts, it can also be argued that MNCs are characterized by an internal differentiation of management practices from national context to national context (Bartlett & Ghoshal, 1989). Pressures towards conformity with embedded local practices will be contingent not only on size, but also the firm’s own ownership structures (c.f. Jain et al., 1998). Ownership structure will partially determine behaviour; will reflect whether the subsidiary is wholly or partially owned and the degree of integration or interdependence accorded to different parts of the firm (Jain et al., 1998: 557). Some organizations may be more sensitive to pressures of local adaptation, while others may be more prone to internal consistency. Within the same subsidiary, some management practices might closely follow the parent company ones, while others may more resemble those of the host country.

Rational Determinants - Behavioural Variations and Strategic Choice: Symbiotic emic and etic approaches to cross-national research focus on the dialectic between the general and the spatially specific, and explore the extent to which concepts and actions simultaneously incorporate dimensions that have a universal applicability or are specific to a particular culture (Lamond et al., 2001: B2). Hence, behavioral variations of the duality perspective accord specific attention to variations in practice within the firm (Rosenzweig & Nohria, 1994; c.f. Newbury, 2001). Rosenzweig and Nohria (1994) found that human resource management (HRM) is the area of management most likely to conform to local practices.

Practices should be seen in terms of the active agency of subsidiary management, and the degree of discretion accorded to it (Kostova and Roth, 2002: 216) In turn, this would reflect overall organizational strategic orientations, and the relative importance attached to conformity. Whilst local managers are required to fit in and be legitimated by the organization, local legitimacy is also dependent on compliance with local institutions and norms. Compliance with the “ways of the country” may make for greater operational efficiency (Lee and Yarwood, 1983: 657). Successful host country nationals will provide alternative role models to parent country attitudes and behaviour amongst expatriate managers; these divergent pressures will impel the firm towards both the local and the international.

Organizational outcomes will reflect the real choices made by individual actors, who may be more or less receptive to socialization in an attempt to behave in ways appropriate to their specific context (Lee and Larwood, 1983: 663). Recurrent themes in the literature are the link between the strategy-structure configuration in MNEs and the competing demands for global integration and co-ordination versus local responsiveness (Pralhad and Doz, 1987; Bartlett and Ghoshal, 1989; Porter, 1990). Where global integration and co-ordination is important, subsidiaries need to be globally integrated with other parts of the organisation or/and strategically co-ordinated by the parent. In contrast, where local responsiveness is important, subsidiaries should have far greater autonomy and there is less need for integration.

Regulatory Institutions: Given variations in the power of national governments and firms, a sub-school of regulationist thinking has highlighted the possibility of endemic dualities in practices; contradictory pressures exist towards greater homogenisation and localisation. Tickell and Peck, (1992: 355) argue that a global tendency towards reduced state involvement and liberalization has led to a reduction of “market distortions” that had previously included redistributive policies aimed at alleviating the plight of regions that faced long-term crises of competitiveness. Contrary to predictions of homogenisation, this has forced a greater divergence in practices, as firms operating in peripheral regions are increasingly forced to compete on cost grounds, resulting in a greater tendency towards lower value added policies than in core areas (c.f. Collinge, 1999). Similarly, Boyer and Hollingsworth (1997) suggest that institutions are nested at a range of levels – supra-national, national, and sub-national – leading to simultaneous pressures towards convergence and difference. The relative effects of one or the other reflect specific spacial and temporal dynamics (ibid.). Whilst it can be argued that the growing reach of international organizations has meant that certain issues are governed across national boundaries, pressures towards the adoption of neo-liberal policies have in some cases been checked by powerful regional blocs such as the EU, or by individual nations in a relatively strong bargaining position (Haworth and Hughes, 2003: 670). This results in some governments having greater room for manoeuvre than others in promulgating labour legislation aimed at, for example, promoting host country nationals, upholding basic labour standards, and encouraging workplace participation. In other words, in some national contexts, regulation may be weak, giving firms considerable room to manoeuvre; however, intense competition may force the adoption of low cost/low investment/short term solutions. In other national contexts, regulation may be stronger, forcing firms to adopt national or regional standards, and modify policies accordingly. Of course, by the same measure, firms may be impelled towards the standards of their country of origin (particularly if the regulatory environment in their country of origin is particularly robust) or towards an emerging global model.

All of the general management arguments cited above are replicated in the specific debates about HRM (see Edwards and Ferner, 2002 for a review). Certain rational, behavioural and regulationist accounts all point to simultaneous pressures towards a greater homogeneity and localisation in HR practice; however the latter would place particular emphasis on the uneven and episodic nature of these pressures, making for a greater degree of variation in practice rather than the emergence of an enduring HR order as a result of specific organizational environments and choices.

DEFINING FEATURES OF EMPLOYMENT PRACTICES

Empirical exploration of these issues is hampered by the lack of agreement as to what should be included in HRM systems. There are two commonly cited taxonomies of defining features of national HR systems and practice to be

found in the literature. The more inclusive list is found in a wide number of sources within the contemporary HRM texts, centring on the most commonly encountered functional areas of the modern HR department. Hence, to take examples from the two seminal HRM textbooks, Fombrun, Tichy and Devanna, 1984 focus on personnel selection, an appraisal system, a system of rewards and a development system, whilst Beer et al (1984) discuss employee “flows” (into, through and out of the organisation), employee influence mechanisms and rewards as the key HRM policy choices. These kinds of lists have been replicated since: for example, Storey (2001:16) argues that there are four key “heartland activities” of people management: employee involvement and communication; the management of reward; training and development; and recruitment and retention. An assumption in many of these “universalist” texts (Brewster, 1999) is that these functional areas will, or perhaps should, operate similarly in all environments.

