Personnel Formalization and the Enhancement Of Teamwork: A public–private comparison

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**PERSONNEL FORMALIZATION AND THE ENHANCEMENT OF TEAMWORK:
A STUDY OF PUBLIC-PRIVATE COMPARISON**

Abstract

Formalization has long been regarded as one of the most distinctive features of the public sector. Personnel systems in the public sector are particularly formalized due to merit system protections and strong due process requirements. In much of the contemporary public management literature, personnel formalization implies red tape, referring to excessive rules that bring negative outcomes such as employee frustration. The present study offers an alternative view, suggesting that personnel formalization is associated with high-performance work practices, particularly teamwork, by ensuring that organizations attract the right employees and provide employees with various protections such as worker safety, procedural justice, and conflict resolution. Given that public organizations are structured more formally, public sector employees are more likely to work in teams than their peers in the private sector. The authors test this view by using variables from the National Organization Survey (NOS) dataset and find strong statistical support. Therefore, personnel formalization is not necessarily equivalent to red tape and not always detrimental to the public sector. It can enhance teamwork, a central element of high-performance work practices.

Key words: formal rules; personnel formalization; teamwork; public-private comparison

Introduction

Formalization, a term referring to the extent to which an organization's structures and procedures are formally established in written rules and regulations (Rainey, 2009, p.209), has long imposed a negative impression on public management researchers and practitioners. It often implies red tape, referring to administrative rules that have no redeeming social value but entail a compliance burden for organization or its stakeholders (Bozeman & Feeney, 2011) and eventually results in ineffectiveness, frustration, and vexation (Bozeman & Scott, 1996). More precisely, red tape means "bad formal rules" (Bozeman, 1993). Empirical evidence shows that red tape is associated with a variety of negative organizational attitudes and behaviors including work alienation, compromised work motivation, perceived goal ambiguity, risk aversion, undermined public service motivation, and resignation (Baldwin, 1990; Bozeman & Feeney, 2011; Chen & Bozeman, 2012; DeHart-Davis & Pandey, 2005; Giaque, Ritz, Varone, & Anderfuhren-Biget, 2012; Moynihan & Pandey, 2007; Pandey & Rainey, 2006).

According to the literature of generic management, however, formalization is not necessarily detrimental to organizations and their members. Formalization can facilitate smooth organizational operations though reducing role ambiguity and enhancing identification (Organ & Greene, 1981). The theory of "green tape" (Olsen, 2006; DeHart-Davis, 2009a, 2009b), in addition, views formal rules as a part of normal bureaucracy. When formal rules are consistently applied and the purposes are understood by stakeholders, voluntary compliance and rule effectiveness are expected results. In other words, formalization differs from red tape (Bozeman, 2000; Bozeman & Feeney, 2011) and does not always lead to negative outcomes. It may result in high performance as long as rules are deemed acceptable and adequate. Formalization connotes neutrality, not negativity.

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Following the line of “neutral formalization,” the present study investigates how personnel formalization influences high-performance work practices with particular attention to teamwork (Godard & Delaney, 2000; Kalleberg, Marsden, Reynolds, & Knoke, 2006). Personnel formalization is selected because merit protection and external political control make personnel rules one of the most distinctive features in governmental agencies (Meyer, 1979). Teamwork stands out among various high-performance work practices as it is an important but underexplored issue in contemporary public management research. The paucity of teamwork research in public management is particularly salient when compared to the abundant empirical evidence of other high-performance work practices such as performance-based incentives and efficiency wages (Langbein, 2010; Llorens & Stazyk, 2011; Taylor & Taylor, 2011; Weibel, Rost, & Osterloh, 2010). Another distinctive feature of the current study is public-private comparison. Given that public organizations are in general structured more formally (Frumkin & Galaskiewicz, 2004; Marsden, Cook, & Kalleberg, 1994), the use of teamwork may differ between these two respective sectors as well.

Regarding the underlying logic of variable relationships between personnel formalization and teamwork, some components of team dysfunction such as conflicts (Lencioni, 2002; Tannenbaum, Salas, & Cannon-Bowers, 1996) and problematic teammates (Bennett & Lehman, 1999) serve as a link that connects these two dots. For example, conflicts and disputes often occur when teamwork requires employees to work with people having different priorities for their own work units (Rowe, 1997). Functioning as an antidote, formal procedures of dispute resolution may alleviate this problem and thus enhance teamwork. Another example is behavioral problems of workers such as sexual harassment, violence, and alcohol abuse. The existence of problematic workers reduces other employees’ propensity to work (with them) in

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6 teams. Formal written documents describing safety, hygiene, and violence practices and formal
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8 procedures by which employees make complaints about sexual harassment may reduce
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10 employees' worry and accordingly increase their willingness to work in teams (Bennett &
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12 Lehman, 1999; Bennett, Lehman, & Reynolds, 2000). The discussion to follow will elaborate
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14 more teamwork-related uncertainties and analyze how personnel formalization in various aspects
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16 can help attenuate these problems. This line of argument sometimes appears implicitly to
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18 assume that employees voluntarily determine whether teamwork will occur. Obviously other
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20 factors, such as information overload in organizations or problem-solving requirements, can play
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22 a strong role in the adoption of teamwork. Strong employee opposition to teamwork, however,
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24 or poor employee performance in teams, will very likely lead to abandonment of team
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26 approaches and the lower likelihood that one will observe teamwork in such circumstances over
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28 time. Moreover, whether or not employees voluntarily choose teamwork designs, complications
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30 and challenges of the sort we discuss below will tend to cause leaders in organizations to move
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32 more slowly in proposing teamwork designs.
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38 In sum, different from most contemporary public management research that focuses on
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40 red tape as a negative side of formalization, the present study treats formalization as a catalyst
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42 that can facilitate teamwork, one of the important forms of high-performance work practices.
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44 Variables from the National Organization Survey (NOS) dataset are used to test this proposition.
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46 The findings of this study add new knowledge to the existing literature of public sector
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48 bureaucracy, and in addition, inform public management scholars and practitioners that formal
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50 rules and regulations as a sign of normal bureaucracy are not always undesirable. High
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52 organizational performance often relies on them.
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Formalization and Personnel Formalization

