2. Research Objectives

2.1 Introduction: progress towards meeting the research objectives

There has been very substantial progress towards meeting the research objectives of the Centre within the three broad themes identified in the original contract with the ESRC and which correspond to the three research programmes of the CBR. This achievement is evidenced in a significant volume of publications in refereed journals across several disciplines, production of books and edited collections of acknowledged importance in their respective fields, success in raising additional research funding and in obtaining contract research, and the development of links with the wider academic and user communities.

2.2 Research results

This section outlines the main results of the Centre's research, by reference to the work of the three current research programmes. These programmes provide the managerial and reporting framework within which the aims of the Centre's overall scientific programme are pursued. These programmes also serve to bring together projects with a distinctive interdisciplinary base and focus. The projects in Programme 1 – Industrial Organisation, Competitive Strategy and Business Performance – draw upon economics, management studies and manufacturing engineering to study the relationship between industrial structure and competitiveness from the point of view of both theory and practice. The fields of law, economics, management and social psychology provide the disciplinary bases for the projects in Programme 2 – Corporate Governance, Contracts and Incentives – which examines the impact of different governance structures and contractual relationships on business performance and organisation. Programme 3 – Small and Medium-Sized Enterprises – links economics, geography and sociology in an analysis of the finance, location, and innovative performance of smaller firms, and incorporates important survey and database work of the Centre.

In a number of cases projects have spanned more than one programme. This is particularly true for the work on industrial policy and innovation which, while having its origins in programme 1, has led to a substantial expansion of work reported under programme 3. Equally, the major Leverhulme-funded project on business failures includes work reported under each of the three programmes. In each case appropriate cross- references are made in reporting results.

In the programme and project reports which follow, reference is made to the principal outputs of each project by using numbers in square brackets. These numbers refer to the consolidated list of publications and other outputs contained in Annex B of this report, below.

Programme 1: Industrial Organisation, Competitive Strategy, and Business Performance. Programme Directors: Andy Cosh (1994-2001), Nick Oliver (2001-)

Introduction: research objectives

The following objectives were established by agreement with the ESRC:

- *the analysis of the interrelationships between competitive manufacturing strategies, innovation, business performance and industrial policy;* (original contract)

- *the analysis of the interrelationships between management strategy, takeovers and business performance in an international competitive context* (modified contract)

The work of the programme has focused on the following two areas:

- the macroeconomic environment, industrial policy, business strategy and performance; and

- technical change, innovation, and industrial organization.

Approximately twenty projects have been completed in these two areas. (Full details of funding for core and non-core projects and start and completion dates for projects are contained in Annex A). Since the beginning of the second five-year phase of the CBR's research programme in 1999, there has been an increasing emphasis on the theme of competitiveness in the macroeconomic, core-funded projects. With the arrival of Nick Oliver and Steven Casper in 2001, there has been a further emphasis on firm-level, sector-focused studies on entrepreneurship, product development, and continuous product improvement.

The macroeconomic environment, industrial policy, business strategy and performance

An early project on **industrial organisation and industrial policy** addressed the theoretical foundations of industrial policy and its links to economic organization and macroeconomic policy. The significant macro-aspect was specifically added to this work at the request of ESRC referees of the original proposal to establish then CBR. Work by Ken Coutts, Alan Hughes and Andy Cosh [105, 579] used a macroeconomic model to consider implications for employment and trade of a number of macroeconomic 'scenarios' varying in their balances of activities between goods and services. This work demonstrated the continued structural importance of manufacturing activity in trade performance, and the potential capacity shortages which would need to be filled by an investment programme in that sector on various growth paths.

Papers by Bob Rowthorn [487, 763, 765-7] and Andrew Glyn (Oxford) [635], on capital accumulation questioned the widespread view that the primary cause of unemployment is labour market inflexibility. They argued that this view rests upon unrealistic assumptions about the nature of technology and production. Using more realistic assumptions, they explored how employment is affected by economic growth and how unemployment can be reduced by measures which stimulate investment. Such measures include a wide variety of factors such as economic reform, the cost of capital and the stability of the economic environment.

The second strand of work in this project involved the re-evaluation of the theory which underpins industrial policy. Matthias Kelm [423, 682-85] located the work of the project in an international comparative context which considered the evolution of industrial policy in different phases of economic development and against differing institutional backgrounds.

The third strand of work in this project concerned the application of the findings described above for policy in the UK and elsewhere in the world. This has been achieved through publications by Ha-Joon Chang [8-11, 81-91, 329-336, 562-3], Bob Rowthorn [9, 49, 84-5, 489-91, 762, 764, 780-92], John Eatwell [27-29, 153-7, 385-6, 388], Michael Kitson [192-5, 424-6, 452-3, 687], and Jonathan Michie [445-7, 453-5, 687, 726] covering global, regional and individual country issues. The individual countries covered include the UK, Ireland, Germany, Korea, South Africa, Egypt, Iceland, the G7, South-East Asia and Eastern Europe. In addition Andy Cosh and Alan Hughes published a series of papers on small business policy development and evaluations related to finance, training, and innovation in the UK and Europe which are reported under programme 3.

Two further projects, funded externally by major research foundations, complemented the original aims of the core ESRC-funded programme by illustrating how policy and regulation can affect the business environment and the business strategy of particular firms.

First, a major interdisciplinary study, funded by the Ford Foundation and carried out by John Eatwell, Kern Alexander and Rahul Dhumale [26, 30, 53-4, 151-2, 159-60, 280-5, 379-83, 390-2], has been developing an analytical, empirical, and legal framework within which to consider problems of international financial regulation. The issue addressed concerned the tasks which a **world financial authority** would ideally fulfill if international financial markets were to operate efficiently, in the sense of promoting real long-term economic growth and employment. The work has used the concept of ‘soft law’ to describe those rules which are developed by non-treaty based international institutions, such as the BIS regulatory committees, yet are accepted into nation regulatory frameworks and hence given legal backing. This has been coupled with an examination of systemic risk in the current debate over settlement systems and of the efficacy of capital adequacy requirements in the recent Asian financial crisis. This has led on to a consideration of the use of risk management techniques in financial regulation, and the implications for capital adequacy requirements at the level of the firm. This project has resulted in the publication of several books and articles and in an extension of the original grant by the Ford Foundation. Alexander and Eatwell are now widening the scope of the project to include reference to the relationship between corporate governance and systemic risk in financial systems.

A second project on **fiscal policy, parenting and business organization,** involving Robert Rowthorn, Shirley Dex, Maria-Laura Di Tommaso, and Fiona Scheibl, funded by the Newton Trust, was concerned with the relationship between parenting and labour force participation, and their implications for business organisations and their employment policies [25, 150, 371-2, 377-8, 384, 488, 493-5]. One strand looked at how fiscal policy influences the behaviour of families with children, how changes in the tax and benefit system could more effectively support family life, and what impact these would have on parental labour force participation. The other was concerned with the impact of employment practices on families with children. Both strands examined the implications of alternative policies for different types of employer and the organisation of businesses. The study found evidence to support the business case for 'family-friendly' policies. It also found that wage and income variables are significant factors in explaining not only labour market participation but also fertility rates.

Several projects at the firm level are currently underway. These are examining the development of the relationship between competition, takeovers, investment and business performance over time in the UK.

Paul Kattuman's work on **competition and performance** [661-4, 887-8] aims to explain the cross sectional and time series heterogeneity of firm performance within industries. Based on information from a specially constructed long run time series of UK company accounts the project involves the characterisation of patterns in productivity persistence or convergence among firms in a selection of industries. Cross sectional distributions and their dynamics are estimated using kernel density methods. The analysis is being carried out for a large selection of industries, using a variety of measures of performance.

Related work by Sean Holly funded by the Leverhulme Trust as part of the CBR project on **business failures** has focused on decomposing and characterizing the time series evolution, the cross sectional moments and intra-distributional mobility of key financial variables on small and large firms, and under- and over-performers. These papers have revealed the increasing dispersion of profitability over time and the relative degree of vulnerability of small firms to recessionary pressures. Explanations for the former appear to reside in increased random mobility, outweighing the systematic mean reverting component in performance measures. Further work exploring the dynamics of the dispersion of sales growth and inventory performance is in progress. Cosh and Hughes in collaboration with Steve Pudney (Leicester) also used panel data to explore the relationship between firm size and growth and failure in UK firms, as part of work on an ESRC funded project on large and complex datasets [111].[1] Using a panel of several

[1] This project was originally included in programme 4 (the Survey and Database programme) and reported as such prior to the organizational changes following the CBR's mid term review in 1999 which led to the work of this programme being reallocated, for reporting purposes, to the remaining three programmes.

thousand firms covering the entire size distribution of the UK company sector and employing semi-parametric and sample selection modeling techniques, they showed, in an essentially methodological paper, that the inverse relationship between size and growth (small firms grow faster than large ones) was weakly non-linear and robust to sample selection bias, although smallness has a positive impact on the likelihood of failure.

Complementary work by Ajit Singh and Kevin Lee (Leicester) on **competition, takeovers and investment** is examining the hypothesis that the UK's competitive environment has become much more intense in the last two decades as a result of changes in product markets and the market for corporate control, building on earlier work [112]. Changes in the intensity of competition in product markets are being investigated by time-series analyses of profitability and its main components (profit margins and productivity of capital) for a sample of UK quoted companies. The project is also investigating whether or not there has been a change in the nature of the takeover selection mechanism in relation to larger sized firms, in particular by examining the extent to which a firm's acquisition expenditure substitutes for its expenditure on new investment. A related paper on the market for corporate control, by Andy Cosh and Paul Guest [574], carried out as part of the international mergers project (discussed further below), analyses the role of hostile takeovers. It uses an innovative approach combining long-run buy-and-hold abnormal share returns and accounting profits. It suggests that while hostile takeovers are more positive in their impact on share price and profit performance than agreed takeovers, the impact is quite weak. Moreover, it is short-run underperformance rather than long-run underperformance which sparks hostile bids.

