Exploring the Drivers and Catalysts of Intra-agency Collaboration in the Local Service Delivery

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This study examines critical local service delivery issues to understand the drivers and catalysts of intra-agency collaborative domains. Based on the survey data of public employees in the Taipei Household Registration Office, this study provides empirical evidences to support the relationship between intra-agency collaboration and perceived organizational performance. The findings reveal the mediating role of central administrative organization and information sharing, but do not support the direct influence of stakeholder assistance. Implications of these findings are emphasized for future studies of local collaborative governance.

Keywords: intra-agency collaboration, organizational performance, service delivery, local government, public employee

INTRODUCTION

Studies about government collaboration and related managerial issues have been emphasized in recent public administration research. O’Leary and her colleagues explained that collaboration entails a variety of interaction arrangements within and across government agencies, and these arrangements include different activities with varying levels of complexity (O’Leary et al., 2015). Agranoff and McGuire (2004) indicated that collaboration refers to a purposive working relationship jointly with others to discover solutions for public problems within a given set of constraints (e.g., time, money, knowledge). One of the major topics in the research on government collaboration is studies about the relationship between collaborative efforts and government performance (McGuire, 2006; Provan and Milward, 1991, 2001; Amirkhanyan, 2009; Daley, 2009; Bardach, 1998; Hill and Lynn, 2003; Page, 2003; Selden, Sowa, and Sandfor, 2006; Sowa, 2008). These studies reported various conditions under which collaboration efficiently allocates scarce resources (Thomson, Perry, and Miller, 2009) or solves organizational problems (Daley, 2009).

The purpose of our study is to link intra-agency collaboration with organizational performance in the collaborative domain of local service delivery. This study applies middle-range theory to enhance the specificity and relevance of organizational research (Pandey and Wright, 2006; Yang and Hsieh, 2007). Collaborative factors emphasized in this study include stakeholder assistance (McGuire, 2006), resource-dependence (Thomson et al., 2009), managerial capacity (Provan and Milward, 2001; Sowa, 2008), service value (Provan and Milward, 2001), information sharing (Thomson et al., 2009), and network administrative organization (Provan and Milward, 2001). These factors were emphasized in theoretical paradigms about collaborative governance, such as transaction cost, resource sharing, strategic choice, stakeholder, organizational learning, institutional theory (Barringer and Harrison, 2000),1 and network administrative organization.

1 Barringer & Harrison (2000) classified the theoretical traditions into the perspectives of transaction cost, resource sharing, strategic choice, stakeholder theory, organizational learning, and institutional theory. Institutional theory suggests that institutional environments pressure organizations to appear legitimate and conform to the prevailing collaborative processes (DiMaggio & Powell, 1983). This theory provides the reasons why some collaboration are voluntary, and some is mandated by different levels of governments (Agranoff & McGuire, 2004).
This study applies a combination of quantitative research methods with survey data to capture the true picture of intra-agency collaboration domains. We believe that mediators can enhance the impact of intra-agency collaborative strategies on organizational performance. In other words, a collaborative process with good facilitators who can resolve conflicts and differences of opinion will have a positive impact on organizational goals and performance (Ulibarri, 2015).

In the intra-agency variation, mediators are often used to characterize the process by which individuals translate organizational strategies into individual feelings and actions. The present study focuses on the effect of two mediating factors: information sharing and network administrative organizations.

Regarding the factor of information sharing, our arguments are based on two rationales. First, agencies can protect their capabilities more effectively when they share information. Information sharing can better translate into concrete performance enhancement. Second, sharing information with its partners will enhance an agency’s capabilities and improve its collaboration and joint activities between the partners (Wu, 2008), which translates into concrete performance benefits for agencies that form such ties (Gulati, 1998).

The factor of network administrative organization is selected as the mediator because the central agency assumes intermediating responsibility for the coordination, planning and action efforts. For example, the central agency alters ineffective administration between collaborative factors and organizational performance by integrating resources, workforce, stakeholders, and values into the practices. In addition, a coordinated response is essential because large-scale civil affairs cut across governmental boundaries and can quickly exceed the capacity of local responders (Moynihan, 2013). A central agency fills the unique role of lead coordinator and ensures due process between intra-agency collaborative process and organizational performance.

