The role of grounded theory in developing economic theory

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Abstract Grounded theory is examined as a means of undertaking economics research that aims at theoretical development and generalization rather than testing established theories. Grounded theory encompasses a set of procedures for undertaking and analysing case studies – qualitative and quantitative – in a systematic and comparative manner. These procedures are set out, and illustrations of theory developed in close connection with business decision-making and industry competition are drawn from P.W.S. Andrews’ post-Marshallian industry studies, Cyert and March’s Behavioral Theory of the Firm, and Sutton’s analysis of market structures. Conclusions are drawn out regarding the nature of the relationship between testing established theory and making novel knowledge claims, the nature of knowledge held by those involved in economic phenomena, the nature of contexts of discovery and verification, and processes involved in making inferences.

Keywords: grounded theory, theoretical development, categorizing information, qualitative research, industrial organization, inference

1 INTRODUCTION

The purpose of this paper is to draw upon grounded theory procedures in order to demonstrate that novel knowledge claims can be formulated within economics by working closely with those involved in phenomena being researched, and by bringing together different sources of primary information, such as transcripts of open-ended interviews, company reports and case studies. Grounded theory encompasses a set of procedures that provide formal guidance in undertaking fieldwork among phenomena of inquiry and in categorizing and comparing information for the related purposes of description, analysis, and explanation (Glaser and Strauss 1967; Glaser 1978; Strauss 1987; Strauss and Corbin 1990, 1997). Knowledge claims that are so developed may be described as grounded, and are at a more general level than more casual acquaintance achieved through observations and understandings of the day-to-day activities and experiences of those involved in phenomena being researched.

Grounded theory procedures are common place in sociological studies and have been adopted across social sciences, including management and
accountancy (Scher 1997; Langley 1999), and in practitioner fields such as education and nursing (Strauss and Corbin 1997: vii). However, application within economics has not been that widespread. Reid and his colleagues have adopted quantitative and qualitative grounded theory procedures in industrial economics (Reid 1987: chapter three) and small business enterprise studies (Reid 1993, 1996, 1998; Reid et al. 1993). Lee has argued that grounded theory procedures are appropriate for Post Keynesian pricing theory, in assembling a history of economic thought on the subject, and in setting out how further pricing studies may be conducted (Lee 1998; Lee and Downward 1999). Pratt adopts grounded theory procedures aligned with a commitment to critical realism in studies of industrial estate location (Pratt 1994, 1995).

Grounded theory procedures provide pragmatic and iterative guidance in developing additions to a discipline’s knowledge, beginning with a researcher’s acquaintance with particular phenomena, perhaps motivated by practical controversies or unsettling observations. A researcher’s understanding of particular phenomena is extended, by way of generalizing a coding schema across further instances of a phenomenon, and also related phenomena – other companies within an industry or network, other business units within a large business organization, other employees within a company, other customers – in order to achieve theoretical knowledge. Researchers’ knowledge claims should be identifiable with, not replicative of, expert knowledge of those involved in the particular phenomena. Strictly, replication may not be feasible, or even possible, given that expert knowledge is expected to be personal to a significant extent, with this context-specific aspect being difficult to articulate, codify and communicate to a researcher (Ancori et al. 2000; Cowan et al. 2000). Further, the researcher in pursuing grounded theory procedures, has different purposes in attempting to understand expert knowledge: providing an explanation at a more general level of a particular instance by grouping together and categorizing a number of instances which seem similar. The extent and nature of similarity is developed and scrutinized in the process of formulating a novel knowledge claim.

Grounded theory procedures provide a basis for economists to make effective use of case studies, and of qualitative and quantitative data in general, by connecting case studies together in order to generalize, and in so doing verify, emerging novel contributions to knowledge.\(^1\) The procedures establish a dual role for empirical research, of developing novel knowledge claims, and disciplining the development of these contributions. Any detachment of economics from the phenomena of the economy is a concern on both counts. O’Brien (1992: 268–9) points out that over 1982–6, 5 per cent of empirical articles in the American Economic Review and 2 per cent in the Economic Journal involved data generated by the author’s initiative. O’Brien concentrates on verification, rather than novelty-generating, aspects of establishing closer links with the phenomena of the economy, of facing up
to making theory choices. Elsewhere, he highlights the importance of understanding economic phenomena, in Marshall’s development of the representative firm and in the growth of knowledge through the organization of industry, and in John Neville Keynes’s argument of the complementary relations of induction and deduction (O’Brien 1990). Grounded theory procedures can assist economists in addressing the concerns highlighted by O’Brien.

Important issues need to be clarified in adopting or adapting grounded theory procedures for the purposes of developing novel knowledge claims in economics. Grounded theory procedures are superficially inductive, but a straightforward inductive-deductive dualism is inappropriate if knowledge held by those involved in the phenomena of inquiry is recognised as practical theorizing, and if connections between established traditions are recognised as influences rather than propositions to be tested. Strictly, induction contains no impetus to generalization and abstraction as a means of connecting and interpreting its collation of observations, and deduction contains its implications in its premises. Rather, it is the relations of induction and deduction, combined with the researcher’s role in interpreting phenomena and making imaginative connections, which are of interest.

The following section sets out grounded theory procedures. Section 3 illustrates how fieldwork and case study techniques have been adopted in the context of business decision-making to guide theory development in economics. Section 4 draws out lessons for research practice in economics, and in economic methodology.