Formalization, generally referred to as the extent to which work is standardized and defined formally by rules and procedures (Aiken & Hage, 1966; Blau & Schoenherr, 1971; Ford & Slocum, 1977), is often deemed a manifestation of bureaucracy. Bureaucracy often carries negative connotations. Generic management scholars have linked formalization to negative outcomes such as undermined morale, a lack of creativity, and alienation (Aiken & Hage, 1966; Hall, 1968; Sarros, Tanewski, Winter, Santora, & Densten, 2002). Focusing on red tape, the dark side of formalization, public management scholars argue that red tape can compromise one’s work attitudes, public service motivation, work motivation, as well as risk taking behaviors (Baldwin, 1990; Chen & Bozeman, 2012; DeHart-Davis & Pandey, 2005; Moynihan & Pandey, 2007). While formalization is frequently accompanied by negative consequences, Walsh and Dewar (1987) remind us that negativity usually occurs in a later stage of an organizational life cycle. In other words, formalization can lead to administrative efficiency and organizational effectiveness. Negative outcomes of formalization are more likely when formal rules “go bad” in the long term (Bozeman, 1993; Bozeman & Scott, 1996).

In order to manage environmental complexities and minimize uncertainties, organizations need bureaucratic elements to reduce risks. That is, formalization is often a response to the resource environment, institutional environment, and political pressures (Meyer & Rowan, 1977; Meyer & Scott, 1983). According to Walsh and Dewar (1987), formalization as a feature of bureaucracy helps organizations enhance efficiency and effectiveness via three different ways. It reduces administrators’ communication demands as well as work complexity; it helps define appropriate and inappropriate behaviors and thus creates protection of vested interests; it also serves as a standard of distributive justice so it reduces debate about which behaviors are to be

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6 rewarded or punished. Formalization enhances effectiveness in interorganizational settings as
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8 well. It facilitates coordination, directs behaviors, persuades or convinces stakeholders so as to
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10 achieve legitimacy, and promotes sense making through diminishing misunderstanding and
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12 reducing judgment errors and biases (Vlaar, Van den Bosch, & Volberda, 2006, 2007).
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15 Therefore, it is not surprising that high formalization can bring positive consequences such as
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17 low levels of role stress, high organizational commitment, and improved productivity, according
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19 to some earlier empirical studies (Hage & Dewar, 1973; Michaels, Cron, Dubinsky, &
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21 Joachimsthaler, 1988; Organ & Greene, 1981).
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25 Personnel formalization means written rules and regulations for personnel practices such
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27 as recruitment, training and development, performance management, worker safety, dispute
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29 resolution, and many others. It often covers a worker's rights, duties, and work situations (Hall,
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31 1968). For example, formal personnel rules may include written job descriptions (recruitment),
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33 transparent contents of training and procedures for promotion (training and development),
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35 documents describing workplace violence (worker safety), a written record of everyone's job
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37 performance (performance management), and codified procedures for resolving conflicts
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39 (dispute resolution). Personnel formalization reduces organizational uncertainty by providing
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41 current and future employees a clear personal record, procedural justice, and a feeling of security,
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43 accordingly serving as a lubricant for organizational operation. We elaborate on this view in the
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45 following sections.
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49 50 **Teamwork and Personnel Formalization: Connecting the Dots**

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52 Teamwork is a central element of high-performance work practices. Modern
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54 organizations often require organizational learning to confront complicated problems (Argyris &
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56 Schon, 1978; Senge, 1990). Teamwork as a way to integrate individual knowledge is an
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indispensable human resource practice for almost all kinds of organizations to facilitate organizational learning, generate relevant knowledge, and create solutions (Goncalves, 2006; Nonaka & Takeuchi, 1995; Nonaka & Toyama, 2003). Teamwork is particularly important for public organizations. This is in part because governments often involve power-sharing situations among interest groups, political parties, and legislators (Kettl, 1993), and interacting with so many actors in a political arena often induces information overload (Rainey, 2009, p. 377), a situation that requires teamwork to process information. In addition, to the extent that tacit knowledge such as political issues, cultural issues, power, and values are prevalent in the public sector (McAdam & Reid, 2000), public service delivery often involves high levels of intricacy and thus requires employees to work in teams to brainstorm for solutions.

Teamwork textbooks have repeatedly reminded us that teamwork and teambuilding involve many challenges and uncertainties such as member selection, conflicts, safety concerns, trust in team members, and many others (e.g. Lencioni, 2002). The present study examines whether some of these uncertainties can be minimized with the presence of personnel formalization. More precisely, does personnel formalization foster teamwork? Below, the authors identify four major teamwork challenges and uncertainties and elaborate how formal personnel rules can help mitigate the uncertainties. The four dimensions are the challenge in selecting team members, safety hazards and stress brought by troublesome workers, conflicts and disputes in teams, and the fear of knowledge leaking.

