ECONOMIC CHANGE AND THE BOUNDARIES OF THE FIRM

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INTRODUCTION

The study of economic change -- including technological change -- has long been a subject of fascination to economists. It is also a subject that has proven refractory to most attempts to capture it adequately. This essay is an attempt to walk a small piece of this difficult ground. Specifically, it aims to examine the problems that economic change poses for the explanation of the organization of firms. By this I mean the problem of explaining the boundaries of the firm -- explaining the extent of internal organization or vertical integration.

What follows is an intellectual progress report rather than a polished theory. In an earlier foray into the field (Langlois 1984), I tried to sort out some of the methodological issues that would attend an explanation of vertical integration in a regime of rapid economic change. That paper was in part an attempt to locate the connections between a transaction-cost approach to the study of internal organization (Williamson 1985) and an evolutionary or process discussion of economic change (Nelson and Winter 1982). I suggested then that any explanation of internal organization in a regime of rapid change ought to take into account two factors: disequilibrium and path-dependency. The present paper sets out to elaborate such an explanation, incorporating both my own more recent ideas on the subject and the relevant work of such writers as Silver (1984) and Teece (1984, 1986a, 1986b).

Economists confronting a phenomenon as complex as internal organization are faced with an inevitable tradeoff. On the one hand is the impulse to multiply variables and auxiliary conditions in order to capture a passable likeness of the world. On the other hand is the quite sensible desire to edit out such entities, even


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at the risk of leaving the best scenes on the cutting-room floor. The tendency in
the management literature is generally to err in the former direction; this is what
makes that literature so rich and, for economists, so frustrating. Economic theories
of vertical integration tend, by contrast, to the other extreme. They try to explain
the phenomenon of vertical integration by at most one or two variables. This is
why such theories are typically stark and, in the end, unsatisfying. In the spirit of
the transaction-cost approach -- and the "New Institutional Economics" more
broadly -- I will try to keep a middle ground in this essay. Much of the analysis
will proceed by examining arguments carefully, and therefore by making
distinctions. But I hope to keep these distinctions few enough that they might
eventually serve as elements for a coherent dynamic theory of internal
organization.

What I will suggest, in particular, is that the degree of vertical integration in
an industry depends on such factors as the extent of the market; the rate of change
of the extent of the market; the level of Marshallian "external economies"; and past
history. Asset specificity -- the variable stressed in the most influential of modern
transaction-cost theories -- appears as only one strand in a larger tapestry.

THEORIES OF VERTICAL INTEGRATION

Economic theories of vertical integration fall into a number of distinct categories.\(^1\)

One kind of theory involves what Williamson (1985, pp. 86-89) calls
technological determinism: it is the production technology that alone (or primarily)
shapes the organization of the productive unit. Such theories are unsatisfactory for
a number of reasons, not the least of which is empirical. If the advent of
centralized water and steam power gave us the factory system, why did not the
advent of small electric motors destroy that system?\(^3\) To put the matter more
generally, we observe far more organizational integration than is explicable on
grounds of technological indivisibilities alone.\(^3\)

Another class of explanations are those of standard Marshallian price theory
and the "structure-conduct-performance" paradigm, now somewhat quaint and old-
fashioned, that grew out of it. For both descriptive and normative purposes, this
approach swings on a single analytical hinge: the concept of "monopoly" or "market
power," conceived of as arising naturally, but for reasons unexplained, within the
competitive system. To appraise this class of theories properly would take us far
afield. But it would not be unduly harsh to say that explanations of vertical
integration from this direction have been singularly unilluminating when not
downright wrong.\(^4\)

Almost all modern economic theories of vertical integration are
transaction-cost explanations.\(^5\) We can imagine production as taking place in
various stages. Considering production costs alone tells us nothing about whether
each stage is likely to be a separate firm or whether some stages are likely to be
jointly owned.\(^6\) Indeed, if there were no costs but production costs, we would
expect the least possible vertical integration: every stage would be its own firm,
and each thus could take best advantage of the particular production economies