

# LEARNING FROM OUTSOURCING: THE EFFECTS OF OUTSOURCING STRATEGY ON ORGANIZATIONAL EFFICIENCY

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## ABSTRACT

Theories of firm boundaries and empirical research on the consequences of boundary choices typically focus on the transaction or capability level. Studies of organization-level governance strategies to tease out how organizations learn from their boundary choices over time to develop capabilities for enhancing performance are scarce. We use a longitudinal, large sample, panel dataset on organizations and their outsourcing decisions of a full set of organizational activities to study organizational learning from outsourcing strategy. We examine the effects of three dimensions of outsourcing strategy—depth, breadth, and dynamics—on organizational efficiency. We find evidence that over time the outsourcing dimensions affect organizational learning differently. The results suggest that repeated experience from deep outsourcing strategies and the diversity of knowledge gained through broad outsourcing strategies are important for learning to be more efficient. In contrast, we do not find learning effects from dynamic outsourcing strategies. We discuss the implications of these findings for theory and research on organization-level boundary choices over time.

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# LEARNING FROM OUTSOURCING: THE EFFECTS OF OUTSOURCING STRATEGY ON ORGANIZATIONAL EFFICIENCY

## INTRODUCTION

The decision to outsource an activity or a service has long been an important subject of strategy research. Outsourcing affects the development of capabilities (Lei & Hitt, 1995; Argyres & Zenger, 2012), transaction and production costs (D'Aveni & Ravenscraft, 1994; Quinn, 1999; Williamson, 1991), and exposure to market risks (Mayer & Salomon 2006), all of which can influence organizational performance. Research on outsourcing performance has typically focused on the transaction- or capability-level. However, it is also important to theorize and study the implications of outsourcing at the firm-level because governance decisions of organizational activities are interdependent (e.g. Nickerson & Silverman, 1997; Argyres & Liebeskind, 1999), are affected by organization-specific factors (Jacobides & Billinger, 2006), and the effects of strategies for outsourcing may supersede transaction-level attributes (Parmigiani & Mitchell, 2009). Research studying the consequences of outsourcing at the transaction- or capability-level is likely to miss the important consequences of governance strategies at the firm-level.

Outsourcing occurs when an organization contracts a third-party to perform an activity that would have otherwise been performed in-house (Gilley & Rasheed, 2000). Organizations frequently choose to outsource some activities and keep other activities in house (Harrigan, 1984; Afuah, 2001; Rothaermel et al., 2006). An organization's outsourcing strategy can be conceptualized in terms of the portfolio of outsourcing decisions across all organizational activities (Moen et al., 2013). Large differences exist in strategies for outsourcing, as exemplified by the classic business school case of Apple Computer and IBM, where Apple Computer chose to be a fully integrated computer company and IBM chose to outsource the vast majority of its activities.<sup>1</sup> While some organizations choose to outsource a set of related activities, others outsource a more diverse set of activities. Moreover, some organizations may

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<sup>1</sup> Apple Computer (HBS case 9-792-081).

adopt dynamic outsourcing strategies, and continuously switch between in-house and outsourced provisions rather than have stable, long-lasting relationships with their outsourcing partners.

Prior research suggests that the decision to outsource organizational activities is a strategic decision that affects current and future performance (Argyres & Zenger, 2012). On the one hand, outsourcing enables the organization to adapt more readily to changing market environments, focus on core competencies, and take advantage of the knowledge, expertise, and efficiencies of third-party suppliers (D' Aveni & Ilinitich, 1992; Harrigan, 1983; Helper & Sako, 1995; Leiblein et al., 2002). On the other hand, outsourcing comes at the cost of potential supplier lock-in and loss of organizational expertise and know-how (Bettis, Bradley, & Hamel, 1992; Quinn & Hilmer, 1994). Lack of organizational-level capabilities in managing the portfolio of outsourced activities could well play a role in the unexpected and undesirable results of outsourcing. In summary, outsourcing can have a positive or a negative impact on performance.

This study intends to contribute to research by examining how different dimensions of strategies for outsourcing services affect organizational efficiency over time. The dimensions of outsourcing strategy emerge from the conscious and unconscious decisions that organizations make in selecting whether or not to outsource their activities (Harrigan, 1984). We focus on three dimensions of outsourcing strategy: *depth*, the extent to which organizational activities are outsourced; *breadth*, the dispersion of the organization's outsourced activities across business areas or activity groups; and *dynamics*, the extent to which the organization changes the provision of its activities from in-house to outsourced and vice versa. We draw on the outsourcing, capabilities, and organizational learning literatures to predict the influence of the dimensions of outsourcing strategy on organizational efficiency. We argue that the dimensions shape organizational experience with outsourcing, which in turn influence learning and capability development over time. That is, differences in the choices that organizations make regarding outsourcing will lead to differences in organizational performance.

The context of this study is the outsourcing of public services by local government organizations from 1982-2007. In the 1980s, the New Public Management movement emphasized local government efficiency, making the provision of organizational services through outsourcing a common strategy to increase the efficiency of public organizations. Since 1982, the International City/Council Management Association (ICMA) has conducted a national survey of local government organizations in the U.S. regarding the type of provision (in-house vs. outsourced) of 64-67 public services. This dataset allows us to observe the evolution of each organization's governance choices for the full set of organizational activities over a 25-year period.

A benefit to studying local governments is that some industry and market variables that can confound the effects of outsourcing decisions on organizational performance are essentially mitigated in this context. For example, while firms face market competition and may choose not to outsource for fear of the supplier becoming a competitor (Holcomb & Hitt, 2007), the threat of competition is less relevant to local government organizations. Similarly, some organizations may choose not to outsource because of differentiation strategies (e.g. Apple Computer mentioned above), however, local governments do not need to differentiate themselves. Unlike private for-profit organizations, local governments do not have a profit mandate. Instead, their purpose is to provide services to their constituents, making the efficiency in service provision a key metric of their performance. Local governments are also characterized by a relatively static environment. The types of services provided by these organizations tend to be basic services, frequently viewed as public goods. Since local governments generally provide similar services, the context provides a relatively good setting for comparing differences in outsourcing strategies. While our context mitigates the complexities of dynamic, highly competitive environments, we discuss the implications for the generalizability of our results in the discussion section.

We test our hypotheses on the relationship between the different dimensions of outsourcing strategy and organizational efficiency using an unbalanced panel dataset on 1,395 local government organizations over the 1982-2007 period. We use several estimation

approaches to account for the endogenous relationship between outsourcing and organizational efficiency. Our results suggest that depth in outsourcing is negatively associated with organizational efficiency. In contrast, outsourcing breadth and dynamics are positively associated with organizational efficiency. Contrary to our expectations, we do not find a learning effect from outsourcing dynamics; however, we find that increases in organizational efficiency over time comes through depth and breadth of services outsourced.

Our research makes several contributions. First, we contribute to the governance literature by theorizing and empirically examining how organization-level governance choices influence organizational efficiency over time. Understanding the effects of organization-level outsourcing strategies on performance is an understudied area of research. With few exceptions (e.g. Kotabe et al., 2008; Mol et al., 2004), scholars have primarily theorized and studied the performance of boundary decisions for individual components or activities. Many transactions and organizational activities are inter-related, and organizations frequently make outsourcing decisions for multiple components or activities at once (Parmigiani & Mitchell, 2009). Studying outsourcing at the organization level provides a more complete understanding of outsourcing. Second, we study the dynamics of oscillating between in-house and outsourced service provision over time. Nickerson and Zenger (2002) theorize that switching governance structures may be efficient for organizations in stable environments with stable strategies. To our knowledge, this is the first study to empirically examine the effects of dynamic versus stable organization-level outsourcing strategies using large-sample, longitudinal data. Third, from a public management perspective, this study provides important practical implications for public managers to capitalize on governance choices to improve organizational efficiency.

## **THEORETICAL BACKGROUND**

Researchers have studied the performance consequences of governance decisions primarily using transaction cost economics and capabilities perspectives. Transaction cost economics emphasizes performance benefits from governance decisions through reduced transaction costs. Under assumptions of bounded rationality and opportunism, transactional

characteristics of asset specificity, frequency, and uncertainty increase the costs of outsourcing the activities (Williamson, 1991). By selecting the most efficient governance mode, organizations are able to reduce transaction costs (Williamson, 1991; Bettis et al., 1992; D'Aveni & Ravenscraft, 1994).