The Challenge in Selecting Team Members

How to “get the right people on the bus” is often the first challenge of teambuilding (Dyer, Dyer, & Dyer, 2007). Team member selection includes a systematic personnel procedure focusing on whether individuals demonstrate necessary competence for team-working (Burch &

Anderson, 2004). In the literature of generic management, KSAOs, namely knowledge, skill, ability, and other characteristics are the most commonly cited standards for team member selection (Morgeson, Reider, & Campion, 2005). Regarding KSA (i.e. knowledge, skill, and ability), the view of team competencies holds that individuals need adequate KSAs to work effectively in teams (Miller, 2001; West & Allen, 1997). Regarding other characteristics, contemporary literature on teamwork emphasizes personality characteristics/traits (Morgeson, et al., 2005; Tett & Burnett, 2003), particularly the Big Five personality traits: conscientiousness, extraversion, agreeableness, openness to experience, and emotional stability (Poropat, 2009). Personality traits pertain to teambuilding in such as way that different types of teams may need people having specific personalities (Tett & Burnett, 2003). For example, extraversion is especially important for action teams such as military units or firefighters; emotional stability is often the basic requirement for service teams such as airline attendants serving cynical customers; openness to experience is necessary for management teams in charge of policy-making (Tett & Burnett, 2003).

To include the right people in teams, organization managers often rely on formal written performance records and analysis-based job descriptions where basic KSAOs are specified (Bowers, Baker, & Salas, 1994). Formal job descriptions and performance records help managers ensure that the people selected for teams have appropriate expertise, positions, skills, training background, and experience (i.e. KSAs). Job descriptions also contain information on employees' personality traits to a great extent. Job descriptions often reflect basic employment characteristics, namely RIASEC (i.e. realistic, investigative, artistic, social, enterprising, and conventional, see Holland, 1997 for an example) (Tett & Burnett, 2003). These employment characteristics are associated with personality traits because one's job choice usually involves the

consideration of person-job fit (De Fruyt & Mervielde, 1999). In addition, job descriptions facilitate mutual understanding through the creation of a “shared mental model” among team members (Bolstad & Endsley, 1999). In sum, formal written job descriptions and performance records with clear references of job roles, duties, responsibilities, individual KSAs, and personality traits reduce the uncertainties appearing in the stage of teambuilding and accordingly foster teamwork.

H1.1: Personnel formalization of job description and employees’ performance record enhances employees’ participation in teamwork.

Safety Hazards and Stress Brought by Troublesome Coworkers

Stress has multiple sources, and one type of stress derives from behavioral problems that troublesome coworkers bring to work (Bennett & Lehman, 1999). In recent years, the number of training programs that help managers deal with employee behavioral risks such as violence, hostility, sexual harassment, and substance abuse (e.g. alcohol and drugs) has been growing (Bennett & Lehman, 2001; Bennett, et al., 2000; Yandrick, 1996), thus implying that employees are more likely than before to be exposed to the stress emanating from troublesome coworkers and their behavioral problems. Negative consequences of these problems can be costly. For example, sexual harassment is often accompanied by undermined morale, absenteeism, damaged perception of equal opportunity, and compromised interpersonal work relationships (Gutek, 1985; Newell, Rosenfeld, & Culbertson, 1995; Welsh, 1999). Employee abuse of alcohol or drugs during or before work not only increases safety risks (e.g. machinery use and toxic chemicals) but also reduces other employees’ intention to work in teams as cooperation, interdependence, and fair distribution of work responsibility are less possible when abusers are in their presence (Bennett, et al., 2000). The detrimental impact of the exposure to substance abuse, violence, and

sexual harassment on teamwork has received empirical support from an earlier study (Bennett & Lehman, 1999).

Focusing on prevention practices, Bennett and Lehman (1999) claim that psychological buffers such as safety management and harassment management are as important as team member selection in determining the long-term success of teamwork and other high-performance work practices. By “buffers” these authors clearly mean that management of safety and harassment issues provides employees with a sense of protection against such problems and thereby enhances employees’ confidence about engaging in teamwork. Empirical evidence supports this view. In a case study, Vassie (1998) finds that long-term implementation of work safety improvement programs promotes teamwork. Regarding sexual harassment, Fitzgerald, Swan, and Fischer (1995) indicate that harassment is usually underreported because victims are afraid of retaliation, feel the fear of losing jobs, and see no necessity to “make the situation worse” especially when the harassers have formal or informal power accompanied by a position (e.g. manager). However, assertive response can increase when policies and procedures are in place to combat sexual harassment (Gruber & Smith, 1995). Therefore, it is reasonable to expect that formal documents regulating violence as well as safety practices, formal training aiming at work safety, and formal procedures by which employees make complaints about sexual harassment serve as a powerful buffering mechanism and accordingly foster teamwork.

H1.2: Personnel formalization of work safety, including documents regulating violence and safety practices, formal training, and procedures for making sexual harassment complaints enhances employees’ participation in teamwork.

Conflicts and Disputes in Teams

In his widely-cited book, *The Five Dysfunctions of a Team*, Lencioni (2002) mentions that team conflicts are so prevalent that many team managers even purposefully seek artificial harmony due to the fear of conflicts. Indeed, conflicts and disputes are almost unavoidable when people work in groups or teams. They can be useful and constructive if managed adequately, but are destructive to teams and organizations if the scale escalates (Rainey, 2009, p.372). Conflicts often appear in forms of task-related disagreement and personal disputes among members (Gamero, González-Romá, & Peiró, 2008). Sources of conflicts and disputes are diverse, but the fact that most team members belong to different specialized task units is probably the most fundamental one. Team members carrying discrepant goals, values, cultures, priorities, and even languages from their own task units can easily encounter miscommunication and conflicts (Runde & Flanagan, 2008).