2 GROUNDED THEORY PROCEDURES IN PRACTICE

Glaser and Strauss’s statement that grounded theory ‘is the discovery of theory from data’ is a statement of orientation rather than a definition (Glaser and Strauss 1967: 1). This section sets out grounded theory procedures, and a concise definition is a useful starting place. Grounded theory procedures provide guidance for researchers who wish to develop additions to a discipline’s theoretical knowledge beginning with understandings of phenomena within the context of those phenomena. Additions to theoretical knowledge may be described as knowledge claims, which can become established (or grounded) through various iterations that aim at knowledge at more general levels than particular instances of phenomena. Generalization through iterations is one sense in which additions to knowledge may be ‘developed.’ Another related sense of ‘development’ is that knowledge claims made during iterations may be increasingly reliable or established by being both applied and modified through examining further instances of similar phenomena that have different time and/or space locations. The means of articulating the development of knowledge claims is categorization, and categories allow researchers to organize information for different purposes,
such as description, analysis and explanation. Categories are the main means of comparison across information about different instances of phenomena being researched and convey common meaning across instances or cases of phenomena.

A researcher who adopts grounded theory procedures is articulating and codifying an emerging understanding and also assessing the adequacy of that understanding. Understanding is likely to take different forms as knowledge claims about phenomena are developed, for example including establishing acquaintance, identifying units (or instances) of analysis, developing categories for the purposes of measurement and capturing any central tendencies and patterns of dispersion, and investigating connections between categories. Iteration and verification are ongoing during a research project. Initial identifications of units of analysis may question and verify the adequacy of previous understanding through acquaintance. Attempts to categorize aspects of instances of phenomena, and capture any central tendencies and patterns of dispersion, may question and verify how instances are identified and defined, and so on. The potential for surprise is integral to the developmental ethos established within grounded theory procedures. Researchers must exercise judgement in assessing whether categories should be modified or abandoned in the event of such surprises, and whether further episodes of field work and other primary information acquisition should be undertaken. Memos provide systematic and critical commentary of decision making.

Developing novel knowledge claims following grounded theory procedures often begins with open-ended interviews, although other forms of information are also useful in achieving acquaintance with phenomena and undertaking initial coding and categorization. For economists, these may include company reports, marketing brochures, resources of industry associations, industry journals, personal memoirs, and newspaper articles. These may also be useful in identifying current controversies that can be starting points for research. For example, Reid (1993) draws upon membership lists of Local Enterprise Companies within Scotland in undertaking small business research and this has benefits of acquiring additional industry credibility and co-operation at a step removed from the managers of the small businesses. If testing established theory was the motivation of such research, membership lists may be seen early on as a population, from which a sample may be drawn for the purposes of making statistical inferences. Grounded theory procedures lead researchers to interpret such information more cautiously and more expansively, as a means to drawing out characteristics of the industrial group, identifying and clarifying the research issues, and establishing units of analysis relevant to these research issues. Strauss and Corbin argue that: 'Grounded theory is an action oriented model . . . the theory has to show action and change, or the reasons for little or minimal change' (1990: 123). The approach is broadly consistent with traditions within economics that
have action and processes as explananda, such as behavioural, Post Keynesian, Post Marshallian, institutional and Austrian traditions.\(^3\)

Grounded theory procedures distinguish *theoretical sampling* and *statistical sampling*, and pursue the former. The purpose of theoretical sampling is distinct from, rather than analogous to, statistical sampling. Theoretical sampling captures all the activities of theory development following grounded theory procedures, whereas statistical sampling depends on there already being an advanced level of theoretical and practical understanding of phenomena, enabling researchers to assess levels of confidence in which inferences drawn from a sample to a population may be held.\(^4\) Hence, statistical sampling involves making inferences about the extent to which postulated relationships hold for some population, given the extent to which they hold in a sample drawn from that population. The confidence with which researchers may make such inferences depends upon identifying a population, understanding how a sample was selected from the population, and undertaking statistical tests by which strength of belief in an inference is tempered by conventional levels of confidence (McCloskey 1986: 159–60). Theoretical sampling is not an analogue in grounded theory procedures of statistical sampling in testing-oriented procedures. Where statistical sampling is embedded in a division of contexts of discovery and verification, grounded theory procedures establish an interplay of discovery and verification, given an accumulation of intermediate achievements, such as acquaintance with phenomena, categorization, articulation of variation within categories, and explanation in establishing relations between categories. Hence, theoretical sampling captures *emerging theory*, or ‘theory as a process . . . an ever-developing entity, not as a perfect product’ (Glaser and Strauss 1967: 32). It is ‘the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyses his data, and decides what data to collect next and where to find them, in order to develop his theory as it emerges’ (ibid.: 45).

*Ex post*, adequate statistical sampling is assessed in terms of relating sample, population and procedures of statistical inference.\(^5\) Adequate theoretical sampling is assessed in terms of researchers judging whether their categories are saturated, or no longer yielding surprises and exceptions, given that the purpose of categorization is developing explanations at a more general level than particular instances of phenomena. Where grounded theory procedures are being drawn upon to verify explanation, outcomes of theoretical sampling may approximate statistical sampling (ibid.: 62–3). But saturation greatly reduces the scope for additional understanding to emerge from testing a theoretical explanation. Further, if statistical sampling were undertaken while a theoretical explanation was being developed following grounded theory procedures – that is, before a researcher was confident that an emerging explanation was adequate – it would, in retrospect, oversample the middle. Researchers following grounded theory procedures are
better advised to develop, rather than test, an emerging explanation by 
seeking to accommodate diverse and seemingly more challenging instances 
of phenomena.