Finally, work led by Andy Cosh, Paul Guest and Alan Hughes, together with Charlie Conn of the University of Miami (Ohio) and Dennis Mueller of the University of Vienna is looking at **international mergers**. This research provides a comparison of the nature of domestic and overseas acquisitions and provides an integrated analysis that focuses on four issues: characteristics of participating firms; motives for merger; consequences of merger; and issues raised for national and EU industrial and competition policies. The project combines the accounting-based approach associated with industrial economics with the market-based approach identified with financial economics, and also makes use of selected in-depth case studies. An early pioneering paper by Cosh, Guest and Hughes [581] analyses long-run buy-and-hold abnormal share returns to UK acquiring firms in a sample of several thousand public and private domestic and cross border deals. This shows that shareholders in acquirers of domestic businesses are left significantly worse off than their counterparts in acquirers of overseas companies.

Technical change, innovation, and industrial organization

Building on links between management science and engineering, a project on the **management of technology,** carried out in conjunction with the Institute for Manufacturing at Cambridge University and led by Mike Gregory, developed a methodology for assessing technology management processes in the context of corporate strategy [113, 399-400]. The first phase focused on two main areas: an extensive review of issues in technology management gained from a wide range of interactions with collaborating and associated companies, and a review of current thinking on technology management as revealed in the literature. This led to the development of a technology management process assessment and its pilot application within business units of collaborating companies. The final phase of the project led to the development of a Technology Management Assessment Procedure which was tested in a number of companies including Caradon, MK Electric, Arcom Control Systems, GEC-Marconi, TON, TWI and BAe.

A further project, involving Mike Gregory, Andy Cosh, Alan Hughes and Shekhar Jayanthi [492, 652-3], addressed **manufacturing strategy and competitiveness.** This took a contingency theory perspective in linking manufacturing strategy to the firm's overall strategy in the context of changing environmental conditions. The focus was on the high-technology manufacturing sector, in which the rate and extent of change in the firm environment are extremely high.

These projects focused on issues at the firm level. They have been complemented by industry based studies, and others with a spatial focus.

Work on **structural change, competitive advantage and the regulation of the media** was carried out by Andy Cosh, Simon Deakin, Alan Hughes and Stephen Pratten under the ESRC Media Economics and Media Culture Research Programme [367-9, 478-81, 578]. The principal aim of this project was to examine the impact on the competitiveness of the UK media industries of three related developments: (1) changes in economic organisation which have seen greater use of contracting, outsourcing and vertical disintegration; (2) shifts in the regulatory framework for broadcasting which have accompanied changing perceptions of the goal of public service broadcasting and the role of markets and competition in the delivery of the broadcast media; and (3) rapid technological change and increasing global competition in the media industries. The independent television sector was the focus of study along with contractual arrangements in the 'internal market' of the BBC. The competitiveness of the UK film industry was also studied. Findings related to the initially destabilising effects of the market-based reforms of the early 1990s in broadcasting, but these were contrasted with the stabilisation of the sector which occurred during the course of the project and which its longitudinal aspect was able to reveal; particular focus was placed on the emergence of longer-term contracting in both the independent film and television sector and the BBC. The project pointed to the role of institutions which support contractual cooperation in promoting competitiveness in film production.

A further industry-based project by David Keeble, Suma Athreye and Diana Day focused on **flexible specialisation, competitive advantage and business restructuring in the UK computer industry.** This found that the propensity of firms to innovate was linked to their age (with younger firms likely to be more innovative), above-average productivity, above-average use of professional staff, membership of an industry association, and geographic and sectoral location [60-62, 297-9].

The links between location and competitiveness are the subject of two projects. Lilach Nachum is currently working on a project on **the competitiveness of the UK and its multinational companies** [46, 243-5, 460-7, 470-3]. This looks at financial services firms in the City of London. This sector appears to form an exception to the argument that the international competitiveness of firms tends to flourish in the activities in which their home countries have a comparative advantage. The City represents an unusual situation in which the competitiveness of a location has come to be based almost entirely on foreign ownership. The empirical stage of this project is still underway. Spatial issues were also at the core of work by Barry Moore, Iain Begg and Valentijn Bilsen who studied **economic change in cities, influences on urban competitive advantage and the prospects for the British urban system** under the ESRC Cities Programme [66-7, 304-5, 511-12, 530-1, 835]. The project sought to provide a conceptual framework for understanding how cities compete, the sources of competitive advantage, and the factors that influence competitive advantage including government policies. The first phase was concerned with developing a database for 114 cities (and a residual of small towns and rural areas) for the period 1951 to 1997 and covering both the performance of cities and their characteristics. The second phase of the project was concerned with describing the long run evolution of the urban system in Britain and statistically testing a number of hypotheses relating to the performance of cities, the sources of competitive advantage and the factors influencing social and economic cohesion. Among a number of rich findings, the study reported that new-town status, proximity to airports, the share of the population with tertiary qualifications, and population growth, are positively correlated to the growth of cities. It is also consistent with other studies which showed that large cities act as incubators for small firms.

Barry Moore, Jeremy Howells and Stephanie Blankenburg worked together on a project investigating **technology transfer from the science base** [546-7, 643-5]. This project investigated the economic rationale underlying university-industry-relations (UIRs) in the UK. The project developed a conceptual framework within which systematic insights were derived on the role and relevance of UIRs as one instance of novel organisational responses to the dynamics of innovation and growth under conditions of increased international competition. The second phase of the project involved a small number of in-depth case studies in leading high-technology sectors of the UK economy (aero-space, biotechnology and electronics). The third and final phase of the project has produced integrated institutional case studies which provide the basis for specifying technological-institutional regimes of innovation and the various forms of firm-external research co-operation that correspond to these regimes of innovation.

A growing emphasis in the work of the Programme has been placed on an important element of the rapid development of the 'new economy', namely the widespread use of entrepreneurial business models to support clusters of dynamic small firms specializing in new technologies. While this development is often associated with the US economy, research by Steven Casper has examined **the impact of national institutional frameworks on the organization and innovation strategy of technology firms across several European economies**. The questions he is addressing include: do business models and related organizational structures developed by European firms simply mimic those found in the United States, or have European firms found unique organizational formulas for translating technology investments into commercial enterprises? What are the sources of competitive advantage for European high-technology firms?

Part of this research focuses on innovation dynamics and related public policy dilemmas within the Internet software sector [327]. The work considers differences in the orchestration of human resource competencies across different types of entrepreneurial technology firms. More specifically, it examines what type of scientists and engineers different types of technology firms draw upon, and how are they deployed within organizational structures within the firm. It concludes that trade-offs exist in terms of designing institutions to foster entrepreneurial technology firms. Because different types of technology firms differ in their core organization, their optimal governance requires their embeddedness in different innovation systems. Thus, while the US has a large lead in fostering new technology firms, as key technological drivers diffuse through the international economy, one can expect that a division of labour will emerge cross-nationally.

Casper has also collaborated with Richard Whitley (Manchester Business School) on a broader comparative analysis of the organization of entrepreneurial technology firms in several European countries [560]. The paper develops a theoretical framework to evaluate the impact of national institutional frameworks on the organization and innovation strategy of technology firms. The paper uses a combination of descriptive statistics and brief case studies to examine the impact of national business systems on the organization of the software and biotechnology industries in the United Kingdom, Germany, and Sweden. The analysis broadly supports hypotheses correlating differences in national business systems with variations in patterns of sub-sector specialization across the biotechnology and software industries. However, it also suggests that factors typically ignored by comparative business system analysis, such as the orientation of basic research systems and telecommunications regulatory regimes, also strongly impact the ability of entrepreneurial technology firms to establish innovative capacity.

Nick Oliver completed two studies on the **automotive industry** in 2001. The first, conducted in collaboration with Cardiff Business School and Chuo University, Japan, and supported by the EPSRC was a benchmarking study of 29 automotive component plants in Japan, the UK and the US. This study ran from April 1999 to March 2001 and hence was completed just as Nick Oliver took up his position with the CBR. This project is the fourth in a series of studies, the first of which was conducted in 1992, with replications and/or extensions in 1994, 1995 and 1996. The series has comprised intense study of over 100 manufacturing plants in nine countries (China, France, Germany, Italy, Japan, Mexico, Spain, the UK and the US). In each case, plant-level measures of manufacturing performance (labour productivity, defect rates, etc.) have been taken and cross referenced with measures of manufacturing practice and plant characteristics in order to better understand the key factors that distinguish high performing plants from their less highly performing counterparts. More specifically, these studies set out to test the proposition that so-called lean production methods are associated with superior manufacturing performance. Approximately 25 of the plants in the 1999-2001 study had taken part in the 1994 study, representing a unique opportunity to map change over time. Somewhat ironically given their financial woes in 1999-2001, in relative terms the Japanese plants showed noticeably greater improvement in performance than their Western counterparts.

Each participating company has been issued with a comprehensive feedback report showing its position against upper and lower benchmarks on a series of indicators of performance and practice. This provides a valuable opportunity for UK firms to gauge their position against international standards. Due to the recent completion of this project, data analysis is currently in progress, and dissemination has not yet begun in earnest. However, this will be a major focus for Nick Oliver over the next two years, during the period when 40% of his time will be supported by the CBR.

The second study was commissioned by the DTI/SMMT Industry Forum in March 2001. The mission of the Industry Forum is to improve the competitiveness of the UK's automotive industry, and to date this has largely taken the form of advice and interventions to improve manufacturing performance in individual plants. However, given the importance of design and product development to competitiveness, the Industry Forum is considering whether to extend its activities to the product development arena. Consequently, Cambridge was commissioned to design and execute a study into the state of new product development in UK car and component makers, especially measured against Japanese benchmarks.

Approximately 20 UK and 10 Japanese car and component makers took part in the study. The Japanese leg was conducted with collaborators from Chuo University in Japan. The results revealed substantial differences between Japan and the UK (generally in favour of Japan), based on measures such as development lead times and the time taken for manufacturing performance to settle to normal levels following new product launch.

The conclusions and recommendations from this study were presented to the Industry Forum in a substantial written report in July 2001. During the latter part of 2001 and into 2002 these results will be disseminated more widely via the CBR working paper series and through conference papers and journal articles.

Summary of Programme 1

Programme 1 covers a wide ranging set of areas and inevitably this creates challenges in retaining a sense of coherence. As the Programme entered Phase 2, we see an increasing emphasis on issues of competitiveness, at both macro and micro levels of analysis. This has recently been reinforced by firm-level studies focusing on particular sectors, such as the computer software and automotive industries.