This study examines these issues about the relationship between intra-agency collaboration and organizational performance among the front-line Household Registration Services (HRS) in Taipei City. The following sections provide explanations about theoretical background, research context, data collection and measurement, findings, and implications for future research on collaboration governance.

**DRIVERS AND CATALYSTS OF INTRA-AGENCY COLLABORATION**

Previous studies have explained collaborative characteristics by identifying important components or factors to sustain the collaboration (Emerson, Nabatchi, and Balogh, 2012). These factors include professional values, managerial capacity (Provan and Milward, 2001; Sowa, 2008), coordination, sharing of resources, information, staff and rewards (Thomson et al., 2009), service integration (Sowa, 2008), a form of communication and information (Sowa, 2008), network administrative organization (Provan and Milward, 2001; Wang et al., 2016), network structures and institutional factors (e.g., customer-oriented professional norms) (Provan and Milward, 2001). For our study of intra-agency collaboration, we reviewed research findings about (1) four factors of the drivers, which consist of stakeholder assistance, resource sharing, managerial capacity, and service value, and (2) two factors of the catalysts, which are information sharing and network administrative organization.

**Stakeholder Assistance.** Facing increasing challenges of acquiring resources to meet citizen needs, government agencies must depend on other stakeholders in the collaborative environment (Wang et al., 2016). The inclusion of stakeholder assistance into this collaborative process can enhance agency responsiveness, improve the likelihood of successful implementation and achievement of common objectives (Barringer and Harrison, 2000), as stakeholders will perceive themselves as the owners of a program, a condition that does improve organizational performance (Hardy and Phillips, 1998). Studies have maintained that the participation of key stakeholders is crucial to the success of public
programs, especially during the implementation process, which involves multiple parties and internal agencies (Agranoff and McGuire, 2004). During the collaborative process, stakeholder assistance is expected to strengthen organizational performance. Thus, we propose the first research hypothesis:

Hypothesis 1: Taipei HRS employees’ perceived stakeholder assistance will positively influence their organizational performance.

Resource Sharing. The premise of resource dependency theory is that individual organizations do not have all the resources they need to achieve their goals, and thus must acquire money, people, support services, technological knowledge, and other inputs to survive (Mitchell et al., 2015). Successful collaborative structures recognized the importance of independence and resource distribution between agencies and employees to meet environmental challenges (McGuire, 2006). Previous research has found that the more resources these organizations have, the greater the likelihood of inter-organizational partnership and success (Chen, 2010). Therefore, resource sharing is expected to improve organizational performance. We proposed the second research hypothesis:

Hypothesis 2: Taipei HRS employees’ perceived resource sharing will positively influence their organizational performance.

Managerial Capacity. An organization that wants to learn a new skill often stands a better chance of accomplishing its objective by forming a relationship with an exemplary organization in that area (Barringer and Harrison, 2000). The success of organizational missions will depend on specific strategies and structures -- especially managerial capacity -- to improve communication, team building, work flexibility, and problem-solving (McGuire and Silvia, 2009). These collaborative efforts support the performance of each participating agency. A workplace that fosters collaboration and is receptive to new ideas is the key to the success of collaborative efforts (Wondolleck and Yaffee, 2000). Managerial capacity reflects individual and organizational ability to develop goals and to enhance efficiency through planning, skills, financing, monitoring, and evaluation (Wang et al., 2016). Thus, we expect managerial capacity to affect organizational performance. Our third research hypothesis is:

Hypothesis 3: Taipei HRS employees’ perceived managerial capacity will positively influence their organizational performance.

