Institutional Pressures and Isomorphism:
The Impact on Intelligence-led Policing Adoption

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Abstract

Previous research employing an institutional theoretical framework posits environmental factors play an integral role in the adoption of police practices. The present study applies this framework to examine the adoption of intelligence-led policing (ILP). Data from a purposive sample of national intelligence personnel from 254 agencies are used to employ both a measurement and structural model to explain ILP adoption. Weighted least squares estimation is employed through an asymptotic distribution free function to estimate the measurement and structural equation models. Models exhibit good fit indices, while institutional pressures, among others, had a significant and positive effect on ILP adoption. Findings support the role of institutional pressures in the diffusion of police practice. Implications for future research and policy are discussed.

Keywords

Citation

Link

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Introduction

The literature is teeming with studies that seek to further enhance our knowledge of how police agencies successfully implement change. Given the highly decentralized nature of American policing, the corresponding wide-range of program fidelity required across agencies, and the difficulties scholars face in obtaining generalizable samples, this knowledge is obtained incrementally. Each study in this arena progresses the development of a knowledge base regarding ''what works'' in enhancing public safety (Sherman *et al*., 1997). This evidence-based movement has been welcomed by both criminologists and practitioners interested in increasing the effectiveness and efficiency of police agencies (Clear, 2010; Welsh, 2006). Central to this evidence-base is how best practices diffuse across jurisdictions. This area of the literature requires further scholarly attention as "We know little about the forces that have driven the spread of such programs" (Klinger, 2003, p. 465).

A key conceptual difference between an agency "changing" versus "innovating" is that the latter is considered to be adopting something new and state-of-the-art (King, 2000). Police innovation can take many forms such as new technology hardware (mobile computers) or an administrative strategy (CompStat). As will be discussed in more detail to follow, a number of studies have applied an innovation framework to the adoption of promising policing practices, most namely community policing. More recently the innovation diffusion research has focused on homeland security practices (Burruss *et al*., 2012; Schafer *et al*., 2009) as the new era in contemporary policing (Oliver, 2006). Intelligence-led policing (ILP) is an emergent policing practice for local law enforcement at the intersection of community policing and homeland

security. Though widely accepted as a new practice in policing (Carter & Carter, 2009a; Darroch & Mazerolle, 2013; Ratcliffe, 2008), ILP has received comparatively little scholarly attention. Much remains unknown regarding ILP adoption in American police agencies.

The present study employs Giblin and Burruss' (2009) model of institutional processes in policing to examine organizational practices of ILP. Based on the work of DiMaggio and Powell (1983), this model quantifies the explanatory power of diffusion mechanisms that influence the adoption of ILP by local law enforcement agencies in the United States. The present study differentiates from previous institutional inquiries in policing as ILP is reliant upon unique organizational attributes. Moreover, the literature to date has struggled to operationalize ILP as a measure of interest; an approach that is applied in the current research.

Theoretical Overview

Studies of police innovation diffusion have yielded mixed findings on how and why some agencies learn about and adopt innovations (King, 2000; Weisburd & Braga, 2006). Studies of police innovation, and change more generally, have typically relied upon three theoretical explanations for the decision to change. First, contingency theorists contend that a police department may experience a lack of congruence between the organization, its environment, and desired outcomes (Giblin, 2006; Maguire & Uchida, 2000; Zhao *et al*., 2010). Second, scholars believe police organizations are unlikely to internally provide all of the necessary resources to effectively complete job tasks (Worrall & Zhao, 2003). Third, agencies are likely to be influenced by the environment in which they operate and thus experience pressure from external sources (Burruss & Giblin, 2014; Giblin & Burruss, 2009: Crank & Langworthy, 1992).

The present study employs an institutional theoretical framework to examine ILP adoption. Previous research that suggest U.S. intelligence practices have been heavily influenced by federal guidelines (Carter *et al*., 2014), intra-state police relationships (Schaible & Sheffield, 2013), and local government (Darroch & Mazerolle, 2015; Morabito, 2008). Moreover, ILP currently lacks an evidence-base upon which effectiveness can be a sole catalyst for adoption. As Lipsky (1980, p.51) notes, such practices merely need to be "hypothetically associated" with improved performance to evoke institutional influence. It should be noted that studies exploring the adopting of ILP should consider each of the aforementioned theoretical frameworks. From a contingency perspective, the terrorist attacks of September 11, 2001 served as a significant environmental shift that exposed American law enforcement's lack of information sharing regarding terrorism and potential threats to communities (National Commission, 2004). Effective ILP relies upon an analytic capability (Carter & Carter, 2009b; Ratcliffe, 2008) and thus resource dependency could posit that many local law enforcement agencies must rely upon an intelligence analyst (or analytic products) from other departments or fusion centers (Carter & Chermak, 2012).

Institutional Theory and Isomorphism

In contrast to contingency theory, institutional theory centers on environmental actors rather than organizational structures. Environmental actors – such as funding agencies, professional associations, government offices, peer organizations, and even the community – apply value to practices that are supported by perceived legitimacy as opposed to actual performance (Giblin, 2006; Katz, 2001; Meyer & Rowan, 1977; Oliver, 1991). Police agencies may adopt practices due to external perceptions and expectations of the organization. This is not to say that organizations discard performance as a driver of change. The organizational decision to meet

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external pressures for change may actually be driven by a conscious element of performance, or more appropriately evidence in support of performance. How does a police agency demonstrate performance and thus successful change? Police agencies can be categorized as "permanently failing" (Mastrofski & Uchida, 1993, p. 352) when tasked to control and reduce crime, prompting broader frameworks for police performance to include nuanced, community-specific criterion to better align police outcomes and community expectations (Sparrow, 2015).

The challenge of directly tying organizational performance (or outcomes) to the adoption of new practices is perhaps more challenging, especially with respect to ILP. Carter and Carter (2009a) conceptualize this program as "The collection and analysis of information related to crime and conditions that contribute to crime, resulting in an actionable intelligence product intended to aid law enforcement in developing tactical responses to threats and/or strategic planning related to emerging or changing threats" (p. 317). Put simply, ILP is intended to prevent or mitigate acts of terrorism and extremism, complex criminality, and to a somewhat lesser extent street crime. It is suffice to say that quantifying prevented or mitigated events is challenging at best, let alone to ascribe such outcomes to a specific practice. Rather than quantifying performance to demonstrate legitimacy, organizations conform to the expectations of external actors to convey worth and garner external support (Giblin, 2006; Katz, 2001; Meyer & Rowan, 1977).