Programme 2: Corporate Governance, Contracts and Incentives. Programme Director: Simon Deakin (1994-)

Introduction: research objectives

The following objectives were established by agreement with the ESRC:

- *the analysis of the relationship between corporate governance structures, incentive systems, takeovers, business performance and the regulatory and legal environment* [original contract]

- *the analysis of the relationship between corporate governance structures, incentive systems, business performance and the regulatory and legal environment* [modified contract]

This programme has addressed four areas:

- corporate governance and stakeholding;

- corporate insolvency;

- inter-firm relations; and

- employment contracts and organizational performance.

The distinctive feature of the Programme is its combination of an institutional law and economics approach alongside, and integrated with, econometric analyses of the relationship between governance and performance in a variety of organizational and cultural settings. Around 25 projects have been undertaken across the areas outlined above. The result is a 'holistic' account of corporate governance which highlights linkages between the different aspects of inter- and intra-firm relations.

Corporate governance and stakeholding

The stakeholder debate within corporate governance has been one focus for the research carried out under this programme, and a particular emphasis here has been placed upon the possibilities for interdisciplinary synthesis between economics and legal studies. The core ESRC grant has supported a series of longitudinal case studies of UK companies undergoing restructuring following takeovers and mergers. Some of these companies were initially visited in the mid-1990s as part of work on **takeover regulation** by Simon Deakin and Giles Slinger (who completed a Ph.D. in parallel with the project) [138, 260, 496, 605-7]. This project sought to provide an integrated legal and economic account of the influence of the regulatory framework on the form and incidence of hostile takeovers in the UK and other countries. The starting point for the research was the contrast between a central claim of the economic theory of company law - namely that the law should facilitate, or at least not obstruct, hostile takeover activity, on the grounds that such activity promotes both productive and allocative efficiency - and the contents of most regulatory systems, which tend to have a narrower focus on the protection of *target* shareholder interests. The project sought to analyse the effects of such laws and to assess their contribution to efficiency. The methods used included a law-and-economics evaluation of the relevant rules of UK company law and of self-regulatory bodies (including the City Code on Takeovers and Mergers); a comparison of the UK regulations with those of other systems, notably the US and Germany; and case-studies of a number of UK hostile takeovers which used interviews with directors, advisers and institutional shareholders to build up a picture of how the rules interact with commercial practice to influence the strategies of bidder and target companies. It was found that, during a bid, directors in target companies are focused on the interests of shareholders to a degree which appears not to be matched even in other systems, such as the US, which promote a relatively active market for corporate control. The interests of target shareholders are powerfully protected, in particular, by rules of the City Code mandating disclosure of information and preventing target boards from taking certain actions to frustrate bids. The implications of this for efficiency are uncertain; laws protecting shareholder interests may discourage asset-specific investments by other stakeholders.

A successor project on **corporate restructuring** took up this concern with the impact upon stakeholder relations of takeovers and other forms of corporate reorganisation, including 'downsizing' and outsourcing. This work was carried out by Simon Deakin, Suzanne Konzelmann, Sanjiv Sachdev and Frank Wilkinson [70, 125, 132, 203-4, 314, 373, 428-30, 772]. The project examined the claim of some US studies to the effect that the gains made by shareholders following takeovers and other reorganisations are not the consequence of improvements in efficiency but result, instead, from income transfers brought about by the breach of long-term 'implicit contracts' between the firm and other stakeholder groups, in particular long-term customers and suppliers and employees. A number of UK case studies were completed and the results compared with US studies being carried out by American researchers using similar methodology (Teresa Ghilarducci [397], Charles Craypo [350]). The UK case studies, while finding evidence of restructurings which were induced by short-term shareholder pressure, also found cases in which UK firms which were active in the market for corporate control were, nevertheless, capable of building long-term relations with employees.

Selected case study firms from the takeover and corporate restructuring projects were then revisited in a third phase of the research, on **cooperation and stakeholder representation**, carried out by Simon Deakin, Richard Hobbs, Suzanne Konzelmann and Frank Wilkinson. The basic conclusion of this work is that while the stress placed on shareholder value in the UK system of corporate governance may sometimes operate as a constraint on partnership between labour and management, it also provides an opportunity for some publicly traded firms to pursue cooperative strategies with their various stakeholder groups, in particular with employees. For companies that succeed in building a long-term orientation into relations with shareholders, the corporate governance system offers an opportunity to gain an important competitive edge by demonstrating their ability to better handle long-term stakeholder relations than their rivals can. Other cases suggest that when confronted with a range of unfavourable conditions (that is, corporate governance prioritises short-term shareholder returns; product markets are volatile and have turned against the UK-based operations; and regulation supports open trans-national competition), partnership may be very difficult to construct and maintain, even if production system stakeholders would choose partnership for their very survival. Within companies, the position of the board is critical. In companies that are subject to intense scrutiny from the financial markets and frequent pronouncements on the company's strategy from institutional investors, relations between the non-executive directors, on the one hand, and board-level executives (in particular the CEO), on the other, play a vital role in shaping the conditions for and against partnership. These findings are summarised in a recent paper by the project team members which [616] has already attracted considerable interest and comment following presentations to both academic and practitioner audiences in May and June 2001.

A project on **pay, performance and corporate governance**: **takeovers top management contracts and executive dismissals**, addressed a related theme in corporate governance. The starting point was a prediction of economic theory – namely that the contracts of senior executives will tend to be arranged so as to provide them with incentives to maximise shareholder wealth – and the contrary findings of empirical studies, which have shown that the incentive power of such contracts is relatively low and that there is no consistent link between executive pay and corporate profitability. This work was carried out by Andy Cosh, Fred Guy Alan Hughes and incorporated international collaboration with Joachim Schwalbach (Humboldt University) and Alain Alcouffe (Toulouse) [345-6, 401, 640]. It extended the usual analysis of incentives which focus on pay alone to incorporate the incentive effects of dismissal, takeover and corporate restructuring. In addition related work on takeovers under the ESRC funded project on the **analysis of large and complex data sets**[2] was carried out in collaboration with Ajit Singh and Kevin Lee (Leicester).

Cosh and Hughes examined the link between pay, dismissals and performance explicitly allowing for the role of institutional investors in their econometric model. They found that, in the UK electrical engineering industry in the period 1989-94, pay was positively related to both shareholder welfare measures (profitability and share returns) and to size, but that the latter was the more significant influence. The probability of executive dismissal was higher the smaller was company size and the lower was profitability. The presence or absence of significant institutional shareholdings made no appreciable difference to either the level of pay or the likelihood of dismissal, or to the sensitivity of either to shareholder performance or size. Using a longitudinal database for the period 1972-89 and a random coefficients modeling approach, Guy analysed the impact on CEO pay (including salary, cash bonus, and benefits in kind) of changes in both accounting and shareholder returns. He found a strong positive relationship between CEO pay and within-company changes in shareholder returns, but no statistically significant relationship between CEO pay and within-company changes in accounting returns. Differences between firms in shareholder returns added nothing to the within-firm pay

[2] This project was originally included in programme 4 and reported as such prior to the organizational changes following the CBR's mid term review in 1999.

dynamics. In a further paper he also examined the links between earnings differentials and the pay of CEOs of 186 British companies from 1970. This showed that top executive pay prior to 1984 was a stable function of both firm size and earnings differentials lower on the administrative ladder, consistent with a hypothesis advanced by Herbert Simon in 1957; and secondly that the use of share options from 1984 onward represented not simply a change in the mode of top executive compensation, but a structural break in the relationship between the pay of top executives and that of their subordinates, raising the degree of inequality. This break is also consistent with the findings of Cosh and Hughes in their related work on the changing nature of board structures**.** They found in a longitudinal analysis of board pay since the 1970s that within-company inequality between directors and CEOs had increased substantially in the late eighties and nineties. These findings together suggest a significant increase in inequality in CEO remuneration patterns which is not clearly linked to reference-group relative share performance, and which is not well mediated by institutional shareholders. Dismissal is also relatively weakly related to poor performance.

In the international dimension to the project, Joachim Schwalbach and Ulrike Grasshoff [637] analysed the impact on CEO pay of restructuring and downsizing in German corporations in recent years. Based on multi-task theoretical considerations, their evidence for German industrial firms shows that pay-for-firm-size elasticities decrease only for large firms as they change their strategy from growth to downsizing strategies. Furthermore, pay-for-performance elasticities are contrary to the predictions of agency theory. Both results provide further support for the common belief that compensation contracts in publicly traded corporations seem not to be incentive compatible, and when combined with the results of the UK studies in this project suggest that these incompatibilities are not confined solely to the UK and US economies. Finally, Alain Alcouffe and Christiane Alcouffe [279] examined the legal and contractual environment of executive pay setting in France. This revealed the potential for ‘social’ or ‘company interest’ issues to be taken into account in corporate decision making. At the same time, it highlighted the informational constraints inherent in the relatively closed system of French governance which prevents effective external monitoring, paralleling the UK position but for different reasons.

Ajit Singh, Alan Hughes, Andy Cosh and Kevin Lee [112] studied **the impact of takeovers on the profitability of companies and the influence of institutional investors** on this process. Using an original approach which involved first assessing the profitability impact by modelling the dynamics of corporate profitability, they showed that that the standard counterfactual assumptions made in most merger effect studies, which ignore or inadequately model mean reversion in profitability, are biased against finding profit-enhancing merger effects, since acquiring firms display above average profitability prior to the merger. Acquisition is then shown to reinforce the tendency amongst companies for their profitability to move towards industry norms over time. As with pay, the role of institutions in influencing outcomes is weak.

Work from these core CBR projects informed research carried out by Simon Deakin and Alan Hughes for the Law Commission for England and Wales and the Scottish Law

Commission on the **economics of directors' duties** [133-4, 363-4]**.** The Law Commission's project was linked to the wider review of company law being undertaken by the Department of Trade and Industry (as outlined in the DTI Consultation Paper, *Modern Company Law for a Competitive Economy*, March 1998). The project was in two parts. The first consisted of a report which analysed directors' duties from an economic perspective, and the second was an empirical survey of current practice relating to relations between shareholders and directors. This was funded by the Research Board of the Institute of Chartered Accountants of England and Wales. The empirical work began in the autumn of 1998. A sample of approximately 5,500 directors was drawn from the membership of the Institute of Directors (IoD), in collaboration with the Institute. The first report by Deakin and Hughes was published as Part III of the Law Commission's Consultation Paper *Company Directors: Regulating Conflicts of Interest and Formulating a Statement of Duties*, September 1998. Their second, empirical report, was published as part of the Law Commission's final report, in September 1999. This work represents the most comprehensive quantitative map of corporate governance practice relating to directors' duties in the UK to date.