Service Value. Institutional pressures presumably motivate organizations to pursue activities that will increase their legitimacy and cause them to comply with the rules, requirements, and norms of their environments (Meyer and Scott, 1983). The values they bring to the collaboration affect their power to effect change, their involvement in the collaborative, and the value of their resource contributions to the work of the collaborative (Varda and Retrum, 2015). By providing needed services, agencies and employees are in a better position to understand their constituents’ needs and develop customer-oriented institutional or professional norms (Provan and Milward, 1991). If service value in collaborative relationships becomes an embedded norm in a population, then organizations will participate in collaboration as a means of adaptation and survival. A similarity in values and attitudes makes the formation of interorganizational linkages more probable and makes these linkages more stable over time, while holding together networks of actors (Mitchell et al., 2015). The service values may be major incentives for further collaboration in response to citizens’ needs and to achieve better organizational performance (Provan and Milward, 1991). For this reason, we developed our fourth research hypothesis:

Hypothesis 4: Taipei HRS employees’ perceived service values will positively influence their organizational performance.

Information Sharing. The exchange of information promotes collaboration and coordination among interdependent agencies (Kickert et al., 1997). Information sharing can lead to unexpected spillovers or decrease the search costs of gathering information.
to identify and evaluate potential trading partners (Williamson, 1985). A high degree of information sharing mitigates information asymmetries, thereby reducing contracting and monitoring costs because both parties are negotiating with similar information (Dyer, 1997), which leads to improvements in agency performance.

Informational technology helps public organizations and employees to share information in a way that is integrative and interoperable, and the outcome has been a greater emphasis on collaboration (Mitchell et al., 2015). As actors within the organizations, partners exchanging information are likely to collaborate more closely and actively in attaining organizational goals. Prior studies showed that information sharing is critical to establishing and maintaining the collaborative relationships (Yang and Maxwell, 2011). The improvement of information sharing helps agencies and employees to catalyze the collaborative mechanism. Therefore, we expect information sharing to have a direct and mediating effect between the collaborative drivers and organizational performance between and within organizations. Our fifth research hypothesis is:

**Hypothesis 5: Taipei HRS employees’ perceived information sharing will positively influence their organizational performance.**

Network Administrative Organization. Collaborative activities, often through constant negotiations and facilitation with network participants, were coordinated by the network administrative organization (NAO) to encourage participation (Provan and Milward, 2001; Wang et al., 2016). A central agency can integrate, facilitate, and coordinate the use and distribution of its policy instruments and the management of collective interests and resources (Salancik, 1995). NAO allows for swift responses to significant socioeconomic and environmental problems, and enables participants to take advantage of existing administrative structures and actively reach out to ensure the efficient flow of information and resources (Wang et al., 2016). With limited resources, a powerful NAO is often called upon to assemble authority and resources for rapid solutions that involve multiple network members (Wang et al., 2016). NAO decreases the monitoring costs associated with monitoring the agreement so as to ensure that each party fulfills the predetermined set of obligations. It also decreases the enforcement cost associated with ex-post bargaining and sanctioning a trading partner that does not perform according to the collaborative agreement (Williamson, 1985; Dyer, 2002). Previous research has found that a centralized core agency is better than a decentralized one in offering mental health services (Provan and Milward, 2001) because a centralized environment and institutional norms support collaborative behaviors. The development and maintenance of the collaboration domain is usually coordinated by NAO to integrate the collaborative drivers and then benefit organizational performance. Based on these findings, we propose our sixth and last research hypothesis:

**Hypothesis 6: Taipei HRS employees’ perceived network administrative organization will positively influence their organizational performance.**

**RESEARCH CONTEXT**

The selection of Taipei’s HRS agency as research subjects is based on the following considerations. First, Taiwan Administrative Procedure Law regulates personnel and facilities, paper documents, and occupational requirements. These rules regulate the behavior of actors in the collaboration, and affect the interactions within collaborative networks (Klijn, 2001) to provide procedural legitimacy (Mullin and Daley, 2010), critical resources and expertise (Barringer and Harrison, 2000), and to encourage the collaboration which helps to decrease contracting costs (Williamson, 1985). In the intra-agency context, the Law also regulates each member in the agency in terms of collaborating to accomplish agency missions.