In contrast, much of the contemporary varieties of capitalism (VOC) literature within the neo-institutionalist tradition focuses on the bonds that exist between employee and firm, and the extent to which genuine power is devolved within the organization (Whitley 1999; Amable 2003); these concerns are reflected in many cultural and other explanations outside of institutional theory (c.f. Sako 1998). This reflects an abiding concern with dominant modes of internal corporate governance, and related issues of power and equity (Amable 2003; Hopner 2005). Although this approach does not deal directly with wider aspects of HRM – eg the process of recruitment and selection, planning issues, and the mechanisms for administering pay and associated rewards - it emphasizes the differences between countries in the way in the key issue for HRM of the way that organizations relate to their employees.

We centre our analysis on the two core features identified by Whitley (1999). The first of these, the degree of employer-employee interdependence encompasses two sub-dimensions: a) the willingness of the organization to invest in its people - the extent to which the organization is committed to training and development, and would include the proportion of staff that has recently received further training, the proportion of organizational resources invested on training and development, and whether the organization has a systematic approach to training; and b) the relative security of tenure enjoyed by employees (Whitley, 1999: 38; see also Marsden, 1999; Storey, 2001) - the dominant contracts used by the firm (e.g. permanent, temporary or fixed term), the regularity with which the firm makes use of redundancies, the methods employed to reduce staff numbers, and the use of subcontractors. The second feature identified by Whitley is the amount of delegation to employees. This concerns issues such as the degree to which managers are willing to allow employees greater discretion in the performance of tasks, the extent to which employers bargain with employee representatives, and mechanisms for involvement and feedback (c.f. Whitley, 1999: 39). This is summarised in Table 1.

Table 1: Defining Feature of HRM Practice

Feature	Sub-Dimensions
Employer-Employee Interdependence	Training and Development (Proportion of employees to recently receive further training, amount of organizational resources devoted to training and development) Security of Tenure (Forms of contract, prevalence of downsizing, use of outsourced labor)
Delegation to Employees	Representative Participation (Collective Bargaining, Works Councils) Financial Participation Functional Participation and Upward communication Effectiveness of Formal Downward Communication

(Whitley 1999; Marchington et al 1992)

This paper tests whether, and the extent to which, the practices of MNCs tend to be similar across a range of countries and different from the dominant ways of managing people in those countries. If MNCs do indeed practice HR management in similar ways worldwide, this would reflect the effects of some common homogenizing pressure (“globalisation”). Given the evidence that HRM is most likely to be an exemplar of practices at one end of the

localisation scale (Rosenzweig and Nohria, 1994), it was decided to test the veracity of the similarity, isomorphic and duality accounts, by testing the following hypotheses:

H1. HRM practices in MNC subsidiaries will mirror the HRM practices in their country of origin.

H2:HRM practices in MNCs tend to be converging on a common model, reflecting the effects of globalization, to which transnational organizations are the most exposed.

H3: HRM practices will mirror those of the country in which they are domiciled, reflecting the effects of local institutional configurations and/or culture.

H4. HRM practices in MNC subsidiaries vary from context to context: they may mimic the country of origin or host country, contingent on the size of the organization, its host country and/or the strategic choices made by managers, and/or different combinations of regulatory institutions operating at a range of levels.

In short, we aim to test for similarity, isomorphism or duality and to suggest some explanations for the findings.

METHOD

The data employed in this paper are from the repeating Cranet survey, which now contains evidence on human resource management issues of private and public organizations in 22 European countries, as well as some dozen others (Brewster, Mayrhofer and Morley, 2004). The survey targets organizations that employ more than 200 employees. In a few smaller countries however the survey targets organizations that employ more than 100 employees: about 20% of the observations in the survey involve organizations that employ less than 200 employees (and these have been included in the current paper). About 70% of the observations of the survey have been completed by the most senior personnel or human resource manager. The other observations involve less senior specialists in the same field or the chief executive or the company secretary.

The data set used in this paper contains results from the 1999/2000 survey in 18 European countries, Turkey and Japan. The data for all these countries includes at least 100 observations. The data is broadly representative with respect to the industrial sector in every country. However, because the data is not evenly distributed over the countries, the survey is not representative for the overall area covered.

The fundamental purpose of the paper is to determine whether the HRM practices of MNCs are affected more by the host nation or the country of origin. Previous work by Whitley (1999) and Marchington et al (1992), see Table 2, indicates a framework to categorize the behaviour of organizations; applying these allows for a relatively straightforward proposal to be tested: that different types of firm are similar in terms of their interdependence and delegation. Testing this hypothesis allows us to also examine the issues of similarity, isomorphism and duality.

