

A new approach to measuring red tape from survey data: Controlling for perceptions of formalization

By

Stuart Bretschneider
Maxwell Professor of Public Administration
The Maxwell School
Syracuse University
sibretsc@maxwell.syr.edu

Xiao-hong Chen
Doctoral Student in Public Policy
School of Public Policy and Management
Tsinghua University

Liang Wu
Doctoral Student in Public Policy
School of Public Policy and Management
Tsinghua University

Xue Qiao
Doctoral Student in Public Policy
School of Public Policy and Management
Tsinghua University

Abstract

Over the past twenty years research in red tape has grown both theoretically and empirically. While a great deal of the empirical work has relied on survey data, significant problems remain when working with these data in understanding the effects of red tape. Survey data tend to rely on perceptions of individuals about overall effects of rule not necessarily red tape, which creates two problems. First is a mismatch in the level of analysis between the core theoretical construct, rules, and the empirical measures based on individuals and/or organizations. The second problem is the potential merging of rule effects on perceptions from both formalization (physiology) and red tape (pathology). The main focus of this paper is to develop an approach that better utilizes survey data and attempts to separate out perceptions of rule effect between formalization and red tape.

The paper begins with a review of the general approaches to measuring red tape in surveys focusing primarily on perceptual measures. The paper then proposes how perceptions are effected by formalization which might then interfere with direct attempts to measure perceptions of red tape. This leads to an alternative two stage approach to measuring red tape. We first develop a factor based approach to measuring general perceptions of rule effects. Arguing that these measures capture the biasing effects of formalization, we then back out their impact on the general measures typically used for red tape to create an alternative residual measure-general perception of red tape minus perceptual effects of rule in general. While still not a direct measure of red tape, we expect this new measure to be precise and have better construct validity. In order to test our new measure we replicate the results from three published articles using NASP II data (Scott and Pandey, 2005; deHart-Davis and Pandey, 2005; Moynihan and Pandey, 2007) applying our new measure. The results strongly suggest that the new approach not only works better than previous approaches at measuring red tape but that this strategy also provides a useful mechanism for separately measuring perceptual effect of rules in general. The empirical results also suggest that the new approach to measuring formalization effects may be a necessary control in order to estimate more accurate effects of red tape.

【key words】 red tape; formalization; measurement

Introduction

Over the past twenty years research in red tape has grown both theoretically and empirically. Bozeman (1993) defined organizational red tape as “rules, regulations, and procedures that remain in force and entail a compliance burden for an organization but make no contribution to achieving the rules’ functional objectives.” This original articulation of the definition and theory of organizational red tape was careful to distinguish it from formalization, “the extent to which rules, procedures, instructions and communications are written.” (Pugh, Hickson, and Hinings 1969). Much of the empirical research that followed continued to articulate the distinction between organizational red tape and formalization but only a few empirical studies attempted to use empirical measures of formalization as a control for impact of organizational red tape . The connection between red tape and formalization derived from the common construct of rules, and specifically written formal rules. Recently Bozeman and Feeney (2011) re-expressed the relationship between red tape and formalization as one where formalization was at worst a neutral construct but red tape was negative or bad.

Two broad empirical approaches have been taken to study red tape. One approach is to look at formal organizational rules and documents directly (Zhou 1991; DeHart-Davis and Bozeman 2001). By far the more dominant approach to empirical study of red tape is through the use of survey data. Two general measurement strategies are used in survey to measure red tape, a general perceptual measure and a potential impact measure, administrative processing times. Over the past 20 years most studies have relied on the general perceptual measure of individuals about overall effects of rule not necessarily red tape, which creates two problems. First is a mismatch in the level of analysis between the core theoretical construct, rules, and the empirical measures based on individuals and/or organizations. The second problem is the potential merging of all rule effects on perceptions from both formalization (physiology) and red tape (pathology).

This paper has two interconnected objectives. First we hope to more clearly articulate how formalization effects perceptions of constraints on managerial actions and their impacts such as administrative time delay, and how both of these in term might influence perception of red tape. This theoretical framework then provides and bases for developing an empirical strategy for adjusting survey based self-reported perceptions of red tape for formalization. The main focus of this paper then is to develop an approach that better utilizes survey data and attempts to separate out perceptions of rule effect between formalization and red tape. Such an approach should result in a more precise measure of perceptual red tape.

The paper begins with a literature review of red tape research with an emphasis on the relationship between red tape and formalization. This review also considers the general approaches to measuring red tape in surveys focusing primarily on perceptual measures. The paper then proposes how perceptions are effected by formalization which might then interfere with direct attempts to measure perceptions of red tape. This leads to an alternative two stage approach to measuring red tape. We first develop a factor based approach to measuring general

perceptions of rule effects. Arguing that these measures capture the biasing effects of formalization, we then back out their impact on the general measures typically used for red tape to create an alternative residual measure-general perception of red tape minus perceptual effects of rule in general. While still not a direct measure of red tape, we expect this new measure to be more precise and have better construct validity. In order to test our new measure we replicate the results from three published articles using the National Administrative Studies Project II (NASP II) data (Scott and Pandey, 2005; deHart-Davis and Pandey, 2005; Moynihan and Pandey, 2007) applying our new measure. The results strongly suggest that the new approach not only works better than previous approaches at measuring red tape but that this strategy also provides a useful mechanisms for separately measuring perceptual effect of rules in general. The paper then concludes by suggesting future directions for measurement of red tape.