Grounded theory procedures include guidance on coding primary data for 
the related activities of description, analysis, and explanation. The purpose of 
open coding is identifying and articulating categories that characterize 
phenomena being researched. It may begin after only a few episodes of 
fieldwork, just sufficient for collation to allow for the possibility of variation 
such that the researcher has to begin explaining how phenomena may be 
divided into units or instances, and how categories may achieve trans-instance 
meaning. For example, an industrial community may be divided into 
companies, and companies may devote resources to research and development 
and to employee training, such that the researcher is satisfied that ‘research 
and development’ and ‘employee training’ have similar meanings in each 
company. A starting point for category formation may emerge in early 
interviews. The interview itself is an interpretive exercise, and emerging 
categories of open coding should not replicate the researcher’s prior under-
standing, as this is symptomatic of testing established theories. Nor should 
categories be so close to interviewees’ understandings of their situations so as 
to frustrate forming categories that transcend, or generalize from, individual 
instances of phenomena (Abbott 1992).6 Finch (2002) investigates trans-
ferring competencies between companies through long-term relations in the 
UK upstream oil and gas industry. Open coding involved questioning the 
meaning-in-context of preconceptions such as contract, long-term relation-
ship, operating company, and contracting company. Emerging categories 
across interviews included risk, uncertainty, incentivized contracts, cost-plus 
contracts, alliances, partnerships and trust.7

The purpose of axial coding is to establish dimensions across which 
variation within and between categories of open coding may be organized 
and articulated.8 This more detailed work establishes how the researcher's 
emerging understanding transcends individual instances of phenomena and 
implies generalization along with verification of the adequacy of previous 
open coding. Axial coding comprises: ‘A set of procedures whereby data are 
put back together in new ways after open coding, by making connections 
between categories . . . utilizing a coding paradigm involving conditions, 
context, action/interactional strategies and consequences’ (Strauss and 
Corbin 1990: 96).

In proposing the categories of axial coding above, Strauss and Corbin 
come close to conflating a guiding role with establishing standards of 
procedural adequacy. If dimensions of axial coding are interpreted as 
possibilities rather than prerequisites, they can provide bases for later 
exploration. Causal conditions may be circumstances that are perceived by 
agents as providing opportunities for action. For example, these may be 
falling oil prices or rising exploration and production costs in the upstream oil
and gas industry and may have different impacts across these companies. Contexts are circumstances in which instances of phenomena are observed and descriptions of these may reveal similarities and differences. Membership of different sectors of the upstream oil and gas industry involve different corporate cultures, which may go some way to embedding notions of what a company's core activities should be. Intervening conditions and action/interactional strategies are familiar in institutional analysis, and actions and interactions are guided by rules and norms that pre-exist action related to phenomena of interest at the time of the research, and are reproduced or transformed by action and interaction. One example in the upstream oil and gas industry has been the impact of main (operating) companies in structuring the contracting and services sector by offering larger and/or long-term contracts to particular companies to the exclusion of others. Likewise, outsourcing strategies undertaken within main (operating) companies have affected the development paths of functions within these corporations. Intervening conditions may be included within theoretical explanations in guiding and constraining action (Hodgson 1988, 1998).

Axial coding merges into selective coding as patterns, connections, and dimensions of phenomena attributed to categories are formulated into causal explanations. Causal explanation may be communicated by a narrative storyline, and paradigmatic dimensions are expected to exhibit systematic patterns of variation (Strauss and Corbin 1990: 117–18). Explanation is sought across the dimensions (such as levels, intensities or rates of change) of concepts identified through axial coding, themselves arranged from the general concepts identified during open coding. Different lengths of exposure to causal events, or of action/interactional strategies, could lead to different consequences. Different intensities of enforcement of intervening conditions (institutions) could lead to different types of (more or less regulated) interactions and with different consequences. Different styles of organizational structure, for instance degree of outsourcing among main companies or range of functions acquired among contracting or service companies through previous take-over and merger, may quicken or delay responses to changing conditions. This can lead to different intentional strategies, such as further take-over and merger activity, or further outsourcing, and variations in consequences for individual companies. As causal explanations are proposed, so additional interviews and other fieldwork may be required in order to challenge and verify emerging linkages, involving recoding existing data and modifying grounded theory propositions drawn from categories of axial coding.

To recap, grounded theory procedures include guiding principles for undertaking fieldwork, focusing mainly on acquiring primary information, and an outline of coding activities through which instances of phenomena may be categorized and compared in an emerging theoretical explanation. The strategy of theoretical sampling encourages researchers to collect
together instances of phenomena and categorize or code these, and continue until categories are saturated. Saturation may be indicated by the categorization of additional information, and re-categorization of all information, ceasing to yield surprises in the form of challenges to the emerging coding system. Coding is the means of comparison through which explanations may be formulated at a level beyond each individual instance, and involves related activities of description (open coding), analysis (axial coding) and explanation (selective coding). Theoretical sampling is expected to be iterative, in that surprises and difficulties in undertaking axial coding (for the purposes of establishing the dimensions and nature of variation across and emerging theme) may yield challenges to the emerging axial codes, or to the previous descriptive or open codes, and also to the number of instances recorded during fieldwork.