The institutional framework has served as the foundation for a number of studies examining police practices (see Burruss & Giblin, 2014; Burruss *et al*., 2012; Katz, 2001; Parks *et al*., 1999; Pelfrey, 2007; Renauer, 2007; Willis *et al*., 2007; Wilson, 2005; Zhao *et al*., 2001). In his qualitative exploration of specialized gang units, Katz (2001) concluded that agencies which did not confront an actual gang problem experienced external pressure to combat gang violence. Giblin (2006) drew upon institutional theory and 1997 Law Enforcement Management and

Administration Survey data to help explain the adoption of crime analysis units within police agencies. He concluded that normative pressures in the form of agency accreditation increased the presence of a crime analyst five-fold. Funding and emulating peer agencies were also found to be significant indicators of these special units. In a more contemporary context to the intersection of homeland security and local policing, Burruss *et al*. (2012) employed survey data from 1,047 agencies in Illinois to explore homeland security preparedness. Consistent with the institutional framework, they concluded that government publications, homeland security-related training, membership to professional associations, and activities of geographically proximate peer agencies were positive indicators of preparedness. The authors concluded these institutional pressures were likely more influential than perceived threats (i.e., terrorism) or funding mechanisms in determining levels of preparedness.

Despite substantial variation of structure and communities served across police agencies nationwide, many departments experience similar pressures as the issues faced by police are ubiquitous. These pressures, referred to as centrist (Burruss *et al*., 2012; Crank & Langworthy, 1996; Renauer, 2007), are believed to have greater influence than localized external pressure. Many departments nationwide will then begin to mirror one another as these centrist pressures will outweigh local, more nuanced, pressures that shape organizational practices. DiMaggio and Powell (1983) coined this phenomenon isomorphism and defined it as the "constraining process that forces one unit in a population to resemble other units that face the same set of environment conditions" (p. 149). Isomorphism has been employed to explain community policing (Burruss & Giblin, 2014; Phillips & Gayadeen, 2014), homeland security (Burruss *et al*., 2012), and crime analysis (Giblin, 2006).

DiMaggio and Powell (1983) posit three processes that form institutional pressure which result in isomorphism: coercive, mimetic, and normative. Coercive isomorphism is demonstrated through legal mandates or funding stipulations that alter practice (Crank & Langworthy, 1996). Crank and Langworthy (1992) noted the impact of the *Miranda v. Arizona* decision on police arrest practices while others contend that funding provides agencies with incentives to adopt community policing (Oliver, 2000) and crime analysis (Giblin, 2006). Though funding for agencies to specifically adopt ILP has been sparse, a more specific reliance on grant funds is that many agencies utilized temporary funding to employ intelligence analysts (Rollins & Connors, 2007). A legal mandate specific to the practice of ILP is 28 Code of Federal Regulation Part 23 (28 CFR Part 23) that specifies how law enforcement agencies can lawfully engage in information sharing while protecting individuals' privacy and constitutional rights (Carter & Carter, 2009b). In short, this regulation requires law enforcement to establish a criminal predicate prior to including identifiable information within a criminal intelligence records system.

The second process of isomorphism is normative organizational knowledge and behaviors. Members of an organization attend professional conferences and training to obtain specialized knowledge, resources, and best practices (DiMaggio & Powell, 1983). Intelligence-led policing has been regarded as a strategic process which integrates robust analytical techniques, evidence-based practices, and community-based crime reduction goals (Darroch & Mazerolle, 2013; Ratcliffe, 2008). As such, ILP presents a strategic challenge to many local law enforcement agencies that must rely heavily on training and specialized expertise (Ratcliffe & Guidetti 2008). Training programs and conferences create environments that communicate a normative culture of what is expected regarding police practice. These environments also create opportunities for agencies to access resources and publications specific to expected practice. Thus it stands to reason

that agencies which attend intelligence training programs and read intelligence publications will adhere to what is learned and begin to resemble one another across the standards communicated to them.

Lastly, isomorphism results when organizations emulate their peers. This process, known as mimetic, occurs when police organizations replicate practices from other agencies (Burruss *et al*., 2012; Giblin, 2006; DiMaggio & Powell, 1983; Mastrofski & Uchida, 1993; Roy & Seguin, 2000). Police agencies may mimic their peer agencies in order to glean effective practices as well as maintain perceived legitimacy (Weiss, 1997). The successful adoption of police practice is likely to benefit from peer emulation, especially ILP. Given the variance between agency characteristics in the U.S., local law enforcement is perhaps best-suited to identify and mimic agencies in their region with similar characteristics and an existing practice (that is perceived to be successfully operating). For example, the vast majority of local agencies should not attempt to mimic the New York or Los Angeles Police Departments as many of their ILP practices may not be applicable or appropriate for the average municipal agency. Giblin *et al*. (2014) provide evidence of this emulation in their study of homeland security practices among agencies of varying characteristics in Illinois. In short, their study noted that increased interaction among agencies had a positive effect on homeland security practices and that geographic proximity also appeared to be a significant facilitator of adoption. Mimetic isomorphism reinforces this notion in that organizations seeking to innovate are often presented with only a limited range of models from which they can effectively mimic (DiMaggio and Powell, 1983; Giblin, 2006).

Giblin and Burruss (2009) developed a measurement model to examine these institutional pressures in police organizations. A key finding in their model was that the mimetic process consisted of two unique factors. Funding was observed to be independent of pressures such as

publications (reports, articles, and books) and professionalization (conferences and meetings). The latter mimetic pressures were perceived to represent the larger institutional environment and thus demonstrated greater influence on organizational practices. This institutional model has been used to predict community policing (Burruss & Giblin, 2014) and homeland security practices (Burruss *et al.*, 2012; Giblin *et al.*, 2014) among local law enforcement. In both studies, the authors concluded that the aforementioned institutional factors were more salient predictors of adoption, with the exception of agency size. These studies indicate that conforming to external expectations demonstrates greater effects on practice than adapting to contingencies.