Literature Review: Formalization and Red Tape

Formalization

Given its importance and close relationship to red tape research and theory, we consider formalization theory in some detail. As noted above the most commonly accepted definition for formalization in organizations is “the extent to which rules, procedures, instructions and communications are written”(Pugh, Hickson, and Hinings, 1969). Scott provides a good account of the importance of formalization, beginning with the idea that formalization actually defines formal organizational structures (Scott 1987). Simon noted that, “without prescribed roles and behaviors, established through sets of formal rules, formal organizations cannot exist.” (Simon 1957). Thus the issue of formalization is not “whether” rules and procedures should be written but “how much” (Rivkin and Siggelkow 2003).

The organization’s formal structure not only mediates performance but it also provides manager’s with the necessary instruments to effect performance (Scott 1987). Consequently, the degree of formalization relates closely to the potential for managerial control of individuals within organizations (Clegg 1981). Job mobility, promotion, and even the death of organizational members present fewer barriers to organizational stability and functioning in the presence of appropriate formalization of structure (Gouldner 1950; Lieberman and O’ Connor 1972; Pfeffer and Salancik 1977). The formalization of roles also has the advantage, in some cases, of easing work relationships among people who do not like one another or who do not know one another.

Measurement associated with formalization has typically been problematic. Focusing formalization measurement on the number or extent of rules do not capture rule effectiveness (Briscoe 2007). Consequently, while conceptually formalization provides an explanation for the formation of structure, measure the amount or extent of written rules and procedures provides only an incomplete picture of formalization within an organization. Empirical work has found both positive and negative effect of formalization. For example standardization of work procedures actually enhances job satisfaction because of increasing clarification of role expectations (Snizek and Bullard 1983; York and Henley 1986) while several studies have found

that bureaucratization reduces job satisfaction (Blau and Scott 1962; Ivancevich and Donnelly 1975).

The more recent development of a theory of red tape actually provides a somewhat deeper theoretical explanation of formalization in terms. In order to understand how formal rules and procedure can become problematic and pathological the issue of costs and benefits of rules is more clearly articulated.

Red tape

The earliest scholarly treatment of red tape began with the work of sociologists who highlighted the problems of bureaucratic inefficiency that potentially inhere in the ideal-type formulations of Weber (Merton 1940; Gouldner 1952). Merton (1940) said that red tape often results when generalized rules are invoked for particular, limited, or exceptional circumstances. Gouldner (1952) claimed that red tape is a phenomenon grounded in individualistic perceptions.

One of the foremost early scholars of red tape in public organizations noted that when “people rail against red tape, they mean that they are subjected to many constraints, that many of the constraints seem pointless, and that agencies seem to take forever to act” (Kaufman 1977). Kaufman concludes that the popular notion of red tape and pointless constraint to managerial action suffer from the problem of perspective in that often constraint faced by individual still serve other organizational objective.

In 1984, Rosenfeld defined red tape as “guidelines, procedures, forms, and government interventions that are perceived as excessive, unwieldy, or pointless in relationship to decision making or implementation of decisions”. This definition provides a clearly normative perspective and suggests that some formalization is inherently “bad.” Bozeman’s definition noted above, “rules, regulations and procedures that remain in force and entail a compliance burden for the organization but have no efficacy for the rule’s functional object,” continues this normative perspective but introduces the notion that formal rules and procedures have clear costs and benefits. It is interesting to note that the Bozeman definition is not a simple cost/benefit calculation. It suggests that there are two necessary conditions for red tape, no benefit with respect to the specific objective of the rule or procedure and some compliance burden cost.

Research studies in the red tape as pathology (Baldwin, 1990; Bozeman, Reed and Scott, 1992; Bretschneider, 1990; Feeney and Bozeman, 2009; Kingsley and Reed, 1991; Pandey and Kingsley, 2000) suggest that comparable government organizations experience great rule related pathologies than private firms. Bretschneider (1990), for example, used administrative processing times as a measure of red tape and bureaucratization. Early work on differences between public and private organizations consistently found these differences (Rainey, Backoff, and Levine 197x; Rai 1983; Bozeman and Bretschneider 1986; Baldwin 1990, Bretschneider 1990).

The development of red tape theory has been intertwined with the development of theories of rules. In part, this is because early fieldwork on rules (Bozeman, 1993; Kieser and Kubicek 1992; Zhou 1993) provided the base for developing a “rules- based ” orientation to red tape

theory. Empirical work following from this perspective provided minor modifications to the formal definition of red tape. For example, Dehart-Davis (2007) offered the definition of red tape that “burdensome administrative policies and procedures that have negative effects on the city’s performance”, while others (Dehart-Davis and Pandey, 2005; Yang and Pandey, 2009) think of red tape as “burdensome rules or procedures that have an adverse effect on organizational performance”. Pandey, Coursey and Moynihan(2007) narrow Bozeman’s definition, noting that “red tape exists when managers view formalization as burdensome and detrimental to organizational purposes”, confirming Bozeman’s assertion that red tape imposes a “compliance burden for the organization but makes no contribution to achieving the rule’s functional object”(2000). In summary most current work regards red tape as pathology and there for either distinctive from formalization or as a subset of formalized rules and procedures (Bozeman and Dehart-Davis, 1999; Bozeman and Kingsley, 1998; Bozenman and Scott, 1996; Pandey and Bretschneider, 1997; Pandey and Scott, 2002).