3 ECONOMISTS WHO HAVE DEVELOPED THEORY IN CLOSE CONNECTION WITH DATA

While grounded theory procedures are not well known as such among economists, insights into research methods may be gained by examining theoretical developments and explanations articulated by economists who have worked closely with those involved in economic phenomena using fieldwork and case study techniques. The argument of this section is: first, that knowledge of grounded theory procedures can help in recovering, and providing critical commentary on, the sometimes implicit methods used by researchers in their theory development; and second, that researchers in economics can be guided in developing theory involving fieldwork. This second argument is important because, as already discussed, published accounts of grounded theory procedures aim typically to guide the development of novel knowledge claims of under-researched phenomena, consequently neglecting relations between established and developing theory. Economics though is characterized by received, formal theory and this should be taken into account in arguing for a role for adopting grounded theory procedures.

The uses of grounded theory procedures in developing knowledge claims in economics can be investigated by reviewing contributions of researchers who work closely with data, including data assembled through fieldwork and other primary sources. Three major contributions to industrial organization research are compared: Sutton’s (1998) investigation into research and development, market structure and concentration, Andrews’ (1949, 1964) explanation of competitive oligopoly, and Cyert and March’s (1992) behavioural explanation of decision-making within large business organizations. The focus is on how these authors make novel knowledge-claims in working closely with different types of data, and in relating their methods to the grounded theory procedures described in Section 2.
3.1 Sutton’s technology and market structure

Sutton’s novel knowledge claim is that the relationship between research and development intensity and market structure depends on the interaction of technology preferences in an industry, industry structure as captured by the closeness of its technologically differentiated sub-markets, and the degree to which entrants investing in quality improvements in a sub-market can recover fixed outlays through generating additional sales (Sutton 1998). In establishing the reliability of this novel knowledge claim, Sutton adopts mainly deductive procedures (heuristics) of establishing a model, identifying its Nash equilibrium, introducing exogenous shocks, and predicting outcomes given that at least one ‘smart agent’ reacts to opportunities presented by this shock (ibid.: 44). Categories, deduced from the model, identify some industries as high and low alpha, in which alpha ‘measures the extent to which a firm that outspends its rivals on research and development can thereby raise consumers’ willingness-to-pay for its products, in comparison to its rivals’ (ibid.: 63). Predictions are tested against US Census of Production data to assess equilibrium properties, and in undertaking detailed industry case studies to assess the effects of an out-of-equilibrium (or real time) escalation process (and inevitably some aspects of equilibrium too). Sutton’s approach contradicts grounded theory procedures, in that he ‘introduce[s] case histories alongside statistical testing as a complementary way of probing the adequacy of the proposed explanation’ (ibid.: 474).

In both statistical and case study types of empirical test, candidate natural experiments are sought in which high and low alpha industries may be compared. Sutton presents his knowledge claims in a deductive manner, but the expectation of empirical testing casts its shadow over aspects of theoretical knowledge development: ‘The tension between the search for simple generalizations, and the daunting complexity of the relevant influences, lies at the heart of what follows’ (ibid.: xv). This tension influences the formulation of propositions, in interpreting Census of Production data, and in undertaking industry case studies. The consequences of formulating testable predictions in Sutton’s mainly deductive procedures are of great interest compared with grounded theory procedures because case studies are cast in a supporting and verifying, rather than developmental, role.

A novel ‘bounds approach’ is adopted in which propositions are articulated in the form of predicting an industry’s lower bounds of concentration, rather than a deterministic or probabilistic ‘levels’ prediction. Sutton opts for bounds because he is concerned about the realism of rationality assumptions drawn upon in establishing a Nash equilibrium, and because he is aware of the difficulties in translating theory into testable conjectures. Realism is introduced as weak-form rationality complemented by a functional evolutionary or selection argument, much as in Alchian (1950) (Sutton 1998: 44–5, 492).
The unobservable alpha is proxied by an industry’s R&D-sales ratio together with a homogeneity index that measures the share of an industry’s sales revenue accounted for by its largest product category (ibid.: 85). The empirical categories are compromises brought on by the availability of US Census of Production data in which concentration is measured at the four-firm level, and industries at the five-digit level, with associated seven-digit decompositions (where such an association was not possible, the series was excluded from analysis, ibid.: 101). The five- and seven-digit industry configurations match Sutton’s definition of an industry structure, divided into sub-markets arranged around different technical trajectories (ibid.: 93–5). The advantage of this testing procedure is that it avoids what Sutton calls ‘subjective judgements as to what “really” constitutes a “trajectory” or “sub-market”’, such that a distinction is made between industries with high and low homogeneity indices.¹¹ Statistical analyses do not contradict Sutton’s explanation of relations between market structure homogeneity, research and development intensity, and concentration.