Key Components of Intelligence-Led Policing

The emergence of ILP is traced to the 1990s in the United Kingdom as a strategic innovation in response to a more efficient use of tax dollars to combat crime (John & Maguire, 2004; Ratcliffe, 2008). Some scholars envision ILP as a strategic management tool to focus on habitual offenders and complex criminality (Cope, 2004; Ratcliffe, 2008; Tilley, 2003). Others conceptualize ILP as grounded in community- and problem-oriented policing principles and focused on emergent threats in the form of terrorism, extremism, and crime (Carter & Carter, 2009a; Chappell & Gibson, 2009; Darroch & Mazerolle, 2015; Innes, 2006; McGarrell *et al.*, 2007; Thacher, 2005). Despite this debate regarding operational focus, scholars tend to agree on the organizational practices that comprise ILP.

Similar to community policing, ILP is envisioned as a proactive practice driven by information sharing and analysis integrated across organizational functions (Carter & Carter, 2009a, 2009b; Ratcliffe & Guidetti, 2008). Thus ILP is reliant on an analytic capability and successful external partnerships to facilitate two-way information sharing. Moreover, research has

demonstrated the importance of executive commitment (Yates & Pillai, 1996; Morabito, 2010) and formal policies (King, 1999; Wilson, 2006; Zhao, 1996) as predictors of successful change within police agencies. Ratcliffe (2008) identifies four key areas where ILP diverges from traditional practice. First, agency personnel must be trained to understand the function and roles of intelligence and information sharing. Second, there must be regular communication channels between sources of information (other agencies, the community, businesses, etc.), producers of information (analysts), and consumers of intelligence (chief, line officers, and other agencies). Third, intelligence processes should be informed by strategic priorities. Carter and Carter (2009a) support this idea when they posit police must develop collection requirements to refine the flow of information that enters the analytic process. Lastly, information must be shared intra- and inter-organizationally. This dissemination of intelligence products provide the evidence upon which decisions are made. The current study captures these elements of ILP to test the role of institutional pressures on adoption.

Methodology

Data

The present study utilizes national survey data of key intelligence personnel within local law enforcement agencies. Data were gleaned from a larger federally funded project.[1] This purposive sample of law enforcement personnel included individuals who had attended a national law enforcement intelligence training program funded by the Department of Homeland Security. The decision to employ this sampling strategy was three-fold. First, these personnel were identified by their respective agency as a representative of the intelligence function within the agency and

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thus their assignment to attend the training program. These persons are most likely representative of the agency's knowledge and practice of ILP. Second, quantitative inquiries of law enforcement intelligence practices have been hindered by a lack of access to, and unwillingness to participate by, intelligence personnel within agencies (Chermak *et al*. 2013). Third, ideal survey methods, such as random sampling, are not feasible given the fidelity of intelligence practices nationwide. Intelligence-led policing is not ubiquitous among local agencies nationwide (Carter & Phillips 2013; Ratcliffe, 2008), thus a targeted sample is required. Studies examining specialized issues in policing such as cybercrime (Holt & Bossler, 2012) and policing sex workers (Simic *et al*., 2006) have employed this same approach.

Survey of Intelligence Personnel

A web-based survey was administered to a single individual working within the agency's intelligence function. This individual had attended the intelligence training course and received the survey via their email account required to register for the training program. This individual responded on behalf of the agency. The sampling frame was corrected throughout the sampling process by removing individuals who could not be contacted or who declined to participate. Invitation e-mails were sent to a sample of 967 agencies. A total of 272 agencies were included in the sample, resulting in a response rate of 28% (n= 272 / 967). However, 18 state agencies were removed from the analytic sample given the focus of the current study on local law enforcement organizations. As a result, the present study includes 254 local law enforcement agencies. Though not ideal by traditional survey research thresholds, such a response rate is not surprising given online-based surveys yield lower response rates than traditional mail or in-person surveys (Shih & Fan, 2009) and that cross-sectional response rates in social sciences are declining (Brick &

Williams, 2013). The nature of the research within an area of law enforcement that is believed to be a difficult one to sample (Chermak *et al*., 2013) strengthens the value of the sample. The sample includes agencies from small, medium, and large municipalities. Moreover, 41 states (including the District of Columbia) with geographic distribution across the five regions of the U.S. are represented in the sample.

Follow-up telephone interviews were conducted with 100 randomly selected participants from the sample in an effort to determine why the response rate was not higher. Both persons that did and did not respond to the survey were included in these 100 persons. Though respondents mentioned a number of hesitancies to complete the survey, respondents consistently reported a change in job responsibilities, survey length (more than 100 questions), and sensitivity to sharing information related to intelligence practices were salient factors. Unfortunately the present study was unable to examine the potential of non-response bias given there is no nationally comparative data related to law enforcement intelligence. Thus interpretations of the results to follow should be tempered by these limitations.

The present study provides unique value to the policing literature due to a substantial empirical gap in the knowledge base of ILP. This is especially true with respect to studies conducted at the national level within the United States. Table 1 displays descriptive information for the agencies and respondents represented in the current study. The median agency size is 268 total sworn and non-sworn personnel and most agencies included in the sample were located in the Midwest and Southeast regions of the United States. Respondents are mostly investigators and administrators who have been employed by their agency for more than 15 years.