Next, the HRS agency provides direct services to citizens and reflects the work of street-level bureaucrats. As one of the management capacities, computerized assistance connects household registration services within and between other Household Registration Offices (HROs). Then residents can apply for the
official documents outside their residence. The HROs are partners in the sense that they support others who are understaffed at times. When one HRO needs to serve more cases, other HROs will aid that workforce. In practice, the collaboration can exist between frontline workers and others in the same agency.

Finally, the Department of Civil Affairs (DCA) of Taipei City Government plays the role of network administrative organization (NAO), coordinating the operation of HRS and setting up the HRS’s service values as “Convenience, Efficiency, Innovation, and Respect.” They have also introduced the procedure of “one-stop application, service all the way,” which requires that employees and HROs collaboratively provide speedy and convenient services to citizens. The DCA also serves as a boundary-crossing catalyst to help the employees within each HRO work together.

RESEARCH DATA, VARIABLES, AND METHODS

Study Procedure and Sample
Researchers have suggested the study of collaborative performance by focusing on the support and perceptions of major stakeholders, i.e., the employees and citizens (McGuire, 2006; Provan and Milward, 1991, 2001). Our study is based on a survey of public employees in Taipei’s HROs. We developed the survey questionnaire based on concepts emphasized in previous studies and suggestions provided by five HRO officials who have been involved in the household registration service. The questionnaire was further revised for those items that did not reflect actual practices in order to reduce some ambiguous questions (e.g., questions based on the literature but are not related to the HRO practice). The survey was designed to understand the perceptions of public employees working in 12 district HROs, and survey was administered through the staff of the Personnel Office at each HRO. To assure the integrity of data collection, we advised the staff about important survey procedure activities, which include distributing the survey by the demographic ratio of the population, emphasizing the principle of anonymity and confidentiality, and collecting the completed surveys through mail. The respondents were asked to evaluate collaborative properties and behaviors of their own HROs and with other HROs.

We received 338 valid questionnaires, yielding a 64.5% response rate, which was considered good. Although some HROs, such as Datong and Shilin, were a little low in terms of response rates, their rates still approached 50%, which is generally considered adequate (Babbie, 1998). Among the final 327 responses from 12 HROs with no missing information, the data shows the demographic information as: (1) positions: 8.03% of the respondents are managers and 91.09% are employees (i.e., the population: 9.46% vs 90.54%); (2) gender: 24.63% are male and 75.37% are female (i.e., the population: 22.27% vs 77.73%); (3) education: 16.87% completed high school, 79.45% held an undergraduate degree, and 3.68% held a graduate degree (i.e., the population: 15.27%, 80.43%, 4.3%). We present a comparison between our sample and the population, which reveals no significant difference in the demographic information about the position (t = -0.444, p>0.05), gender (t = 0, p>0.05), and education (t = 0.1159, p>0.05).

Measurement of the Variables
The research variables used are based on findings from the literature of collaborative governance and suggestions from HRO supervisors. Our hypothetical model consists of one dependent variable of perceived organizational performance, four independent variables of stakeholder assistance, resource sharing, service value, managerial capacity, and two mediating variables of network administrative organization and information sharing. The survey items are presented in Appendix 1. They were measured on a 7-point Likert scales, ranging from 1 for strongly disagree to 7 for strongly agree. Explanations of these variables

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2 The pretesting results indicated that most of the scale construction satisfies the requirements of construct validity and internal consistency in statistics. But some items were locally practiced and seemed not to reflect the actual practices, and therefore we consulted one manager and one staff with rich work experiences in household registration services to further revise our research instrument.

3 The twelve HROs are in the following districts: Songshan District, Dan District, Datong District, Zhongshan District, Neihu District, Nangang District, Shilin District, Beitou District, Xinyi District, Zhongzheng District, Wanhua District, and Wenshan District Office.
are stated as Appendix 1.