In further policy-related work, Jackie Cook, Simon Deakin, John Armour, Clare Lahovary and others carried out work for the Department of Trade and Industry in connection with its **company law review**, which began in 1999 and was completed in the summer of 2001. A substantial number of working papers were written and updated in the course of the project [517, 566-571, 589-90, 693].

Work on the **role of business ethics in business performance** was carried out by Ian Jones, Michael Pollitt and Jackie Cook [34, 407-11, 655-6, 851-2]. This project sought to understand how ethics translates into economic performance both for the economy as a whole and for specific firms. A further aim was to help those interested in ethics to better understand the nature of ethical dilemmas raised by the capitalist production process. The target audiences were senior businessmen, policy makers and Christian leaders as well as academic economists and management scientists. The research method involved consideration of Biblical principles governing economic relationships, identification and documentation of appropriate case studies and the analysis of behaviour, law, policy and internal management procedures. The project developed an approach which started from ethical principles and suggested how these should be implemented before going on to suggest how their implementation could effect shareholder value, in contrast to the more usual perspective of starting from the premise that shareholder value maximisation is the goal of all managers and then suggesting how this can be realised by particular business ethics.

The project laid the foundations for further work by Ian Jones, Michael Pollitt and Chris Nyland on **ethics, globalisation and regulation** under the second five-year core ESRC grant to the CBR. The aim of the project is to explore the following fundamental questions in business ethics: (1) what are the ethical issues raised by economic trends in the areas of ethics of competition policy, the ethics of globalisation and the ethics of transnationals? (2) What are the incentives facing the firms involved under (1) to be ethical? And (3) how might public policy be altered to encourage more socially responsible behaviour by business in each of these contexts? A major international conference on 'Understanding how issues in business ethics develop' has been organised for December 2001. As part of the work, Jones and Pollitt [657] have examined the influences that have shaped the evolution of the corporate governance debate in the UK. They find a key role for the accountancy profession in shaping, driving forward and defining the debate, a declining influence over time of government on the issues and surprisingly little effective contribution from corporations who were largely content to leave the issue to be decided by others. They have also undertaken a pilot study of how UK transnationals are building social capital in South Africa. This work has involved mapping the impacts of transnationals on South African society and examining their published material for their impacts according to the mapping, as well as conducting a series of short case studies of individual best practice companies and community projects.

Corporate governance work has also addressed the issue of mutuals. Jackie Cook, Simon Deakin and Alan Hughes [572-3] completed a project on the **governance of mutuality** for the Building Societies Association and the Norwich & Peterborough Building Society. This provided a legal, historical and economic analysis of the rise and fall (and tentative rise again) of the UK building society movement, focusing on the effects of the 'carpetbagger' movement of the late 1990s and attempts by the remaining mutual societies to resist demutualisation. The study argued that the building society form was not inherently inefficient, and that its near-disappearance in the 1990s could not be ascribed to a form of economic 'natural selection'. Rather, changes made in the legislative framework in the 1980s had (apparently unintentionally) destabilized the 'mutuality contract' on which property rights in building societies had previously been constructed, a process which was partially reversed by devices such as 'charitable assignments' aimed at defeating carpetbagging. The study also made suggestions for reform of current practices in mutuals, based on continental European experience.

The Centre's work has also addressed wider international themes. The World Bank funded research on **corporate governance, corporate finance and economic performance in emerging markets** which was carried out by Ajit Singh, Bruce Weiss, Jack Glen (IFC), Shyam Khemani (World Bank) [257, 398, 633-4, 780-1]. This investigated central issues in corporate governance with specific reference to four developing countries: India, Thailand, Malaysia and Korea. This questioned the widely-held assumption that failings of the governance mechanisms in the corporate sector and distortions in the competitive process were responsible for the 'Asian financial crisis' of the late 1990s. It also found that forms of corporate governance in emerging markets are closer to those found in continental Europe than those in the US or UK.

Two further projects with an international dimension have recently begun. An international network on **corporate governance and investment** brings together an international group of researchers led by Andy Cosh, Alan Hughes, Dennis Mueller and Burcin Yurtoglu (University of Vienna) to describe and analyse differences in corporate governance structures in a range of countries and to relate them to general hypotheses about the roles of the capital market and corporate governance that are consistent with the analyses of corporate governance systems. Mueller and Yurtoglu have prepared estimates of the ratios of returns on investment to costs of capital over the period 1985-96 for companies from around the world. These estimates are made using the technique developed by Mueller and Reardon. They confirm the existence of significant differences between the performance of Anglo-Saxon and Germanic companies, and that US companies performed much better over this more recent 10 year period, than over the 1970s and 1980s. Not surprisingly, perhaps, the best performance is observed for Asian companies. Cosh, Hughes and Guest have examined the impact of share-ownership patterns on the outcome of corporate takeovers. Using an analysis based on long run buy and hold share returns and accounting profitability, they find a non-linear relationship with merger performance first rising then falling with board share-ownership [581]. This is consistent with initial incentive effects being outweighed by the effects of board entrenchment as their share-ownership rises. A series of workshops and conferences is in progress as further work is carried out in this project.

A project on **corporate law and economic performance** involves a team of lawyers and economists (John Armour, Brian Cheffins, Simon Deakin, Alan Hughes, Richard Nolan) examining the link between company law and competitiveness. In particular, the project will address how far international convergence around an 'Anglo-American' model of company law which stresses shareholder value at the expense of stakeholder-protection measures is currently taking place. It will also examine the implementation of the recommendations of the DTI Company Law Review, which was completed in the summer of 2001. Some initial work on the relationship between company law, corporate governance structures, regulatory competition and economic outcomes has appeared [92, 337-9, 360, 591]. Results from these projects are expected over the next three years, running up to the end of the second five-year core grant.

An additional core-ESRC funded project begins in the autumn of 2001. By examining **accountability and the institutional investor**, it will explore the chain of responsibility running from the ultimate, financial beneficiaries of insurance contracts and pension funds, through to the various agents which represent them (such as pension fund trustees) and to the fund managers who take decisions on investment matters. This project (to be carried out by John Roberts, Richard Barker and John Hendry) will thereby complement the work of the CBR so far carried out on takeovers and board-shareholder relations, and will contribute to the developing public policy debate in the aftermath of the Myners report in 2001.

Corporate insolvency

The opportunity to study issues of governance relating to corporate insolvency arose with the award to the CBR and DAE by the Leverhulme Trust of a major programme grant on Business Failure, Business Performance and Macroeconomic Instability. Two components of this research are reported here. The others on macroeconomic aspects and small business failure are reported, respectively, under programmes1 and 3.

As part of this programme, John Armour and Simon Deakin looked at **insolvency and stakeholding** using a law-and-economics approach [58-59, 291-295]. This project asked whether insolvency laws adequately protect the interests of stakeholder groups who frequently make asset-specific investments in the firm, but who rarely have claims of a property-rights nature against the assets in the event of insolvency. It also aimed to discover how corporate rescue practices were affected by 'bargaining in the shadow' of legal provisions relating to insolvency. The research made use of law and economics analysis to evaluate incentive effects of legal rules operating under different systems of insolvency and bankruptcy law and undertook case studies of corporate failures and rescues within the UK with a view to evaluating the effects of business failure on three constituency groups: employees, tort claimants (including victims of environmental torts, product liability torts, and personal injuries) and communities in which businesses operate.

Theoretical work on the functions of receivership found that there might be efficiencies in the concentration of decision-making power to the bank as the holder of a floating charge. The case studies also emphasised the importance of pre-insolvency decision making by interested parties, which is facilitated through the concentration of rights. The importance of this finding for recent government proposals for the reform of insolvency procedures is considerable; it suggests that the reforms, in seeking to undermine the rights of the floating charge holder, may significantly add to insolvency costs.

More generally, the case studies pointed to the importance of informal rescue procedures, while at the same time indicating a role for more formal state institutions in 'seeding' or assisting the emergence of commercial norms. This effect was highlighted by a qualitative study of the group of informal norms known as the 'London Approach'. In the wider context of corporate reorganisation, the recognition of stakeholder interests by insolvency law was seen to produce a number of complex and, sometimes, unintended effects. A study of the role played by the law governing business transfers in the sale of Rover to Phoenix in 2000 suggested that employment law could significantly strengthen employee voice in the course of large-scale restructurings, with positive-sum outcomes for the sustainability of businesses. Current work is developing the findings of the case studies to explain further the role played by employee and environmental interests in negotiations over troubled firms, and the potential for its beneficial enhancement through reform of the legal framework.

Geoff Meeks, Gay Meeks, Geoff Whittington and Bruce Weiss are carrying out an economic and accounting study of **concepts of insolvency** [720-4]. This project was motivated by the general question of whether the accounting information used in insolvency decisions secures economically efficient exit of companies (neither delaying the exit of inefficient firms nor precipitating the exit of viable ones) and its impact on failure as part of the natural selection mechanism. The empirical part of the research has two strands: interviewing participants in the failure process, especially insolvency practitioners, and analysing company accounting data and survival records. Interviews have been held with insolvency practitioners from both the legal and accounting professions, as well as with an auditor over account qualification (which can precipitate failure). Some 70,000 company balance sheets have also been reviewed as part of an analysis of balance sheet insolvency. The survival records of the entire 1948 population of UK listed companies are also under investigation.

Inter-firm relations

Research on inter-firm relations has provided a further context for the analysis of issues relating to contracting, incentives, and trust.

The **vertical contracts** project (begun in 1992 as part of the ESRC's Contracts and Competition Programme) aimed, among other things, to establish via a comparison of German, British and Italian firms how far differences in national social and institutional frameworks provide different environments for vertical contractual relationships, and how far they affect the quality of contractual outcomes (most of the work is drawn together in two edited collections [21, 37]). Matching samples of firms in each of the countries were constructed and a dataset containing detailed information on contractual practices in over 60 firms was created. One of the project's principal findings was that long-term dealing, close personal and organisational ties and cooperation over product and process design are widespread within inter-firm relations, but that long-term relationships, however, take two distinct forms. Certain firms saw long-term links largely in terms of repeat business, and were not seeking to build closer formal ties with their suppliers and customers, while other firms - a sizeable minority of the project sample - were moving closer towards a 'partnership' model, based on close cooperation over design of products and processes and exchange of skills and information. The conditions under which such longer-term relations arose were partly sector-specific but a more important influence was the institutional framework provided by contract law, quality standards, the activities of trade associations, and macroeconomic policy. Reinhard Bachmann, Brendan Burchell, Simon Deakin, Alan Hughes, Christel Lane and Frank Wilkinson were involved in the empirical part of the project, and work on competition policy aspects of the research was carried out by Tom Goodwin.