Perceptions of Rules, Delay and Red Tape: A Theoretical Framework and Measurement Strategy

As noted above formalization is the process by which structure is constructed. Perrow (1972) views that this bureaucratization as a trade-off between efficiency and inflexibility. Too little bureaucracy and efficiency is lost as the organization spins out of control. Too much bureaucracy and organizations become inflexible and unwieldy, stifling the very activities that they were set to enhance. Considering the bureaucracy’s need to control behavior and constrain individual discretion, we see the potential for all bureaucratic organizations to create red tape. Bureaucracy constrains and when those constraints serve no legitimate purpose, organizations, their members, and those they serve become ensnared in red tape.

Much of the empirical work echoes this theoretical relationship. Specifically, researchers note that formalization is neutral, while red tape is negative or bad (Bozeman and Dehart-Davis 1999; Bozeman and Kingsley 1998; Bozeman and Scott 1996; Pandey and Bretschneider 1997; Pandey and Scott 2002) . Bozeman and Loveless (1987) note that red tape and strong internal controls do not necessarily go hand in hand. In fact, organizations that are highly formalized can have low levels of red tape, and organizations with weak internal controls can have high levels of red tape. Yet, Pandey, Coursey and Moynihan (2007) argued that “red tape exists when managers view formalization as burdensome and detrimental to organizational purposes.” At the same time, Welch and Pandey (2007) offer a methodological test of this assertion that red tape and formalization are different concepts. So that though much of the theory and empirical work has tried to separate these two concepts they remain linked.

One way of dealing with these issues is to view formalization as a process that generates written rules and procedures (i.e. structures). Further the express purpose of the formalization process is to create stability, predictability and the type of control that help organizations achieve their goals. Many researchers recognize that a major purpose of formalization is to control

individual behavior, particularly to constrain people. Thus formalization may affect our standard approaches to measuring red tape in two related ways. First, legitimate oversight rules are likely to increase administrative processing particularly with regard to personnel, budgeting, and procurement activities. Such effect from legitimate rules will also have spillover effects on organizational attitudes and perception. Prior research has linked the use of formalization rule to numerous negative attitudinal variables like work alienation, for example. Thus formalization directly effects administrative processing and then indirectly through delays in administrative processing generates negative attitudinal and perceptual effects. Finally there is also likely to be direct attitudinal and perceptual effect of formalization independent of its effects on administrative delay. Figure 1 summarizes these relationships.

--- Insert Figure 1 ---

These relationships suggest that any efforts to measure red tape either through administrative delay or general perceptual processes will be effected by formalization thus causing errors in measurement. These errors could be both systematic errors, creating bias, and/or random errors in measurement effecting variance or reliability of measurement.

The potential measurement problem is further compounded by the various approaches that have been applied to instrument both formalization and red tape. For example in one of the few studies that use a survey measure for both red tape and formalization, a single item measure for formalization was used (DeHart Davis and Pandey 2005). The question used was, “please assess the extent of record keeping in your organization.” At best this measure may indirectly capture how more formal organizations may require more records be kept but it is at best indirect. Record keeping is not synonymous with rules and procedures and therefore is weak on face validity. Further this measure does not get at the more important impact of formalization relative to red tape, which is the potential of formal rules to constraint actions and therefore generate a more general negative affect.

Along with the general perceptual measure of red tape, a series of survey questions have been used to look at how rules effect management action in personnel, procurement, and other critical decisions within organizations. Known as subsystem red tape the questions associated with personnel decision making have been the most popular in empirical studies (Bozeman and Feeney 2011). Close examination of the questions though suggest that these are not assessing red tape but formalizations constraints which generate negative perceptions of rules. Thus an argument can be made that the so-called subsystem red tape measures capture the negative effects of formalized rules on managerial perception not the deep more pathological impact of red tape rules.

Since the main objective of this research is to rethink how to make better use of survey data from individual managers about their organizations it is necessary to have both measurement instrumentation of formalization and red tape. Thus when asking about red tape individuals are likely to, at least in part, also be responding to their notion of formalization and rules in general.

The most common global measure of red tape in use from surveys of individuals representing themselves and/or their organizations is the general perceptual measure developed originally by Pandey (1987). Appendix A1 provides the typical single item measure used to capture perceptual red tape. As noted above, another group of popular measures for red tape derived from these same surveys are constructed from a series of items designed to ask respondent about their reaction to rules organized around specific areas of decision making. These measures have been referred to as subsystem red tape but focus specifically on how rules permit or constraint action. Appendix A2 provides the standard items associated with subsystem red tape. Note that in each case the item is phrased as what a formal rule enables or constrains. It is important to note that our concern here is that as phrased such rules may or may not be red tape but since they are part and parcel of most organization structures, the assumption that they have no efficacy for the rules functional object seems the less plausible assumption. Hence while the burden is clear the lack of value is not.