The capabilities perspective emphasizes performance benefits from governance decisions by reduced costs or increased revenues. Through selecting whether to perform an activity in house or to outsource it based on the relative capabilities of the organization and potential suppliers, the organization can focus its resources and efforts on the activities in which it has a competitive advantage and managers can supervise and coordinate suppliers performing activities where the organization has a relative disadvantage (Dess et al., 1995; Gilley & Rasheed, 2000; Kotabe & Murray, 1990).

### **Inter-related Outsourcing**

Although research has primarily focused on outsourcing transactions or activities associated with firm capabilities, a number of researchers have theorized and empirically examined the choice to select similar governance structures for sets of activities. Most research focuses on the advantages to internalizing activities that are complimentary or synergistic. Several scholars have discussed how technological complementarities (Arrow, 1975; Armour & Teece, 1978; Milgrom & Roberts, 1990) and economies of scope (Panzar & Willig, 1981; Teece, 1982) influence the decision of whether or not to perform an activity in house. Nickerson and Silverman (1997) suggest that firms face “hazard interdependencies” in governance structure choice when the investments for a transaction impact the investments to carry out another transaction. Argyres and Liebeskind (1999) coin the term “governance inseparability” for when certain governance choices for transactions affect the governance choices of other transactions. According to Argyres and Liebeskind (1999), governance inseparability arises from contractual commitments and changes in the bargaining power of employees, suppliers, or customers.

Others have found that when there is need for coordination between units, joint governance decisions should be made (Novak & Stern 2009, Parmigiani & Mitchell 2009).

Argyres and Zenger (2012) argue that prior governance decisions can lead to organizational capabilities, which can subsequently affect future governance decisions. Jacobides and Billinger (2006) coin the term ‘vertical architecture’ to describe the strategy to internalize or outsource the activities in a firm’s value chain, arguing that vertical architecture is a means of enhancing efficiency, effectiveness, and organizational learning. An underlying assumption of research on the inter-related governance choices is beneficial performance outcomes.

### **Outsourcing and Performance**

Outsourcing affects several dimensions of organizational performance, including innovation, quality, profitability, revenues, and efficiency (costs). We focus on organizational efficiency because the property rights and public choice theories have advanced that the privatization of public services will make public organizations more efficient (Boyne, 2002; Levin & Tadelis, 2010). Organizational efficiency is the ability of the organization to perform its activities at a lower cost. In service sectors, efficiency has been defined in terms of the cost of servicing customers (Weigelt & Sarkar, 2012). Efficiency can come from direct cost reductions, such as eliminating excess capacity; through innovation, such as new technologies that enable fewer resources to produce the same output; or through operational processes, such as those built through process codification, standardization, and formalization (Lawrence & Lorsch, 1967). By routinizing activities and setting procedures in place, the organization is able to efficiently allocate and utilize its resources.

There are numerous mechanisms through which outsourcing affects organizational efficiency. First, outsourcing can provide more immediate increased efficiency by reducing upfront investment costs. Outsourcing reduces the required investment in employees, expertise, and assets required to perform an activity (Bettis et al., 1992). This reduces the risks associated with technological obsolescence, excess capacity, and exit barriers (Rothaermel et al., 2006). By using outside suppliers for products or services, an outsourcer is able to take advantage of emerging technology without investing significant amounts of capital in that technology. Second, outsourcing can be used as a means of reducing production costs (Quinn, 1999). Suppliers can

have specialized expertise, capabilities, or scale advantages in the provision of services, which enables suppliers to provide the service at a lower cost (Quinn, 1992). Outsourcing spreads risks and can enhance organizational flexibility as organizations are able to switch suppliers to those that provide higher quality and cost-efficient goods and services (Quinn, 1992). Particularly in rapidly changing environments, outsourcing can reduce innovation and adaptation costs, allowing the organization to quickly respond to the local environment without getting locked into its existing technologies or strategies (Harrigan, 1985; Dess et al., 1995). From an administrative perspective, outsourcing can reduce bureaucratic costs. Bureaucratic costs are the costs of managing activities (Jones and Hill, 1988). Performing a large set of activities in house increases bureaucratic costs (Jones and Hill, 1988). Due to market competition, external suppliers are under pressure to keep bureaucratic costs from the coordination and administration of activities down. Finally, outsourcing can be used as a mechanism for benchmarking internal costs and to learn from third parties how to perform activities more efficiently (Dyer & Singh, 1998). From knowledge and information gained from outsourcing partners, the organization can implement new processes and procedures to increase efficiency.

Although outsourcing has advantages, it also has disadvantages. Rothaermel et al. (2006) suggest that organizations trade off economizing (transaction costs) with learning. Outsourcing may erode a firm's long-run competitive advantage by reducing its control over activities, substituting innovation, and shifting knowledge to suppliers (Bettis et al., 1992).

In summary, organization-level outsourcing strategies can influence firm performance. The benefits and costs of outsourcing strategies are not static, however. Over time, the choices made affect experience and learning, which in turn influence performance outcomes.

### **Organizational Learning**

The capabilities approach suggests that the efficient mode of service provision is dynamic. Learning is a path-dependent process of accumulated experiences (Zollo & Winter, 2002). Thus, capabilities emerge and evolve through experience (Arrow, 1962; Nelson & Winter, 1982). A common assumption in the empirical literature on organizational learning is that

changes in organizational performance indicate changes in organizational learning (Argote, 1999; Baum & Ingram, 1998; Madsen & Desai, 2010). Over time, organizations learn from experience and can develop capabilities that enhance organizational performance.

Organizational learning is defined as “the process of improving actions through better knowledge and understanding” (Fiol & Lyles, 1985: p. 803). Learning occurs when knowledge is modified due to vicarious or direct experience, or other factors (Baum & Dahlin, 2007; Cyert & March, 1963; Levitt & March, 1988). While individuals within an organization learn from experience, an organization is said to have learned if the knowledge is embedded in routines and processes. Any new knowledge gained must be embedded in routines for knowledge to last. Knowledge is created from experiences and incorporated into processes, routines, and operating practices (Argote & Miron-Spektor, 2011; Levitt & March, 1988). Members of the organization then share mental maps, cognitive systems, and memories (Fiol & Lyle, 1985).

The link between organizational learning and strategy is well established in the literature. An organization’s strategy creates path-dependent momentum in organizational learning (Miller & Friesen, 1980). Strategy determines the learning capacity of the organization (Cohen & Levinthal, 1990), the options perceived to be available (Cyert & March, 1963; Daft & Weick, 1984), and the perception of the environment (Burgelman, 1983).

There are two primary ways in which organizational learning is affected by outsourcing. First, learning occurs through interactions and relationships with suppliers (e.g. Poppo & Zenger, 1998). An organization can use outsourcing to tap into specialized resources and compensate for areas where the organization lacks expertise (Mitchell & Singh, 1996; Mowery et al., 1996; Steensma & Corley, 2000). By working with suppliers that have diverse knowledge and expertise, the organization is exposed to new technologies and know-how, which can enhance its ability to identify new opportunities and avoid competency traps (Weigelt, 2009). From knowledge gained through supplier relationships, organizations can increase innovation in the production and supply of services and reduce production costs (Poppo & Zenger, 1998).

Second, learning occurs by performing activities. Learning by doing is essential for creating and maintaining absorptive capacity (Cohen & Levinthal, 1990). Absorptive capacity is important particularly in the presence of new technologies and dynamics market (Cohen & Levinthal, 1990). Organizations trade off learning how to better outsource by “doing” outsourcing with learning how to better perform activities by “doing” the activities themselves. Although suppliers can be a source of learning, they cannot fully compensate for internal learning (Attewell, 1992; Fichman & Kemerer, 1997). Organizations accumulate experiences from outsourcing strategies, which establish capacity for innovation and capabilities that increase the efficiency of activities in the future. Consequently, the absorptive capacity and learning from prior outsourcing strategies can alter the costs and benefits for future activities. Thus, outsourcing strategies selected by an organization in one time period can affect the future strategies chosen in another time period (Argyres & Zenger, 2007; Mayer et al., 2012).