The theme of cooperation in inter-firm relations was also developed as part of the core-CBR project on **international joint ventures and the development of managerial practice**, which was undertaken by John Child, David Faulkner and Robert Pitkethly [13, 340-3]. This research looked at the question of whether foreign direct investment in the UK has been an effective channel for improving the quality of British management in firms involved in strategic alliances with overseas partners. Alliances based in the UK between British companies and US, French, German and Japanese partners were the subject of case-study analysis. A comprehensive database of strategic alliances based on FDI was also constructed. The study showed that the process of being acquired by a foreign parent does lead to significant changes in managerial practice; a general change was the greater use of performance-related rewards within firms and a stronger emphasis on quality in processes and operations. Acquisitions by Japanese companies tended to result in a longer-term financial perspective and (contrary to expectations) French and German parent companies tended to reduce the degree of formality in managerial procedures.

Research on inter-firm relations by Andy Cosh, Simon Deakin, Alan Hughes and Stephen Pratten has also formed a part of the project on **competitiveness in the media industries**, a fuller account of which may be found in the report for the Programme 1 (above). This work was concerned with the nature of relations between independent production companies and the major terrestrial broadcasting companies in the UK, and also with supply chains in the film industry. The project provided an opportunity to study the impact upon contractual relations of the introduction of 'quasi-markets' in the BBC and in broadcasting more generally. In this context, the project found evidence of the development of longer-term contracting and closer ties between customers and suppliers, as a means of ensuring stability of supply and providing a framework for creativity and innovation within production. However, this tendency also gave rise to a tension with the goals of transparency and a 'level playing field' within quasi markets.

Employment relations and economic performance

Several projects have extended the analysis of trust and contracting to the employment relationship. The emphasis here has principally been on the effects of different types of contractual relationship, the balance between individual contracting and collective regulation, and their implications for corporate performance and for competitiveness.

A project undertaken for the UK Department of Trade and Industry on **the changing nature of employment contracts**[3] examined the effects upon the employment relationship of decollectivisation and union exclusion (this work was commissioned through the DAE and was carried out by a joint DAE/CBR team of William Brown, Simon Deakin, Maria Hudson, Cliff Pratten and Paul Ryan) [71, 127, 318-19, 805]. The study's objectives were to examine employers' motives for individualising contracts, to analyse the meaning of individualisation in both substantive and procedural terms, to identify its legal significance, and to evaluate its costs and benefits. 32 organisations were studied, using case-study techniques including face to face interviews with senior managers. The majority of organisations had recently taken steps to individualise employment contracts by removing collective bargaining; a smaller number had never engaged in collective bargaining. A third group, selected to match the main group by industry, had retained collective bargaining at plant and/or company level. It was found that competitive pressures, in particular deriving from privatisation and deregulation, were a major impetus for derecognition, as were increasing competition in product markets and also shareholder pressure. Changes in the legal framework provided the opportunity. At the same time, other, similarly situated firms responded to the same pressures by retaining collective bargaining in some form, and by promoting trade unions as potential partners in seeing through organisational change. These firms had nearly all given up reliance on sector-level collective bargaining, but had retained it at plant or company level. From a legal point of view, individualisation meant the replacement of collective agreements by the employer's standard contract terms as the principal source of terms and conditions of employment; there was a marked increase in the use of waiver

[3] This project was formally funded through the Department of Applied Economics, but it is reported here as a joint DAE/CBR project since it involved a commitment of CBR resources in the form of Simon Deakin's research time and other infrastructural support, including the publication of outputs in the CBR working paper series.

clauses and flexibility clauses in such cases. By contrast, individualised contracts made few references to pay, and appraisal procedures were largely dealt with by unfettered employer discretion.

Many of the themes examined in this project were further explored as part of a major project concerning the **future of collectivism in the regulation of pay and working conditions**,[4] supported by the ESRC as part of its Future of Work Programme. The project was carried out by William Brown, Sarah Oxenbridge, Simon Deakin, Cliff Pratten and Paul Ryan [128-30, 315-17, 320-1, 749]. The method followed had four components: longitudinal case studies of the 30 firms from the DTI-funded study; new studies of 60 firms; interviews with employer association and trade union officials; and the analysis of the 1998 official Workplace Employee Relations Survey (WERS98) to place these in statistical perspective. In addition, historical analysis of the evolution of the contract of employment was undertaken as part of the process of putting contemporary developments in context. The analysis of WERS98 provided the most comprehensive quantified 'map' so far of the extent, level and nature of collectivism in pay determination in Britain, covering all employees in establishments of ten or more employees by major industry group. It also demonstrated more comprehensively than before the extent of the formalisation of employment contracts in Britain. In addition, it highlighted the increase in legal governance of the employment relationship that has been accompanying the declining impact of collective bargaining and increasing number of individual rights over the past twenty years. It was also able to establish that trade union presence within a workplace is associated with both contractual formalisation and legal compliance by employers. Collective bargaining also appears to facilitate improvement on statutory rights.

The case studies suggested that the 1999 Act had had the effect of speeding up a process of managed trade union recognition, re-recognition or (in some cases) exclusion which had already got well under way during the 1990s. At the same time, the Act had shifted the balance of employer attitudes towards greater approval of trade unions. Although the role of trade unions in setting pay and terms and conditions was diminishing, their role in facilitating organisational change was increasing. So-called partnership arrangements were found to cover a wide spectrum, from closely collaborative arrangements in which management sought to manage an existing relationship with the union proactively and positively, encouraging it to grow, to arrangements more concerned with constraining the union role than with cultivating it. The interviews suggested that for trade unions, there was a danger that the further they moved to win employer acceptance, the greater the danger that they would lose grass-roots appeal and the enthusiasm of the lay activists on whose effective functioning they depended more than ever.

Additional work on employment contracts was carried out for the DTI as part of a study of the **employment status of workers in non-standard employment** (Brendan Burchell,

[4] As in the case of the project just reported, this project was formally funded through the Department of Applied Economics, but it is reported here as a joint DAE/CBR project since it involved a commitment of CBR resources in the form of Simon Deakin's research time and other infrastructural support, including the publication of outputs in the CBR working paper series.

Simon Deakin, Sheila Honey (DTI) and Frank Wilkinson) [362, 809]. This research was commissioned by the Employment Relations section of the Department of Trade and Industry. It aimed to clarify the operation of laws relating to the status of workers as either employees or self-employed. The DTI carried out a review of the law in this area, following the publication in May 1997 of the White Paper *Fairness at Work* (Cm. 3968). The research combined quantitative and qualitative approaches. A quantitative survey produced a sample of over 1,200 individuals providing information on the nature of their employment. The data were analysed in order to make a more reliable estimate than hitherto of the number of employees and self-employed in the labour force. It was also found that the Labour Force Survey had been under-counting numbers in fixed-term employment. In the qualitative stage, a mixture of focus-groups and individual interviews was used and contractual and other legal documentation about each case was also collected. This part of the study found evidence of a substantial degree of mismatch between the legal assumption of a sharp divide between employment and self-employment, on the one hand, and the perceptions of workers in flexible or casual employment in the 'grey zone' between these categories, on the other.

Related research by Frank Wilkinson and Edward Lorenz consisted of an **international survey of company pay and reward systems** [716]. This involved the administration of a common questionnaire to a number of businesses in the UK, France, Spain, Canada and the US, aimed at exploring the extent to which pay and employment systems are targeted at widening employee participation and fostering cooperation in employment relations. A merged dataset made it possible for comparative analysis to be undertaken. The results show that in the UK there is a positive relationship between the adoption of high performance work and pay packages, the level of expenditure on R&D, and the aggressive pursuit of market share. Comparisons with France show, that although in Britain a higher proportion of firms adopt high performance work and pay packages, a lower proportion of the workforce was covered in such firms than is the case in France. Moreover, there are no clear relationships between inter-country differences in the use of high performance work and pay and packages, and business performance.

A major project on **work intensification**, **job insecurity, polarisation, social exclusion and flexibility**, funded by the Joseph Rowntree Foundation, examined the causes of the increase in job insecurity since the early 1970s and assessed its significance for economic performance [6, 7, 78, 247, 248, 205, 206, 226, 266, 267]. Brendan Burchell, Maria Hudson, David Ladipo, Roy Mankelow, Hannah Reed and Frank Wilkinson carried out this work. One of the aims of the project was to explore alternative forms of work organisation that might combine flexibility for the organisation and security for the employees. The research involved analysis of datasets and detailed case studies of organisations to understand the ways in which individuals are affected by job insecurity. An important finding was that although, if anything, blue-collar job insecurity declined between the mid-1980s and the mid-1990s, that of white collar workers, and especially professionals, significantly increased during the same period. In addition, the project involved interviews with a matched sample of employers and employees to understand the different perceptions they had of job insecurity and its role in organisations. The relationships between job insecurity and workplace organisation, motivation, morale and stress were all investigated, as well as the wider issues of the effects of recent workplace changes on family life. The research demonstrated that links existed between downsizing and work intensification, on the one hand, and, on the other, between work intensification, family circumstances, and psychological wellbeing.

The research was extended by a supplementary grant from the Institute for Employment Rights to carry out a survey of **employment conditions in midwifery** commissioned by the Royal College of Midwives [556, 692]. This consisted of a postal survey of all the midwifery units in Great Britain followed by face to face interviews with the managers of 6 maternity units and 79 midwives spread evenly over the 6 units. The research highlighted the difficulties of improving services when budget restraints are tight, and showed how improving services both increased the job satisfaction of midwives but also put greater demands on them in terms of greater responsibility, more variable hours and particularly more unsocial hours working.