Whatever the underlying construct, these items appear to be more about one unit controlling the behavior of another unit or limiting discretion. Such rule application is rarely if ever viewed positively by those complying with such rules. Also these systems are typically operating within a hierarchical structure for large government organizations. Thus it is reasonable to assume that individuals responding to such questions will view such rules as having primarily negative or at least no positive consequence for them or their units. Nevertheless it is not hard to see that especially in government organizations these resource based review systems do have important positive impacts with regard to reducing corruption, reducing negative press and ensuring resource are used in appropriate goal oriented ways.

Arguable, these items may be capturing general effects of rule and procedures or formalization effects. It is useful to note that in some recent work, these questions have been re-interpreted to be less measures red tape to instead capture the effects of rules in a more general way. Feeney and Rainey (2010), for example, factored three items typically used for personnel red tape and interpreted the construct as a measure of personnel flexibility, a more positive effect for rules.

Thus in a survey that contain both the general perceptual measure of red tape and these rule impact items for managerial subsystem, it is possible to instrument both red tape and formalization. The model presented in figure 1, though suggest that these are not independent items but overlapping items. Thus a general strategy for measure red tape needs to recognize that the perceptual measure contains elements of both red tape and formalization on perception. Instrumenting formalization and then removing its effects on the general perceptual measure such result in a more precise measure. The next section of the paper describes this process and then implements it using the NASP II Survey (2003).

A Revised Measure of Perceptual Red Tape

The NASP II survey data was collected by Dr. Sanjay Pandey in 2003. The survey was mailed to 570 information managers in state-level primary health and human services agencies in the 50 states and Washington, DC. While this particular sampling frame could raise some issues of selection in our results we make use of this for two reasons. First Bozeman and Feeney (2011) recognized it as the one survey which “included more red tape indices than any previous or subsequent project.” Secondly it has been the source of many peer reviewed articles that make use of the general perceptual red tape measure and the sub-system red tape measures. NASP II survey had a response rate of 53 percent resulting in 274 useable responses.

Our first task was to define a measurement for the formalization construct. As noted above our view is that the ‘so-called’ sub-system red tape measures actually focus on rule effects that are potentially positive, neutral or constraining. Thus we used these question items as the basis for a formalization instrument. Using the full set of responses to the sub-system red tape measures (see Appendix A2), we applied principle component factor analysis with varimax rotation. The five factor solution captured 56.7% of the variance in all the items. Table 1 presents the factor loadings associated with the results which line up perfectly with the theoretical listing of elements to their various sub-system dimensions, personnel, communications, procurement, information systems and budgets.¹

---- Insert Table 1 and Table 2 ---

Next we used the five factor score variables to explain the portion of variation in the general perceptual red tape measure likely due to attitudes of rules and formalization in general. All of these variables are statistically significant and account for about 25% of the variation in the general perceptual measure. It is interesting to note that the one factor that is negatively related to perceived red tape I associated with rules about information systems. These are likely due to a clear sample bias associated with having surveyed on information system managers. While this may weaken the generalizability of our results to other non-NASP II survey data it should not pose a problem in re-analyzing published results based on these data.

The final step was to generate the residuals from the regression reported in table 2. These residuals provide an adjusted version of the global measure that backs out the attitudes surrounding rules in general. Our expectation is that this new measure should have less measurement error and greater construct validity.

--- Insert Table 3 ---

¹ When the global measure was included with all the sub-system items, the factor loading were .42 and smaller in absolute value. This suggests that the general red tape item tapped something different from the other items.

Validation/Replication Analysis

In order to assess this hypothesis we reviewed three major articles from the literature that; i) used the NASP II data, ii) used the general perceptual measure of red tape as either an independent variable or the dependent variable, iii) applied OLS linear regression estimation and iv) were reviewed by different high quality journals. The third criterion was selected for two reasons. First it made the replication step significantly easier and secondly the revised measure assumes that formalization is independent of other factors. If this assumption is not correct then using the revised measure as an endogenous variable would potentially increase error in measurement and bias effects. The last criterion simply suggests that the work was considered of reasonable quality.

Dehart-Davis and Pandey (2005)

In this paper the author investigate the effect of red tape on work alienation. They consider three measures to capture the potential negative effect of red tape on work alienation; job commitment, job satisfaction and job involvement. The paper also considers two measures of red tape; the general subjective measure of perceived red tape and personnel subsystem red tape. Since the variable used to instrument personnel subsystem red tape are part of our first stage model for formalization we do not include these models. Focusing on the three models of work alienation that incorporate the general perceptual measure of red tape, deHart-Davis and Pandey also attempt to control for the effects of centralization, formalization and technology routines all associated with work alienation in the literature.

--- Insert Table 4 ---

Table 4 summarizes the original results reported by DeHart-Davis and Pandey, our replication results and a model that substitutes a revised measure of red tape controlling for individual perceptions of the negative effects of formalization. We include the replication results because there are some differences between the published results and ours, primarily for the job commitment variable. The main substantive difference is that we found the general measure of red tape to be statistically insignificant. It is useful to note, that even in the published finding, the general perceptual measure was not a statistically significant factor for either job satisfaction or job involvement.² When the new measure was employed, all model has a slightly higher r-square, but in all three cases the new measure is statistically significant in the theoretically expected direction. In the original study only organizational commitment was significantly reduced by red tape.