Formal procedures for resolving disputes, through providing employees a sense of security and a healthy way to understand disagreements, may orient conflicts to a more constructive direction and accordingly enhance employees' willingness to work in teams. Project management scholars have argued that established procedures for resolving disputes serve as a basis for contractual parties to form mutual objectives and transform contractual relationships into a cohesive team because pre-resolved dispute resolution procedures provide workers a problem-solving process based on the win-win philosophy (Cheung, 1999; Harmon, 2003; Naoum, 2003). In the classroom settings, empirical evidence also shows that establishing team rules and a dispute resolution process as a way to manage conflicts encourages discussion about what is likely to lead to conflict (Scott-Ladd & Chan, 2008). This suggests that rules and conflict resolution provide opportunities for constructive management of conflict and

accordingly can enhance teamwork. Therefore, one can posit that personnel formalization with respect to dispute resolution in work settings should positively enhance teamwork as well.

H1.3: Personnel formalization of dispute resolution procedures enhances employees' participation in teamwork.

The Fear of Knowledge Sharing

Teamwork leads to higher productivity and performance when team members exchange their existing knowledge, and based on which, brainstorm to create new knowledge for problem solving (Chen, 2008; Fong, 2003; Nonaka & Takeuchi, 1995). More precisely, knowledge sharing is the core that determines whether collective understanding can be formed at the group level so as to achieve team effectiveness. However, knowledge as individual property represents one's unique value in organizations, and sharing knowledge often implies knowledge leaking and the loss of one's value (Huysman & De Wit, 2002; Renzl, 2008). Knowledge leaking may jeopardize employees' promotion, status, and eventually endanger their career (Abrams, Cross, Lesser, & Levin, 2003). Scholars have repeatedly reminded managers to encourage interpersonal trust in teams and in organizations to counteract employees' fear of knowledge sharing (Hsu, Ju, Yen, & Chang, 2007; Kim & Lee, 2006; Willem & Buelens, 2007).

Ensuring procedural justice with formal and transparent personnel rules is often used to nurture interpersonal trust and enhance employees' propensity to work in teams. According to Rubin (2009, drawing on Leventhal, 1980), formal procedures are consistent, unbiased, ethical, and accurate in nature. When formal procedures, which act as a symbol of justice and fairness, are in their presence, individuals are more likely to switch their actions from individual to group mode and exhibit more intrinsic motivation to cooperate with team members (Tyler & Blader, 2003). A literature review study by Konovsky (2000) also shows that procedural fairness can

foster trust and teamwork. Similarly, Abrams and her colleagues (Abrams, et al., 2003) remind managers to ensure that personnel (e.g. promotion and rewards) rules as well as decisions are made clear-cut, equal, and transparent in order to enhance interpersonal trust and knoweldge sharing. Based on these earlier studies, we speculate that the existence of formal procedures regulating employees’ promotion should reduce employees’ fear of knowledge leaking and accordingly lead to more teamwork.

H1.4: Personnel formalization that regulates employees’ promotion enhances employees’ participation in teamwork.

The present study identifies four major uncertainties of teamwork: the challenge in selecting team members, stress due to safety concerns brought about by problematic coworkers, team conflicts and disputes, and the fear of knowledge sharing. Different forms of personnel formalization can mitigate, if not eliminate, the aforementioned problems, as Table 1 shows.

[Insert Table 1 Here]

Public-Private Comparison

Public-private comparison is another research focus. Studies in both the United States (Marsden, et al., 1994; Mintzberg, 1979; Rainey & Bozeman, 2000; Warwick, 1975) and other countries (Holdaway, Newberry, Hickson, & Heron, 1975; Zeffane, 1994) have repeatedly indicated that the levels of formalization, particularly standardized personnel procedures, are higher in public sector organizations than in the private sector. Scholars have also attributed the source of higher levels of personnel formalization in the public sector to external political control and the pressures from the federal government (Bozeman, 1987; Bozeman and Feeney, 2011; Meyer, 1979; Mintzberg, 1979). If public organizations are structured more formally, and

personnel formalization positively predicts teamwork, we should anticipate that teamwork is more prevalent in the public sector than in the private sector, as Figure 1 shows.

H2: Teamwork is more pervasive in the public sector than in the private sector because public organizations are structured more formally. That is, personnel formalization mediates the relationship between sector location and teamwork.

[Insert Figure 1 Here]

Data

The U.S. National Organizational Survey (NOS) 2002 provided the data for the analysis of the research questions and hypotheses developed in this study. With support from the National Science Foundation, a team of accomplished sociologists conducted a series of surveys, including the NOS 2002, as the first nationally representative samples of organizations ever studied; the surveys focused mostly on human resources management practices and structures (see Kalleberg, Knoke, Marsden, and Spaeth, 1996; Kalleberg, Knoke, Marsden, 2001; Kalleberg, Marsden, Reynolds, & Knoke, 2006). The NOS researchers surveyed organizations (including public, nonprofit, and private organizations) across the United States, using a probability sampling technique, from October 24, 2002, to May 15, 2003. The survey was actually conducted by the National Opinion Research Center (NORC). NORC used respondents' information about their places of employment from the General Social Survey (GSS) of 2002 to construct the NOS sample of organizations. The GSS sample is a probability sample that produces a nationally representative sample of respondents in the United States. Since the GSS respondents are selected through a probability sampling technique, this makes their responses about where they work a probability sample. That is, the GSS respondents are selected as a