In a related project, supported by the Newton Trust, Simon Deakin and Hannah Reed carried out an evaluation of developments in **public policy towards job insecurity** at both UK and EU level [137, 601-4, 816]. The research concluded that at the policy level both within the EU and individual member states, there is currently a contradiction between two versions of labour flexibility: on the one hand, measures aimed at cutting regulation and indirect wage costs in order to boost jobs which, it is accepted, may have a low-productivity component, in order to reintegrate the unemployed; and on the other, measures aimed at promoting cooperation based on high-trust productive relations within and between organisations. Much of the tension in public policy relating to job insecurity arises from the attempts to reconcile these two conceptions of flexibility. The research suggested that a way forward for policy makers lies in rejecting the idea that flexibility simply equates with deregulation, in the sense of the removal of protective regulation. It was argued that this position is theoretically untenable, since it neglects the important role played by labour market institutions in overcoming externalities and market failures, and in promoting competitiveness.

A more extensive analysis of the **economic effects of employment legislation** was undertaken by Simon Deakin and Frank Wilkinson as part of a report commissioned by the New Zealand Department of Labour [23, 142, 143, 609-611]. This report concluded that, contrary to what is often claimed by deregulatory analyses, economic theory provides no adequate *a priori* reason for rejecting the existence of labour law as a distinct area of regulation. The employment relationship is a distinct economic category, which requires specialised forms of contractual governance. Labour law regulation, supplementing private ordering, may enhance efficiency by reducing transaction costs and promoting cooperation based on trust. More generally, labour standards may have important efficiency-enhancing effects. In particular, by promoting labour quality they may contribute to the dynamic efficiency of firms and industries; they may counter social costs arising from inequality; and, at a transnational level, they may assist the development of free trade. The question of whether any *particular* rule or regulation is efficient requires more detailed empirical analysis of transaction costs and of the preconditions for effective regulatory design.

However, the preferred solution to poor regulatory design will often be re-regulation, rather than deregulation.

In a further development of the Joseph Rowntree project on work intensification, a project was begun in October 1999, under the core CBR grant, on the **future of professional work** (Jude Browne, Brendan Burchell, Christel Lane, Roy Mankelow, Margaret Potton, and Frank Wilkinson). This is being part-funded by the Anglo-German Foundation for the Study of Industrial Society and involves collaboration with researchers from the University of Bremen (Wolfgang Littek and Ulrich Heisig). The aims of the research are to investigate how different modes of controlling professional occupations in the two countries have mediated the impact on professional work of changes in technology, regulatory policy, the organisation of public services, competition and the system of education and training; to examine the effects of such changes on the market, work and status situation of professional workers; to assess the effect of these changes for performance in the knowledge-intensive sectors of the service economy; and to consider the policy implications of the two divergent processes of professionalisation and the scope for mutual learning. The research has three main stages. The first two involved the study of established and aspiring professional groups to build up an overview of professionalised occupations and the changes that they are undergoing. This was followed by a more detailed focus on four professions, lawyers, pharmacists, personnel and development practitioners and counselling psychotherapists by interviews with key personnel in professional associations and with the users of professional services. Stage 3 consists of a detailed analysis of these four professions focusing on their members' experiences, perceptions of change, and expectations for the future by means of a postal survey of a sample of members. This has now been completed, the data has been analysed, and the first draft of the British side of the report is currently being prepared.

Summary of Programme 2

Programme 2 has pioneered an approach to corporate governance which shows how patterns of shareholder ownership, board structure, employment contracting, inter-firm relations and the rules governing corporate insolvency are inter-linked. Key institutional features of UK governance arrangements, including the Takeover Code, forms of employee representation, and insolvency processes, have been closely studied. Comparative and global perspectives have increasingly come to the fore. The Programme has also demonstrated the value of a 'law and economics' methodology which studies the operation of incentive systems within diverse cultural, regulatory and organizational contexts.

Programme 3. Small and Medium-Sized Enterprises. Programme Directors: David Keeble (1994-1999), Hugh Whittaker (1999-)

Introduction: Research objectives

The following objectives were established by agreement with the ESRC:

- *the analysis of the role of agglomeration effects and cooperative activity in the growth and development of small and medium sized firms* [original contract].

- *the analysis of policy, entrepreneurial styles, innovation, finance, training and international activity and networking and cooperative activity in relation to the survival, growth and development of small and medium-sized firms* [modified contract]

The following areas have been addressed under this programme:

- networks and clustering;

- innovation and SMEs;

- financial and management constraints on the growth and survival of SMEs;

- training and SMEs;

- entrepreneurial style and governance in SMEs; and

- public policy and support for SMEs.

A feature of the programme has been collaboration between geographers, sociologists, and economists in modeling developments in the small business sector, and the development of extensive overseas collaborative contacts as the international reputation of the CBR has developed in these areas. Another feature has been the use of detailed case studies alongside the development and integration into projects of a rich set of data arising from the core funded CBR SME surveys. The latter have also been associated with the development of appropriate econometric techniques to analyse complex panel data in the presence of sample attrition and selection biases. The nature and contribution of the surveys are discussed first before turning to the specific research areas addressed.

The CBR SME Surveys

Several of the projects in this programme have built upon the data and insights generated by the CBR biennial survey of the SME sector in the UK. It is therefore useful to summarize this activity first. The surveys stem from work begun by the survey team in

1991 and 1993 as part of the activities of the Small Business Research Centre. Successive surveys by the CBR in 1995, 1997, and 1999, directed by Andy Cosh and Alan Hughes, and managed by Anna Bullock have produced two panel data sets. The first covers an achieved sample of 2000 firms which were first approached in 1991, and then again in 1993, 1995, and 1997. The second panel began in 1997 and tracks an achieved sample of 2,500 firms to 1999. This panel will be resurveyed in 2002.[5] All of the firms were independent and employed less than 500 people at the respective panel start dates. The range and depth of the data collected is exemplified by the surveys of 1997 and 1999. The former included 50 questions yielding 394 variables per firm covering general business characteristics, workforce and training, commercial activity and competitive situation, innovation, factors affecting expansion and efficiency, acquisition activity and capital expenditure and finance. That for 1999 covering the same sample included 29 questions and produced 205 variables. In addition, detailed spatial data covering post code districts, business link areas, and urban/rural locations have been added in associated projects led by Bob Bennett and David Keeble where spatial variables were of central concern. Finally, the CBR has worked closely with the DfEE and the DTI in designing questions for inclusion in the survey which have addressed issues such as the impact of the national minimum wage, the use and evaluation of Business Link, the extent and impact of training, and the measurement of innovation.

These biennial surveys[6] form part of the core ESRC funded activity of CBR, and have produced a unique set of data relating to long run developments in this important sector of the UK economy. The core funding carried with it the biennial publication of a report summarizing the main findings. Thus Cosh and Hughes produced three edited collections based on the findings of the surveys for the years 1995-1999**.**

It is not possible, for reasons of space, to describe here the rich variety of findings contained in these reports, but it is worth noting a number of important contributions arising form the survey work.

The debate on SME financing has been at the forefront of industrial policy-making throughout the life of the CBR. The surveys have generated a unique and authoritative time series of data on funding sources and application success rates from 1987 to date, disaggregated by size, sector, age, innovation activity, and geographical location. This has shown that contrary to conventional wisdom the vast majority of SME applications for funding succeed, and that where problems occur they are associated with particular forms of finance for subsets such as smaller young high technology businesses. The data also charts a declining rating given to constraints arising form finance as the period of the surveys progressed. One result of this work has been a significant contribution to evidence-based policy formation. The CBR's work in the finance area has been used amongst others by the Bank of England, and by the DTI in formulating policy, and by

[5] A planned biennial survey in 2001 was postponed to 2002 because of ESRC delays in finalizing the CBR budget and an associated shortage of ESRC funds in the relevant year.
[6] The conduct of the surveys and analysis of the biennial survey results and a number of projects based on them were reported until 1999 as part of the survey and database programme.

successive Treasury and Competition Commission inquiries into SME financing by banks in the UK.

Other major evidence-based policy contributions have been made using the survey data. These include the detailed analyses by Bob Bennett, Paul Robson and colleagues, on the nature and impact of policy support initiatives such as Business Link, the work by Cosh, Hughes, Duncan, and Weeks in a series of projects for DfEE on the link between training and business performance, and the work by Wilkinson, Bullock and Hughes on the impact of the National Minimum Wage. In each case the richness of the survey data has been combined with appropriate econometric modeling to address the problems raised. The results of this project based work is discussed in more detail below.

Finally the CBR surveys have made a major contribution to the analysis of innovative activity in the SME sector in the UK. Understanding of this aspect of SME behaviour in the UK was, prior to the CBR surveys, limited by the exclusion of firms employing less than 20 employees from UK innovation surveys, and prior to the second Harmonised Community Innovation Survey (CIS) by the absence of any regular firm based innovation series at all, since the UK effectively failed to take part in the first CIS survey. This gap was filled for SMEs by the CBR 1995 survey which, working in collaboration with the EU assessment team for the first CIS, included a full range of questions on innovation inputs and outputs. Results from this work and related projects by Cosh, Wood, Hughes and Bullock are also discussed further below as the main research themes of the programme as a whole are described.

The cumulative deposition of the datasets generated from the surveys at the ESRC Data Archive is also creating a major resource for other academics interested in this important area.

Networks and clustering

Research on networks and clustering has focused on three main projects. The first of these dealt with **territorial clustering and innovative milieux: technology-based firms in the Cambridge and Oxford Regions.** This involved Barry Moore, David Keeble, Frank Wilkinson, Clive Lawson, Elizabeth Garnsey, Helen Lawton-Smith (University of Oxford), and Diana Day [210-221, 240, 395-6, 632]. The project investigated the extent, nature and importance of technological, information and other linkages between firms themselves and between firms, research institutions and other private and public sector bodies in the Cambridge and Oxford regions and addressed the question of how far these territorial clusters reflect the core characteristics of an ‘innovative milieu’, that is, a form of networking characterised both by vertical subcontracting chains and horizontal linkages with the providers of financial, technical, fashion, design, marketing and training services and advice. The research involved the creation of a dataset of high-technology firms in the Cambridge and Oxford regions, using data from the Cambridgeshire County Council’s Research Group, Oxford Trust and British Telecom. Analysis of these databases was followed by face to face interviews with a stratified random sample of 100 high-technology firms, 50 from each region, using a detailed semi-structured questionnaire devised in consultation with a Business Users Group established by the project and including experts such as the Director of the St John's Innovation Centre, Cambridge.