² The authors reported a significant effect of red tape for job satisfaction but this was an error. The originally reported and replicated standard error of 0.09 against the estimated coefficient of -0.10 generates a P-value of 0.16.

It is also interesting to note that in the original study the formalization variable used was statistically significant in only one model, job satisfaction, and had a positive coefficient. When the new red tape measure was applied the formalization variable became statistically significant in both the job commitment and job involvement equation but changed to being insignificant in the job satisfaction equation. These results may reflect the separating out of formalization effects in the new red tape measure. The measure used for formalization may have been problematic though, since it asked respondents to assess the extent of record keeping which could entail more than just rule and procedure formalization.

These results suggest that the new measure produced a more precise instrument for perceived red tape. This improved precision resulted in better estimates of red tapes influence on job commitment, job satisfaction, and job involvement which were both in line with theory and statistically significant. The results also suggest that separating out formalization can provide better more precise estimates of the role of formalization when included in the model. This second result is important since from a theory perspective, our underlying model suggest efforts to model red tape effect will generally suffer from problems of omitted variable bias without controlling appropriately for formalization.

Moynihan and Pandey (2007)

In this paper the authors consider how a number of organizational and institutions variables including red tape influence Public Service Motivation (PSM). The theory suggests that individuals with higher levels of PSM are likely to view organizations as have lower levels of perceived red tape, all other things equal. The paper considers three measurement of PSM as dependent variables; a general index of PSM, attraction to policy making, and commitment to public interest/civic duty.

--- Insert Tables 5a, 5b and 5c here ---

Tables 5a, 5b and 5c present results for each of the three dependent variables using three models; the original published results, original model substituting the new measure of red tape, and the base model with the new measure of red tape plus the five factor scores used to measure the impact of formalization. The application of the new measure results in overall poorer model fit. More importantly using the new measure suggests no relationship between perceived red tape and PSM. These results, though, reflect the fact that formalization effects have been removed from the new measure which was present in the original instrument. To account for this the third model re-introduces formalization by including the five factors developed earlier. These revised results fit the data better than the original published model. The new measure of red tape is statistically significant at the 5% level for PSM and Attraction to Policy Making which is less significant than the original results which were significant at the 1% level. The magnitude of the coefficient is smaller in all cases for the revised estimate. This is consistent with splitting

up the merged effects of red tape and formalization. In all three model formalization factor 1 capturing personnel rule effect are statistically significant at the 1% level.

These results are consistent with both the theory that the general perceptual measure merges both red tape and formalization perception and the revised approach to measurement. The new measure is a more precise measure of red tape and failure to include some form of instrumentation for formalization is likely to result in biased estimates.

Scott and Pandey (2005)

In this paper, the authors investigate the relationship between red tape and public-service motivation (PSM). They theorize that increasing levels of PSM will be negatively associated with perceptions of red tape. Managers reporting higher levels of PSM were less likely to perceive high levels of red tape. Unlike the previous two papers, here the authors focus on variation in red tape as a dependent variable. While this paper considers the global measure and three sub-system measures of red tape, our focus is only on replicating their work based on the global perceptual measure of red tape. Similar to the previous paper, the authors here are interested in how PSM relates to variation in red tape but now red tape is the dependent variable and three sub-indicies of PSM-attraction to policy making, civic duty and compassion- are treated as independent variables. The approach also controls for a number of organizational variables; hierarchy, centralization, size and reinvention.

--- Insert Table 6 here ---

Table 6 presents the original publish results based on the general perceptual measure for red tape, results using the revised measure and results using the revised measure and including the five factor model to account for formalization. In reviewing these results it is important to remember that the measures of fit are not comparable across the different dependent variables. The results for the general and revised estimate are similar. The one interesting exception is for the centralization variable, where the revised measure is no longer statistically significant. This makes sense given the revised measure no longer includes formalization which theoretically is linked to centralization. This also suggests that once again, failure to include formalization in the model is generating biased results. When formalization is included centralization becomes statistically significant once more.

Conclusions

This paper presents a theoretical basis for revising the general perceptual measure of red tape commonly used in survey research. The basis of the theory is that perceptions of red tape are confounded with general perceptions of rules. This theoretical framework also suggests that wherever efforts to understand red tape effects are applied formalization effects need to also be

controlled for. The strategy for testing these ideas requires survey data that differentially captures perceptions and attitudes about both red tape and rules more generally.

This strategy was then implemented using the NASP II survey database. Factor scores of five different dimensions of rules were regressed on a general perceptual measure of red tape and the residuals were then used as a revised instrument for red tape having removed general attitudes towards rules. This measure was then applied to replicating three studies that had previously used the general perceptual measure and the NASP II data.

Firstly, we find that there is strong evidence that the new measure provides a more precise and differentiated approach to capturing perceptions of red tape. Secondly, separating out attitudes toward rules also suggested that many previous studies have failed to sufficiently take into account formalization as a distinctive force. The lessons from repeated simulation studies strongly suggest that the overall impact of such omitted variables is one of bias. The three replications studies done here support this finding as well.

As with any empirical study such as this there are a number of weaknesses that need to be considered. The use of NASP II data may limit generalizability of this specific approach. For example the negative effect of the information system rule on general red tape is likely an artifact of the sample design which target information system professionals. Another limitation is that the general approach of using surveys to study red tape continues to be problematic. Surveys can focus on perception and attitudes but survey data do not allow us to understand the actual processes that generate red tape, rule gone bad. Finally our efforts to instrument formalization may also suffer from omitted variable bias leading to bias in our revised instrument for red tape, even if it is more precise.