While there are immediate effects from the dimensions of outsourcing strategy, there are also dynamic effects. Research has shown that different forms of experience such as operational experience (Argote et al., 1990; Lieberman, 1987) and experience with failures (Arthur & Aiman-Smith, 2001; Haunschild & Rhee, 2004) influence learning differently. Outsourcing depth, breadth, and dynamics provide different experiences and opportunities for learning. Scholars have long emphasized and demonstrated that organizations select governance modes to benchmark activities, effectively use resources and capacities, and better match capabilities with market needs (e.g. Jacobides & Billinger, 2006). If the organization is simply attempting to meet current conditions, without learning from experience, then we do not expect to see any significant differences over time in the effects of an outsourcing strategy on organizational efficiency. However, if outsourcing choices affect organizational learning, performance differences could emerge over time.

## **Hypotheses**

### **Outsourcing Depth**

As stated earlier, depth is the extent of outsourcing activities, reflecting the focal organization's experience with outsourcing strategy. The immediate benefits to outsourcing depth arise from scale advantages. The activities performed in-house versus outsourced give rise to different governance costs (Williamson, 1981), of which there are both upfront costs and ongoing costs. Upfront costs include the costs of searching, contracting, and investing in the resources and assets needed to perform the activity, whereas ongoing costs include the costs of monitoring, enforcing, and managing the activity (Dyer, 1997). Managerial activities and routines for the production of a service in-house and its production by a third-party differ. In-house production requires investment in knowledge, expertise, workers, and fixed assets necessary to perform and manage the steps in the production and distribution of the service. In contrast, outsourcing entails higher-level organizational activities such as managing the relationship with the third-party, coordinating, monitoring, and assessing the production and distribution of the services.

When fewer activities of the organization are outsourced, the organization has greater upfront costs and a larger set of internal activities to manage. Emphasis is placed on internal operations and quality control rather than setting routines and processes to monitor and assess the vendor. In contrast, organizations that outsource a greater number of activities have the scale advantages to employ specialized personnel that manage the relationships with the contractors to ensure the timeliness of delivery and the client's satisfaction with the quality of the service. Hence, depth of outsourcing could enhance organizational efficiency as the organization devotes specialized resources in establishing and managing the outsourced activities.

Over the long run, there are two countervailing effects of outsourcing depth on organizational efficiency. First, extensive experience in outsourcing activities can lead to a capability for outsourcing. Organizations learn to become more efficient through repeated actions (Yelle, 1979; Darr et al., 1995). Capabilities are built through related prior experience

(Cohen & Levinthal, 1990; Helfat & Peteraf, 2003; Zollo & Winter, 2002; Danneels, 2002; King & Tucci, 2002). Repeated experience from contracting with many vendors at once allows the organization to observe the outcomes of a particular activity many times. The knowledge gained can then be used to improve performance through refining procedures and developing routines and processes for coordinating and monitoring the outsourced activities (Argote, 1996; Darr et al., 1995). Repeatedly searching, contracting, and monitoring outsourced activities can enhance organizational expertise in outsourcing, especially in regards to managing outsourced relationships and selecting outsourcing partners. Capabilities developed through improved routines and processes can increase efficiency.

Second, some scholars argue that outsourcing too many activities can erode organizational performance (e.g. Harrigan, 1984). Outsourcing has been associated with “hollowing out” of organizations (e.g. Harrigan, 1984; Kotabe, 1998; Bettis et al., 1992) where organizations have difficulties differentiating themselves if too many activities are outsourced. Outsourcing increases suppliers bargaining power, particularly if the supplier has greater capabilities than the organization (Kotabe et al., 2008). The organization is then exposed to the risk of increased costs from suppliers acting opportunistically and increasing their price or withholding information on changes in production costs (Williamson, 1985; Kotabe et al., 2008). This can reduce long-term organizational performance.

Although there are two opposing factors that will influence organizational efficiency over time, it is expected that the erosion of knowledge from not performing the activities themselves will have a greater impact on organizational revenues than on costs. That is, the cost saved by learning how to more effectively search, contract, monitor, and enforce will supersede the costs incurred from the lack of knowledge of how to perform the outsourced activities. Therefore we predict:

*Hypothesis 1a: Depth in outsourcing is positively associated with organizational efficiency.*

*Hypothesis 1b: The positive association between outsourcing depth and organizational efficiency increases over time.*

## **Outsourcing Breadth**

As defined above, breadth deals with how dispersed outsourcing is across the organization's value chain or business units (Giley & Rasheed, 2000). Breadth is conceptualized as a continuum, ranging from outsourcing highly related activities on one end to outsourcing highly distinct activities on the other end. Related organizational activities are interdependent, rely on a certain body of knowledge, and use similar resource inputs. In contrast, distinct activities lack commonality in knowledge and resources and do not have interdependencies.

Research predicting the decision to outsource sheds light on the expected immediate benefits from outsourcing related activities. Studies have found that organizations tend to make highly correlated governance decisions for activities with high interdependencies or complementarities (Milgrom & Roberts, 1995; Novak & Stern, 2009). Related activities benefit from interrelated governance decisions (Milgrom & Roberts, 1995, Siggelkow, 2002) due to the synergies of performing the activities together. The outsourcing of one activity has benefits that spill over to outsourcing other activities (Argyres & Liebeskind, 1999, Novak & Stern, 2009). Outsourcing related activities is beneficial from the ability to leverage complimentary knowledge, resources and insights, which could reduce costs of searching, contracting, and monitoring the services. In the context of IT systems, Moeen et al. (2013) suggest that interrelated governance choices are important for coordinating activities so that the programs can work seamlessly with one another. They find that organizations are more likely to source inter-related activities from single suppliers (Moeen et al., 2013).

By outsourcing related activities, organizations are able to specialize in outsourcing knowledge, without needing to understand the idiosyncrasies of multiple supplier markets. Organizations tend to choose similar governance modes because experiences gained from outsourcing related activities enhance their ability to understand, build, and maintain relationships with the suppliers, fine-tune their internal processes, and gain efficiency from deep insights into a narrow set of activities (Eggers, 2012).

In the context of outsourcing public services, for instance, if a local government outsources residential solid waste collection and disposal, it becomes familiar with the market for services related to solid waste. An understanding of this market can reveal information on suppliers, pricing, standards, and avenues for saving costs in contracting, which in turn facilitates outsourcing related services like commercial solid waste collection, disposal of hazardous material, and sewage collection and treatment more efficiently. In contrast, if the local government were to outsource waste disposal and mental health facilities, the experience gained from the former does not necessarily translate into useable experience for the latter. Overall, related experience in outsourcing organizational services can improve future outsourcing decisions because organizations can more effectively exploit niches related to their current expertise (Benner & Tushman, 2002), and improve efficiency in existing routines to manage external relationships (Argyres & Zenger, 2012).

On the other hand, despite the challenges and fewer immediate efficiency advantages, outsourcing unrelated organizational activities expands the organization's opportunities to learn. Working with diverse service providers exposes the organization to more diversified supplier markets, providing a broader set of information, knowledge, and insights for managing the relationships with external organizations. Prior research points out the importance of breadth of experience for organizational learning (Levitt & March, 1988). A broad range of experiences provides an extensive knowledge base (Huber, 1991), which expands the range of strategies to choose from, provides new ideas for innovation, and reveal niches to more modular and flexible organizational routines (Beckman & Haunschild, 2002; Eggers, 2012; Luo & Peng, 1999; Katila & Ahuja, 2002; Nerkar & Roberts, 2004). Over time, learning from the accumulation of diverse experiences helps increase the efficiency of outsourcing across diverse services.

In summary, we propose that while in the short term outsourcing breadth can reduce efficiency as the organization may not have the synergies, knowledge, or expertise for diverse activities, over time organizational learning from outsourcing unrelated services provides greater

insights and knowledge to put in place internal processes and manage the external relationships to enhance efficiency.