DATA ANALYSIS AND RESULTS

Path Analysis. We first conducted a path analysis to estimate the causality of intra-agency collaboration and organizational performance. The advantage of path analysis is its ability to estimate the relative influence of variables including all independent, dependent, and mediating variables within a theoretical framework (Kline, 2010). The survey items were assigned to seven parcels as indicators for each construct, which yielded more stable estimates (Yuan, Bentler, and Kano, 1997).

Common Method Variance. Two ex-post statistical analyses were used to detect common method variance (CMV). First, the study relies on Harman’s single-factor test to assert that this research is not pervasively affected by CMV. The exploratory factor analysis found multiple extracted factors, and the biggest factor only accounts for 37.43%, not a majority of the covariance between the measures. Next, the chi-square difference test comparing three models indicated support for the hypothesized measurement model (6 factors model) as it generated a significantly better fit than the one common factor model ($\Delta \chi^2 (14) = 117.78, p = .0007$ (see appendix 2). The results indicate that the criteria of model fit (e.g., IFI, TLI, CFI, GFI, and RMSEA) for the hypothesized measurement model are better than the alternative measurement models. The results of these analyses suggest that CMV is not of great concern, and thus is unlikely to confound the interpretations of results.

Measurement Reliability and Validity. We conducted a series of confirmatory factor analyses (CFA) to examine the reliability and validity of each factor separately (Kline, 2010). The model fit indices for each CFA model ranged from adequate to excellent, for example, GFI=.944, CFI=.952, IFI=.961, and RMSEA=.052.
RMSEA=.042 on the construct of stakeholder assistance. Our empirical results suggest that the data structure indeed fit the theoretical development of each construct. For each set of indicators, the composite reliability for all variables was sufficiently higher than a commonly acceptable threshold value of .70, as shown in Appendix 1. In addition, the factor loadings of each factor satisfied statistics (i.e., factor loadings>.50), and the average variance extracted (AVE) for each construct was larger than .50 as shown in Appendix 1. All of the evidence suggested that the content of these seven indicators were consistent to construct the best possible unit of analysis for the factors.

**Descriptive Statistics and Correlation.** Table 1 presents the descriptive statistical data (i.e., mean, standard deviation) of the measured variables with employee-level average scores. The correlations were computed for HRO employee ratings to examine the prediction of initial relationships between the variables. Correlations across stakeholder assistance through organizational performance ranged from .329 to .698. All correlation estimates are below the .70 threshold, which indicates that there are no potential multicollinearity problems among the variables, and there is sufficient discriminant validity between the theoretical constructs.

**Path Estimates of Within-agency Variation Model of the Fit and Predicted Values.** Figure 1 indicates that the hypothesized model presents a good fit with a chi-square value of 0, and GFI, CFI, NFI, and TLI of 1. A chi-square value of 0 indicates no difference between values in the sample covariance matrix and the reproduced implied covariance matrix, based on our theoretical framework (Kline, 2010). Thus, we conclude that our hypothesized model consistently fits the data collected as shown in Figure 1. In this case, it predicts the variances of perceived organizational performance by 62.2%. The factors of stakeholder assistance, resource sharing, managerial capacity, and service value contribute to the variance of information sharing by 62.9%, as well as to network
administrative organization by 39.7%.

The Path Estimates. As shown in Figure 1, the estimated standardized path coefficients for the significant direct effects of stakeholder assistance on perceived organizational performance were .338 (p<.05). Likewise, a level of resource sharing is associated with perceived organizational performance at about .188 (p<.001) when controlling for other variables. The standardized direct effects of managerial capacity, service value, and network administrative organization on perceived organizational performance were .159 (p<.01), .437 (p<.001), and .141 (p<.01), respectively. We also tested the mediating effects of network administrative organization that follow the procedures that Baron and Kenny (1986) recommend. Figure 1 demonstrates that the network administrative organization transmits the indirect effects of resource sharing, managerial capacity, or service value on perceived organizational performance. For example, the indirect effects of resource sharing on perceived organizational performance through network administrative organization are .035 (.246*.141). When we consider a 90% confidence level in statistics, information sharing exerted a significant directing influence on organizational performance, accounting for its mediating effects that also catalyze intra-agency collaboration.