Despite these limitations, we feel our results should encourage further work on both improving how to instrument red tape in survey data as well as a requirement to improve theoretical specification that includes both red tape and formalization measures. This would require that future survey efforts include both types of items when being designed and implements. We recognize the limitation of using survey in general to study red tape, but if future efforts are to continue to use survey of managers perceptions, these results should help guide those efforts.

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Figure 1: Relationship between Formalization and Red Tape

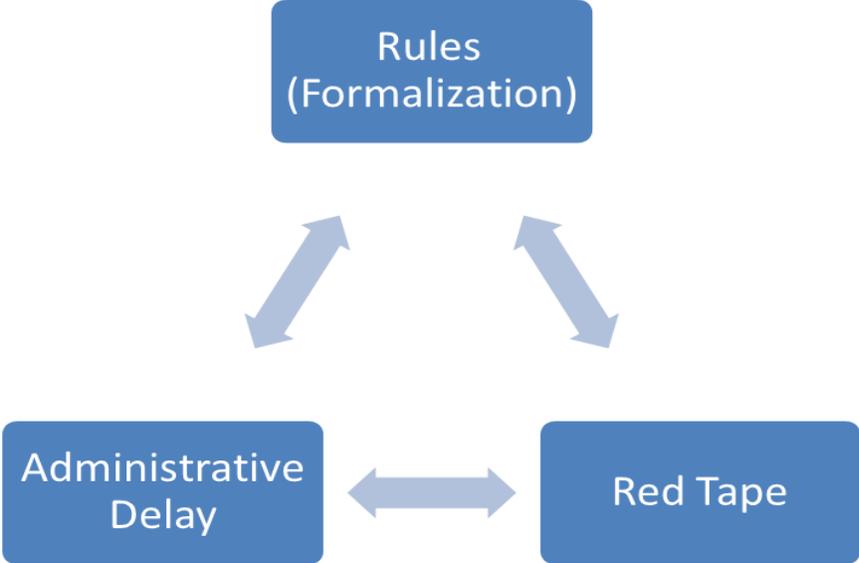


Table 1: Formalization Factor Loading based on Principle Components and Varimax Rotation

Component	1	2	3	4	5
Q8a - personnel red tape	0.731	0.165	0.042	0.004	0.037
Q8b - personnel red tape	0.677	0.114	0.24	-0.157	-0.039
Q8c - personnel red tape	0.786	0.032	-0.008	-0.041	0.049
Q8d - personnel red tape.	0.606	0.055	0.005	-0.16	0.143
Q8e - communication red tape	-0.025	0.009	0.597	-0.088	0.121
Q8f - communication red tape	0.198	0.095	0.814	-0.052	0.052
Q8g - communication red tape	0.054	0.044	0.785	-0.079	0.006
Q8h - procurement red tape	0.091	0.614	0.017	-0.306	0.206
Q8i - procurement red tape	0.142	0.804	0.093	0.014	-0.075
Q8j - procurement red tape	0.104	0.806	0.039	-0.101	0.142
Q8k - information system red tape	-0.143	-0.101	-0.003	0.833	0.011
Q8l - information system red tape	-0.197	-0.186	-0.105	0.679	-0.098
Q8m - information system red tape	0.035	0.03	-0.105	0.355	-0.134
Q8n - budgetary red tape	0.059	0.091	0.054	-0.092	0.838
Q8o - budgetary red tape	-0.123	-0.165	-0.029	0.491	0.379
Q8p - budgetary red tape	0.187	0.168	0.17	-0.085	0.777

Table 2: General Red Tape as a Function of Formalization Effects

	Coefficient	Std. Error	t- Statistic	P-Value
(Constant)	6.422	0.105	61.002	0.000
Personnel Routinization	0.607	0.106	5.739	0.000
Procurement Routinization	0.591	0.106	5.596	0.000
Communication Routinization	0.336	0.105	3.183	0.002
Info System Routinization	-0.339	0.105	-3.218	0.001
Budget Routinization	0.368	0.105	3.495	0.001

Adjusted R2 0.254

F-Statistic 19.139

Table 3: NASP II Replication Sample

Article	Authors	Journal	Red Tape Variable	Method
Red Tape and Public Employees	DeHart-Davis and Pandey	The Journal of Public Administration Research and Theory (2005)	Perceived red tape (independent variable)	OLS
The Role of Organizations in Fostering Public Service Motivation	Moynihan and Pandey	Public Administration Review (2007)	Perceived red tape (independent variable)	OLS
Red Tape and Public Service Motivation	Scott and Pandey	Review of Public Personnel Administration (2005)	Perceived red tape (dependent variable)	OLS

Table 4: Original and Revised Results for DeHart-Davis and Pandey (2005)