Table 2: Convergence, Isomorphism or Duality? : Competing Accounts

General Trend	Associated Paradigms	Key Tendency	HR Practices
Convergence with Parent Country or Global Trends	Parent country model/ ethnocentrism	MNCs will mirror practices in parent country on grounds of efficiency and/or ethnocentricity	The spread of country of origin practices worldwide
	Globalisation Theories	Global convergence	An emerging global model for managing people, or
Isomorphism	Institutional theories (including some regulationist approaches)	Practices will follow the host country, reflecting institutional configurations/ or specific mode of regulation	People management is likely to differ from national context to context. The existence of a limited number of systemic archetypes is likely to make for a limited number of national models of HR practice. These models are subject to evolution and/or rupture and reconstitution.
	Emic and Etic theories	Practices will follow the dominant culture (whether defined objectively [etic] or subjectively [emic]) of the country in which the MNC is domiciled	Fixed modes of HR practice in line with prevailing realities
Duality Theories	Rationalist approaches	Specific organizational and external environments make for specific sets of choices towards or away from global homogenization	A mix between the global and the local in HR practices. The possibility of an "optimal" balance?
	Regulationist theories of space and scale	A contested process of homogenization and localisation. Firms may be impelled towards localisation of practices and/or towards an emerging global model and/or towards parent country practices.	HR practices within MNCs will incorporate aspects of both the global and the local. An optimal and similar balance between local and international ways of managing people is unlikely to be encountered in MNCs operating in different parts of the world.

The process is that for each of the sub-dimensions indicated in Table 2 an empirical model is estimated. Variables from the Cranet survey representing each of the sub-dimensions are used as the dependent variable of a model and estimated as a function of size, industrial sector and country in which the establishment is located. Where the dependent variable is a continuous variable the model is estimated using ordinary least squares and is of the form; $y_i = q + q'x_i + u_i$ with y_i being the dependent variable, q the intercept term, u_i a normally distributed error term, x_i the vector of explanatory variables and q' their estimated coefficients. In situations where the dependent variable is binary a logit model is used such that;

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \alpha + \beta'x_i + u_i$$

where P_i is the probability that the dependent variable equals 1, $1 - P_i$ is the probability of it being zero and L_i is the log of the odds ratio. Since the log of the odds ratio is linear in the parameters the logit model can be estimated in the linear form (Gujarati 1995 pp 554-556).

Once the various OLS and logit models have been estimated they can be re-estimated for different sub-samples of the data, i.e. domestic firms and foreign-owned MNCs, and a straightforward structural test can be applied.

For the OLS models it is a version of the Chow test where F statistic =

$$\frac{(RSS_{pooled} - RSS_{domestic} - RSS_{foreignmnc's}) / k}{(RSS_{domestic} + RSS_{foreignmnc's}) / (n_1 + n_2 - 2k)}$$

from the pooled model, the domestic firm model and the foreign MNC's respectively, n_1 is the number of observations from the domestic firm sub-sample and n_2 the same from the foreign owned MNC sub-sample, finally k is the number of parameters. The F statistic follows an F distribution with degrees of freedom ($k, n_1 + n_2 - 2k$) (Gujarati 1995: 262-264).

For the logit models the structural test is a likelihood ratio test of the form; $LR = 2(LL_{domestic} + LL_{foreignmnc's} - LL_{pooled})$ where LR is the likelihood ratio and LL is the maximization of the log-likelihood function from the domestic, foreign MNC and pooled models respectively. LR follows a chi-squared distribution with k degrees of freedom, where k is the number of estimated parameters (Greene 2000: 825-826).

Both the OLS and logit models have the null hypothesis that the structure of the two sub-sample models are the same, i.e. for a given size, sector and location domestic firms tend to be the same as foreign MNCs in terms of that particular sub-dimension of interdependence or delegation.

For the explanatory variables, size is measured by the number of employees in the establishment, sectoral differences are controlled for by creating 16 sectoral dummies and country differences are controlled for by creating a dummy variable for each of the 20 countries. A full list of the variables is reproduced in the Appendix. The empirical analysis requires estimating 45 different models, i.e. each of the 15 sub-dimensions for the pooled, domestic and foreign samples, so clearly a large amount of results are generated. Consequently, in the interests of clarity, a sample of the regression results is included in the Appendix (the full set of results are available on request), and the discussion will focus upon the structural tests summarised in Table 4.

FINDINGS

The crux of the analysis is to establish whether the HRM practices of MNCs' subsidiaries are similar to or different from those of their host nation. The behaviour of the organisations are categorised on the basis of a number of indicators of interdependence and delegation. Table 3 records the means, standard deviations and numbers of observations of these variables for the 20 countries included in the analysis, but separated into those firms operating in their own country and those MNCs operating abroad.

Table 3: Interdependence and Delegation: descriptive statistics

Variable	Domestic Firms			Foreign-owned MNC's		
	Mean	St. Dev.	No. Obs.	Mean	St. Dev.	No. Obs.
<i>Interdependence</i>						
<i>Proportion of wage bill spent on training</i>	2.8	2.89	3772	3.29	2.83	747
<i>Proportion of employees having training in the last year</i>	42.42	31.06	4583	53.98	31.47	922
<i>Formal analysis of training needs (yes/no)</i>	0.643	0.48	5837	0.8	0.4	1102
<i>Number of employees has decreased in last 3 years (yes/no)</i>	0.08	0.26	5837	0.05	0.21	1102
<i>% Decrease in employees</i>	16.54	18.58	4231	21.85	22.38	808
<i>Harsher methods employed to decrease workforce (yes/no)</i>	0.55	0.49	5837	0.62	0.48	1102
<i>Greater use of more numerically flexible employment (i.e. an ability to rapidly upsize or downsize) (yes/no)</i>	0.57	0.49	5837	0.69	0.46	1102
<i>Proportion of workforce temporary</i>	2.58	1.34	5349	2.84	1.32	1027
<i>Proportion of workforce with fixed term contracts</i>	2.8	1.41	5421	2.81	1.35	1025
<i>Delegation</i>						
<i>Pay bargaining above the establishment level (yes/no)</i>	0.76	0.42	5837	0.7	0.46	1102
<i>Financial Participation (yes/no)</i>	0.58	0.49	5837	0.71	0.45	1102
<i>Union penetration</i>	4.36	2.02	5712	3.9	2.12	1084
<i>Non-bargaining representation (yes/no)</i>	0.68	0.46	5837	0.61	0.49	1102
<i>Change in upward communication in last 3 years (yes/no)</i>	0.66	0.47	5837	0.76	0.43	1102
<i>Change in downward formal communication in last 3 years (yes/no)</i>	0.81	0.39	5837	0.89	0.32	1102