*Hypothesis 2a: Breadth of outsourcing is negatively associated with organizational efficiency.*

*Hypothesis 2b: The negative association between outsourcing breadth and organizational efficiency decreases over time.*

## **Outsourcing Dynamics**

Organizations may rapidly switch between outsourcing and insourcing of services or they may maintain stable outsourcing relationships (Nickerson & Zenger, 2002). An underlying assumption in the governance literature is that firms seek to establish the optimal governance structure for each activity (Williamson, 1991). Hence, in the presence of changing industry, competitive landscape, or internal dynamics firms may need to alter their outsourcing strategy.

Although research on governance modes focuses on matching governance modes to the environment, organizations have the ability to choose whether or not to change the way they produce their services. For instance, if performance of outsourcing a service falls short of expectations, the organization can decide to adapt and make changes to improve the efficiency and quality of outsourcing the service rather than bring its production back in-house. Adaptation through existing relationships can be perceived beneficial due to high organizational costs associated with switching governance modes. In general, change between organizational structures is costly due to upfront costs in planning, implementation costs, and dynamic costs of lowered productivity due to workers resistance to change (Nickerson & Zenger, 2002). In particular, search costs, contracting costs, and the upfront costs of investing in the human and physical capital reduce motivation in switching governance modes. Managers will be reluctant to change a governance mode unless the expected benefits from switching overcome the costs.

However, there are performance benefits from switching as it might prevent the organization from getting locked into an unfavourable position. For instance, switching can be a means of overcoming organizational inertia (Hannan & Freeman, 1984), making the organization

more agile internally and externally. Switching can change the internal power structure, which can be particularly beneficial for bureaucratic organizations (Nickerson & Zenger, 2002). Switching is also associated with active management of the governance modes of organizational activities in response to changing market conditions (Kotabe et al., 2008). Kotabe et al. (2008) find that organizations that experience deteriorating capabilities from outsourcing bring them back in house. A firm's organization-wide emphasis on flexibility and adaptability in governance modes can reduce costs by writing policies and procedures to ensure that contracts do not unduly lock the organization into relationships, and by signalling to the suppliers the organization's intent to manage its contracts for optimal outcomes.

Organizations that pursue a dynamic strategy experience change and learn from it. Amburgey et al. (1993) suggests that "organizations learn to change by changing" (p. 54). For instance, changing the production of a service from in-house to outsource changes some of the activities of the organization and gives the organization experience in modifying its operating processes and routines. A continuation of this practice provides an avenue for routinizing change (Nelson & Winter, 1982). Nelson and Winter (1982: 17) state that organizations over time develop 'modification routines' or "procedures for changing and creating change." When such routines and procedures are established, resistance to change is reduced because the employees expect change and are equipped with means for its implementation. Thus, organizational costs associated with change will be reduced and efficiency of change will be enhanced. Applied to change in governance modes, over time learning from prior changes in the provision of services can lead to a dynamic capability in searching, selecting, and monitoring a more efficient mode (Teece et al., 1997). Therefore, we predict:

*Hypothesis 3a: Dynamics of outsourcing is positively associated with organizational efficiency.*

*Hypothesis 3b: The positive association between outsourcing dynamics and organizational efficiency increases over time.*

## **METHODS**

### **Data and Sample**

To test our hypotheses, we constructed a dataset from several sources. First, we collected data on local government outsourcing from the ICMA's Alternative Service Delivery (ASD) surveys. The ASD surveys are administered in the United States (U.S.) to a stratified random sample of U.S. local governments. The questionnaires are sent to city managers or chief administrative officers of municipal and county governments. The survey asks respondents about the governance choices of the 64-67 public services provided by local governments. We considered a service as being provided in-house if the respondent indicated that the service was provided by the organization's employees. We considered a service as being outsourced if the respondent indicated that the service was provided by private for-profit, private non-profit, franchises/concessions, subsidies, volunteers, or another local government.<sup>2</sup> The services are classified into seven categories: public works/transportation, public utilities, public safety, health and human services, parks and recreation, cultural and arts programs, and support (administrative) functions. The ICMA has issued the surveys every five years since 1982, resulting in a total of six panels (1982, 1988, 1992, 1997, 2002, and 2007). The number of organizations that responded to each survey ranges from 1,172 to 1,566, representing a response rate for each survey of 24-32% (ICMA website, <http://www.icma.org>). A total of 4,628 unique organizations responded to at least one survey. We carefully matched the questions for each survey to create the longitudinal dataset.

We collected data from the Census of Governments Finance and the U.S. Census City and County Data Book to include information on organization-level characteristics, such as total expenditures, population, and income per capita. For control variables associated with transaction costs, we relied on data from Brown and Potoski's (2003) expert survey of 36 city managers/mayors. Brown and Potoski asked the respondents to rate the levels of asset specificity

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<sup>2</sup> Franchises/concessions, subsidies, and volunteers represent a di minimus portion of service provision. We kept these observations in the sample in order to capture the entire set of service provision.

and service measurability, which respectively reflect the degree of specialized investments and the difficulty of monitoring services, for 64 services in the ICMA's ASD survey.

Our analysis is at the organization-level. The starting sample was composed of 1,747 organizations that responded to at least two sequential ASD surveys. Observations with gaps were excluded from the analysis. This reduced the number of organizations in the sample from 1,747 to 1,654, resulting in an unbalanced dataset of 4,749 organization-year observations (hereafter observations). Removal of observations due to missing data (421 observations) lagged independent variables (1,654 observations) and outliers (130 observations) reduced the sample to 1,395 organizations and 2,544 observations.

### *Measures*

**Dependent Variable.** Prior research has used total costs per service as a measure of efficiency (Weigelt and Sarkar, 2012). We measured *organizational efficiency* by the natural log of the total expenditures of the organization in the current period divided by the total number of services provided by the organization (both in-house and outsourced) in the current period. Total expenditures are adjusted for inflation using the Consumer Price Index (CPI), with 1982 as the base year. Organizational expenditures are negative values in our dataset; thus, as the ratio increases in value, the organization is more efficient (see Figure 1).

**Independent Variables.** *Outsourcing depth* is measured as the sum of outsourced services provided by the focal organization in the prior period, divided by the total number of services provided by the organization (both in-house and outsourced) in the prior period (Gilley & Rasheed, 2000). Outsourcing depth ranges in value from zero for organizations that did not outsource any services to one for organizations that outsourced all services in the prior period.

*Outsourcing breadth* is the dispersion of the organization's outsourced services across business areas or service groups. We apply a Herfindahl-type measure of breadth, as follows:

$$\text{Total Breadth} = 1 - \left( \sum_{i=1}^N \left( \frac{s_i}{S} \right)^2 \right)$$

where the subscript *i* represents the category of service, as defined by the ICMA, *N* is the total number of service categories, *s* is the number of services outsourced in the service category *I*,

and  $S$  is the total number of services outsourced by the organization. Outsourcing breadth ranges from zero to one, with higher values indicating greater levels of breadth.

*Outsourcing dynamics* represents changes in governance modes, whether from in-house in the prior period to outsourced in the current period, or from outsourced in the prior period to in-house in the current period. It was calculated as the total number of changes in governance modes from the prior period to current period, divided by the total number of services provided by the organization (both in-house and outsourced) in the prior period. This continuous variable equals zero for organizations that did not switch the governance mode of any services, and one for organizations that switched the governance of all services, between two subsequent periods.

**Control Variables.** We controlled for different factors found in prior studies to influence organizational performance in public organizations (Boyne et al. 2005; Walker et al., 2011). To control for the effect of the economic conditions, we included gross domestic product of the state in which the local government is located, as reported by the United States Bureau of Economic Analysis. *Gross domestic product (GDP)* is measured as the change in the real GDP of the state from the prior period to the current period. Since differences may exist in scale advantages and bureaucracies of large versus small local governments, we controlled for the size of the local government (Boyne et al., 2005). *Community size* is measured as the natural log of the population in the jurisdiction of the local government. We also controlled for *income per capita*, measured as the total personal income of constituents, adjusted for inflation using the CPI index with 1982 as the base year, divided by the total number of constituents. *Elected* is measured as a dummy variable, set equal to one if the organization's key decision maker is an elected official ('mayor-council' or 'council-elected executive') and zero if nonelected ('council manager' in a city, 'council administrator' in a county). Sixteen percent of the organizations in our sample are managed by elected officials, 84 percent by professional managers. We controlled for the transaction costs associated with the services by *asset specificity* and *service measurability* using the mean survey ratings for the services provided by the organization (both in-house and outsourced) in the prior period (Brown & Potoski, 2003). *Service group* controls for variation in

the types of service provided by the organization, and is calculated as the number of services provided in each service group divided by the total number of services provided by the organization. Since regional characteristics may influence the efficiency of the organization we included fixed effects for the nine *geographical regions* identified by the ICMA. Finally, we controlled for differences in years using a *time trend*.