[**Table 1. Respondent Demographics (*n* = 254)** approximately here]

Dependent Measure

Analogous to organizational studies of community policing (Burruss & Giblin, 2014; Maguire, 1997; Maguire *et al*., 2003; Morabito, 2010; Zhao *et al*., 1996), quantifying intelligence-led policing is best achieved through a multiple-item index. The dependent variable is an additive index of 12 items drawn from the survey of intelligence practices and represents the scope of ILP activities performed by each agency, as reported by the intelligence respondent. Items included were selected based on the limited ILP literature, operational components noted in the National Criminal Intelligence Sharing Plan (Global Intelligence Working Group, 2003) – the leading professional resource published by the U.S. Department of Justice – as well as items adapted from similar measures used in studies of community policing. Eight of the items included were measured as "1 = Yes" or "0 = No" responses. These dichotomous items are whether or not the agency has defined intelligence goals and objectives, has formal mechanisms to share information with the public, has a policy to specifically guide intelligence practices, has trained all intelligence personnel, all line officers, community organizations, and citizens about ILP and sharing information, and has developed collection requirements for information sharing. The remaining four items were measured using a likert scale with values of "1 = Strongly Disagree," "2 = Disagree," "3 = Agree," and "4 = Strongly Agree." No neutral response was provided. Likert scale items used in the ILP index included the following statements: "Intelligence is formally integrated in the agency's decision making processes," "The chief executive support intelligence-led policing," "The agency provides actionable intelligence products to external agencies," and "The agency receives actionable intelligence products from external agencies." These 12 items were

summed to create an additive of ILP that ranged from 4-24 (mean = 14.11, SD = 5.06, alpha = .848).

Independent Measures

Drawing on the factor models developed by Giblin and Burruss (2009) and Burruss and Giblin (2014), institutional processed were measured with a second-order latent factor. Consistent with DiMaggio and Powell's (1983) phenomenon of isomorphism, institutional processes were measured by a latent factor comprised of three first-order factors: mimesis, publication, and professionalization. Though DiMaggio and Powell (1983) conceptualized funding as an important part of the isomorphism process, Giblin and Burruss (2009) noted funding pressures as independent of the isomorphism process in policing. The present study integrates a proxy variable for funding in the model, but as an indicator of resource dependency (to be discussed).

The first-order mimetic latent factor comprised two observed measures: *Mim 1* measured the extent to which other local police departments were consulted regarding intelligence practices (1 = *Very Infrequently*, 2 = *Infrequently*, 3 = *Frequently*, 4 = *Very Frequently*). *Mim 2* measured the extent to which agencies indicated the closeness of working relationships with other local agencies for purposes of intelligence (1 = *We Have No Relationship*, 2 = *Distant*, 3 = *Somewhat Close*, 4 = *Very Close*). The first-order publications latent factor comprised two indicators: *Pub 1* measured how closely the agencies intelligence practices followed the recommendations published in the National Criminal Intelligence Sharing Plan (1 = *Not At All*, 2 = *Some*, 3 = *Mostly*, 4 = *Completely*). *Pub 2* measures the extent to which the agency perceived academic articles and books to be useful in developing their intelligence practices (1 = *Not Used*, 2 = *Not Useful*, 3 = *Somewhat Useful*, 4 = *Very Useful*). Lastly, the professionalization first-order construct was comprised of two

indicators: *Pro 1* represents the monthly frequency at which agency intelligence personnel attended intelligence meetings with other organizations (1 = *0*, 2 = *1-3*, 3 = *4-6*, 4 = *7-10*, 5 = *11-20*, 6 = *21-50*, 7 = *More than 50*). *Pro 2* is an additive index of the number of intelligence courses the intelligence personnel attended. This index includes the following programs *Fundamentals of Intelligence Analyst Training, Federal Law Enforcement Training Center Analyst Training, National White-Collar Crime Center Intelligence Analyst Training, Michigan State University Intelligence Toolbox, State and Local Anti-Terrorism Training,* and *Bureau of justice Assistance 28 CFR Part 23 Training*).

The four most common and perhaps agreed upon indicators of model fit are the chi-square test and its p-value, the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root mean square error of approximation (RMSEA). Acceptable threshold values for these indices specify that the model chi-square should be non-significant and thus an indication that the hypothesized model does not statistically differ from a model with ideal fit. An acceptable confidence p-value threshold is greater than .05. Values above .90 indicate good-fit for both the CFI and TLI (Hu & Bentler, 1999). The RMSEA has a more variable acceptance with values of .06 or lower equating to close fit, .06 to .10 representing reasonable fit, and anything above .10 as poor fit (Hu & Bentler, 1999). Lastly, each latent factor should load higher than .30 on the observed variables and also be statistically significant (Brown, 2015). Model fit indices indicate the institutional pressures data have good fit with the measurement path model (χ^2 = 2.379, df = 4, *p* = .666; CFI = 1.00; TLI = 1.00; RMSEA = 0.00). All standardized path loadings were above .30. Consistent with Burruss and Giblin (2014), path coefficients for institutional pressures are reported for the structural model to follow. This institutional pressures model is employed in the structural model to predict the adoption of ILP given the good overall model fit of the data and their

corresponding factor loadings. Again, this approach and similar effects were observed by Burruss and Giblin (2014) in their exploration of community policing adoption. Given the conceptual and operational congruence between community- and intelligence-led policing, similar positive results are expected in the present study.

Resource dependency has been illustrated to be coercive in the adoption of police practice (Katz *et al*., 2002; Wilson, 2005; Worrall & Zhao, 2003). Resource dependency is not confined to a monetary sense, but a dependence of an organization on a capability to produce desired outcomes (Pfeffer & Salancik, 1978). Since ILP funding allotments have not come close to rivaling those of community policing, and given the reliance of ILP on an analytic capability, the present study employs a proxy funding variable of *Grant Analyst*. Survey respondents indicated the number of intelligence analyst employed by their agency using grant and/or temporary funds. In addition, the literature has shown support from crime as a contingency for police innovation and change (Katz, 2001; Katz *et al*., 2002) as well as its influence on the adoption of new practices to control crime (Zhao *et al*., 2001). Though contemporary ILP in the U.S. was originally conceptualized as an approach to counter terrorism and threats, it has arguably evolved into a practice consistent with its origins in the UK that is more applicable to crime. Moreover, a recent study of four agencies in New Zealand revealed a positive correlation between agency self-belief that ILP had the ability to influence the local criminal environment and ILP adoption (Darroch & Mazerolle, 2015). The present study includes the variable *Crime Control* and is measured as the extent to which a survey respondent perceives intelligence practices to have crime control benefits for their agency. It is anticipated that increases in the perception of intelligence to control crime will positively influence ILP adoption. Legal requirements have also been shown to have a coercive effect on police practice (Crank & Langworthy, 1992). The measure *28 CRFR Part 23* represents whether or not a survey

respondent believes their agency's intelligence system is complaint with this code of federal regulation (0 = *No*, 1 = *Yes*).