<u>Model1</u>	<u>Original Results</u>			<u>Replication</u>			<u>New Measure</u>		
Job Commitment	OLS	Std	P-Value	OLS	Std	P-Value	OLS	Std	P-Value
Constant	19.88		0.00	26.33		0.00	27.9		0.00
Centralization	-0.58	-0.23	0.00	-0.69	-0.3	0.00	-0.54	-0.24	0.00
Formalization	0.19	0.09	0.18	0.07	0.03	0.665	0.11	0.04	0.479
Technological Routines	-0.12	-0.05	0.37	-0.3	-0.11	0.077	-0.3	-0.11	0.071
Organizational Red Tape	-0.23	-0.12	0.06	-0.1	-0.04	0.505	<u>-0.34</u>	<u>-0.23</u>	<u>0.00</u>
R-Square	0.17			0.14			<u>0.18</u>		
<u>Model2</u>	<u>Original Results</u>			<u>Replication</u>			<u>New Measure</u>		
Job Satisfaction	OLS	Std	P-Value	OLS	Std	P-Value	OLS	Std	P-Value
Constant	15.27		0.00	9.206		0.00	9.54		0.00
Centralization	-0.28	-0.27	0.03	-0.28	-0.27	0.00	-0.25	-0.24	0.00
Formalization	0.19	0.16	0.03	0.2	0.17	0.003	0.20	0.18	0.00
Technological Routines	-0.17	-0.14	0.01	-0.17	-0.14	0.018	-0.18	-0.15	0.01
Organizational Red Tape	-0.10	-0.09	0.16	-0.09	-0.09	0.153	<u>-0.12</u>	<u>-0.19</u>	<u>0.00</u>
R-Square	0.18			0.18			<u>0.21</u>		
<u>Model3</u>	<u>Original Results</u>			<u>Replication</u>			<u>New Measure</u>		
Job Involvement	OLS	Std	P-Value	OLS	Std	P-Value	OLS	Std	P-Value
Constant	15.62		0.00	15.6		0.00	16.26		0.00
Centralization	-0.14	-0.07	0.37	-0.14	-0.07	0.29	-0.03	-0.20	0.79
Formalization	0.03	0.01	0.85	0.03	0.01	0.85	0.052	0.02	0.696
Technological Routines	-0.37	-0.16	0.01	-0.38	-0.16	0.01	-0.37	-0.16	0.011
Organizational Red Tape	-0.07	-0.04	0.55	-0.07	-0.04	0.6	<u>-0.22</u>	<u>-0.18</u>	<u>0.005</u>
R-Square	0.05			0.05			<u>0.07</u>		

Table 5a: Original and Replication of Moynihan and Pandey (2007)-Public Service Motivation

Model 1: PSM	<u>Original Results</u>		<u>New Measure</u>		<u>New Measure</u>	
Dependent Variable	PSM		PSM		PSM	
Independent variables	Beta	P-value	Beta	P-value	Beta	P-value
Education	0.172	0.006	0.178	0.006	0.176	0.006
Professional Identification	0.23	0.000	0.217	0.001	0.256	0.000
Group Culture	0.079	0.25	0.071	0.312	0.058	0.406
Developmental Culture	0.023	0.654	0.03	0.679	0.002	0.973
Hierarchical culture	-0.002	0.973	-0.043	0.556	-0.015	0.838
Rational culture	-0.057	0.37	-0.062	0.341	-0.073	0.26
Red tape	10.207	0.004	-0.100	0.127	-0.123	0.057
Reform Orientation	0.145	0.027	0.184	0.006	0.095	0.167
Hierarchical authority	0.193	0.006	0.139	0.045	0.214	0.003
Length of organizational membership	-0.148	0.021	-0.147	0.025	-0.12	0.061
Age	0.049	0.476	0.055	0.431	0.028	0.686
Income	0.069	0.293	0.052	0.436	0.031	0.651
Gender	0.065	0.297	0.7	0.272	0.077	0.219
Formalization_factor1					-0.254	0.000
Formalization_factor2					-0.062	0.343
Formalization_factor3					0.002	0.971
Formalization_factor4					-0.113	0.078
Formalization_factor5					0.054	0.381
N	237		237		237	
Adjusted R square	0.175		0.149		0.19	
F-Statistic	7.768		4.185		4.08	
Significance	0.000		0.000		0.000	

Table 5b: Original and Replication of Moynihan and Pandey (2007)-Attraction to Policy Making

Model 1: ATM	<u>Original Results</u>		<u>New Measure</u>		<u>New Measure</u>	
Dependent Variable	ATM		ATM		ATM	
Independent variables	Beta	P-value	Beta	P-value	Beta	P-value
Education	0.127	0.052	0.135	0.043	0.130	0.047
Professional Identification	0.151	0.023	0.136	0.044	0.167	0.012
Group Culture	0.032	0.655	0.022	0.766	0.023	0.745
Developmental Culture	-0.030	0.682	-0.031	0.682	-0.061	0.41
Hierarchical culture	-0.019	0.798	-0.070	0.357	-0.028	0.712
Rational culture	-0.035	0.593	-0.039	0.560	0.000	0.558
Red tape	-0.244	0.001	-0.099	0.144	-0.131	0.050
Reform Orientation	-0.083	0.217	0.127	0.065	0.019	0.787
Hierarchical authority	0.138	0.059	0.070	0.328	0.168	0.023
Length of organizational membership	-0.116	0.079	-0.113	0.095	-0.088	0.182
Age	0.076	0.284	0.081	0.265	0.054	0.452
Income	0.107	0.117	0.084	0.225	0.095	0.177
Gender	0.155	0.017	0.160	0.016	0.171	0.009
Formalization_factor1					-0.202	0.004
Formalization_factor2					-0.113	0.097
Formalization_factor3					-0.091	0.16
Formalization_factor4					-0.204	0.002
Formalization_factor5					0.035	0.587
N	238		238		238	
Adjusted R square	0.112		0.078		0.128	
F-Statistic	3.303		2.591		2.936	
Significance	0.000		0.002		0.000	