A key finding was that both the Oxford and Cambridge systems rely upon particular conditions, in part a particular socio-cultural atmosphere, for the establishment of inter-firm linkages, especially where relationships of trust and cooperation are important. Various forms of local networking are identified as important for firm development in the two regions, with inter-firm links, university-firm links, and links resulting from labour mobility as the most important of these. Labour mobility is an increasingly important source of networking especially as regards information transfer. A major original finding of the research was that those firms that develop strong local links are typically those that also develop strong global links. 'Local embeddedness' may well thus be important in sustaining firm technological innovation and leadership, including leadership in global markets. Finally, the research identified common general characteristics of the two regional SME clusters, notably sectoral diversity, R&D specialisation, considerable indigenous SME employment growth during the 1990s, frequent horizontal links, reliance on personal relationships, and a particular mixture of competition and collaboration. However, it also stressed that how these features manifest themselves in each cluster reflects path dependency and local competences; in short, history matters.

Building on this work, a second project served to draw together an international group of scholars to study **networks, collective learning and R&D in regionally clustered high-technology small and medium-sized enterprises** [326, 351, 421, 438, 440, 442, 497, 499]. This European research network was funded under the TSER Initiative of the Fourth Framework Programme on Research and Technology Development and was coordinated and organised by the CBR (David Keeble, Clive Lawson and Frank Wilkinson). It brought together 11 European research teams from 8 countries to analyse the role and importance of regional and European-wide research and technology linkages, and networks, in the evolution and competitiveness of regional clusters of innovative high-technology SMEs. The clusters being studied included those in some of Europe's most dynamic regions - Munich, Grenoble, Cambridge, Oxford, Nice/Sophia-Antipolis, Goteborg, and the Dutch Randstad.

The project found that successful SME growth in these areas during the 1990s often reflected the combining of competencies and technologies, usually by individuals possessing differing expertise, to create new innovative products and firms (as in Sophia Antipolis, where firms are combining multimedia, image processing, computing and telecommunications technologies, or Goteborg, with software applications, mechanical engineering and electronics). Thus the most successful European regional clusters were those exhibiting a balance between sectoral and technological specialisation and diversification, often with the development of specialised 'micro-clusters' (biotechnology and telecommunications in Cambridge, for example) within an overall diversified high-technology regional economy. In general, the clusters studied exhibited a relatively high level of intra-regional networking and linkages between local high-technology SMEs and other firms, especially for manufacturing SMEs. However, wider national and global linkages were extremely important as well. Confirming earlier CBR work on territorial clustering, transnational comparisons suggested that successful globalisation by high-technology SMEs was associated with *above-average* local embeddedness. The project also identified a key role for universities and research institutes as 'regional collective agents' with a more important and strategic role in SME growth than would be suggested by a simple focus on their formal links to high technology firms. In relation to collective learning processes, the movement of scientists, technologists, managers and entrepreneurs and hence transfer of embodied expertise between firms, in the form of new firm spin-offs and labour market recruitment, was found to be more important than formal supplier links or research collaborations. These findings were published in a special issue of the journal *Regional Studies*, edited by Keeble, Moore and Wilkinson (see the references cited above).

A third project in this area dealt with **agglomerative and deglomerative processes and small firm development in business and professional services**, and was carried out by David Keeble and Lilach Nachum [468-469]. This project investigated the importance of geographically-localised functional linkages for the competitive performance and growth of small professional business service (PBS) enterprises in Britain. A key part of this work, conducted in association with the Economic Enabling Unit of Westminster City Council, used 80 face-to-face interviews in relation to networking and localisation processes in film, TV and related post-production business service firms which are clustered in the Soho/Covent Garden area of central London. It was found that the Soho area contains a distinctive, Marshallian-type, specialised cluster of small media and related service firms engaged in film and TV production: this includes film producers and distributors, post-production services, photographers, design agencies, advertising agencies, and music and recording studios. This distinctive cluster is characterised by a remarkable degree of localised networking and vertically disintegrated linkages, which were charted by this study for the first time. These linkages have developed historically because of local environmental advantages associated with Soho's central location, the availability of appropriate premises, and cosmopolitan and vibrant culture. The Soho media cluster also however exhibits numerous global linkages and networks, especially reflecting the key role in its activities of foreign-owned and British transnational corporations, the former dominating film distribution and, to a lesser extent, film financing. The undoubted benefits to these TNCs of operating in the Soho cluster vary markedly between film producing and distributing companies, but characterise strong as well as weak firms: different TNC ownership advantages are affected by these benefits to different degrees: some foreign TNCs have become strongly embedded in the local cluster and derive benefits from this embeddedness which are not available to their parent (overseas) firms.

Innovation in SMEs

ESRC funding and the Newton Trust supported work on **small and medium-sized enterprises and the innovation process**. The central concern of the project which developed and made extensive use of the CBR survey database was to locate and evaluate the role of SMEs in the introduction and diffusion of innovations and to analyse the determinants and effects of SME innovative behaviour in both manufacturing and service sectors. Particular areas of concern were the constraints and opportunities facing high technology firms, and the extent and nature of innovation amongst very small enterprises.

Andy Cosh, Alan Hughes and Eric Wood used the CBR SME panel data set to study the links between innovation, survival and various aspects of business performance. The role of innovation was examined in the light of a model which postulated a two-way relationship between innovation, growth and performance at the firm level [583-5, 650, 814-815]. The model suggested that, on the one hand, a firm's technological innovativeness in one period is a primary determinant of its performance in the next. On the other hand, a firm's performance is an important determinant of its future innovative effort. It was predicted that poor performance is a spur to taking on the risk and uncertainty of innovation whilst past success may lead to the pursuit of more conservative policies. The results did not support the latter hypothesis, but innovation was found to significantly reduce the probability of firm failure and increase the probability of acquisition. Cosh and Hughes also used the panel aspect of the survey dataset to examine for a later period the impact of past innovation on subsequent performance. Using a measure of innovation success based on the proportion of sales accounted for by new and improved products they found a significantly positive impact on subsequent growth but not on profitability. They also confirmed the result that innovative activity predisposes firms to subsequent takeover. This raises important questions for future work of the impact of acquisition intensity on subsequent innovation and the implication for the competitive process of the removal of small innovation intensive independent firms from the market. Work on survival and failure more generally is being developed as part of a Leverhulme Trust funded suite of projects on **business failure, business performance and macroeconomic instability,** and is discussed further below in the section on financial and management constraints on the growth and survival of SMEs.

Other innovation related work has focused on the need to adopt a disaggregated approach to the analysis of innovative firms. In this, Hughes and Wood argued that most previous research comparing innovation activity in the manufacturing and service sectors at an aggregated level had led to under-estimation of innovative activity and an overemphasis on the uniqueness of innovative activity in the latter. They argued that this has been due to taking insufficient account of the variation in the intensity and nature of innovation activity within those sectors. They addressed this question using a simple sectoral split based on technological intensity of production within the manufacturing and the business services sectors. The results revealed at least as great a variation in innovation activity within manufacturing and business services as between them, and considerable depth of technological innovation capability within both sectors. These results imply that the supposed differences in innovation potential between manufacturing and services have been exaggerated in earlier research, and that the services /goods distinction is less useful than one based on technological intensity or type of productive and innovation activity.

In a further paper, Wood argued that focusing on a simple distinction between innovating and non-innovating firms masks important differences within the innovating firm groups in terms of the intensity, orientation and persistence of their innovation activities, the type and novelty of their innovations, and the rate at which their product innovations are taken up by markets. Applying factor and cluster analysis to the CBR panel database he identified different types of SME innovators based on indicators of their innovation outputs. These groups were then compared in terms of their use of a variety of inputs to innovation. Novel product innovators (i.e. those whose innovations are not only new to them but also new to the market as a whole) are shown to be more innovation-input intensive than non-novel innovators, spending a higher proportion of turnover on R&D and having a significantly higher proportion of staff who are technologists, scientists or higher professionals. An important benefit of this to novel product innovators is a more rapid take-up of product innovations in the market by comparison with other innovators. Despite differences between different types of innovators, however, the gap in innovation capability and innovation-input intensity between innovators and non-innovators is far larger.

International recognition of the expertise of the CBR in the design and analysis of survey panel data sets and innovation surveys was reflected in three methodological studies commissioned by Eurostat. The first of these examined **longitudinal aspects of innovation surveys** (Hughes, Cosh, Wood) and looked in detail at the problems of attrition bias in panel survey databases and the tests and adjustments needed for them in carrying out analyses over time. The second, on **innovation surveys and very small enterprises** (Hughes, Cosh, Wood), evaluated the desirability and feasibility of including 'very small enterprises with less than 10 employees' (VSEs) in future European innovation surveys. A review of VSE economic activity and innovations in a sample of seven countries in the European Union, and on existing survey methodologies and sampling frames led to the conclusion that a survey of these firms was feasible and worthwhile. This led to a further project on **measuring innovation activity in very small enterprises** (Bullock, Cosh, Hughes, Akerblom (Statistics Finland)) [557, 806]. This compared VSE innovation activity in UK and Finland, and in each country contrasted VSE activity with that in larger firms in a sample of sectors. Its principal objective was methodological and was intended to inform the future conduct and design of CIS surveys. Among the principal findings were that for the sample sectors covered in both the UK and Finland, it is possible to survey innovation on the basis of the CIS questionnaire in very small enterprises, and that the innovation behaviour of enterprises with 5-9 employees in the selected industries was not very different from that of larger small firms. The decline in the share of innovators seems to take place when the firm size drops below 5 employees. There is in these terms a good case for lowering the marginal size class in VSE surveys to include firms with 5 or more employees. In view of the volatility of small business sizes and the timeliness of sampling frames size data, surveying VSEs will involve observing innovation in adjacent size classes. There is some evidence (reflected in the variation in VSE innovation activity indicators across different surveys in the UK) that there may be considerable heterogeneity in VSE innovation activity. This suggests that larger sampling fractions may be required for the VSE sector than for larger firms, although there is a similar degree of heterogeneity in the 10-19 group which is currently included in the innovation survey sampling frame. The analysis of response rates suggests that there is not a particular problem of unit non-response for this sector compared to the marginal 10-19 group already included in innovation surveys. There are, however, important variations across sectors in the degree of involvement of VSEs in innovative activity. There is, therefore, scope for restricting innovation surveys of VSEs to sectors, which can *on the basis of some other industry level indicator,* be described as VSE innovation intensive. This could be, for instance, data derived from other industry wide surveys carried out on a national basis. In general this suggests complementing 'subject' based innovation indicators with input or 'object' based indicators *at the sector level* as a screening device. Finally, the differences in reported VSE innovation activity rates between the CIS and CBR VSE surveys for the UK suggests that the preamble to innovation questions and the use of the word technological may influence self reporting of innovation activity. This is an important consideration in questionnaire design for future CIS surveys.