## **Estimation**

A primary concern in testing our hypotheses is the inter-relationship between the dimensions of outsourcing strategy and performance. Organizations that are high performers may select outsourcing strategies that increase their performance (Hamilton & Nickerson, 2003). While fully addressing concerns that the outsourcing strategy is endogenous can be difficult, we used two different estimation approaches to tackle this issue: Two Stage Least Squares (TSLS) and propensity score matching (PSM). Each approach has its benefits and drawbacks. We rely on TSLS as our baseline results and discuss the PSM analysis in the robustness section.

TSLS, a common method used for regressions with endogenous independent variables, relies on instrumental variables to allow for consistent estimation of the variables of interest (Wooldridge, 2002). Although TSLS has the advantage of providing consistent estimates, use of TSLS is challenged by the difficulty of identifying good instrumental variables.

We treat outsourcing depth as the endogenous variable in our analyses since the proportion of services outsourced is a basic choice made by the organization.<sup>3</sup> *Outsourcing legitimacy*, which represents the extent to which organizations in the population outsource the services provided by the focal organization, is used as an instrument for outsourcing depth. *Outsourcing legitimacy* is calculated at the organization-level using a two-step process. First, for each service, we computed the total number of organizations in the population that outsourced the service, divided by the total number of organizations in the population that provided (whether in-house or outsourced) the service. To keep legitimacy as a measure not influenced by the focal

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<sup>3</sup> Our results are robust to the two other scenarios of treating outsourcing breadth and outsourcing dynamics as the endogenous variables in the first stage equation.

organization, we excluded the focal organization in calculating the legitimacy of outsourcing each service in the population. Then, we constructed outsourcing legitimacy at the organization level by computing the mean legitimacy of the services that were provided by the organization (both in-house and outsourced) in the prior period. Outsourcing legitimacy was correlated at 0.47 with outsourcing depth. The Kleibergen-Paap rk statistics indicate that the model is identified (F-statistic for weak identification=301.33; Chi-squared=137.29;  $p < 0.001$ ; Hansen's J statistic to assess over-identification,  $p < 0.001$ ).<sup>4</sup>

## RESULTS

Table 1 presents the descriptive statistics and correlations for all the variables included in our final sample. The highest correlations amongst the variables in our sample are between asset specificity and service measurability ( $r = .50$ ). On average organizations in the sample outsource 33 percent of services. Outsourced services were fairly diverse across organizational activities as the mean value of breadth is 0.63. Surprisingly, the organizations in our sample are fairly dynamic. On average, they changed 22 percent of services. Overall, the summary statistics point to fairly large variance along the dimensions of outsourcing strategy.

----- Insert Table 1 here -----

Table 2 contains the second stage results of the TSLS analysis (Stage 1 results are shown in Table A1 in the Appendix). We entered the theoretical variables of interest to the baseline model with the controls in the order of our hypotheses. The predicted value of depth from the first stage equation is included in all TSLS second stage regressions. Models 1 and 2 contain the main and interactive effects of depth, Models 3 and 4 contain the main and interactive effects of breadth, Models 5 and 6 contain the main and interactive effects of outsourcing dynamics, and Model 7 contains the full model with the interaction terms significant in the prior models. We tested for the presence of multicollinearity by computing the variance inflation factors (VIFs),

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<sup>4</sup> We used the Kleibergen-Paap rk statistic (Kleibergen & Paap, 2006) because Wooldridge (2002) states that it is a more appropriate statistic for panel data than tests such as the Anderson LM and Cragg-Donald Wald.

which ranged between 1.09 and 6.59, which is below the suggested limit of 10 (Chatterjee & Price, 1991).

----- Insert Table 2 here -----

The results for the control variables in Model 1 indicate that GDP is negatively associated with organizational efficiency ( $p < 0.001$ ), suggesting that in economic downturns local governments strive for efficiency. Community size is also negatively associated with organizational efficiency (Model 1,  $p < 0.001$ ), indicating the adverse effect of larger organizations' bureaucracy on efficiency. Likewise, the results suggest that when the key decision maker is an elected official, organizational efficiency is lower than if the key decision maker is a professional manager (Model 1,  $p < 0.001$ ). This result is not surprising, given that professional managers are likely to be more focused on organizational financial performance than politicians. We find no significant effect of asset specificity, service measurability, and income per capita on organizational efficiency. Finally, the time trend coefficient is negative and significant, indicating an overall trend of reduced efficiency over time (Model 1,  $p < 0.001$ ).

Hypothesis 1a and 1b proposed that outsourcing depth is positively associated with organizational efficiency and the effect increases over time. We did not find support for Hypothesis 1a as the results show a negative effect (Models 1 and 2,  $p < 0.001$ ). Hypothesis 1b, however, is marginally supported as the coefficient was at the 0.10 level (Model 2).

Hypothesis 2a and 2b suggested that outsourcing breadth is negatively associated with organizational efficiency but over time the negative relationship decreases. We find that the main effect is positive (Model 3,  $p < 0.05$ ); however as predicted, it becomes negative and significant once the interaction term is taken into account (Model 4,  $p < 0.05$ ). We also find support for hypothesis 2b. The interaction term is positive and significant (Model 4,  $p < 0.001$ ), indicating that over time the negative effect of breadth on efficiency is decreasing.

Hypothesis 3a and 3b proposed that outsourcing dynamics are positively associated with organizational efficiency and the effect increases over time. As expected, organizations that

change governance modes more had lower expenditures per service (Model 5,  $p < 0.05$ ). However, there was no significant interaction effect between outsourcing dynamics and the time trend (Model 6,  $p > 0.10$ ), indicating that changing governance modes a lot is not related to enhanced efficiency over time.

In Model 7, we find that among the different dimensions of outsourcing strategy, breadth has a more formidable effect than depth and dynamics on organizational efficiency. Indeed, the coefficients for depth and its time trend interaction become insignificant, indicating that once breadth and dynamics are taken into account, depth is not significantly related to efficiency.

To visually examine the interaction effects from Models 2 and 4, we constructed interaction charts. Figures 1a and 1b depict the interactions of outsourcing depth and breadth with the time trend. Organizational efficiency is shown on the vertical axis and time trend on the horizontal axis. The solid and dashed lines represent, respectively, one standard deviation below and one standard deviation above the mean for depth and breadth. Figure 1a shows that low levels of outsourcing depth are always associated with higher organizational efficiency, but the difference is decreasing over time. Figure 1b depicts that while at first high breadth is less efficient than low breadth, over time the relationship switches such that organizations with high outsourcing breadth are more efficient than those with low outsourcing breadth.

We performed several robustness tests to our analyses. First, we used PSM to identify similar organizations that chose different outsourcing strategies (Rosenbaum & Rubin, 1983). PSM allows us to uncover the effect of the “treatment” – in this case, the dimensions of outsourcing strategy – by comparing the group of treated firms to a control group of matched similar firms. We constructed a matched sample for depth, breadth, and dynamics, using three treatment variables (set equal to one if the organization was in the top 66<sup>th</sup> percentile of observations of depth, breadth, and dynamics, and zero otherwise). For each dimension, we matched organizations that ranked high with those that ranked low along the outsourcing dimension based on the similarity of their characteristics (e.g., located in the same state, provided the same services, in the same year, had similar community size, GDP, form of government, and

outsourcing legitimacy).<sup>5</sup> We used the matched sample to estimate the effects of the outsourcing strategy dimensions on organizational efficiency using an ordinary least squares analysis, with standard errors clustered by organization.