DISCUSSION

On the effect of collaborative factors, estimates of the path model revealed that effective intra-agency collaboration synthesizes differences among employees to deliver a competitive advantage to the agency (Weiss and Hughes, 2005). Within the collaborative context, measuring underlying mediating mechanisms and outcomes provided evidence on which mechanisms are critical for influencing outcomes. This study presented mediating effects in which the network administrative organization is a broker of the community, the principal of the network participants, and the administrator and coordinator of the network (Provan and Milward, 2001; Wang et al., 2016). As the network administrative organization, the Department of Civil Affairs provides an integrated service architecture that specifies certain elements to guarantee the quality of HRS, and leads collaborative efforts among the employees and HROs. Information sharing also remains the direct and mediating mechanism for collaborative household registration services and connects the database and the assistance, including citizen immigration, student enrollments, elections, and so on. This evidence confirmed previous findings that “information about potential partners appears to pose the greatest constraint to the expansion of joint programs” (Scholz, Berardo, and Kile, 2008, p.404). Our findings provided empirical evidence to support five of our research hypotheses about the positive influence of resource sharing, managerial capacity, service values, information sharing, and network administrative organization on organizational performance (i.e., Hypothesis 2, 3, 4, 5 and 6).

While confirming all hypothesized relationships to support the institution’s collaborative behaviors, our research found that stakeholder assistance has an adverse effect on organizational performance. The finding here is different from our expected positive relationship between stakeholder assistance and organizational performance (i.e., Hypothesis 1). One possible reason for this finding is that most of the services that contribute to organizational performance tend to come from the efforts of full-time employees rather than through stakeholder assistance. Another likely reason is that Taiwan’s social culture, which involves characteristics of Confucianism and democracy, emphasizes pluralism—which recognizes a multiplicity of interests and stakeholders involved in the mission. In this situation, stakeholder assistance may be taken for granted rather than being a facilitator for organizational performance. The findings about the effect of service value on organizational performance confirmed the view of institutional-level norms in a service implementation network (Provan and Milward, 1991). Common professional service value increases the likelihood of an accountable attitude in employees.

\[4\] Four steps of testing mediating effects are (1) independent variables significantly relate to mediators; (2) independent variables significantly relate to dependent variables; (3) mediators significantly relate to dependent variables; and (4) when examined simultaneously, mediators remain significant while antecedents no longer significantly relate to dependent variables or have lower coefficients (Baron & Kenney, 1986).
since shared value is conducive to communication (Page, 2003). The findings also support the assumption that resource sharing is positively related to organizational performance, which is consistent with previous findings of the relationship between resource sharing and agency collaboration (e.g., Meier and O’Toole, 2003; Amirkhanyan, 2009).

**IMPLICATIONS AND CONCLUSION**

Our study examined theoretical issues of intra-agency collaboration by analyzing major interagency collaborative arrangements presented in the Taipei Household Registration Services. Our research setting focuses on street-level bureaucrats (i.e., employees of HROs), and the influence of Taipei’s social culture on the respondents’ perceptions. This promotes the understanding of collaborative domain in the non-Western context. Our research offers additional knowledge about the drivers and catalysts that facilitate collaboration. The estimates of path analysis showed an integrated model that could identify additional mediating relationships among other collaborative arrangements, such as the contributions of information sharing, and network administrative organization. The influence of independent variables on organizational performance is “carried” or “channeled” through the NAO and information-sharing variables. NAO and information sharing provide careful outlining of the exchange, determine methods for adapting to uncertainties, and resolve conflicts that may arise in the future (Shrestha and Feiock, 2011).