Case histories provide tests in the context of natural experiments, probe the limitations of the theory, and stimulate alternative explanations (ibid.: 112–13). Their use highlights another difference between Sutton’s generally deductive procedures, and grounded theory procedures. Sutton’s theory is presumed general, given identification of Nash equilibria, prior to empirical tests.¹² Limits to generality are where theory-deduced conjectures are qualified by factors that require additional or complementary explanations in particular industrial contexts. In a sense, these additional or complementary explanations are denied the opportunity (that they would otherwise have had under grounded theory procedures) of being developed as general because they are sought and tested in particular industry contexts. Instead, useful context-specific clarifications are made with respect to predictions from categories. For example, photographic films and telecommunication switching industries are identified as high alpha, and both are subject to external shocks (colour photographic film and the ending of national procurement, respectively). The out-of-equilibrium escalation mechanism in both cases is instigated by expected increased returns for one firm if it outspends its rivals on research and development, and if all firms respond in a similar manner, profits will not cover additional research and development costs.¹³ Sutton predicts the general effect is increased research and development co-existing with a fall in profitability for at least some firms, and higher concentration.¹⁴

Sutton’s bounds approach is a compromise between mainly deductive principles and a search for realism among industry cases (ibid.: 341). Drawing on the case of semi-conductor production, researchers ‘may have to accept a trade-off between the domain of applications of the theory, and the extent to which we can incorporate additional mechanisms with a view to sharpening explanatory power’ (ibid.: 374). Sutton still concludes by choosing between theoretical explanations on the basis of industry case histories: ‘the
cases suggest that an appeal to a learning-by-doing story is not a useful way to approach the evolution of concentration' (ibid.: 469). The general pattern of deduction allows that:

over a broad class of models, these three principles suffice to induce some bounds on forms of market structure that we expect to see in practice. A study of the restrictions induced by these three principles leads to the conclusion that, although factors that influence outcomes are many and various, no more than a handful of mechanisms appear robust enough to operate more or less uniformly across the general run of industries.

(Ibid.: 477–8)

Adding additional assumptions to these general explanations narrows the domain of the theory (ibid.: 478).

In distinguishing two types of empirical tests, linked to equilibrium and out-of-equilibrium conditions, Sutton hints at a 'horses for courses' approach to industrial economics. Hence, echoing Machlup (1946, 1967), 'it remains possible to augment the present story with a postulate as to how alpha changes over time, but it is difficult to motivate this theoretically, and it may be hard to defend it empirically as being more than a statement about commonly observed patterns' (Sutton 1998: 484). Grounded theory procedures provide such a defence through continual comparison of cases for the purposes of open, axial, and selective coding.15

3.2 Andrews' competitive oligopoly explanation

Andrews' research programme is best known for its explanation of pricing decisions within broadly competitive industry groupings. Andrews' motivation for developing new theory while undertaking fieldwork can be traced to anomalies perceived while investigating the policy implications of the theories of Keynes and Robinson as a member of the Oxford Research Group (Lee 1998):

it was only as one circumstance or another led to objections to detail or method which I was trying to apply that I found myself necessarily thinking in different terms, as I was gradually forced to construct a new theory which would be a usable, and a testable, guide in further investigation.

(Andrews 1964: 7)

Having worked with established theories, Andrews favours returning to the older Marshallian tradition, although this does not explain a commitment to developing theory while undertaking detailed fieldwork and drawing on the knowledge and concepts of business managers. Andrews expects continual, gradual theoretical development, with his own theory providing a testable
guide to these further developments. Data acquisition is necessarily interpretive and discursive:

The seminar’s research into aspects of the building and construction industry was based upon interviews with selected business men and used methods developed, in particular, in the Oxford University graduate seminar in economics of industries . . . . This was in no sense a ‘survey’ type of investigation.

(Andrews and Brunner 1975: 120)

And further:

In the selection of [businesses] as well as in the interpretation of evidence and other matters affecting the balance of our discussions . . . . the seminar was helped . . . by the considerable acquaintance of the building industry . . . . Not less were we helped by the individual business man’s view of what might be peculiar to his business and what might be common points for other businesses which he knew as competitions or otherwise.

(Ibid.: 122)

Andrews and Brunner here discuss the everyday theories of business managers from which theories of business conduct in broadly competitive remarks could be developed:

businessmen offer at least the outlines of a rudimentary theory when questioned as to the reasons for their conduct. Economists have, perhaps, paid too little attention to the practical theorizing of businessmen – especially when produced in answer to economists’ own questions.

(Andrews 1993: 104)

Andrews outlines an approach to developing novel theoretical knowledge while undertaking fieldwork which is similar to the grounded theory principle of theoretical sampling, although closer comparison reveals that procedures of open and axial coding are collapsed into one:

The seven businesses were chosen on the basis of diversity of characteristicies which were thought to be relevant to the purposes of the inquiry, but the sample was not intended to be a representative cross-section of the industry. The businesses were selected to represent in diverse ways such elements as size, variety of financial and management control, and variety of work and diversity of location.

(Ibid.: 121)

This point is also made in the preface to Manufacturing Business, in which a prototypical axial coding paradigm may be discerned:

The two sets of industrial studies, which have been the major part of the research, have involved the detailed investigation of carefully selected
businesses in the particular industries concerned. The businesses differed considerably in size, and they and their industries differed sufficiently in their characteristics for them to be a fruitful nursery for theories of industrial behaviour. In addition, I have, on occasion, made special inquires into businesses covering a much greater variety of industries.