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6 nationally representative sample, so their places of work are in turn a nationally representative
7 sample of organizations in which people work in the U.S.
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11 The final sample for the NOS 2002 consisted of 874 physical locations in organizations.
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13 The respondents were human resource managers or those who did the hiring for the
14 establishment.¹ NOS 2002 is so far the most representative organization survey on the national
15 level in the United States. The sample size for the public organizations represents about 20% of
16 the total sample, and since the sampling procedure selects from all types and levels of public
17 organizations in the U.S., the sample of public organizations is representative, but highly diverse.
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19 The small sample sizes for the individual types of public organizations do not permit their use in
20 regression analyses. Thus, the sample is very representative of the broad population of public
21 organizations, but the survey does not support detailed analysis of individual types of public
22 organizations. The control variables in the analysis, however, do take into account important
23 variations among the samples of public and private organizations.
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36 A sample of 516 cases is available in the NOS 2002 dataset. The survey had a
37 completion rate of 59%. Among the 516 cases, 384 were completed by pen-and-paper survey;
38 70 were completed by computer-aided telephone interviewing; 53 were completed by self-
39 administered questionnaire; 9 were partially completed. In all, 403 of the organizations are
40 private, including private nonprofits (78.1%) and 112 are public (21.7%).²
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Variables

This study aims at teamwork of core function workers.³ Questions in a section of NOS 2002 contain demographic characteristics, work arrangements, teamwork and related practices, and work shifts for core function workers in the organization. Teamwork, the main dependent

variable (DV) in the present study, is measured by a dichotomous item asking “When core function workers do their job, are they involved in work teams?” (yes=1; no=0).

Based on the two hypotheses addressed earlier, two main independent variables are included in the present study. Sector of employment, the first independent variable (IV), is measured by a dichotomous item asking “Is your organization public or private?” (public=1; private=0).⁴ Personnel formalization, the second independent variable, is measured by nine dichotomous items (yes=1; no=0) representing different aspects of personnel formalization such as documents for worker safety, formal training for worker safety, formal procedures for dispute resolution, formal procedures for sexual harassment complaints, written job descriptions and performance records, and formal procedures for promotion. In addition to the nine dichotomous variables, the authors create an aggregate index by summing up these items ($KR-20 = .89$)⁵ due to the concern of statistical parsimony. Please refer to Appendix A for the measurement of these nine dichotomous items.

This study controls for several potentially confounding variables. First, the number of core function workers is considered. The number of core function workers represents the complexity of organizational functions, and teamwork is often designed to cope with change and complexity (Daft, 2009). Group-based monetary rewards should also be taken into account. When workers perceive the existence of group incentives, they will be more willing to organize in teams (Hatcher & Ross, 1991; Way, 2002). The percentage of core function workers working at home should decrease the likelihood of teamwork because regular meetings are less possible in this situation.⁶ The percentage of core function workers falling into nonstandard arrangements (e.g. temporary agency workers, contract company workers, and independent contractors) may reduce the likelihood of teamwork as well. Standard employees assigned to work with

nonstandard employees often experience loss of self-esteem, perceive that temporary workers perform shoddy work, feel insecure (Chen & Brudney, 2009), and often refuse to work with nonstandard workers. Cross-unit work experience is an important control variable. Cross-unit work experience can be obtained via job rotation and cross-unit training. A mutual understanding between two work units is an important cornerstone for teamwork (Way, 2002). Finally, an organization’s commitment to avoid layoffs except in extreme circumstances can reduce employees’ feeling of insecurity and accordingly promote teamwork. Please refer to Table 2 for descriptive statistics.

[Insert Table 2 Here]

Statistical Analysis

There are two hypotheses in the present study: (i) personnel formalization enhances teamwork and (ii) public sector employees are more likely than their private counterparts to be involved in teamwork because public organizations are generally more formalized. Descriptive statistics and two-group proportion tests in Table 3 and Table 4 provide preliminary support for our hypotheses. First, the results in Table 3 show that the use of teamwork is indeed more prevalent in organizations where various types of personnel formalization are present ($p < .01$ for all two-group proportion tests). Second, the results in Table 4 show that public organizations are more formalized than private organizations in all personnel aspects included in the present study, and the use of teamwork is more common in public organizations than in private organizations ($p < .01$ for all two-group proportion tests).

[Insert Table 3 and Table 4 Here]

To more precisely test our hypotheses, we employ regression analysis with the inclusion of several control variables. Because the main dependent variable—teamwork—is measured by

a dichotomous item, the authors model the variable relationships with logit regression and report the results in Table 5. According to Model 1, with all control variables in the analysis, the coefficient of personnel formalization (the sum-up index) is still statistically significant at the 99% confidence level with a marginal effect = .049, meaning that one additional kind of personnel formalization increases the likelihood of teamwork for 4.9%. That is, statistical findings support the first hypothesis.⁷ In addition, compared to Model 0, adding personnel formalization into the model raises Pseudo R square from .070 to .137.

[Insert Table 5 Here]

The second hypothesis states that public organizations are structured more formally than business organizations, so teamwork is more prevalent in the public sector than in the private sector. In this mediating relationship, the sector of employment is the main independent variable (IV), whereas personnel formalization becomes the mediating variable (MV). To test this hypothesis, a mediation test is employed. A mediating relationship exists when (i) the MV significantly predicts the DV; (ii) the main IV significantly predicts the MV; (iii) a statistically significant relationship exists between the IV and the DV, but (iv) the significance shrinks with the presence of the MV in the model (Baron & Kenny, 1986; Kenny, 2012). The mediation effect equals the decrease of the IV coefficient in percentage. Given that the first condition has been met (i.e. personnel formalization significantly predicts teamwork), the author examines the remaining three conditions and report the results in Model 2, Model 3, and Model 4 respectively.