For practical implications, we suggest that the creation of service value contributes to organizational performance because Taipei HROs emphasized service values by making customer satisfaction one of their performance goals. Our study focused on a specific government service area (street-level HROs) to answer questions about the ways in which agencies form their interagency collaboration and identify collaborative factors contributing to their organizational performance. Public managers can learn from these experiences and make plans to drive and catalyze the collaborative mechanism. The lessons in this case are useful to other public employees who are interested in implementing collaborative activities for better performance. The collaborative efforts of each employee within the HRO optimize their own internal efforts, remove barriers to collaboration, and produce alternatives to deliver the service to the citizens. In sum, our study focuses on how members of the collaborative domain define and perceive success and contribute alternative methods to focusing on the value of individuals within the agency (Mandell and Keast, 2007).

**RESEARCH LIMITATION AND FUTURE RESEARCH**

Despite these important findings, our study may have limitations because of the variables, methods, and data used. In terms of the theoretical framework, our research does not examine the influence of other factors included in previous studies. These factors include, for example, network managers’ skills and leadership (Agranoff and McGuire, 2004; Kickert et al., 1997; McGuire, 2006; Meier and O’Toole, 2003; Provan and Milward, 1991), positive organizational culture, communications, and other organizational measurements (e.g. trust, reputation, reciprocity) (Bardach, 1998). In methodological terms, this research uses HRO employees’ perceptions to answer research questions. Using survey data to examine collaboration can collect theoretically important information not routinely captured in publicly available secondary data. The perception data does not necessarily collect objective conditions (Mullin and Daley, 2010). However, this issue is not unusual, since other empirical research has also used perception data to capture network activity (e.g., Amirkhanyan, 2009; Provan and Milward, 2001; Sowa, 2008). To address this potential issue, we consolidate the survey instruments through focus group meetings, pretest the design effects, and emphasize satisfactory response rates.

Another limitation of this research is that we were unable to collect objective data on the organizational performance of HROs. We understood that subjective performance measures may have a self-evaluation bias (Andrews, Boyne, and Walker, 2006). But we
noted that many public management studies have used similar perceptual measures of performance, and the use of subjective measures is common in public management research (Brewer, 2005). Additionally, comparisons of different organizations should require common definitions of performance measures, uniform data collection procedures, data for the same period, and independent checks on the accuracy of the data. If these requirements are not possible, the research needs to explore the validity and reliability of self-reported performance data further (Boyne and Walker, 2002). In our case, Taipei City Government had not yet developed a series of complete performance metrics to measure the objective performance of each HRO. As indicated in Appendix 1, the measures of organizational performance in this study did show sufficient reliability and validity. The other threat to generalizability results from the limited area of Taipei City. The replications of this research in other geographic areas may enhance its external validity. Future studies may want to test these variables from a longitudinal perspective to increase the variation in our samples. Moreover, future studies may expand our knowledge about the collaborative domains by considering new issues in the theoretical model, selecting other types of public agencies as research subjects, developing new questions and measurements, and testing them in another social context and culture environment.

REFERENCES


### ABOUT THE AUTHORS

Dr. Jun Yi Hsieh was the late professor in the Department of Public Affairs at the University of Taipei. His research focused on the issues of public management, local governance, and public policy. Dr. Hsieh’s works were published in *Public Administration Review, Administration and Society, Review of Public Personnel Administration, Public Performance and Management Review*, *Journal of Urban Affairs*, and so on.