Table 5c: Original and Replication of Moynihan and Pandey (2007)-Commitment to Public Interest/Civic Duty

Model 1:CD	<u>Original Results</u>		<u>New Measure</u>		<u>New Measure</u>	
Dependent Variable	CD		CD		CD	
Independent variables	Beta	P-value	Beta	P-value	Beta	P-value
Education	0.144	0.029	0.143	0.03	0.144	0.028
Professional Identification	0.213	0.001	0.207	0.002	0.236	0.000
Group Culture	0.102	0.157	0.098	0.173	0.077	0.291
Developmental Culture	0.079	0.29	0.077	0.309	0.065	0.387
Hierarchical culture	0.014	0.852	0.003	0.964	0.005	0.946
Rational culture	-0.046	0.491	-0.049	0.467	-0.066	0.322
Red tape	-0.068	0.358	-0.049	0.467	-0.052	0.437
Reform Orientation	0.145	0.033	0.16	0.019	0.132	0.066
Hierarchical authority	0.168	0.022	0.152	0.034	0.168	0.024
Length of organizational membership	0.109	0.101	-0.110	0.103	-0.094	0.161
Age	-0.012	0.868	-0.007	0.92	-0.022	0.759
Income	0.007	0.924	0.003	0.966	-0.044	0.537
Gender	-0.066	0.307	-0.064	0.329	-0.065	0.319
Formalization_factor1					-0.193	0.006
Formalization_factor2					0.018	0.786
Formalization_factor3					0.1	0.124
Formalization_factor4					0.038	0.568
Formalization_factor5					0.043	0.5
N	237		237		237	
Adjusted R square	0.102		0.096		0.124	
F-Statistic	3.067		2.906		2.852	
Significance	0.0003		0.001		0.000	

Table 6: Original and Replication of Scott and Pandey (2005)-Global Red Tape

	<u>Global RT</u>		<u>Global RT</u>		<u>Global RT</u>	
	Std. Beta	P-Value	Std. Beta	P-Value	Std. Beta	P-Value
Attraction to PM	-0.181	0.001	-0.124	0.051	-0.159	0.014
Civic duty	-0.010	0.870	-0.017	0.796	-0.021	0.760
Compassion	-0.072	0.212	-0.072	0.272	-0.660	0.314
Hierarchy	0.345	0.000	0.232	0.001	0.289	0.000
Centralization	0.193	0.062	0.069	0.335	0.154	0.048
Size	0.046	0.405	0.070	0.262	0.066	0.296
Reinvention	-0.036	0.546	0.109	0.109	0.063	0.372
Formalization 1					-0.107	0.118
Formalization 2					-0.137	0.041
Formalization 3					-0.142	0.037
Formalization 4					0.096	0.147
Formalization 5					-0.029	0.636
N		250		250		250
Adjusted R Square		0.268		0.069		0.086
F-Statistic		14.09(.001)		3.628		2.950

Appendix A1: General Perceptual Measure of Red Tape

If red tape is defined as burdensome administrative rules and procedures that have negative effects on the organization's performance, please assess the level of red tape in your organization: (NASP II, 2003)

Appendix A2: Subsystem Red Tape Items (NASP II Survey 2003)

1. Personnel Subsystem Red Tape

- a. Even if a manager is a poor performer, formal rules make it hard to remove him or her from the organization*
- b. The rules governing promotion make it hard for a good manager to move up faster than a poor one.*
- c. The formal pay structures and rules make it hard to reward a good manager with higher pay here.*
- d. The personnel rules and procedures that govern my organization make it easy for superiors to reward subordinates for good performance.*

2. Communications Subsystem Red Tape

- a. Top managers in this agency are allowed to communicate freely with reporters.*
- b. Communication within my agency is restricted by policies and procedures.*
- c. Communication with other government agencies is restricted by policies and procedures.*

3. Procurement Subsystem Red Tape

- a. The rules and procedures governing purchasing/procurement in my organization make it easy for managers to purchase goods and services.*
- b. Due to standard procedures, procurement is based more on the vendor's ability to comply with rules than on the quality of goods and services.*
- c. The rules governing procurement make it hard to expedite purchase of goods and services for a critical project.*

4. Information System Red Tape

- a. Rules and procedures on preparation of information system reports ensure that managers receive timely information.*
- b. Procedural requirements for information system requests make it difficult for managers to obtain relevant information*
- c. There is very little overlap in different reports produced by the agency information systems.*

5. Budgetary Red Tape

- a. Budgetary rules and procedures limit manager's ability to reprogram funds in accordance with agency mission.*
- b. Budgeting policies and procedures are effective in ensuring that agency funds are used for intended purposes only.*
- c. The budgeting rules and procedures limit manager's ability to deal with unexpected program/project cost overruns*