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Internalization theory: An unfinished agenda

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ABSTRACT

Internalization theory is usually applied at the firm level to analyse FDI, licensing and subcontracting. This paper extends it to the industry level. It synthesises internalization theory and oligopoly theory. It analyses a global industry where firms innovate competitively, and freely enter and exit the industry. It presents a formal model which highlights the inter-dependencies between rival firms. Each firm responds to its rivals by jointly optimising production and innovation through inter-dependent ownership and location decisions. The competitive outcome determines which firms serve which markets, which firms enter or exit the industry, and the internalization strategy of each firm.

1. Introduction

'As the field of international business has continued to evolve, a proliferation of new theories, frameworks, and concepts have been developed and applied . . . Whilst new insights and research streams are essential to the vitality of any field, in the case of international business it can sometimes appear as if the core theories are being forgotten or overlooked at best, and misunderstood at worst' (Rugman, 2014: 201).

This paper focuses on internalization as a core theory (Buckley and Casson, 1976; Rugman, 1981).

It extends the theory from the firm level to the industry level. It analyses a global industry, populated by a diversity of firms. Firms co-operate through licensing and subcontracting arrangements, but they also compete for market share. Competition is driven by both innovation and price. Within the industry, competition determines the number of firms, whilst internalization determines the boundaries between them.

There are two dimensions of competition in the model: short-run local competition, in which individual firms compete to supply a local market, and long-run global competition in which firms compete to innovate technologies. Short-run competition is modelled using the economic theory of markets whilst long-run competition is modelled using the theory of non-cooperative games. The number and nature of firms, and the boundaries between them, are all endogenous. Each firm's strategy responds to other firms' strategies, but some aspects of strategy are more 'strategic' than others; innovation, R&D location and headquarters location decisions interact more with other firms' decisions than individual market entry decisions.

Industry-level analysis is important when discussing 'industry recipes' – whether different industries are populated by different types of firm (Spender, 1989), and if so why. The question of why certain industries were more 'multinational' than others was the original spur to the development of internalization theory. Industry analysis is relevant to contemporary issues, such as whether multinationals in certain industries are more likely to be regional than global, or are more inclined to engage in out-sourcing and off-shoring. Whilst these issues can be partially addressed in terms of 'representative firms' there is no substitute for a comprehensive analysis of an industry as a whole.

Section 2 reviews the literature, focusing selectively on key issues that are addressed by the model. Section 3 discusses methodology and Section 4 presents a simple version of the model. The model is solved using a three-stage procedure that is explained in Section 5 (technical details are presented in the Appendix). Section 6 discusses applications to various industries, including automobiles, pharmaceuticals and IT; it also explains how the results clarify important issues in IB theory. Section 7 summarises the conclusions and discusses implications for future research.

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2. Literature review

The roots of internalization theory lie in the policy debates of the 1970s. A major challenge at that time was to explain why multinational enterprises (MNEs) were predominantly headquartered in the US, invested mainly in Europe, and were concentrated in high-technology or marketing-intensive industries (Dunning, 1958). The objective was to develop a general theory of the MNE that would explain how different patterns of international business (IB) activity would emerge at different times under different circumstances (Buckley and Casson, 2009). The theory would be expressed in terms of a formal model in which IB activity was governed by a range of factors including the level of technology, product complexity, geographical and cultural distance, intellectual property rights and political risks.

The model was to be constructed by integrating Coase's (1937) theory of the firm with standard models of international trade and economic geography (Ohlin, 1933; Weber, 1929). The IB system was regarded as a network of production facilities linked by flows of intermediate product. The ownership of these facilities was explained by internalization theory, derived from Coase, whilst their location was explained in terms of comparative advantage and trade.

Coase's original analysis of internalization focused on the industry as well as the firm. Final product markets were external to firms—these were markets where firms competed to sell to customers. Intermediate product markets were different; firms could internalise them in order to improve the coordination of production. Different firms would have different boundaries, and at these boundaries the firms would interface with each other. The key to modern internalization theory was to recognise that technological know-how was a specific type of intermediate product; namely a public good, generated in a central R&D facility and shared by production facilities around the world. Firms that internalised would develop networks of foreign subsidiaries whilst firms that did not would develop networks of independent licensees, franchisees and subcontractors instead. Firms might pursue different strategies in different markets. Industry analysis can explain this strategic diversity in ways that analysis of a single firm cannot. For a survey of over 1500 publications developing this approach see Dunning and Lundan, 2008)