Model 2 shows whether the sector of employment (IV) predicts personnel formalization (MV). Because personnel formalization is a count variable, Poisson regression is a more appropriate method. The statistically significant coefficient of sector of employment ($p < .000$) in Model 2 confirms that the second condition is met. In Model 3, the analysis tests whether

sector of employment (IV) predicts teamwork (DV) with logit regression given the dichotomous nature of teamwork. With the presence of all control variables, sector of employment is still statistically significant ($p < .001$) with a marginal effect = .231, meaning that core function workers in public organizations are 23.1% more likely than their peers in private organizations to work in teams. However, after personnel formalization is entered into the model, as Model 4 shows, the marginal effect of sector of employment drops from .231 ($p < .001$) to .108 ($p < .117$) with a mediation effect = $(.231 - .108) / (.231) = 53\%$, implying that approximately half of the difference in the use of teamwork between the public and private sectors can be explained by their disparate levels of personnel formalization.⁸ The results in Model 2-4 support the second hypothesis: public sector employees are more likely than their peers in the private sector to work in teams because the levels of personnel formalization are higher in the public sector. Regarding control variables, job rotation is the most influential control variable, statistically significant in all models. The number of core function workers is statistically significant at the 95% confidence level in Model 0, at the 90% confidence level in Model 3, but not significant in other models when personnel formalization is entered. This implies that the number of core function workers is an effective predictor, but its impact on teamwork overlaps with the impact of personnel formalization. Commitment to avoid layoffs is statistically significant at the 90% confidence level in Model 0 but insignificant in other models. The variable of group incentives is significant at the 90% confidence level in Model 3, but insignificant in other models. Other controls are not significantly related to the use of teamwork in public and private organizations.⁹

Discussion

This article investigates the relationships among three factors: personnel formalization, teamwork, and public-private difference. In fact, academic publications that discuss their

relationships appeared in the public administration literature back in the 1990s when new public management (NPM) was in its heyday. The basic rationale of NPM holds that the poor quality of public service originates because government suffers too much from the constraint of formal regulations such as elaborate personnel rules, budget rules, and administrative rules. To improve public service, public organizations need to replace formal rules with core components of business management such as competition, deregulation, decentralization, innovation, and teamwork (Borins, 1995; Osborne & Gaebler, 1992). NPM perspectives imply that (i) formal rules and teamwork are mutually exclusive, and (ii) public sector workers are less likely than their private sector peers to work in teams because the levels of formalization are generally higher in the public sector than in the private sector. Although this proposition looks plausible, no empirical evidence supports it. By contrast, findings in the present study show the opposite, indicating that teamwork is more likely when the levels of personnel formalization increase. Public organizations' tendency towards higher levels of formalization, evidenced in empirical studies, shows no tendency to reduce teamwork. Rather the evidence here suggests that formalization can create conditions that increase the use of teamwork. The intricacy of formalization therefore requires a nuanced discussion.

As a core element of bureaucracy, formalization resembles a double-edged blade concerning its impact on teamwork. From the view that emphasizes dysfunctional bureaucracy, a formalized structure imposes organizational red tape that causes slavish behavior, delay, and organizational rigidity. Teamwork as a form of flexible organizational structure requires quick information flow and intensive knowledge sharing through informal coordination, seemingly contradicting the rationale for formalization. Nonetheless, bureaucracy does not have to be

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dysfunctional. Standing for procedural rationality, formal rules can improve organizational operation, as Olsen (2006) argues:

“Rules tend to increase action capabilities and efficiency. They make it possible to coordinate many simultaneous activities in a way that makes them mutually consistent and reduces uncertainty...They enforce agreements and help avoid destructive conflicts...They (also) embody collective and individual roles, identities, rights, obligations, interests, values, worldviews, and memory...Rules do not necessarily imply rigidity and inflexibility. Rules may prescribe change, and they allow behavioral flexibility” (p. 8-9).

Apparently, findings in this study correspond to Olsen’s (2006) view of positive bureaucracy. Formal written job descriptions and performance records allow prospective teammates to create collective values and a shared mental model (Bolstad & Endsley, 1999); formal procedures for dispute resolution reduce employees’ fear of conflicts and orient conflicts in a constructive way; formal procedures dealing with sexual harassment and worker safety reduce teamwork uncertainties; formal procedures regulating promotion enhance mutual trust among employees. Working under the protection of various formal personnel rules and procedures, public sector employees are more likely than those in the private sector to be engaged in teamwork, a symbol of flexibility and a type of high-performance practices. In short, findings in this study weigh against the oversimplified view, in much popular and academic discourse, of government organizations as uniformly dysfunctional bureaucracies.