Lastly, two control variables are included in the analysis: agency size and region. *Agency Size* data were taken from the 2007 Law Enforcement Management and Administrative Survey (LEMAS) and represents the total number of full-time sworn and non-sworn personnel. Though the National Criminal Intelligence Sharing Plan states "all agencies, regardless of size, must have a minimal criminal intelligence sharing capability" (Global Intelligence Working Group, 2003:iii), size has been shown to have a positive effect on community policing (Maguire *et al*., 1997; Morabito, 2010; Zhao, 1996) and homeland security (Lee, 2010; Schafer *et al*., 2009) practices. Agency size demonstrated skewness and kurtosis and thus was transformed using a log transformation, resulting in a normal distribution. Counts for agency size are provided for descriptive purposes (Table 2) while all analytical models to follow include the logged measure of agency size.

With respect to geographic region, Maguire *et al*. (1997, p. 375) note there is a lack of consistency as to why scholars control for regional variation, however they point out three important reasons as to why policing scholars do control for this variation: 1) regional differences in policing structures, 2) regional variation among innovation diffusion networks, and 3) regional differences in the historical development of the police. Agencies in the Western region have been shown to be more progressive in the adoption of community policing (Burruss & Giblin, 2014; Maguire *et al*., 1997) while Zhao (1996) concluded that agencies in the Northeast region were less likely to implement. The potential influence of region on ILP is unknown as it has yet to be explored and may be sensitive to the events of September 11, 2001. Given the attacks took place in the Northeast region of the U.S., agencies in this region may be more likely to adopt ILP. The

present study includes five regional variables, *Northeast*, *Southeast*, *Midwest*, *West*, and *Southwest* that indicate the geographic location of the agency. Descriptive statistics for measures included in the measurement and structural models are presented in Table 2. The hypothesized structural model of ILP adoption is presented in Figure 1.

[**Table 2. Descriptive Statistics for Independent
and Dependent Variables (*n* = 254)** approximately here]

[**Figure 1. Structural Model of Intelligence-Led Policing Adoption** approximately here]

A challenge associated with this research is parsing out the differences between dependent and explanatory variables. This issue pertains to the use of intelligence-related explanatory variables to draw inferences regarding ILP dependent variables (Carter *et al*., 2014); a necessity given ILP requires a more nuanced set of variables to target specific practices. Since ILP has been argued to more closely resemble a strategic modification to existing policing practices (Ratcliffe, 2008), agencies may not change as much as they adjust practices (Carter *et al*., 2014). The operational focal point of ILP is collecting, analyzing, and sharing information to inform decisions. Thus, targeted measures of these specific functions within an agency are necessary to inform adoption. Moreover, there may be debate regarding measures that appear similar but are qualitatively different.

For example, whether or not a person attended an intelligence training program is different than an agency's requirement that personnel receive intelligence training. The latter implies an agency's commitment to the ILP practice whereas the former could have resulted from an employee taking advantage of an opportunity to obtain continuing education credit from an

available training program that happened to be on intelligence. As another example, an agency that reports a close working relationship with another agency may not actually engage that agency in information sharing. Conversely, providing actionable intelligence to, or receiving it from, an agency would be indicative of ILP as information sharing is reported to have occurred. Diagnostic tests of variance inflation factors, tolerances, and correlations were employed to best explore these issues. All diagnostic results were well-within acceptable thresholds. The results of these tests are not provided given space considerations but can be provided upon request.

Analytic Strategy

Appropriate model selection in structural equation modeling is driven by the efficiency of the relationship between the data and the estimation method (see Preacher & Merkle, 2012). Maximum likelihood estimation is most widely employed given its insensitivity to sample size and kurtosis as well as more favorable theoretical and measurement fit as compared to other estimation methods (Olsson *et al*., 2000). Burruss and Giblin (2014) employed weighted least squares (WLS) mean- and variance-adjusted estimation in response to the categorical dependent variable. The present study also utilizes a categorical outcome variable in the ILP adoption index. Though comparison model simulations suggest WLS performs most efficiently with larger samples (Flora & Curran, 2004), the combination of the 254-agency sample and corresponding explanatory measures are adequate for appropriately specified WLS estimation (Browne, 1984). As such, the present study employs the asymptotic distribution free function (ADF) within SPSS-AMOS to estimate the structural and institutional pressures measurement model. This ADF function estimates polychoric correlations to then create the asymptotic covariance matrix necessary for weighting in the WLS estimation (MacCallum *et al*., 2002).

Results

Table 3 reports the factor loadings from the institutional pressures measurement model. These standardized coefficients are representative of the latent construct on its three first-order factors and observed variables (via first-order factors). As noted earlier the data and model demonstrate good fit across the four indices as well as the factor loadings threshold. Similar to the findings of Burruss and Giblin (2014), each of the three first-order factors, Mimesis (β = .80, $p <$ .000), Publications (β = .66, $p <$ .000), and Professionalization (β = .67, $p <$ .000), loaded high on the institutional pressures construct. The high loadings and statistical significance are consistent with Giblin and Burruss' (2009) and Burruss and Giblin's (2014) premise that police agencies nationwide demonstrate an isomorphic process in response to environmental factors.

[**Table 3. Measurement Model Coefficients for
Institutional Pressures (n = 254)** approximately here]

To begin, model fit indices indicate good overall fit of the structural model that includes institutional pressures, resource dependence, contingency, and control variables. The chi-square test was non-significant ($\chi2$ = 48.76, df = 35, p = .124), both the CFI and TLI estimates were above the .90 threshold (CFI = .93; TLI = .91), and the RMSEA was below the .10 threshold (RMSEA= 0.07). The full structural model also accounts for 26% of the variance in ILP adoption (Overall R^2 = .26). Table 4 presents estimates for the predictor variables. It was hypothesized that institutional pressures would have a significantly positive effect on the adoption of ILP. This hypothesis was supported by the model findings (β = .24, $p <$ .000). Though institutional pressures appear salient to the adoption of ILP, other factors are just as, if not more, important for the diffusion of this emerging policing paradigm. The belief that intelligence practices provide crime control benefits

($\beta = .44$, $p < .000$) had the most notable impact of ILP adoption. This finding may lend support to the U.K.-based origins of ILP as a model to combat habitual offenders and the proportionality of crime (Ratcliffe, 2008). Though it cannot be parsed out in the present study, this finding may also be indicative of intelligence products more closely resembling crime analysis products. The emphasis of analytic products on crime as opposed to threats and crime may be the result of the fact that many analysts in local agencies share the role of both intelligence analyst and crime analyst (Taylor *et al.*, 2007) and that crime is the primary focal point of police performance (Nagin *et al.*, 2015).

