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Subcontracting in project-based firms: Do you follow the same pattern across your different projects?

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Abstract

This article analyzes an important dimension in which the organization of the projects performed by the same firm can differ: the insourcing or outsourcing of an activity that needs to be undertaken in each of the different projects. Analyzing the variability of a firm's insourcing or outsourcing decision across its projects gives us a better understanding of the firm's decision-making process in terms of the stability of its choices across projects and the main determinants of that variability. This analysis is valuable because a firm that manages multiple projects can benefit from the careful analysis and consideration of the interactions among and the specificities of its projects. Using a comprehensive database of construction firms and projects, we conclude that firms demonstrate variability in their insource or outsource choices across projects and that this variability is explained by factors such as the number of projects simultaneously undertaken, the variability in a project's complexity, and their market power in local markets. These results suggest that the theories explaining firm boundaries in project-based firms should be expanded to include interrelationships between projects and the individual project characteristics that drive differences in insource or outsource choices.

Keywords: Project portfolio management; Managing organization; Structure and responsibilities; Contract organization/forms of contract; Engineering and construction

1. Introduction

The increasing significance of project-based firms has stimulated considerable interest in them as distinctive types of economic actors (Whitley, 2006). Project-based firms may choose different organizational arrangements for the different projects that they manage (Collyer and Warren, 2009; Killen and Kjaer, 2012; Petit, 2012). This article analyzes an important dimension in which the organization of the projects performed by the same firm can differ, i.e., insourcing or outsourcing an activity that needs to be undertaken in the different projects executed by the firm. An analysis of the variability of a firm's insourcing or outsourcing decision across its projects gives us a better understanding of the firm's decision-making process in terms of the stability of its choices across projects and of the main determinants of that variability.

Numerous studies exist on firms' insourcing and outsourcing decisions. Two of the most well known approaches are those based on transaction cost economics (TCE) and on the capabilities theory (CT). TCE (e.g., Williamson, 1975, 1985, 1991, 2000) prescribes that the firm should insource an activity when the transaction costs of using the market to attain that activity (i.e., outsourcing) are greater than the costs of internally producing that activity (i.e., insourcing). The costs of using the market are higher when the specificity of the assets involved in the transaction, the frequency of the transaction, and the uncertainty of the transaction are higher, whereas the costs of internal production are higher when the activity demands more information and communication costs (Mookherjee, 2006; Gifford, 1992) and presents higher levels of complexity (Gulati et al., 2005; Claussen et al., forthcoming). In contrast, the CT (e.g., Nelson and Winter, 1982; Barney, 1986; Mahoney and Pandian, 1992; Peteraf, 1993;

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Conner and Prahalad, 1996; Argyres, 1996; Jacobides and Hitt, 2005; Mayer and Nickerson, 2005; Mayer and Solomon, 2006) argues that the insourcing or outsourcing decision is primarily determined by the heterogeneous distribution of productive capabilities between contractors and subcontractors. Thus, the activity will be outsourced if a subcontractor has better capabilities than contractors and insourced if a contractor has better capabilities than do subcontractors in the performance of that activity.

This discussion leads us to conclude that according to the "conventional" approaches that are used to analyze insourcing and outsourcing decisions, the firm should tend to select the same decision for the same activity in each of its different projects at each moment in time, i.e., either that activity will imply higher or lower transaction costs or the firm or subcontractor will have greater capabilities in that activity. The main reason behind the previous conclusion is that TCE and the CT take the specific transaction to be the main unit of analysis and do not consider (at least explicitly) the interdependencies among projects and transactions. By allowing us to analyze the variability of their insourcing or outsourcing decision for each activity and project at a specific time, project-based firms provide an ideal setting to assess whether some of the implicit prescriptions of the well-established theories of the firm are confirmed and to understand some aspects that are not observed using a standard mean-choice approach.

Thus, one of the novel empirical contributions of this article is the assessment of whether the main prescriptions of the previously mentioned theories can be applied to project-based firms. A related novel contribution is the determination of the causality of the variability in the choice to insource or outsource at the project-based firm level. Our analysis should be interesting for managers because it enables observing how organizational decisions are made across project-based firms and whether they consider each project to be a separate entity with a possible different organizational structure or whether the firms tend to make the same insource or outsource choice across different projects.

To undertake our study, we use extensive data from construction projects. The level of detail and the extent of the data permit us to perform an in-depth exploration of the backward integration decisions made by building contractors for each of the eight main specialty trade activities for each project (e.g., the construction of metallic structures, electric works, and heating). The data indicate whether a contractor handled each of the activities for a given project internally or externally through subcontractors and allow us to distinguish the number, size, complexity, timing, and types of the projects (e.g., residential and commercial) that each building contractor managed.

Our results show that project-based firms exhibit variability in their insourcing or outsourcing choices, i.e., the same firm may make different choices for the same activity across its different projects; as such, our analysis confirms that a project-based firm faces dilemmas regarding the insource or outsource choice that are not quite the same as the dilemmas faced by non-project-based firms. Variables such as the number of projects simultaneously undertaken by a firm and project type and complexity are important to explain the variability of the insourcing decision. These results show that the prescriptions of the leading theories of firms' boundaries have to be complemented when analyzing project-based firms. Our results also enable a better understanding of project-based firms and their modes of organizing and controlling work, which is important because the proliferation of this type of firm has been heralded as the development of a new "logic of organizing" in market economies (DeFillippi and Arthur, 1998; Ekstedt et al., 1999; Whitley, 2006).

Although we focus on the construction industry, project-based firms are also commonly found in industries such as professional services, entertainment, feature film production, and sports, as well as in highly dynamic sectors such as computer software development and industries that produce other complex products and systems (Grabher, 2002; Lundin and Norbäck, 2009; Sydow et al., 2004). Following Archibald (1993) and Turner and Keegan (2000), we conceptualize project-based firms as those whose work is primarily oriented as projects. For a possible variation of the insource or outsource decision, we consider project-based firms that develop at least two projects during our sample period, and each of the projects has to be independently labeled. Project-based businesses differ from other types of business primarily through their specific relational context, time-limitedness, value creation properties, levels of complexity, and limited potential for standardization (Hellström and Wikström, 2005).

Following this introduction, the second section discusses the study's theoretical background and presents the hypotheses. The third section introduces the empirical setting, the sample, and the data and presents the econometric methods. The fourth section presents and discusses the main results. Finally, the conclusions are presented in the fifth section.

2. Theoretical background and hypotheses

The determination of the insource or outsource choice has been studied through different lenses. Two of the most influential approaches are those based on TCE and the CT (Argyres and Zenger, 2012; Fabrizio, 2012; Brahm and Tarziján, 2014). TCE prescribes that insourcing is the preferred mode of governance when an activity displays more specificity, uncertainty, and lower frequency (see, for example, Williamson, 1975, 1985, 1991), whereas the CT (Nelson and Winter, 1982; Barney, 1986; Mahoney and Pandian, 1992; Peteraf, 1993; Conner and Prahalad, 1996; Kogut and Zander, 1992, 1996) prescribes that the insourcing or outsourcing decision is determined primarily by the heterogeneous distribution of productive capabilities between firms and subcontractors (Jacobides and Hitt, 2005; Mayer and Nickerson, 2005; Mayer and Solomon, 2006). Thus, TCE predicts that two transactions that display the same level of specificity, uncertainty and frequency tend to show the same choice (either outsourcing or insourcing), whereas the CT prescribes that given that either the firm or the subcontractor has greater capabilities in the execution of a specific activity, the same activity will be either outsource or insource by the firm across its different projects.

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