----- Insert Table 3 here -----

The results from PSM are displayed in Table 3. Hypothesis 1a is not supported as the coefficient is insignificant ( $p > 0.10$ , Model 1, Table 3), and negative once the time trend interaction is taken into account (Model 2,  $p < 0.001$ , and Model 7,  $p < 0.05$ ). The results provide strong support for Hypothesis 1b (Models 2,  $p < 0.001$ , and Model 7,  $p < 0.01$ ). The PSM analysis also confirmed support for Hypotheses 2a and 2b (Models 3, 4 and 7, Table 3), but did not support Hypotheses 3a and 3b ( $p > 0.10$ , Models 5, 6 and 7, Table 3).

While other researchers have emphasized the importance of outsourcing peripheral activities and keeping core activities in house in order to cultivate core capabilities (Dess et al., 1995; Kotabe and Murray, 1990; Quinn, 1992), we theorize a different causal mechanism – breadth in knowledge gained. We conducted an exploratory analysis to test whether our results for breadth are simply picking up the effects of outsourcing peripheral activities. We defined core activities as services that 90 percent of all local governments provide (whether in house or outsourced) to their constituents (e.g. fire-fighting, police, etc.). We then created a peripheral outsourcing variable, calculated as the number of non-core services outsourced divided by the total number of non-core services provided by the organization (both in-house and outsourced). The variable was correlated 0.34 with breadth. Incorporating both the breadth and the peripheral outsourcing variables into the regression did not change the results reported in Table 2.

We also conducted several other robustness tests. Instead of using total expenditures per service as our measure of efficiency, we used total administrative costs per service. We estimated the TSLS analysis using outsourcing breadth and outsourcing dynamics as alternative

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<sup>5</sup> Organizations were matched using nearest neighbor matching, without replacement. We were not able to match 97 high depth observations, 29 high breadth observations, and 37 high dynamics observations to similar organizations in the sample. The results of balancing tests are available upon request from the authors.

endogenous variables. For the instrumental variables, we relied on *breadth legitimacy*, and *dynamics legitimacy*, which were constructed in a similar manner as *outsourcing legitimacy*. Additionally, we tested the sensitivity of our results by the replacement of control variables with different measures, such as replacing community size with a metropolitan dummy variable. We estimated the model using three stage least squares. The results for the explanatory variables for all of these analyses were consistent with those reported in Table 2.

## **DISCUSSION**

Our research draws on the capabilities and organizational learning literatures to understand how outsourcing strategies influence organizational efficiency. Consistent with prior empirical research on organizational learning, we assume that changes in organizational performance indicate changes in organizational learning (Argote, 1999; Baum & Ingram, 1998; Madsen & Desai, 2010). Leveraging variation in local government strategies, we investigate the effects of three dimensions of outsourcing strategy—depth, breadth, and dynamics—on the efficiency of service provision over time. The results suggest that different outsourcing strategies affect organizational efficiency differently. More generally, the study provides support for research on governance modes at the organization-level, and suggests that the transaction- or capability-level studies may miss important organization-level effects on the outsourcing-performance relationship.

The study also contributes to the literature on the differential effects of organizational learning on performance. Organizations may fail to learn or learn the wrong lesson from experience (Levitt & March, 1988; March & Sutton, 1997). Rather than theorizing that greater experience will increase organizational efficiency over time, we argued that different types of experience will lead to different types of costs and benefits. As a result, some experiences may enhance organizational outcomes, while others may be detrimental. Distinguishing between the types of experience gained from each dimension of outsourcing strategy, we found that not every experience with outsourcing is associated with organizational learning to improve efficiency.

The findings provide insights into outsourcing mechanisms that underscore the beneficial aspect of learning over time.

Surprisingly, we find that greater levels of depth are associated with reduced efficiency, suggesting that depth provides scale disadvantages rather than advantages. The reduced performance could be attributed to the hollowing out of capabilities (Bettis et al, 1992; Kotabe, 1998) or the loss of power and control in the supply relationship, allowing the suppliers take advantage of the organization and increase its costs over time. On the contrary, we find that the difference between organizations with high and low depth is decreasing over time. The depth-time positive interaction suggests that organizations with high outsourcing depth exhibit improved efficiency over time. Although the level of a particular strategy may not seem optimal, organizations can learn through repeat experiences to reduce the performance discrepancies.

A key finding in our research is that outsourcing breadth exhibits a time-contingent effect on organizational efficiency, suggesting that it enhances organizational learning over time. Breadth is associated with reduced efficiency because organizations have to manage a broad set of different suppliers operating in different markets for various services. Yet, as time passes organizations are able to draw upon their diverse knowledge set, make connections between activities, and leverage knowledge to new and existing areas. Our findings also add to prior research on strategic outsourcing that has emphasized the importance of outsourcing peripheral activities and keeping core activities in house in order to cultivate core capabilities (Dess et al., 1995; Kotabe and Murray, 1990; Quinn, 1992). We focused on a different causal mechanism—breadth in knowledge gained and found support that organizational learning can occur through more than just keeping core activities in house and outsourcing peripheral activities.

The TSLS analyses indicate that outsourcing dynamics is associated with enhanced efficiency. However, in the PSM analysis, the main effect of switching is not significant. This discrepancy could be due to differences in estimation techniques. In particular, PSM attempts to directly link treatment organizations to similar organizations that do not undertake the strategy.

It could be that organizations with similar characteristics selected to adapt through their current relationships rather than through change and were able to achieve similar efficiency results. Overall, the results for outsourcing dynamics suggest that organizations switch modes of service delivery to match organizational governance to the current conditions. Outsourcing dynamics could be a tool for trial and error learning in which an organization outsources, keeps the service outsourced if the feedback is positive, and brings it back in house if the experience is negative. Yet, contrary to trial and error learning, we do not find evidence of organizations ratcheting up their efficiency over time. Moreover, we do not find that “organizational routines for change” provide future routines that make change processes more beneficial. That is, organizations did not become better at changing governance modes over time.

Hannan and Freeman (1984) suggest that there are downsides to organizational change. Change creates liabilities of newness, which increases the risk of organizational failure. Our results do not fully support this view. Although we find no significant learning effects, we do not observe any significant negative effects associated with high switching in the short or the long-run. The fact that there are no dynamic benefits to changing governance over time may be due to the costs and benefits of change counteracting each other such that any efficiency gains from dynamic contracting are absorbed by the organization’s costs associated with internal resistance to change.

A related stream of research examines firm vertical and horizontal integration strategies, with a particular emphasis on the question of which activities in the value chain and across markets should be internalized by the organization. Based on the characteristics of internalized activities, Harrigan (1984) proposes four dimensions to firm vertical integration strategies: (1) the number of activities performed in-house; (2) number of stages of activities performed in-house; (3) degree of internal transfers between vertical linkages; and (4) form of ownership used to control the internalized activities. We focused on the dimensions of outsourced activities rather than internal activities and added the dimension of dynamics. Rather than predicting how activities will be governed, we examined the effects of the dimensions on performance and

provide insight into the how outsourcing strategies can have a significant impact on the current and long-term performance of the organization.

The practical implication of our results is that different dimensions of outsourcing strategies matter. Instead of selecting whether or not to outsource stand-alone activities, managers should consider the positive and negative effects of the portfolio of outsourcing decisions. Our study provides insights to the tensions that managers face in outsourcing the full set of organizational activities. Outsourcing is not always beneficial. Depth and breadth in outsourcing are directly associated with reduced organizational efficiency, whereas dynamic outsourcing is associated with positive organizational efficiency. The results also suggest that while outsourcing diverse activities may be costly at first, over time repeat actions and diverse information can provide opportunities for learning. The countervailing effects mean organizations may face tensions in learning because some aspects of outsourcing strategy erode the benefits achieved by other aspects. Understanding how these factors influence learning can aid in selecting strategies that work more efficiently for organizations.