(Andrews 1949: xv)

Finally, Andrews provides insights into generalizing novel theory, drawing on particular industry studies to propose a theory of competitive oligopoly:

Looking back, I do not think that empirical studies, in themselves, would have led to the development of a general theory. In the first stage of the work, the main concern was simply to make such records of the development of the businesses that were being studied, and of their positions during the chosen periods, that it would be possible to make detailed comparisons between them later on . . . . The next stage . . . -- making the two sets of industrial studies -- made it necessary to think about the inter-relations of business behaviour, and I was impelled to make a stock-taking of the general ideas that had begun to develop.

(Ibid.: xv–xvi)

Five aspects of Andrews's work can be identified that are comparable with grounded theory procedures: (1) attention to interpretation through seminars rather than structured research interviews; (2) recognition of business managers' theories as a starting point for substantive industrial theories; (3) theoretical rather than statistical sampling; (4) a gradual process of generalization based on a series of substantive industry studies; and (5) theoretical sensitivity to Marshall's industry studies that predated the then dominant approach of monopolistic competition.

3.3 Cyert and March's Behavioral Theory of the Firm

Cyert and March provide fewer insights into the role of fieldwork in their theoretical development. Where Andrews and Brunner (1975) provide critical reflections on their research procedures, and Sutton has a clear role of bounds and limits to generalization, Cyert and March concentrate on advancing their theoretical contributions. They do state that: 'We propose to make detailed observations of the procedures by which firms make decisions and to use the observations as a basis for a theory of decision making within business organizations' (Cyert and March 1992: 1). Nevertheless, an understanding of grounded theory principles and procedures provides a basis for discussing the coding procedures adopted by Cyert and March. Theory development takes place in the context of fieldwork within four large multi-divisional businesses, and focuses on decision-making within these businesses.
Fieldwork within a fifth business is undertaken for verification purposes and reported towards the end of their book.

Cyert and March's motivation is to provide a general explanation of decision-making within large business organizations which previous studies by Simon (1957) and March and Simon (1958) had shown to be at variance with the optimization assumption that had become established in economics discourse. In terms of grounded theory procedures, this is consistent with theoretical sampling that assesses saturation of theoretical concepts and categories. The fundamental aspects of Cyert and March's study are that: 'Three basic techniques of observation were used: (1) detailed analysis of memoranda, letters, and other written file material, (2) intensive interviews with participants in the decisions, and (3) direct observation of the decision process' (ibid. 55). Such a range of detailed primary information and knowledge provides excellent opportunities for the open and then axial coding activities, and familiarity with industrial participants would allow opportunities for further interviews where initial coding may require development. The case at the end of the study has a verification role, but this role is not synonymous with verification or falsification because Cyert and March also outline possibilities for further theoretical development and generalization:

The firm . . . has more than a hundred major departments. We have studied, with varying degrees of intensity, the price and output decisions in about a dozen of the firm's departments. From these dozen we have chosen one for intensive investigation, and the specific model . . . is a model of decision making in that specific department. In our judgement . . . [this] could be generalized . . . to other departments . . .

(Ibid.: 136)

The main benefits of reviewing Cyert and March's study are in their accounts of developing theoretical concepts and categories, and dimensions of these categories, through procedures of categorization that are consistent with the open, axial and selective coding procedures of grounded theory. It is in activities such as developing categories and their dimensions and investigating possible causal connections between and within categories that Cyert and March provide examples in grounding theory. Variation within categories formed from continuous comparison of data derived from case study investigation is a common theme of Cyert and March's work. For example: 'The decision-making process in this case has some significant similarities to that concerned with automatic controllers' (ibid.: 69); 'In one conspicuous feature the site purchase decision was different from the decision to purchase new automatic controllers. The search . . . was much more exhaustive' (ibid.: 70); 'In a rough sense we can say that the first two case decisions considered have arose primarily as responses to 'crisis' situations, and the last two as the result of planning' (ibid.: 94). Sets of categories are developed: resource
allocation, search activity, computations, expectations, communication (from case studies of decision-making) (ibid.: 93–8). Three basic behavioural rules are also outlined: avoid uncertainty, maintain rules, use simple rules (to do with standard operating procedures) (ibid.: 121). Four categories of effects of standard operating procedures on goals are also discussed, on: individual goals within organization, individual perceptions of environment, range of alternatives considered, and managerial decision rules used (ibid.: 133). In a summary section, an understanding of the modern firm is set out in terms of variables that affect ‘organizational goals . . . organizational expectations, and . . . organizational choice’ (ibid.: 162).

Cyert and March's categories have dimensions consistent with axial and selective coding within grounded theory procedures. Goals are affected by dimensions such as composition of coalition, division of labour in decision-making, definition of problems facing organization. Goals are also affected by aspiration levels on any of the goal dimensions. Expectations are affected by pattern recognition and psychology in drawing inferences, and by information available from search activity and direction of search. Organizational choice is affected by responses to problems, standard operating procedures, and identifying acceptable alternatives. Finally, there are four relational concepts: quasi resolution of conflict, uncertainty avoidance, problemistic search, and organizational learning (ibid.: 164) that capture essence of theory, and, again these all have dimensions and sub-categories (ibid.: 164–74).