Preliminary observation does suggest that foreign-owned MNCs behave differently to locally owned firms be they MNCs or not: for example, they appear to spend more on training, train more people, are more likely to evaluate training needs, etc. However, it is difficult to establish from the raw data whether these differences are significant and if they reflect the differing circumstances facing the observed firms. Consequently, multivariate analysis is applied and the various OLS and logit models, outlined in the method section, are estimated and then tested for structural differences.

Table 4 records the method of estimation, the calculated test statistic and whether the null hypothesis of domestic and foreign firms behaving the same way can be accepted, for each of the 15 models. These results indicate fairly strongly that, as far as these models can explain, foreign-owned MNCs behave in a different fashion to domestic firms, since the null hypothesis is rejected in all but one case. Thus the presence of extensive isomorphism, at least, can be questioned. Hypothesis 3 is therefore rejected: local institutions or cultures do not, in the case of MNCs, override the formal and/or informal effects regulation either in the country of origin or at transnational level.

Table 4: Structural Tests: Domestic Firms (MNCs and non-MNCs) Vs. Foreign MNC's

Dependent Variable	Model Type	Test Stat.	Accept/Reject
<i>Interdependence</i>			
<i>Proportion of wage bill spent on training</i>	OLS	1.46	Reject at 5%
<i>Proportion of employees having training in the last year</i>	OLS	4.86	Reject at 1%
<i>Formal analysis of training needs</i>	Logit	104.9	Reject at 1%
<i>Number of employees has decreased in last 3 years</i>	Logit	25.3	Accept
<i>% Decrease in employees</i>	OLS	2.7	Reject at 1%
<i>Methods employed to decrease workforce</i>	Logit	65.5	Reject at 1%
<i>Greater use of more flexible employment</i>	Logit	83.1	Reject at 1%
<i>Proportion of workforce temporary</i>	OLS	2.52	Reject at 1%
<i>Proportion of workforce with fixed term contracts</i>	OLS	1.81	Reject at 1%
<i>Delegation</i>			
<i>Pay bargaining above the establishment level</i>	Logit	62.5	Reject at 1%
<i>Financial Participation</i>	Logit	96.6	Reject at 1%
<i>Union penetration</i>	OLS	3.69	Reject at 1%
<i>Non-bargaining representation</i>	Logit	58.9	Reject at 1%
<i>Change in upward communication in last 3 years</i>	Logit	51.9	Reject at 1%
<i>Change in downward formal communication in last 3 years</i>	Logit	77.3	Reject at 1%

However, it must be conceded that the predictive power of the models is fairly low, generally in the region of 10-20%. In fact, differences in size and sector account for about 2% of the variation in the dependent variables. So these only have a small effect upon interdependence and delegation, whilst host country has a larger effect but still relatively small². The majority of the variation in delegation and interdependence results from factors unobserved in the data set. Since these unobserved differences appear to affect domestic firms and foreign-owned MNCs in a different way, and since the models are already controlled for at the country level, the influences must be at forces operating a range of levels or primarily international level. The former would suggest the presence of duality and the latter would indicate similarities cutting across national boundaries: in other words, either hypotheses 1, 2 or 4 may be correct.

These alternative hypotheses can also be tested since the domestic samples actually include home-based MNCs: consequently if these unobserved factors – forces associated with globalization - operate at the international level they will affect local MNCs and non-local MNCs differently. Therefore, the process is repeated, this time with domestic-owned MNCs and foreign-owned MNCs as the two sub-samples. Table 5 records the statistics from the raw data and Table 6 reports the structural test results.

Table 5: Interdependence and Delegation: Domestic MNCs and Foreign MNC's

Variable	Domestic-owned MNC's			Foreign-owned MNC's		
	Mean	St. Dev.	No. Obs.	Mean	St. Dev.	No. Obs.
<i>Interdependence</i>						
<i>Proportion of wage bill spent on training</i>	3.21	2.83	660	3.29	2.83	747
<i>Proportion of employees having training in the last year</i>	44.94	29.28	794	53.98	31.47	922
<i>Formal analysis of training needs (yes/no)</i>	0.75	0.43	1004	0.8	0.4	1102
<i>Number of employees has decreased in last 3 years (yes/no)</i>	0.06	0.23	1004	0.05	0.21	1102
<i>% Decrease in employees</i>	18.22	19.79	772	21.85	22.38	808
<i>Harsher methods employed to decrease workforce (yes/no)</i>	0.59	0.49	1004	0.62	0.48	1102
<i>Greater use of more flexible employment (yes/no)</i>	0.66	0.47	1004	0.69	0.46	1102
<i>Proportion of workforce temporary</i>	2.75	1.27	934	2.84	1.32	1027
<i>Proportion of workforce with fixed term contracts</i>	2.75	1.22	946	2.81	1.35	1025
<i>Delegation</i>						
<i>Pay bargaining above the establishment level (yes/no)</i>	0.74	0.44	1004	0.7	0.46	1102
<i>Financial Participation (yes/no)</i>	0.78	0.42	1004	0.71	0.45	1102
<i>Union penetration</i>	4.14	2.06	981	3.9	2.12	1084
<i>Non-bargaining representation (yes/no)</i>	0.75	0.43	1004	0.61	0.49	1102
<i>Change in upward communication in last 3 years (yes/no)</i>	0.71	0.46	1004	0.76	0.43	1102
<i>Change in downward formal communication in last 3 years (yes/no)</i>	0.88	0.32	1004	0.89	0.32	1102