Our study has several limitations. First, although studying outsourcing services by public organizations reduces some of the complexities that can confound research analyses, caution should be taken in generalizing the results to the for-profit context. Local governments provide stable and routinized services, similar to firms in stable market environments such as utilities and commodities. We caution generalizing our results to contexts where the environment is highly complex and rapidly changing. Second, we limited our study to only one type of outcome from outsourcing – organizational efficiency of service provision. Outsourcing strategies can affect other organizational outcomes, such as quality of services, introduction of new services, and organizational revenues. Future research comparing the effects of outsourcing strategy dimensions on different performance metrics can provide a deeper understanding of the phenomenon. For example, although we found no learning effect from outsourcing dynamics, changing modes of service provision can have an increasing impact over time on organizational innovation. Future research can benefit from studying the contingencies of when different

dimensions of outsourcing strategies are beneficial versus detrimental to organizations. Third, we consider organizations with stable contracting structure as strategic and not a reflection of organizational inertia. Lack of switching could be symptomatic of factors such as managerial resistance to change, supplier power, and so on. We do not test whether lack of dynamics is caused by strategy or inertia. Finally, we considered a service to be outsourced if the government contracted any third party to provide the service, regardless of whether the local government also chose to co-provide the service. Concurrent sourcing is a means by which organizations can learn from suppliers and can benchmark their efficiency. Future research should tease apart the learning effects from full outsourcing as compared to concurrent sourcing.

## **Conclusion**

In summary, studies of organization-level governance strategies to tease out how organizations learn from their boundary choices over time are scarce. Our study contributes to the literature by providing insight into the mechanisms through which organizational outsourcing strategy influences efficiency over time. We find that of the three dimensions of breadth, depth, and dynamics, outsourcing breadth has the more formidable influence on organizational learning. The results suggest that repeated experience from deep outsourcing strategies and the diversity of knowledge gained through broad outsourcing strategies are important for learning to be more efficient. In contrast, we do not find evidence of learning from dynamic outsourcing strategies. Thus, managers are tasked with selecting outsourcing strategies that balance the countervailing effects of the dimensions on organizational efficiency.

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**Table 1: Descriptive Statistics**

<b>Variable</b>	<b>Mean</b>	<b>s.d.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
1 Org. Efficiency	-0.42	0.15										
2 GDP	0.14	0.08	-0.11									
3 Community Size	10.71	1.03	-0.17	0.10								
4 Elected	0.16	0.36	-0.09	-0.09	-0.08							
5 Asset Specificity	3.12	0.03	-0.09	0.06	0.01	0.02						
6 Service Measurability	2.70	0.04	0.00	0.00	-0.02	0.03	0.50					
7 Income per Capita	9.48	0.23	-0.09	-0.14	0.10	-0.08	-0.04	0.00				
8 Time Trend	4.36	1.11	-0.23	0.21	0.09	0.01	0.19	0.08	-0.17			
9 Depth	0.33	0.20	0.01	0.07	0.05	-0.05	0.12	0.00	0.09	0.16		
10 Breadth	0.63	0.20	0.03	0.05	0.04	-0.01	-0.03	0.07	0.04	0.05	0.33	
11 Dynamics	0.22	0.12	-0.03	-0.05	0.17	-0.03	0.00	-0.12	0.08	0.10	0.28	0.06

<sup>a</sup>Number of Observations 1,249. Correlation coefficients greater than 0.03 or less than -0.03 are significant at p<.05.

**Table 2: Two Stage Least Squares Regression Results<sup>6</sup>**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>	<b>Model 7</b>
Constant	-0.55 (0.59)	-0.43 (0.59)	-0.60 (0.60)	-0.38 (0.59)	-0.23 (0.96)	-0.22 (0.96)	-0.06 (0.98)
GDP	-0.16*** (0.04)	-0.14*** (0.04)	-0.15*** (0.04)	-0.15*** (0.04)	-0.23*** (0.06)	-0.23*** (0.06)	-0.23*** (0.06)
Community Size	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)
Elected	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.04** (0.01)	-0.04** (0.01)	-0.04** (0.01)
Asset Specificity	-0.13 (0.18)	-0.16 (0.18)	-0.09 (0.18)	-0.12 (0.18)	-0.03 (0.33)	-0.04 (0.33)	-0.04 (0.33)
Service Measurability	0.28 (0.26)	0.27 (0.26)	0.24 (0.26)	0.23 (0.26)	0.27 (0.33)	0.27 (0.33)	0.26 (0.33)
Income per Capita	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.07** (0.02)	-0.06** (0.02)	-0.06** (0.02)
Service Group	YES						
Geographical Region <sup>a</sup>	YES						
Time Trend	-0.02*** (0.00)	-0.04*** (0.01)	-0.02*** (0.00)	-0.04*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)	-0.06*** (0.01)
Depth	-0.19*** (0.05)	-0.44** (0.15)	-0.21*** (0.06)	-0.20*** (0.06)	-0.13+ (0.08)	-0.13+ (0.08)	-0.11 (0.28)
Depth * Time Trend		0.06+ (0.03)					-0.01 (0.06)
Breadth			0.06* (0.03)	-0.11* (0.05)			-0.23* (0.11)
Breadth * Time Trend				0.04*** (0.01)			0.06* (0.03)
Dynamics					0.13* (0.05)	-0.01 (0.15)	0.14** (0.05)
Dynamics* Time Trend						0.03 (0.03)	
Number of Observations	2,544	2,544	2,544	2,544	1,249	1,249	1,249
Loglikelihood	1442	1449	1435	1447	722	723	726
F	14.79	14.76	14.07	14.02	7.83	7.62	7.81
Adjusted R-Squared	0.119	0.124	0.114	0.122	0.160	0.160	0.163

+ p<0.10, \* p<0.05, \*\* p<0.01 \*\*\*p<0.001 based on two-tailed tests and clustered at the organizational level.

<sup>a</sup> Fixed effects (controlled for 9 geographical regions)

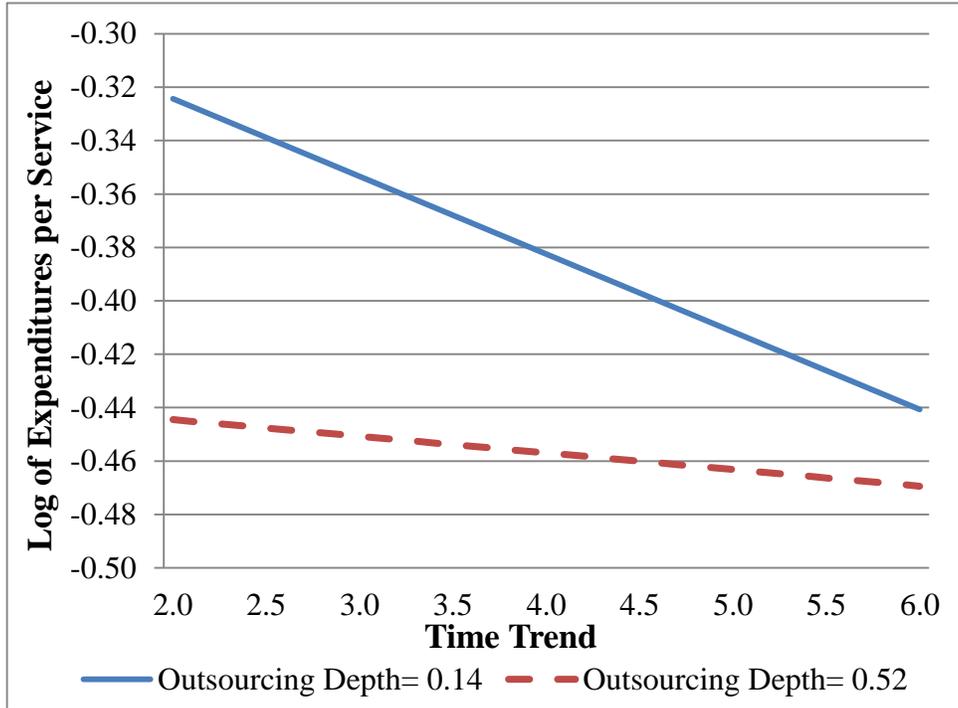
<sup>6</sup> Since outsourcing dynamics is a measure of change in governance mode from the prior period, its lagged value creates an additional reduction of 1,295 observations.