Consistent with studies of community policing (Maguire *et al.*, 1997; Morabito, 2010; Zhao, 1996) and homeland security (Lee, 2010; Schafer *et al.*, 2009), agencies size ($\beta = .29$, $p < .000$) had a positive impact on ILP adoption. Agency compliance with 28 CFR Part 23 ($\beta = .20$, $p < .001$) was also a positive indicator of adoption. The effect of this legal requirement is qualitatively different than the aforementioned example of *Miranda* noted by Crank and Langworthy (1996). While every local law enforcement agency in the country is impacted by case precedent that predicates arrest processes, 28 CFR Part 23 is only applicable to police agencies that retain identifiable information in a permanent records system. Thus, agencies would not feel the need to comply with this regulation unless they were actively engaged in intelligence practices. It appears that compliance with 28 CFR Part 23 may enable local agencies to engage in ILP, especially when consideration is given to the privacy and civil rights debate leveraged against law enforcement intelligence (Clarke & Newman, 2007; Taylor & Russell, 2012). If agencies perceive their practices to be safeguarded by compliance with 28 CFR Part 23, they may be more inclined to collect and share information.

West region ($\beta = .19$, $p < .001$) was the only significant indicator of ILP adoption among the five region dummy variables. It appears that police agencies operating in the western part of the U.S. are more likely to adopt ILP and may be consistent with previous research noting the progressiveness of western police organizations (Maguire *et al.,* 1997). Interestingly, it appears having a grant-funded analyst ($\beta = .22$, $p < .171$) is not a positive indicator of adoption. This lack of significance could be related to the measurement's lack of qualitative insight as it simply measures the number of grant- or temporary-funded analysts an agency employs and not how often the analysts work, what tasks they engage in, and what their role is within the ILP process. Despite this lack of granularity in the analyst measure, the finding is still rather perplexing. It would seem that an agency with formal mechanisms in place to employ a grant- or temporary-funded analyst would demonstrate more mature or active ILP practices. The role of intelligence analysts within local agencies should solicit the attention of scholars in the near future. The findings reported in Table 4 suggest institutional factors are influential on the diffusion of ILP, net all covariates. Thus, environmental factors appear to be an integral part of ILP adoption.

[**Table 4. Structural Model Coefficients for
Intelligence-Led Policing Adoption ($n = 254$)** approximately here]

Additional model specifications were explored in an attempt to parse out perceptions across personnel types within the sample. Given the relatively even proportion of administrators and supervisors (54%) to analysts and investigators (46%) included in the sample, full structural models were specified for each of these two groups. It is reasonable to assume that administrators and supervisors could be considered as "decision makers" within the agency and thus their perception of ILP and organizational change may be different as compared to analysts and investigators. Results from these two additional structural models mirrored those of the complete

sample structural model presented and thus are omitted from the study. The results from the additional models does lend support for consistent perceptions of ILP across personnel types within the agencies sampled.

Discussion and Conclusions

In their systematic review of problem-oriented policing (POP), Weisburd *et al.* (2010) provided three general observations: 1) POP has been widely adopted across U.S. police agencies, 2) POP appears to provide positive, yet modest, outcomes, and 3) empirical research and appropriate measures of POP are deficient despite the first two points. The present state of ILP, at best, mirrors these same observations. Additional studies to further refine the practice of ILP and its adoption among US law enforcement are sorely needed for both for knowledge and practice. The present study is a small step in this direction as it provides unique findings and identifies areas for future research.

DiMaggio and Powell (1983) posited that organizations operating within similar environments, with similar responsibilities and expectations, are sensitive to environmental factors that influence organizational practices. Given similarities across environments and expectations, organizations will experience a process referred to as isomorphism in which these organizations begin to develop a degree of resemblance. Giblin and Burruss (2009) adapted this theoretical framework to policing through a model of institutional pressures that help to explain how police adopt innovation. Burruss and Giblin (2014) applied this institutional pressures model to further explain community policing adoption. The present study follows in a similar vein to explore the emerging practice of ILP. Overall, the findings lend further support to the notion that supportive

environmental factors positively influence the adoption of police practice. Institutional pressures had a positive and significant effect on ILP adoption.

The present study yielded three insightful findings pertaining to the resource dependency and contingency of organizational change. First, the presence of analysts funded by temporary or grant funds was not observed to be influential on ILP adoption. From a resource perspective this variable was hypothesized to be salient to ILP adoption given most local agencies rely on grant or temporary funds to employ an intelligence analyst that provides a critical resource capability to the ILP process. This lack of impact may be attributed to measurement as the number of these analysts is perhaps not as important as how the agency tasks the analysts, what information and systems they have access to, and to what extent they are also responsible for crime analysis for their agency. Future research should employ more refined measures to capture "what analysts are doing" as opposed to simply their presence. Furthermore, future research may benefit from capturing whether or not an intelligence analyst is funded with permanent agency finances versus grant or temporary finances. It may be plausible to assume that an agency dedicating finances to employ an analyst is more representative of a commitment to engage in ILP.