² An analysis examining just the flexible working practices elements of HRM, using a longitudinal sub-set of this data, found that country differences persist over time (Tregaskis and Brewster, 2006).

Table 6: Structural Tests: Domestic MNC's Vs. Foreign MNC's

<i>Dependent Variable</i>	<i>Model Type</i>	<i>Test Stat.</i>	<i>Accept/Reject</i>
<i>Interdependence</i>			
<i>Proportion of wage bill spent on training</i>	<i>OLS</i>	<i>1.45</i>	<i>Reject at 5%</i>
<i>Proportion of employees having training in the last year</i>	<i>OLS</i>	<i>1.25</i>	<i>Accept</i>
<i>Formal analysis of training needs</i>	<i>Logit</i>	<i>32.9</i>	<i>Accept</i>
<i>Number of employees has decreased in last 3 years</i>	<i>Logit</i>	<i>24</i>	<i>Accept</i>
<i>% Decrease in employees</i>	<i>OLS</i>	<i>1.12</i>	<i>Accept</i>
<i>Methods employed to decrease workforce</i>	<i>Logit</i>	<i>22.4</i>	<i>Accept</i>
<i>Greater use of more flexible employment</i>	<i>Logit</i>	<i>33.0</i>	<i>Accept</i>
<i>Proportion of workforce temporary</i>	<i>OLS</i>	<i>0.75</i>	<i>Accept</i>
<i>Proportion of workforce with fixed term contracts</i>	<i>OLS</i>	<i>1.38</i>	<i>Accept</i>
<i>Delegation</i>			
<i>Pay bargaining above the establishment level</i>	<i>Logit</i>	<i>36.3</i>	<i>Accept</i>
<i>Financial Participation</i>	<i>Logit</i>	<i>44.2</i>	<i>Reject at 5%</i>
<i>Union penetration</i>	<i>OLS</i>	<i>1.60</i>	<i>Reject at 5%</i>
<i>Non-bargaining representation</i>	<i>Logit</i>	<i>7.2</i>	<i>Accept</i>
<i>Change in upward communication in last 3 years</i>	<i>Logit</i>	<i>21.1</i>	<i>Accept</i>
<i>Change in downward formal communication in last 3 years</i>	<i>Logit</i>	<i>23.7</i>	<i>Accept</i>

The Tables show that, with a limited number of exceptions, MNCs pursue similar HRM practices within a specific locale regardless of whether they are foreign subsidiaries or indigenous home operations: in other words – it does not seem that country of origin effects are of overriding importance, other than in a limited number of areas. If the converse was true, many more differences than similarities may be observed. *Hypothesis 1 is therefore rejected.* As noted earlier, MNCs tend to behave differently to other firms within a specific locale, regardless of whether the former are indigenous or not. These would leave us with two remaining alternative hypothesis: hypothesis 2 or hypothesis 4. Hypothesis 2 suggests that MNCs would follow consistently uniform practices, when in fact, differences were noted in three areas specific to country of locale. Firstly, there is the use of training: local firms would probably be more fully aware of the limitations and possibilities of local training systems – particularly those operating at sub-national level - resulting in different approaches towards skills development, whilst foreign owned firms may seek to replicate the dominant approaches to training in their country of origin for the sake of familiarity or other reasons (c.f. Marsden 1999). Secondly, union penetration varies according to country of origin; again this might reflect the effects of *regulation* (formal and informal rules and norms), this time in the country of origin, shaping managerial policies towards unions. Again, the varying willingness of firms to make use of financial participation may reflect particular ownership structures and/or company or sectoral specific ways of doing things: this may reflect the contradictory effects of national regulation and/or the uneven diffusion of emerging transnational best practices. Hence, whilst we cannot reject hypothesis 2 outright, it would seem that enough differences remain to suggest that what MNCs do when it comes to people management remains a contested domain, as a result of the pressures of institutions operating at a range of levels, and/or variations in specific local conditions and the strategic choices open to managers. We cannot confirm hypothesis 4, but on the base of survey evidence, it seems the most plausible.

An attempt was made to scientifically test hypothesis 4 further by estimating the models separately for US MNCs, UK MNCs and German MNC's, (these were the only countries having sufficient numbers to estimate the models). If MNCs behave the same irrespective of the country of origin, the dummy variables in the model will be insignificant: hypothesis 2 would be correct. Unfortunately, no coherent results were generated (sampling limitations precluding a more detailed analysis).