**Table 3: Propensity Score Matched Sample Results**

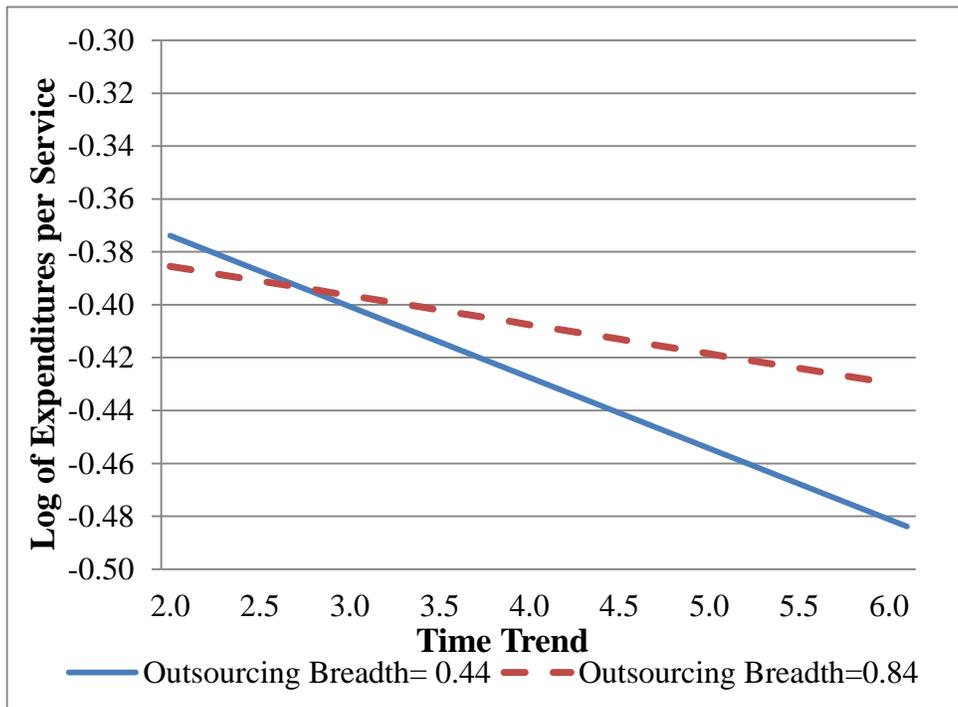
	Depth Matched Sample		Breadth Matched Sample		Dynamics Matched Sample		Depth Matched Sample
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
GDP	-0.22*** (0.06)	-0.21*** (0.06)	-0.25*** (0.05)	-0.25*** (0.05)	-0.27** (0.08)	-0.27** (0.08)	-0.29** (0.10)
Community Size	-0.03*** (0.00)	-0.03*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)	-0.03*** (0.01)	-0.03*** (0.01)	-0.03*** (0.01)
Elected	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.04* (0.02)	-0.04* (0.02)	-0.04* (0.02)
Asset Specificity	-0.36 (0.28)	-0.34 (0.28)	-0.40+ (0.23)	-0.40+ (0.23)	-0.29 (0.40)	-0.3 (0.40)	-0.53 (0.41)
Service Measurability	0.22 (0.40)	0.22 (0.40)	0.94** (0.31)	0.95** (0.31)	0.69 (0.44)	0.71 (0.44)	0.27 (0.50)
Income per Capita	-0.01 (0.02)	-0.01 (0.02)	-0.03 (0.02)	-0.03 (0.02)	-0.08** (0.03)	-0.08** (0.03)	-0.05* (0.03)
Program Group	YES	YES	YES	YES	YES	YES	YES
Geographical Region <sup>a</sup>	YES	YES	YES	YES	YES	YES	YES
Time Trend	-0.02*** (0.00)	-0.03*** (0.01)	-0.01*** (0.00)	-0.02*** (0.00)	-0.02*** (0.01)	-0.03*** (0.01)	-0.04*** (0.01)
High Depth	0.01 (0.01)	-0.08*** (0.02)					-0.08* (0.04)
High Depth* Time Trend		0.02*** (0.01)					0.02** (0.01)
High Breadth			-0.02* (0.01)	-0.07*** (0.02)			-0.09* (0.04)
High Breadth* Time Trend				0.01** (0.00)			0.02** (0.01)
High Dynamic					0.01 (0.01)	-0.02 (0.04)	0.01 (0.01)
High Dynamic* Time Trend						0.01 (0.01)	
Constant	0.37 (0.73)	0.35 (0.72)	-1.33* (0.59)	-1.33* (0.59)	-0.46 (1.37)	-0.46 (1.37)	1.38 (1.18)
Number of Observations	1,426	1,426	1,498	1,498	768	768	670
Loglikelihood	880	890	995	1000	450	450	423
F	9.25	9.26	11.42	11.17	7.26	6.97	4.75
Adjusted R-squared	0.16	0.17	0.15	0.15	0.21	0.21	0.21

+ p<0.10, \* p<0.05, \*\* p<0.01 \*\*\*p<0.001 based on two-tailed tests and clustered at the organizational level.

**Figure 1a: Interaction Chart of Outsourcing Depth and Time Trend**



**Figure 1b: Interaction Chart of Outsourcing Breadth and Time Trend**



## APPENDIX

**Table A1: Two Stage Least Squares First Stage Results**

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
GDP	-0.16*** (0.05)	-0.10* (0.05)	-0.14** (0.05)	-0.14** (0.05)	-0.15* (0.07)	-0.15* (0.07)	-0.03 (0.07)
Community Size	-0.01* (0.00)	-0.01** (0.00)	-0.01* (0.00)	-0.01* (0.00)	-0.02*** (0.01)	-0.02*** (0.01)	-0.02*** (0.00)
Elected	-0.02* (0.01)	-0.03** (0.01)	-0.02* (0.01)	-0.02* (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)
Asset Specificity	0.38* (0.17)	0.24 (0.16)	0.56** (0.17)	0.56** (0.17)	0.25 (0.26)	0.26 (0.26)	0.32 (0.26)
Service Measurability	-0.79** (0.29)	-0.79** (0.27)	-0.91** (0.29)	-0.91** (0.29)	-0.88** (0.33)	-0.89** (0.33)	-0.92** (0.30)
Income per Capita	0.12*** (0.02)	0.12*** (0.02)	0.11*** (0.02)	0.11*** (0.02)	0.09*** (0.02)	0.08*** (0.02)	0.08*** (0.02)
Program Group	YES	YES	YES	YES	YES	YES	YES
Geographical Region <sup>a</sup>	YES	YES	YES	YES	YES	YES	YES
Time Trend	-0.01** (0.00)	-0.10*** (0.02)	-0.01** (0.00)	-0.01 (0.01)	-0.02** (0.01)	0.00 (0.01)	-0.16*** (0.03)
Legitimacy	1.38*** (0.08)	0.31 (0.24)	1.27*** (0.08)	1.27*** (0.08)	1.30*** (0.11)	1.30*** (0.11)	-0.53 (0.39)
Legitimacy * Time Trend		0.28*** (0.06)					0.43*** (0.09)
Breadth			0.24*** (0.02)	0.25*** (0.04)			0.13 (0.11)
Breadth * Time Trend				0.00 (0.01)			0.02 (0.02)
Dynamics					0.44*** (0.05)	0.71*** (0.19)	0.41*** (0.05)
Dynamics* Time Trend						-0.06 (0.04)	
Constant	-0.32 (0.61)	0.46 (0.61)	-0.49 (0.60)	-0.51 (0.61)	0.65 (0.92)	0.62 (0.93)	1.15 (0.85)
Number of Observations	2,544	2,544	2,544	2,544	1,249	1,249	1,249
Loglikelihood	1040	1051	1141	1141	537	538	590
F	61.1	63.11	82.44	85.59	38.04	38.33	48.99
Adjusted R-squared	0.30	0.30	0.35	0.35	0.35	0.35	0.40

+ p<0.10, \* p<0.05, \*\* p<0.01 \*\*\*p<0.001 based on two-tailed tests and clustered at the organizational level.

<sup>a</sup>Fixed effects (controlled for 9 geographical regions)