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## APPENDICES

### Appendix 1. Descriptive Statistics and Confirmatory Factor Analysis for Each Variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>Conceptual Definition</th>
<th>Survey Item</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>FL</th>
<th>R2</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stakeholder Assistance</strong></td>
<td>The extent to which external and internal stakeholders help in the operation of the HRO service</td>
<td>Your HRO receives assistance from Department of Civil Affairs, Taipei City Government</td>
<td>5.328</td>
<td>1.303</td>
<td>.781</td>
<td>.610</td>
<td>.839</td>
<td>.515</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Your HRO receives assistance from the District Office</td>
<td>4.864</td>
<td>1.356</td>
<td>.769</td>
<td>.591</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Your HRO receives assistance from other Household Registration Offices</td>
<td>5.178</td>
<td>1.281</td>
<td>.779</td>
<td>.607</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Your HRO receives assistance from citizens</td>
<td>5.228</td>
<td>1.349</td>
<td>.677</td>
<td>.458</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Your HRO receives assistance from volunteers</td>
<td>5.571</td>
<td>1.146</td>
<td>.533</td>
<td>.284</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resource Sharing</strong></td>
<td>The degree of the reliance or the need of a stable of resources from other agencies to work together to deliver the service</td>
<td>The HRO shares human resources with each other</td>
<td>4.908</td>
<td>1.476</td>
<td>.646</td>
<td>.418</td>
<td>.835</td>
<td>.635</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The HRO shares occupational activities information with each other</td>
<td>5.547</td>
<td>1.178</td>
<td>.955</td>
<td>.913</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The HRO shares professional knowledge with each other</td>
<td>5.550</td>
<td>1.145</td>
<td>.758</td>
<td>.575</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Informational Sharing</strong></td>
<td>The degree of information sharing in terms of communication with each agency, citizens, and service provisions</td>
<td>Your HRO communicates the practices with each agencies.</td>
<td>5.621</td>
<td>1.170</td>
<td>.705</td>
<td>.497</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Your HRO shares information related to the household registration services by computer assistance</td>
<td>5.891</td>
<td>1.038</td>
<td>.860</td>
<td>.739</td>
<td>.825</td>
<td>.612</td>
</tr>
<tr>
<td><strong>Managerial Capability</strong></td>
<td>The task within the agency in which the employee manages, supervises, controls, and exercises the operations of the work, which to improve the agency performance</td>
<td>When providing house registration services, the management strategies such as policy marketing improve the operation of each HRO</td>
<td>5.420</td>
<td>1.280</td>
<td>.725</td>
<td>.526</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Service Value</strong></td>
<td>The agency and the employee embrace the work value that lubricates their practices to collaboratively respond the citizens’ needs and improve its performance</td>
<td>When providing house registration services, the professional practices such as accounting, evaluation support the operation of each HRO</td>
<td>5.580</td>
<td>1.143</td>
<td>.874</td>
<td>.764</td>
<td>.811</td>
<td>.591</td>
</tr>
<tr>
<td><strong>Perceived Network Administrative Organization</strong></td>
<td>The central agency coordinates different service activities to be properly adjusted and interlinked that make their subsidiary agencies and employees work together for fulfill desired organizational performance</td>
<td>When providing house registration services, the work flexibility improve the operation of each HRO</td>
<td>5.728</td>
<td>1.063</td>
<td>.696</td>
<td>.485</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Perceived Organizational Performance</strong></td>
<td>The extent of measuring the success of achieving organizational goals or the desired results</td>
<td>When providing house registration services, promoting service quality is one of the common goals with each HRO</td>
<td>5.964</td>
<td>1.033</td>
<td>.970</td>
<td>.940</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: FL = Factor Loading; CR = Composite Reliability; AVE = Average Variance Extracted.
Appendix 2. Fit Indices for the Measurement Models of Testing Common Method Variance: Confirmatory Factor Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>IFI</th>
<th>TLI</th>
<th>CFI</th>
<th>GFI</th>
<th>RMSEA</th>
<th>Δdf</th>
<th>Δ$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 factors</td>
<td>1081.58</td>
<td>303</td>
<td>.911</td>
<td>.907</td>
<td>.905</td>
<td>.908</td>
<td>.074</td>
<td>14</td>
<td>117.78***</td>
</tr>
<tr>
<td>1 factor</td>
<td>1199.36</td>
<td>317</td>
<td>.871</td>
<td>.856</td>
<td>.870</td>
<td>.777</td>
<td>.091</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: a. Δdf indicates the difference between the df of the alternative measurement models and the df of the hypothesized measurement model (6-factor model). b. Δ$\chi^2$ indicates the difference between the $\chi^2$ of the alternative measurement models and the hypothesized measurement model (6-factor model). c. Only one common factor equates stakeholder assistance, resource sharing, service value, information sharing, network administrative organization, and organizational performance. *p<.05, **p<.01, ***p<.001