DISCUSSION: MNCS AND HOST COUNTRY HRM PRACTICES

Previous research has tended to identify similarities between foreign owned and local firms. Some authors (Amante, 1995; Rosenzweig and Nohria, 1994; Turner, D'Art and Gunnigle, 1997) argued that this was evidence of MNCs adapting to local circumstances. There is no doubt that local subsidiaries will by and large have to accept the limitations of local labour markets and local legislation, for example. Other authors who identified such similarities (Geary and Roche, 2001) argued that this was evidence of local firms emulating foreign MNCs and it seems likely that, to some extent, that would happen also. Our findings are more complex. There is evidence of national recipes, though not fully on the lines of the business systems model suggested by Whitley, 1999; the process by which different patterns of ownership – be it simply on the lines of indigenous versus non-indigenous ownership or more complex variations in governance patterns – may affect diversity of business practice *within* national business systems is a relatively neglected area in business systems theory. The findings suggest that MNCs represent a distinct cluster of firms associated with specific sets of practices within national business systems. This would underscore the extent to which specific national regulations may be conducive to more than one set of firm-level practices, and the extent to which the dominance of a particular form of corporate governance does not preclude other forms from coexisting. This underscores the limitations of cultural explanations. It further highlights the VOC literature's relative neglect of the nature of internal systemic diversity: MNCs may do things differently to others firms within a specific national context, but this does not mean that the only variety is on these lines. A dominant mode of practice by local firms does not mean that other viable and sustainable clusters of practice amongst such firms might not exist.

Thus the findings provide further evidence of the influence of national patterns of HRM (cf Brookes, Brewster and Wood, 2005). There is evidence that MNCs have a distinctive mode of HRM, different from that of national indigenous organisations. However, there was no clear evidence of a common global model, a common tendency to mimic practices in the country of origin, or, indeed, a particular balance in practices somewhere between the two. As noted by regulationist theories of space and scale, firms face pressures towards both the economies of scale generated by similar internal practices within the organization, and by the fact that many external forces are beyond the control of individual managers and firms; whilst national governments may help mediate and regulate them, transnational rather than national institutions may become relatively more important at specific times, given the operation of global circuits of capital at a specific time (Collinge 1999: 185-6).

The situation is complex and there is room for a variety of different interpretations. Proponents of globalisation can get some support from our findings, but so too can those who argue for the importance of localisation. Whilst there is much common ground in MNC practices within specific national locales irrespective of whether they are indigenous or foreign owned – enough to suggest that country of origin effects do not override practice in a wide range of areas – significant differences remain in three areas: training, union penetration and the existence or not of financial participation. Hence, we tend to believe that the evidence most strongly supports a duality perspective: the evidence here provides a good fit with the expectations of authors such as Evans et al. (2002) Gooderham et al., (1998: 47), Kostova and Roth (2002) and Davis et al. (2000). The findings also fit well with the conclusions reached from a study of a single MNC conducted by Almond et al (2005).

But what makes such duality? Is this the result of rational choices by managers reflecting local market realities and ownership characteristics, or the effects of institutions operating at a range of levels? If the former were correct, this would suggest that these choices would lead to the adoption of one of a number of alternative HRM paradigms: perhaps traditional hardline unitarism, or sophisticated “hard HRM” characterized by advanced non-union forms of involvement, or “softer” more inclusive HRM involving unions and other forms of collective participation, and higher levels of job security (Storey 2001)? In practice, the survey revealed that different aspects of all these models may coexist: different levels of union participation may or may not be associated with higher levels of participation and/or higher security of tenure and/or the presence of individual mechanisms for involvement (Brewster et al 2006a; 2006b). This would suggest that any choices made by managers are constrained by a range of broader contextual realities, shaping decisions such as whether or not to deal with unions, the relative security of tenure accorded to employees, and the use of a range of forms of involvement and participation. Recent regulationist thinking highlights both the effects of institutions operating at a range of levels, and the experimental nature of policy making by firms and governments, with sets of practices being replicated on the basis of *complementarity* or simply, the ability to *coexist* (Boyer 2006). When confronted with a relatively strong national or sector specific labour movement, or formal trans-national regulations (e.g. European Union directives), managers may adjust their HR policies to make the best of these particular realities – in other words, seek to build *complementarities* – or seek to manage round them

combining what may be perceived to be international best practice (e.g. non-union forms of participation) with what they may be obliged to do in a specific national context (e.g. be constrained in their ability to hire or fire) – in other words, seek *coexistence*.

The limitations of the data set make a more closely grained analysis impossible. For example, the available data does not allow us the kind of detailed analysis of the observed sample of MNCs necessary to detect whether there are any distinct national identities within this group. We cannot, therefore, contribute to the debate about whether US MNCs are more likely to standardise on a home country pattern than other countries' MNCs (Neghandi, 1986; Young, Hood and Hamill, 1985). Nor can we be fully confident that other measures of HRM might have shown different results. Our data, taken from a single point in time, allows us to draw no conclusions about the convergence debate (Mayrhofer and Brewster, 2005). There is considerable scope for further research on these issues. However, the evidence that we do have provides firm support for the duality perspective on HRM at the international level.