Cyert and March, and Andrews, provide close approximations to grounded theory procedures. Although preceding the publication of Glaser and Strauss's *The Discovery of Grounded Theory*, Andrews' development of competitive oligopoly and Cyert and March's behavioural model of decision-making within organizations are developed clearly from fieldwork that covers open-ended and semi-structured interviews, reviewing publicly available and internal company reports. Both approaches recognize the researcher's role in interpreting the theories of industrial participants and using these a basis for more general and abstract theorizing within academic communities. In contrast, Sutton's mainly deductive and testing approach presumes theoretical explanations are general and allows limited scope for additional, context-specific, elaboration. The opportunity cost of adopting the mainly deductive approach is to deny a role for detailed industry case histories in establishing categories at an early stage of theory development through continual comparison.

4 CONCLUDING REMARKS
This paper has set out grounded theory procedures in order to provide guidance for economists who wish to draw upon primary information, such as fieldwork and case studies, in order to develop novel knowledge claims. The ambition of making novel knowledge claims may be contrasted with testing
established knowledge claims. Three groups of concluding remarks are made in this section. First, the nature of the relationship between testing established theory and making novel knowledge claims is drawn out in the context of the three cases of economics research that formed the basis of Section 3. Second, implications are drawn out in the context of economics about the nature of knowledge held by those involved in economic phenomena. Third, implications are drawn out in the context of economic methodology about the nature of contexts of discovery and verification, and about processes involved in making inferences.

Andrews, and Cyert and March, provide approximations of procedures that are consistent with those of grounded theory. Andrews provides detailed accounts of how theorizing may draw upon practical knowledge (as theories and explanations), especially in early stages of theorizing. Andrews also pursues a strategy of acquiring primary information that is consistent with the grounded theory ethos of theoretical sampling. Cyert and March demonstrate the use of coding procedures that are similar to the grounded theory procedures of open, axial and selective coding, undertaken iteratively for the purposes of description, analysis, and explanation. Both Andrews and Cyert and March, show through their research that they are instigating research projects with the aim of articulating knowledge claims that are at a more general level than the instances included among their primary information.

Sutton also works closely with primary information, using methods of information acquisition that are similar to those of Andrews, and of Cyert and March, but casts knowledge generated from such work in the role of verifying – within industrial contexts – knowledge claims formulated through mainly deductive procedures. Hence, working closely with data is not synonymous with grounded theory procedures. Rather, grounded theory procedures provide researchers with guidance in articulating novel knowledge claims in a mainly inductive manner, beginning with acquaintances with practical knowledge among instances of phenomena. Sutton’s approach suggests a trade-off between specific and general knowledge, with case studies remaining as context-specific knowledge requiring general principles from well worked out general knowledge in order for explanations-in-context to be undertaken. This trade-off is important, but grounded theory procedures draw attention to a different trade-off, between novelty and testing. Sutton’s approach restricts the role of case studies to the illustrative; they do not generate surprises and challenges to his emerging explanation.

The comparison of Sutton’s uses for primary information (in the form of case studies), with those of Andrews and of Cyert and March, merges into the second set of concluding remarks, of implications of grounded theory procedures for economists. Grounded theory procedures provide guidance in undertaking case studies for the purposes of articulating knowledge claims at a level more general than a particular case study through means of comparison across instances of phenomena. Indeed, researchers are
encouraged to reflect critically on the basis of categories – for example, deciding whether something is an instance of the phenomenon being studied – early on in a research project. Grounded theory procedures also draw attention to the role of category formation as part of the research process, whether subsequent techniques of analysis are qualitative or quantitative. Categorical schema are articulations and codifications of knowledge for specific purposes, so researchers should not entertain expectations of straightforward transfers between purposes. Four such purposes are highlighted among grounded theory procedures: practical knowledge held among those involved in the phenomena that is the research subject; description, which can establish the extent of the phenomenon across instances; analysis, which involves drawing out the dimensions of the phenomenon across and within instances; and explanation, which involves connecting together categories and instances.

The third set of concluding remarks concern economic methodology. Grounded theory procedures are formally iterative and this suggests a redefinition – even blurring – of relations between contexts of discovery and verification. Iteration establishes expectations that categorizing information will be provisional, and will be undertaken for different purposes during different phases of a research project. The developmental ethos of grounded theory procedures provides a basis to reflect upon the practice of inference that is central to articulating general knowledge claims. The theoretical sampling approach within grounded theory procedures is distinct from statistical sampling in that it is directed towards the purposes of establishing and ‘filling out’ categories of analysis while at the same time discovering more about phenomena. Despite the description ‘theoretical sampling,’ few inferences can be drawn on the basis of sample and population because researchers have no basis for distinguishing sample and population until a novel knowledge claim has become well established, or grounded, through the iterative procedures of categorization. A general lesson may be drawn for the practice of inference in economics research, of avoiding any collapsing of description, analysis, and explanation, into a single activity.

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NOTES

1. Layder (1993, 1998) and Silverman (1985) have criticized grounded theory procedures for being restricted in practice to making knowledge claims at micro and mid-range or mezzo levels. Glaser and Strauss describe generalization as a transition between types of knowledge claims, from substantive theories that are judged to be adequate if saturated and no longer yielding surprises, to formal theory that emerges through further comparison of many instances of similar phenomena. This may be described as extensive generalization. Generalization may in principle also involve developing theory from micro to mezzo and macro levels (Ingham 1996).