However, it might still be too early to conclude that formal rules universally facilitate teamwork. The present study focuses on the influence of personnel formalization, one of the many kinds of formalization. It is inappropriate to rule out the possibility that other types of

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6 formalization such as a formal communication system may impede information flow and
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8 knowledge sharing, accordingly stifling teamwork (Willem & Buelens, 2007). In addition, this
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10 study measures formalization with nine “neutral” personnel items, asking respondents whether
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12 formal procedures and rules exist in organizations. Such questions do not capture the essence of
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14 personnel inflexibility and rule constraints, such as the inflexibility to remove poor performers
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16 (Chen, 2012; Feeney & Rainey, 2010). It is possible that personnel inflexibility or red tape has a
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18 negative impact on employees’ propensity to work in teams. We need more empirical studies to
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20 test such propositions. Moreover, it must be recognized that the analysis and evidence here
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22 cannot conclusively prove that personnel formalization directly causes teamwork. The evidence
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24 of more teamwork in public organizations, and of its strong association with personnel
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26 formalization, is original and very important. That this evidence comes from a probability
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28 sample of organizations in the U.S. and hence as representative sample of organizations as is
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30 available, adds to the value of the evidence. Still, a survey such as the NOS cannot directly and
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32 conclusively prove a causal relationship between personnel and teamwork, and proving such
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34 causation will require more sensitive longitudinal research and probably more qualitative
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36 methods.
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43 Conclusion

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45 The present study indicates that personnel formalization of worker safety practices,
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47 sexual harassment complaints, dispute resolution, and promotion channels serves as an antidote
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49 to employees’ fear to work in teams. Formal written job descriptions and performance records
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51 provide a basis for team member selection. Therefore, personnel formalization enhances
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53 teamwork, a form of high-performance work practices. In addition, public sector employees are
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55 more likely than their counterparts in the private sector to work in teams because personnel
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formalization is more prevalent in public organizations. These findings challenge the stereotype that government agencies are dysfunctional bureaucracies, remind public administration scholars to pay more attention to the desirability of bureaucracy, and add new knowledge to an old-fashioned but still intriguing research query: whether sector matters.

However, some things are left unexplored. For example, results of mediation tests show that personnel formalization explains about 53% of the different use of teamwork between public and private organizations. What are the factors that account for the remaining 47%? Are they other types of formalization not included in the NOS dataset such as rules against discrimination? Future research may consider including these formal rules. In addition, it would be valuable to conceptually and empirically differentiate neutral formalization from negative formalization (i.e. red tape) and compare their influences on teamwork and other types of high-performance work practices.

“Maybe it is time to rediscover bureaucracy,” as Olsen (2006) claims. Formalization accompanied by hierarchy and specialization in bureaucracies has never been designed to maximize efficiency. Instead, organizations use formal rules to reduce uncertainties, maintain stability, avoid disputes, and eventually enhance performance such as the practice of teamwork. Considering that public organizations often face information overload (Rainey, 2009, p.377) and need teamwork to process information more effectively, personnel formalization seems even more indispensable. If removing cumbersome rules is an existing agenda in government reform, public managers should be encouraged to more deliberately differentiate desirable formal rules from undesirable red tape.

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Tables and Figures

Table 1. Personnel formalization reduces teamwork uncertainties and risks

Teamwork uncertainties and risks	Forms of personnel formalization that mitigate the problems
<ul style="list-style-type: none">• Selection of team members• Safety hazards and stress brought by problematic coworkers• Team conflicts and disputes• Fear of knowledge sharing	<ul style="list-style-type: none">• Written job descriptions and written records of employees' job performance• Formal training for worker safety; documents describing safety and violence practices; formal procedures by which employees make complaints about sexual harassment• Formal procedures for dispute resolution• Formal procedures for promotion

Table 2. Descriptive statistics

	N	Mean	SD	% for dummy	Min	Max
Core function workers working in teams	504	--	--	67.6%	0	1
The public sector	515	--	--	21.7%	0	1
Personnel formalization (sum-up of 9 dummies)	475	5.49	3.08	--	0	9
Number of core function workers/1000	501	0.17	0.50	--	0	4.5
Percentage of nonstandard core workers	485	0.02	0.10	--	0	1
Percentage of core workers working at home	494	0.04	0.15	--	0	1
Group incentives	503	--	--	10.9%	0	1
Cross training	503	--	--	67.2%	0	1
Job rotation	499	--	--	35.1%	0	1
Commitment to avoid layoffs	500	--	--	32.4%	0	1

Table 3. Teamwork is more prevalent in formalized organizations

Personnel formalization	Teamwork		P-tests
	Yes	No	
Safety and hygiene practices	76.7%	45.5%	***
Policy about workplace violence	78.5%	51.0%	***
Training for a safe workplace	77.5%	54.3%	***
Sexual harassment complaints	79.0%	48.6%	***
Resolving disputes	79.9%	47.3%	***
Written job descriptions	74.3%	47.6%	***
Written performance record	77.4%	47.5%	***
Promotion (1)	86.4%	59.3%	***
Promotion (2)	81.7%	54.8%	***

*** $p < .01$

Table 4. Public organizations have higher levels of personnel formalization and teamwork

	All organizations (n=515)	Public organizations (n=112)	Private organizations (n=403)	P-tests (public vs. private)
<u>DV: Teamwork</u>				
Teamwork	67.6%	84.4%	62.9%	***
<u>MVs: Personnel formalization</u>				
Safety and hygiene practices	70.6%	85.3%	66.6%	***
Policy about workplace violence	60.3%	88.9%	52.5%	***
Training for a safe workplace	58.2%	76.8%	53.0%	***
Sexual harassment complaints	63.2%	88.0%	56.3%	***
Resolving disputes	62.5%	90.7%	54.7%	***
Written job descriptions	73.9%	90.0%	69.5%	***
Written performance record	67.0%	87.3%	61.5%	***
Promotion (1)	33.2%	53.4%	26.7%	***
Promotion (2)	47.9%	77.0%	39.7%	***