CONCLUSION

The survey revealed that isomorphic pressures operating at the country of domicile are not sufficiently strong so as to make MNCs mimic the HR practices of their local counterparts: this would underscore the internal diversity of specific national business systems, with two or more combinations of firm level practices readily coexisting in particular national contexts. We similarly found little evidence for the country of origin thesis: in most cases, MNCs operating in particular national locales tend to behave similarly in a range of areas of HRM, regardless of whether they are indigenous to the latter or not. This would suggest that either duality theories or theories of globalization are correct. However, the persistence of differences in a limited number of areas between indigenous and non-indigenous firms – specifically in terms of policies towards training, the presence of financial participation, and the extent of union penetration – would indicate limits in the homogenizing effects of globalization: this would point to the possibility of duality. In turn, this would reflect the persistent effects of institutional realities: the fact that neither regulations specific to country of origin or domicile have a dominant effect would underscore the nested nature of institutions, moulding the practices of firms at supra-, national, and sub-national levels (Boyer and Hollingsworth 1997). We found no evidence of the dominance of a coherent HRM paradigm reflecting the global dissemination of “best practices” (c.f. Storey 2001). Rather than setting HR strategies on rational choice lines, managers seem to combine a range of practices moulded by institutionally-embedded opportunities and constraints operating at a range of levels.

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APPENDIX

Variable Definitions

Dependent Variables

Dependent Variable	Definition
Interdependence	
Proportion of wage bill spent on training	annual training budget/annual wage bill
Proportion of employees having training in the last year	trained employees/total employees
Formal analysis of training needs	1 = yes, 0 = no
Number of employees has decreased in last 3 years	1 = yes, 0 = no
% Decrease in employees	jobs lost/original number of employees
Harsher methods employed to decrease workforce	Compulsory redundancy, outplacement, non-renewal fixed-term contracts or outsourcing.
Greater use of more flexible employment	Temporary/casual, fixed-term contracts or subcontracting/outsourcing.
Proportion of workforce temporary	temporary employees/total employees
Proportion of workforce with fixed term contracts	fixed term employees/total employees
Delegation	
Pay bargaining above the establishment level	1 = yes, 0 = no
Financial Participation	Employee share options, profit sharing, group bonus or performance related pay
Union penetration	union members/total employees
Non-bargaining representation, i.e. JCC	1 = yes, 0 = no
Change in upward communication in last 3 years	1 = yes, 0 = no
Change in downward formal communication in last 3 years	1 = yes, 0 = no

Explanatory Variables

Size	Measured as the total number of employees at the establishment.
Sectoral Dummies	<p>Agriculture, hunting, forestry, fishing.</p> <p>Energy and water.</p> <p>Chemical products; extraction and processing of non-energy minerals.</p> <p>Metal manufacturing; mechanical, electrical and instrument engineering; office and data processing machinery.</p> <p>Other manufacturing, (e.g. food, drink and tobacco; textiles; clothing; paper, printing and publishing; processing of rubber and plastics, etc.)</p> <p>Building and civil engineering.</p> <p>Retail and distribution; hotels; catering; repairs.</p> <p>Transport and communication (e.g. rail, postal services, telecoms, etc)</p> <p>Banking; finance; insurance; business services (e.g. consultancies, PR and advertising, Law firms, etc)</p> <p>Personal, domestic, recreational services.</p> <p>Health services.</p>

Other services (e.g. television and radio, R&D, charities, etc)

Education (including universities and further education).

Local Government

Central Government

Other

Country Dummies

UK, France, Germany, Sweden, Spain, Denmark, Netherlands, Italy, Norway, Switzerland, Turkey, Ireland, Poland, Finland, Greece, Czech Republic, Austria, Belgium, Bulgaria and Japan.

OLS Model: % Trained in Last Year

Variable	Pooled Sample		Domestic Firms		Foreign MNC's	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Constant	51.60	38.2	49.80	32.2	51.90	18.4
Size	0.00001	1.5	0.00001	1.6	0.0004	1.3
Agric	-0.82	-0.2	2.24	0.6	-4.46	-0.4
Energy	7.32	2.9	9.14	3.5	7.63	1.1
Chemical	9.60	4.9	9.65	4.1	5.02	1.4
Other Manu.	-6.42	-4.7	-4.91	-3.2	-7.47	-2.5
Building	-5.95	-3.1	-2.94	-1.4	-11.90	-2.1
Retail	-0.04	-0.02	0.75	0.4	1.25	0.3
Transport	0.86	0.4	3.13	1.4	-0.25	-0.04
Bank	16.85	10.5	19.35	11.1	12.04	2.9
Pers. Serv.	-1.61	-0.5	1.62	0.4	-6.03	-0.7
Health Serv.	-1.88	-0.9	1.11	0.5	17.30	1.3
Other Serv.	2.75	1.2	5.55	2.4	-1.10	-0.2
Education	0.98	0.4	3.98	1.6	n/a	n/a
Local Gov.	-1.03	-0.5	2.32	1.2	5.09	0.2
Central Gov.	13.58	4.8	17.23	6.1	10.32	0.3
Other	5.20	3.2	5.21	2.8	7.80	2.1
France	-3.54	-1.8	-3.23	-1.6	-1.84	-0.4
Germany	-21.19	-13.3	-22.00	-12.8	-11.27	-2.7
Sweden	11.92	5.4	12.30	5.1	9.02	1.6
Spain	-1.51	-0.7	-5.02	-2.1	9.47	2.1
Denmark	-4.02	-2.1	-5.49	-2.7	3.02	0.6
Netherlands	-12.48	-5.2	-13.97	-5.5	-1.80	-0.2
Italy	-15.82	-4.3	-17.52	-4.6	3.02	0.3
Norway	-11.30	-5.8	-13.68	-6.7	8.33	1.4
Switzerland	-11.50	-4.0	-12.48	-3.9	-6.12	-1.0
Turkey	-4.63	-1.9	-4.66	-1.8	0.87	0.1
Ireland	-5.16	-2.7	-15.39	-6.8	12.68	3.4
Poland	-15.45	-5.8	-19.43	-6.6	-1.85	-0.3
Finland	9.41	4.2	7.93	3.4	21.68	3.1
Greece	-17.04	-5.7	-20.10	-5.9	-8.47	-1.4
Czech Rep.	-7.08	-2.9	-7.64	-2.9	0.29	0.04
Austria	-17.52	-7.3	-18.75	-7.1	-10.72	-1.8
Belgium	-9.40	-4.1	-14.14	-5.0	-0.98	-0.2
Bulgaria	-36.55	-11.9	-36.67	-11.5	-32.33	-2.9
Japan	-21.94	-13.3	-21.60	-12.5	-15.61	-2.0
Dependent Variable	% trained in last year		% trained in last year		% trained in last year	
Mean	44.36		42.42		53.98	
No. of Observations	5505		4583		922	
R-squared	0.15		0.17		0.11	
RSS	4629361.1		3675996.4		808926.7	