Second, compliance with 28 CFR Part 23 is indicative of ILP adoption. This finding is welcomed from a policy perspective as agencies are expected to observe the criminal predicate standard for information collection articulated in this regulation. From a theoretical perspective, it may be debatable as to which side of the model 28 CFR Part 23 should be specified. As was discussed earlier, employing intelligence-related explanatory variables to draw inferences regarding ILP dependent variables is both necessary and problematic. One could argue that since 28 CFR Part 23 is only applicable to agencies actively engaged in the collection and storage of identifiable information within an intelligence records system that compliance with this regulation

should merit inclusion within the ILP index. However, the decision to specify this legal measure as an explanatory variable was done so in an effort to be consistent with previous police adoption research. More specifically this variable is included as a contingency measure as it is considered to be an organizational necessity to facilitate lawful intelligence practices. Agencies make a rational decision (Donaldson, 2001) to be compliant with 28 CFR Part 23 in order to have an effective mechanism to engage in ILP.

Thirdly and consistent with previous research (Darroch & Mazerolle, 2015), the belief that ILP can have crime control benefits has a strong impact on adoption. Given the ambiguity of what ILP constitutes in practice and the frequency of an intelligence analysts and crime analyst to be the same individual with a local agency, future research should attempt to isolate the perception of "intelligence-led" versus "analytic-based." Analysis is a critical component of ILP, however the two are not synonymous. Current policing practices are beginning to more effectively leverage data and advanced analytics in an attempt to control and reduce crime (Nagin *et al*., 2015; Weisburd, 2015). Due to the nature of self-report survey research, even when attempting to target key intelligence personnel, there exists the possibility that respondents may perceive approaches such as hot spots policing or CompStat as ILP. For purposes of clarity, perceptions of whether or not ILP can have crime control benefits should continue to be the focus of future research. However, attention should be given to which practices within an agency are identified as being "intelligence-led" and to what extent these practices coincide with agreed upon characteristics of ILP within the literature (Carter & Carter, 2009a; Ratcliffe, 2008).

In addition to the contributions to institutional theory in policing, the present study is the first to the author's knowledge to employ an index dependent measure of ILP practices. Previous research exploring ILP has utilized a range of dependent measures that include increased

interaction with state agencies (Schaible & Sheffield, 2013), an agency proclamation of being intelligence-led (Ratcliffe & Guidetti, 2008), and singular intelligence activities (Carter & Phillips, 2013; Carter *et al*., 2014). Darroch and Mazerolle (2013, 2015) employed a qualitative process to identify practices indicative of ILP within four New Zealand agencies. However their study identified agencies as exhibiting either strong or weak ILP based on these practices as opposed to using the practices themselves as an outcome measure. This is not to say any of the aforementioned operationalizations are better or worse, but that quantifying observed practices is the natural progression in research exploring organizational adoption research within policing. The index measure employed in the present study serves as the next guidepost in further refining ILP measurement.

Research examining the adoption of police practice is complex and hindered by a variety of issues, most notably a lack of granular and valid data. This issue is further complicated when attempting to apply appropriate theoretical frameworks that are themselves nuanced, such as isomorphism in the present study. Ideally such examinations would leverage longitudinal data (as opposed to cross sectional) that captures both organizational capacities and practices as well as perceptions of personnel working within the organizations. The measures utilized in the present study, as well as those by Giblin and Burruss (2009) and Burruss and Giblin (2014), to capture the isomorphic process of adoption should be considered a starting position for future scholarly works and not as accepted specification. More refined measures of mimetic, normative, and coercive processes should be posited in future works. As organizational practices and environment, individual perceptions, and isomorphic processes change and develop over time, longitudinal data could better shape the understanding of which institutional and contingency factors are salient to change in policing.

Related to the aforementioned recommendation for future research, the present study does not have the ability to determine what actors or actions within an agency led to a willingness to look outward or forward in seek of guidance in this diffusion process. What can be gleaned from the findings reported is that in regards to policy, the findings here lend support to the importance of continued creation and dissemination of knowledge and best practices. Police agencies are more likely to innovate if the external environment is conducive to informing and supporting practice. The salience of organizational peer relationships, publications, and professionalization opportunities is evident. In the context of policing where fidelity is commonplace and resources are sparse, the availability of professional guides and reports, academic articles and books, access to peer organizations, and practice-specific professional gatherings are key ingredients to successful adoption.

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Tables and Figures

Table 1. Respondent Demographics (*n* = 254)

	n (Valid Percent)
Agency Size	
10 or Less	35 (14%)
11 - 99	84 (33%)
100 or more	135 (53%)
Agency Region	
Northeast	57 (22%)
Southeast	61 (24%)
Midwest	63 (25%)
Southwest	27 (11%)
West	46 (18%)
Respondent's Position	
Administrator	80 (31%)
Supervisor	57 (22%)
Investigator	80 (31%)
Analyst	37 (16%)
Respondent Years at Agency	
Less than 1 Year	1 (0.3%)
1-3 Years	16 (6%)
4-9 Years	49 (19%)
10-15 Years	52 (20%)
More than 15 Years	136 (55%)

Table 2. Descriptive Statistics for Independent and Dependent Variables (*n* = 254)

Variable	Min	Max	Mean	SD
Mimesis				
Consult other agencies	1	4	3.17	1.06
Work closely with other agencies	1	4	3.34	.97
Publications				
NCISP	1	4	2.35	.92
Articles and books	1	4	2.42	.95
Professionalization				
Attend intelligence meetings	1	7	2.33	1.16
Attend intelligence courses	1	6	2.52	1.54
Grant Analyst	0	3	.80	.80
28 CFR Part 23	0	1	.69	.46
Crime Control	1	4	2.44	.98
Region				
Northeast	0	1	.22	.37
Southeast	0	1	.24	.43
Midwest	0	1	.25	.45
West	0	1	.18	.39
Southwest	0	1	.11	.32
Agency size*	3	51477	2020.04	4438.79
Agency size (Ln)	1.10	10.85	6.36	1.74
Indicators of ILP adoption index				
Intelligence goals and objectives	0	1	.45	.50
Share information with public	0	1	.45	.50
Intelligence policy	0	1	.73	.45
Training line officers	0	1	.58	.50
Training community organizations	0	1	.31	.47
Training citizens	0	1	.23	.42
Require all personnel ILP training	0	1	.23	.42
Collection requirements	0	1	.34	.47
Intelligence integrated decision making	1	4	2.71	.80
Chiefs supports intelligence	1	4	2.85	.92
Provide intel to external agencies	1	4	2.38	1.16
Receive intel from external agencies	1	4	2.84	1.13
ILP adoption (index)	4	24	14.11	5.06

*Median agency size = 268 full-time sworn and non-sworn personnel.