*** $p < .01$

Table 5. Modeling: Teamwork, personnel formalization, and sector of employment

Dependent variables (DVs)	M0 (Logit) Teamwork	M1 (Logit) Teamwork	M2 (Poisson) Personnel formalization	M3 (Logit) Teamwork	M4 (Logit) Teamwork
	M.E. (p)	M.E. (p)	M.E. (p)	M.E. (p)	M.E. (p)
<u>IV and MV</u>					
The public sector	--	--	2.189*** (0.000)	0.231*** (0.001)	0.108 (0.117)
Personnel formalization (sum-up)	--	0.049*** (0.000)	--	--	0.045*** (0.000)
<u>CVs</u>					
Number of core function workers	0.232** (0.016)	0.045 (0.523)	--	0.163* (0.080)	0.028 (0.698)
Nonstandard core workers (%)	-0.118 (0.665)	0.001 (0.998)	--	-0.075 (0.781)	0.014 (0.957)
Core workers working at home (%)	-0.251 (0.185)	-0.026 (0.899)	--	-0.161 (0.391)	-0.007 (0.970)
Group incentives	0.122 (0.144)	0.086 (0.306)	--	0.147* (0.078)	0.096 (0.255)
Cross training	0.053 (0.261)	0.053 (0.282)	--	0.046 (0.334)	0.053 (0.288)
Job rotation	0.173*** (0.001)	0.143*** (0.008)	--	0.176*** (0.001)	0.142*** (0.009)
Commitment to avoid layoffs	0.086* (0.083)	0.036 (0.479)	--	0.074 (0.141)	0.034 (0.504)
Constant	0.076 (0.693)	-0.927*** (0.001)	1.595*** (0.000)	-0.077 (0.695)	-0.928*** (0.001)
N	457	438	476	456	437
Pseudo R square	0.070	0.137	0.032	0.093	0.141

M.E. = marginal effect; *** $p < .01$; ** $p < .05$; * $p < .10$

Figure 1. Variable relationships

Appendix A: Variable Measurement

Teamwork (DV) and sector of employment (IV)

- When core function workers do their job, are they involved in teams? 1 = yes, 0 = no.
- Is your organization public or private? 1 = public, 0 = private

Personnel formalization (MVs)

Does each of the following documents or procedures exist in your organization? All variables are measured by a dummy scale question; 1 = yes, 0 = no. (KR-20 = .89)

- Documents describing safety and hygiene practices
- Documents describing policy about workplace violence
- Formal training offered to core function workers for a safe workplace
- Formal procedures by which employees may make complaints about sexual harassment by co-workers or supervisors
- Formal procedures for resolving disputes between employees and their supervisors or coworkers
- Written job descriptions
- A written record of nearly everyone's job performance
- Formal procedures for promoting core function (CORE) workers to a higher level
- Formal procedures for a core function worker to be promoted to a job above CORE

Control variables

- Number of core function workers (interval)
- Percentage of core function workers working at home (interval)
- Percentage of nonstandard core function workers (interval)
- Are core function workers paid using group incentives, such as gain sharing? (dummy)
- Are core function workers cross-trained? (dummy)
- Are core function workers involved in job rotation? (dummy)
- Has your organization made any explicit or implicit commitment to its employees to avoid layoffs, except in extreme circumstances? (dummy)

Endnotes

¹ The NOS 2002 study took elaborate measures to identify establishments and respondents. According to the codebook for this study, the intended respondent is “the Human Resource (HR) manager or the person who does the hiring for the establishment.” That is, the HR manager represents the entire organization. Considering that a majority of survey items in the current study are related to HR practices, HR managers should be more able to provide responses in line with the current organizational situations, if compared to other organization members. This practice of using one representative of the organizations to respond for the organization has obvious pros and cons, but this procedure has been used in very important and prominent research, such as the “Aston studies” (Pugh, Hickson, and Hinings, 1969; see also Rainey, 2009, 48 and 61).

² Nonprofits are included in the category of private organizations.

³ Core function, based on the questionnaire of NOS 2002, is main product or service provided by the organization. Core function workers are those directly involved in main product or service provision.

⁴ An anonymous reviewer raised the important question of whether the survey might have grouped publicly-traded private business corporations with the “public” organizations. Space precludes a full explanation here, but the survey procedures—the question wording and other provisions—and survey results indicate that the publicly-traded private firms were clearly categorized with the other private businesses and not with the public organizations (see Kalleberg, et al, 1996).

⁵ Kuder-Richardson Formula 20 (KR-20) is analogous to Cronbach's α , except Cronbach's α is used for continuous measures while KR-20 is used for dichotomous measures. The command of “KR20” exists in the Stata packet.

⁶ Indeed, virtual teams are available for people working at home. Considering that internet connection was less popular and the speed was slower in 2002, the percentage of home workers should be an influential element in predicting teamwork.

⁷ The authors conducted nine bivariate regressions to test whether each type of personnel formalization is significantly related to teamwork, receiving strong support. The results of bivariate regressions are available upon request.

⁸ The authors conducted mediation tests with the use of nine individual formalization variables as mediators and obtained the mediation effect = 60%, slightly higher than 53%.

⁹ It is noteworthy that the following controls are statistically significant at the 95% confidence level in the analysis of phi correlation coefficient (two dichotomous variables) and point biserial correlation coefficient (one dichotomous variable and one continuous variable): the number of core function workers, the percentage of core workers working at home, whether core function workers are cross-trained, job rotation, and the commitment to avoid layoff. Only two control variables—group incentives and the percentage of nonstandard core workers—fail to reach the standard of 95% confidence level.