$$F \text{ statistic} = \frac{(RSS_{pooled} - RSS_{domestic} - RSS_{foreignmnc's}) / k}{(RSS_{domestic} + RSS_{foreignmnc's}) / (n_1 + n_2 - 2k)}$$

$$= (4629361.1 - 3675996.4 - 808926.7) / 36$$

$$(3675996.4 + 808926.7) / (4583 + 922 - 72)$$

= 4.86 with a critical F(36, 5433) value of 1.6 at the 1% level the null hypothesis that the structure of the two models is the same can be rejected.

Logit Model: Formal Analysis of Training Needs

Variable	Pooled Sample		Domestic Firms		Foreign MNC's	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Constant	1.62	17.6	1.59	15.1	1.51	7.4
Size	0.000002	0.6	0.000002	0.6	0.0001	0.9
Agric	n/a	n/a	n/a	n/a	n/a	n/a
Energy	0.06	0.3	0.17	0.9	-0.39	-0.7
Chemical	n/a	n/a	n/a	n/a	n/a	n/a
Other Manu.	-0.42	-4.8	-0.41	-4.3	-0.32	-1.5
Building	-0.42	-3.3	-0.34	-2.5	-0.31	-0.7
Retail	-0.50	-4.8	-0.42	-3.7	-0.78	-2.9
Transport	n/a	n/a	n/a	n/a	n/a	n/a
Bank	0.50	4.2	0.70	5.4	-0.39	-1.3
Pers. Serv.	-0.41	-1.83	-0.24	-1.0	-0.83	-1.3
Health Serv.	-0.53	-4.1	-0.40	-3.0	0.25	0.23
Other Serv.	-0.52	-3.6	-0.43	-2.8	-0.56	-1.2
Education	-0.43	-2.8	-0.32	-2.0	n/a	n/a
Local Gov.	-0.68	-5.9	-0.57	-4.8	n/a	n/a
Central Gov.	-0.16	-0.9	-0.02	-0.1	-0.76	-0.5
Other	-0.005	-0.04	0.01	0.1	0.02	0.1
France	0.56	3.1	0.47	2.5	1.28	2.1
Germany	-0.78	-7.0	-0.84	-6.8	-0.32	-1.1
Sweden	-0.41	-2.8	-0.52	-3.2	0.14	0.3
Spain	0.06	0.3	-0.17	-0.9	1.13	2.3
Denmark	-1.06	-8.6	-1.08	-8.0	-0.97	-3.3
Netherlands	-0.49	-2.9	-0.61	-3.4	0.38	0.6
Italy	-0.41	-1.5	-0.53	-1.8	0.75	0.7
Norway	-0.66	-4.9	-0.72	-4.9	-0.29	-0.7
Switzerland	-0.30	-1.5	-0.37	-1.7	0.13	0.3
Turkey	-0.70	-4.3	-0.80	-4.6	0.30	0.5
Ireland	-0.74	-5.6	-1.12	-7.3	0.25	0.8
Poland	-0.51	-2.7	-0.72	-3.4	0.56	1.1
Finland	-0.59	-4.0	-0.72	-4.5	0.67	1.0
Greece	-0.64	-3.1	-0.98	-4.3	0.91	1.6
Czech Rep.	-0.57	-3.2	-0.62	-3.2	-0.13	-0.2
Austria	-0.36	-2.1	-0.55	-3.0	0.87	1.6
Belgium	-0.70	-4.4	-1.00	-5.3	-0.02	-0.1
Bulgaria	-1.73	-9.3	-1.84	-9.2	-0.54	-0.8
Japan	-2.10	-19.1	-2.13	-17.9	-1.65	-3.7
Dependent Variable	Formal analysis		Formal analysis		Formal analysis	
Mean	0.668		0.643		0.797	
No. of Observations	6939		5837		1102	
Log likelihood	-4027.7		-3458.5		-516.7	
Chi-squared	767.1		687.3		79.4	
Degrees of freedom	32		32		30	

$$\text{Likelihood ratio test is; } LR = 2(LL_{domestic} + LL_{foreignmnc's} - LL_{pooled})$$

$$= 2(-3458.5 - 516.7 + 4027.7)$$

= 104.9 with a critical Chi-squared(32 d.f.) of 50.9 at the 1% level the null hypothesis that the structure of the two models is the same can be rejected.