Note: NCISP= National Criminal Intelligence Sharing Plan.

Note: (Ln) = Natural log transformation.

Note: ILP = intelligence-led policing.

Table 3. Measurement Model Coefficients for Institutional Pressures (*n* = 254)

Standard Factor Indicators	Estimate	SE	Loading (β)	*p*
Mimesis[a]	1.07	.12	.80	.000
Mim 1	1.00[b]		.68	
Mim 2	.82	.20	.59	.001
Publications[a]	1.11	.19	.66	.000
Pub 1	1.00[b]		.85	
Pub 2	1.18	.22	.93	.000
Professionalization[a]	1.00[b]		.67	
Pro 1	1.00[b]		.60	
Pro 2	1.31	.25	.80	.000

Note: This table presents components from the measurement model only, except the reported coefficients derived from the full structural model.

[a] First-order factor.

[b] Measure used as indicator, thus standard error and p-value are not reported.

Table 4. Structural Model Coefficients for Intelligence-Led Policing Adoption (*n* = 254)

Standard Factor Indicators	Estimate	SE	Loading (β)	*p*
Institutional Pressures	1.31	.33	.24	.000
Crime Control	1.62	.26	.44	.000
Grant Analyst	.41	.36	.22	.171
28 CFR Part 23	1.05	.29	.20	.001
Agency Size (Ln)	1.25	.17	.29	.000
Northeast	.26	.29	.14	.111
Southeast	.22	.38	.15	.110
Midwest	.30	.33	.23	.100
West	1.09	.36	.19	.001
Southwest	.34	.32	.12	.072

Figure 1. Structural Model of Intelligence-Led Policing Adoption
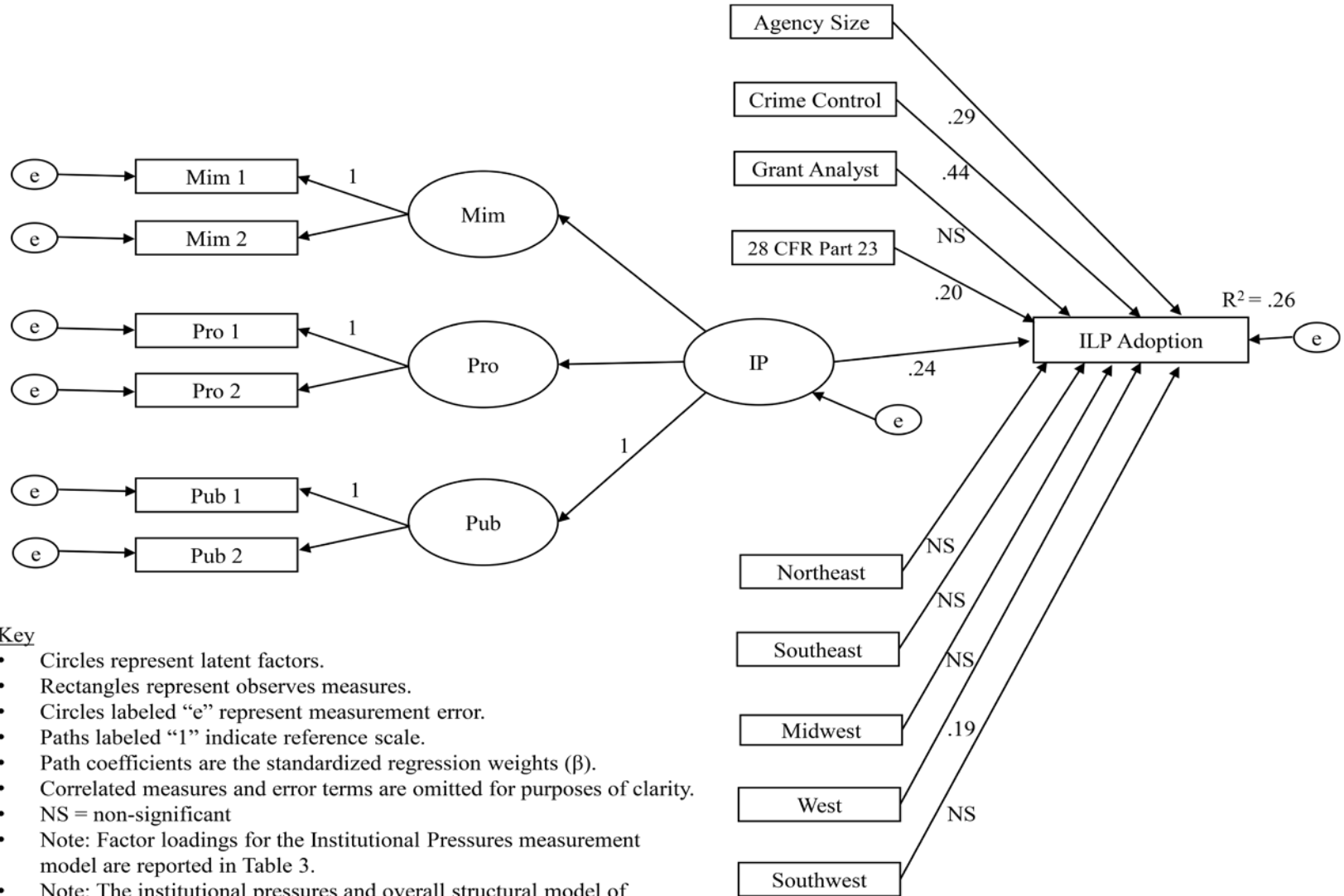
Key
- Circles represent latent factors.
- Rectangles represent observes measures.
- Circles labeled "e" represent measurement error.
- Paths labeled "1" indicate reference scale.
- Path coefficients are the standardized regression weights (β).
- Correlated measures and error terms are omitted for purposes of clarity.
- NS = non-significant
- Note: Factor loadings for the Institutional Pressures measurement model are reported in Table 3.
- Note: The institutional pressures and overall structural model of adoption are replicated from Burruss and Giblin (2014).