2. Boulier and Goldfarb (1998) investigate economists' reticence in using some types of survey data, especially self-generated survey data, but concentrate on theory testing rather than theory development. As a consequence, surveys are seen as closed-ended questionnaires rather than semi-structured or open-ended interviews.

3. Finch (1999) argues that grounded theory procedures provide appropriate guidance in continuing the post-Marshallian research tradition, even though this is a well-established tradition including the programme of Andrews and Brunner reviewed in Section 3.

4. Glaser and Strauss's 'theoretical' and 'statistical' sampling refer to research methods and not substantive or general theory in particular academic disciplines. Statistical sampling is a technique for testing established knowledge claims.

5. An explanation that has become established may be subject to falsification or verification much like any knowledge claim. Grounded theory procedures exclude formal testing where testing assesses the reliability of knowledge claims, as opposed to making novel knowledge claims. It is unclear where iterations of grounded theory procedures cease and where testing begins. A theory that is no longer uncovering challenges to it will also be practically adequate, leaving little scope for additional information to be derived from formal testing.

6. The difference between agents' understandings of their situations and those of researchers may be recast as agents' first order ideal types and researchers' second order typifications of agents' first order ideal types (Schutz 1964, 1971; Finch 1997). First order idealization or typification is tacit to a high degree, and researchers are necessarily involved in interpretive endeavour prior to formulating their more abstract knowledge claims (Polanyi 1962; Boisot 1995; Senker 1995).

7. An example of differences emerging between industry understandings and theoretical understandings concerned risk and understanding. These have established trans-case, or trans-firm, meaning in the industry where risk is a binomial chance of success of hydrocarbons being present, and uncertainty is a continuum of probabilistic commercial values if hydrocarbons are present (Simpson et al. 1999). This differs from Frank Knight's (1921) understanding, in which risk is probabilistic and uncertainty cannot be represented as a probabilistic distribution of outcomes.

8. Variation is used in a general sense of dispersion around an expected ideal case. This may well coincide, ex post, with statistical measures of dispersion, but because grounded theory procedures involve theoretical sampling rather than
statistical sampling, statistical measures of dispersion are difficult to sustain during theoretical development.

9 Yin (1984) provides a guide to fieldwork techniques. Lawson (1985: 925–29, 1997: 221) argues for case studies and other qualitative information to be used in economics. Accounts of case studies in social science are included in Ragin and Becker (1992). Harper’s argument that cases have a dual character of ‘situational groundedness and theoretical generality’ and Wier Jacobs’s argument that cases are both of a pre-existing category, but will challenge that categorical system, are of interest to this paper (Harper 1992: 139; Wier Jacobs 1992: 159–60).

10 Following Lakatos (1970), Sutton’s argument accounts for many of the established research findings in this area, which include varying degrees of support for there being a positive correlation between research and development intensity and market concentration. Strong and weak correlations are both explained depending on how an industry’s sub-markets interact and on how easily fixed costs necessary for an entrant’s quality improvements could be converted into sales and profits.

11 ‘This avoids dangers posed by the subjective judgements that would be introduced were the trajectories identified by way of a detailed study of the technologies within each industry’ (Sutton 1998: 481).

12 Sutton’s test casts a shadow over theory development: ‘[Sutton has] chosen . . . to confine attention to two categories of fixed outlays . . . because both these categories are observable (measurable), and we can proceed towards empirical testing in a relatively straightforward way’ (Sutton 1998: 488–9). Testing was complicated by difficulties in matching conjectures with empirical observations derived from Census of Production data collected with slightly different definitions of industry than Sutton’s. This is despite, ‘The main advantage of starting from this more complicated picture of a market is that it leads to a theory that can be properly applied to readily available data sets collected at the conventional four- or five-digit SIC level’ (ibid.: 495).

13 This raises questions about rationality and expectations following Richardson (1960).

14 Different roles for statistical analysis of Census of Production data, and case histories, are also illustrated in investigating relations between research and development intensity and size distribution in industries. Again, the relationship is couched in terms of generalization needing complementary context-specific factors (Sutton 1998: 338). A more expansive role for case histories is hinted at: ‘Are there any mechanisms other than the escalation mechanism specific to R&D-intensive industries or that play a relatively important role in these industries and that affect the size distribution of firms in some systematic manner?’ (ibid.: 339).

15 These other effects, learning, networks and standards, are investigated through industry case histories of artificial fibres, semiconductors, personal computers and civil aeroplane (mainly airframe) manufacture.

16 Sutton adds a tempting comment: ‘This suggests that the framework . . . might serve as a vehicle through which to develop the formal implications of the broad and flexible definitions of capabilities that have emerged in the recent business history literature’ (1998: 489). However, ‘The only difficulty that lies in the way of such an extended interpretation is one of measurement’ (ibid.: 489). This ‘only problem’ may conceal other issues in the relationship of theory and empirical information in establishing reliable knowledge. Measurement may have different connotations with respect to the theoretical idea of capabilities. These measurement issues pose insuperable difficulties within the context of broad cross-industry studies . . . ; yet an indirect line of attack, focused on some particular industries in
which we can identify some specific kind of capability as being crucial, might prove more fruitful' (ibid.: 489).

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