Although the modelling agenda advanced incrementally (Buckley and Casson, 1985, 1998a, 1998b; Buckley and Hashai, 2004; Rugman, 1981), it was gradually eclipsed by conceptual controversies over internalization. The relationships of internalization theory to the 'eclectic theory' (Dunning, 1977), the resource-based theory of the firm (Barney, Wright and Ketchen, 2001; Cantwell, 2014) and theories of emerging market MNEs (Ramamurti and Singh, 2009) were all hotly debated. The interface with strategic management theory was debated by Dunning (1993) and Moon, Rugman and Verbeke (1995). Controversy developed over the nature and necessity of firm-specific ownership advantages, and even over the nature of internalization itself (Hennart, 1982). Had the modelling agenda been pursued more vigorously, some of these controversies might have been resolved more quickly.

Parallel developments in industrial economics, trade theory and economic geography (Iammarino and McCann, 2013; Krugman, 1991) have led to the development of formal models in these fields which incorporate significant elements of internalization theory (Horstmann and Markusen, 1992; Markusen, 2002). These models are somewhat abstract and over-simplified, however, and often understate the diversity and heterogeneity of firms as demonstrated by the IB literature (Beugelsdijk and Mudambi, 2013). What is required is a synthesis of the firm-specific view that dominates contemporary IB literature and the industry-specific view that has traditionally dominated economic modelling of regions, trade and industry (Beugelsdijk, Brakman, van Ees and Garretson, 2014). This paper strives towards this objective by developing an industry model with heterogeneous firms, each pursuing their own internalization strategy.

The model strengthens the links between mainstream IB theory and the literature on oligopoly and innovation. Early models of oligopolistic competition in IB emphasised rivalry between established global firms; see Rowthorn and Hymer (1971), Vernon (1971), Knickerbocker (1973) and Graham (1978). Later literature focused on the mode of entry into individual national markets. The sunk costs of entry, it was argued, were higher for FDI than for export or licensing and this discouraged competitive entry and reinforced local monopoly power (Petit and Sanna-Randaccio, 2000; Petit, Sanna-Randaccio and Sestini, 2012; Sanna-Randaccio and Veugelers, 2007). The present model retains a focus on the global market, like the earlier literature, but follows the later literature in using game theory methods. Fixed costs play an important role in the model, but sunk costs do not.

The present model focuses on the innovation decision, and the location of the global headquarters and R&D. The analysis builds on Dasgupta and Stiglitz (1980), Cantwell (1989) and Baniak and Dubina (2012). R&D is expensive, and the global market can support only a limited number of independent R&D facilities (Archibugi and Iammarino, 1999). If a new firm enters an innovation race, an existing firm may be forced to exit. This exit decision cannot be understood without reference to the competitive challenge posed by the entrant. Conversely, the entrant's decision must be understood with reference to the anticipated exit of a rival, without which its entry might not be viable.

Competition in local markets is also analysed. In each market the least-cost supplier sets a limit price, equal to the costs of its closest rival (Milgrom and Roberts, 1982). It earns a profit margin equal to the difference between the limit price and its own costs (Baumol, Panzar and Willig, 1982). The innovator's profit is equal to the sum of its local profits less the overhead cost of R&D and headquarters. Only firms that make profits innovate and survive.

3. Methodology

The model involves a wide range of inter-dependencies and brings together a wide range of factors. It examines strategic interdependencies between firms, and not just the strategy of a single firm. It allows the number of firms to vary through the entry and exit of firms. Entry and exit are a consequence of innovation decisions.

The location of R&D influences the location of production, because the cost of international technology transfer increases with cultural distance. Headquarters location also influences the location of production, because costs of communication are related to geographical distance and risks of expropriation are related to political distance. Markets exert a pull on production location, and the actual location of production represents a balance between all these forces. The foundation of the model remains internalization theory. Internalisation explains why firms' technologies are not simply licensed or subcontracted to individual firms. It explains why some markets are served by FDI, others by licensing and others by subcontracting. The contractual arrangements used affect the costs of coordination and thereby influence headquarters location.

Almost everything, therefore, depends on everything else, as in the actual economy. Notwithstanding this, the model is able to predict the number of firms in the industry, their nationalities (headquarters locations) the location of their R&D and the location of their production plants. It also provides more detailed predictions: the markets that each firm serves and, in each market, the price it charges, the output it sells and the profit it

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