Eurostat also commissioned Cosh and Hughes to write the thematic chapter on innovation activity in the EU as a whole in the Sixth annual report on Enterprises in Europe. This revealed that although, on all measures of innovative activity, performance improves with size, in the case of the UK, SMEs fare better compared to their counterparts in other countries than do larger UK firms.

The design of innovation survey instruments also formed the basis for a project for the DTI which involved the design and piloting (using face to face follow up interviews) of the UK instrument to be used as part of the CIS-3 survey. This project **piloting CIS-3 survey instruments** (Andy Cosh, Alan Hughes, Anna Bullock, Margaret Potton) revealed some conceptual problems for service firms in distinguishing between process and product innovation. It also revealed problems for smaller firms in providing fine breakdowns of innovation expenditures, not just because of the lack of requisite internal reporting structures but also because of the multi-tasking of staff in smaller firms. A significant finding however was that the CIS-3 subject approach to innovation, using the postal survey instrument, matched well with the patterns and significance of innovation output activity revealed in on-site face to face interviews with the participating firms. Input proxies for innovation activity are therefore likely to understate innovation outputs in smaller firms.

Financial and management constraints on the growth and survival of SMEs

An early project which has helped shape CBR research in this area was concerned with **growth constraints and small and medium-sized firms (**Alan Hughes, Andy Cosh, John Duncan, David Keeble, Michael Kitson, Roger Moore) [101, 647, 817]. It was commissioned by the Department of Trade and Industry and completed in 1997. Its objective was to develop a clearer understanding of how companies on different growth trajectories identify and manage constraints on their growth. It also sought to assess whether there are features of best practice that can be derived for government and other public/private sector organisations from the experience of companies experiencing sustained growth. The research consisted of case studies of twelve companies with sustained growth, and twelve businesses that experienced fast growth followed by stagnation over the six year period 1987-93. These companies were drawn from the CBR's own SME Survey Panel. The particular methodological innovation added to this was that constraints were assessed both with hindsight using past survey data and in 'real time' over the period 1994-6. This

involved close contact with the participating companies and forward looking as well as historical analysis of growth constraints.
The project findings identified two types of firm. In ‘consistent sustained growers’ market conditions were seen as challenges which required a systematic management response; access to overseas markets was seen to require the development of specific marketing and sales skills either internally, or through merger with an international player, and where necessary, the establishment of overseas offices; product development and marketing were developed alongside the management reorganisation necessary to put the overall strategy into effect; and management adopted a flexible approach to meeting demand constraints with a willingness to delegate and reorganise functions as required by the changing scale and complexity of the business. The predominant reaction to financial constraints in consistent sustained growers was internal. The actual or perceived inadequacies of the UK capital market had led these companies to match expansion to their internal cash flows and/or to seek to access cash flows via the internal capital market of a bigger multinational organisation after acquisition. These ‘internal’ strategies had required the development of effective internal costing budgeting and invoicing procedures often involving the introduction of computer based IT systems. Top management were willing to reorganise their management systems as required by their internal developments and the external demand and financial conditions they faced. An important external constraint was the availability of technically qualified management with project management skills, and the ability to recruit and retain consultant/researchers. Finally, top management companies recognised the organisational and management constraints and had developed strategies to continue to address them.

In contrast, ‘stalled and faltering firms’ were characterised by ill-defined strategic direction with regard to product and market development; poorly specified (or frequently changed) managerial responsibilities; inadequate devolution of managerial tasks and hence over-burdening of directors who may not have held their tasks by design; and inadequately supported or poorly implemented management training programmes and management information systems. These firms were not especially constrained by access to external finance compared to sustained growers but had adopted less well focused responses to obtaining finance or had been unable to generate sufficient internal cash flow to sustain growth. This project reinforced the findings of the relative lack of emphasis which could be given to external financial constraints compared to internal management factors.

Business growth, and the duration of business life has been further examined using the CBR survey data in the project on **modelling business duration and business failure** (Andy Cosh, Alan Hughes, Cathryn Law and Natalia Isachenkova) [698-9]. This is being carried out as part of the major programme of work on **business failure, business performance and macroeconomic instability** funded by the Leverhulme Trust, the other elements of which are reported under programmes 1 and 2. One important purpose of the project is to address in an empirical investigation of business duration the significant problem of missing values in covariates that can be considered as the potential determinants of business failure. Longitudinal data sets based on business surveys that involve repeated observations on individual firms, suffer in varying degrees from unit attrition and item non-response. Micro-econometric analyses of business survey databases often ignore all firms with missing data and create samples with the complete cases only. In a panel data set with unit and item non-responses this is likely to result in inconsistent estimates of model parameters, and invalid statistical inference about the population of interest. Building on work in a separate project on **imputation of missing values in complex data sets** (Alan Hughes and Melvyn Weeks**)** this project is applying the Bayesian approach, a method of multiple imputation of the values of items that are missing. Unlike the classical frequentist approach where the focus is placed upon the single, point estimates of unknown quantities such as model parameters or missing values, the Bayesian approach preserves the full posterior distribution of the unknown quantities. The main statistical and econometric analysis are due to be completed in next year [582, 788-9, 812].

Work on growth and survival has extended to an international context by a project on **growth and entrepreneurship in de novo, privatized and state owned enterprises: evidence from a panel survey for the CIS countries**. This was a network based project bringing together researchers from both West and East Europe, investigating entrepreneurship and firm performance in the countries of the former Soviet Union, and financed by the European Commission, DG1A, Tacis-Ace programme. It was coordinated at by Valentijn Bilsen at the CBR [541-3, 845]. The aim of the project was to investigate the determinants of firm growth for three types of firms, the development of which is crucial for the transition towards a market economy: 1) new private firms, so called de novo firms, which are usually small sized, 2) privatized firms and 3) state owned enterprises. The latter two are mostly big sized enterprises. Special attention was given to the effect of entrepreneurship and management activity on various performance indicators of the firm. Unique qualitative and quantitative information on firm and manager characteristics was gathered through a questionnaire survey of 600 firms in Russia, (St. Petersburg), Belarus, (Minsk, Gomel) and Ukraine, (Kiev and the Dnepropetrovsk-Donetsk provinces). Amongst the significant findings of a series of papers by Bilsen, Mitina, Liuhto and Kaputskin is the extent to which de-novo and newly started businesses have outperformed privatized state owned firms and state owned firms in terms of innovation, trade and growth. This is not, however, primarily a direct function of their ownership or origins per se rather than of the disadvantage for privatized firms of having to cope with revolutionary rather than evolutionary organizational changes. Nor is the performance of de-novo firms due to state capital market subsidy since the evidence suggest that start up funding has been primarily from personal funds rather than the state.

The role of the capital market as a possible constraint on SMEs has also been a perennial topic of both academic and policy debate in the UK and elsewhere. The analysis of financing issues was therefore addressed in a project on **information, monitoring and the financing of small and medium sized businesses** (Alan Hughes, Christel Lane, Berthold Leube, Frank Wilkinson, and Sigrid Quack (Wissenschaftszentrum Berlin)) [254, 434, 697, 705-8]. This project investigated the role of linkages between lenders and borrowers designed to remove financial impediments to the growth and performance of small and medium sized businesses. British banks' practices in this respect were compared with those of other European countries. In relation to Germany the conclusions which emerged were that German banks work in a political and economic context where more effort is being expended to both guard against as many risks as possible *ex ante* and to provide mechanisms for pooling risk. British banks, in contrast, do not benefit from such an environment and hence are more likely to displace risks onto customer firms in the form of higher charges for small new firms. These different national environments are also found to have effects on strategies of information gathering and practices of its analysis. Whereas British banks are portrayed as being neither close to customer firms, nor being able to rely on intermediary organization for the provision of reliable information, the German networked economy seems to permit the gathering of a much richer and more reliable set of data on customer firms. The latter, in turn, facilitates a more individual and judgment-based evaluation of information, in contrast to British banks' portfolio-based and risk-diversifying approach.

This project is complemented by a current project being undertaken by Ron Martin, Peter Sunley (University of Edinburgh) and David Turner in collaboration with Prof. P. Alessandrini, University of Ancona, Prof. P. Bianchi, University of Ferrara, and Dr C. Berndt, Eichstaat University [444, 717-9]. This project on **the role of banks versus venture capital in financing small enterprises in successful European regions** seeks to address two main questions. What are the implications of the restructuring, reorganisation and transformation of local and regional banking systems across Europe for the role of regional banks in funding and supporting the SME sector? To what extent is the emergence of a venture capital market across Europe replacing the traditional dependence on bank finance by SMEs? The research also examines the growth and nature of this new circuit of finance, and its impact on the SME sector.

Detailed analysis of the geographies of venture capitalism in the UK, Germany, France, the Netherlands, and Italy reveals that in each case venture capital activity is markedly skewed towards certain regions (using location quotients to measure spatial concentration), specifically the more dynamic and successful regions, where small firm formation rates and high technology activity are also highest. This distribution in turn closely follows the location of major financial centres in the countries concerned. This raises some key issue for policy, in that the European Commission has argued that venture capitalism in the EU is too spatially dispersed, and needs to be even more spatially concentrated if Europe is to create the highly successful high technology locational clusters found in the US. The OECD, on the other hand has argued that there are venture capital shortages in less prosperous regions and that until venture capital is more evenly spread geographically, new and small firm activity in peripheral and less developed regions will continue to lag behind that found in the more dynamic and prosperous regions. This research suggests that the EU seems to suffer from the worst of both worlds.

Major postal surveys of over 800 high-tech SMEs and venture capital firms in three case study regions – Outer South East England, Bavaria in southern Germany, and Emilia-Romagna in Italy, have also been undertaken. This has been combined with an examination of the restructuring of banking systems across EU member states, and in particular the changes occurring to systems of local and regional banking. Extensive and detailed work has been undertaken on the merger movement in banks in southern Germany. The German data indicate that as concentration and consolidation has proceeded apace since 1990, spatially the process has been one of intra-lander bank consolidation, with cross–lander take-overs and mergers far less common. This has led to a reduction in the number of local banks and also in the number of branches, and in the creation of larger banks with a more extensive, geographical coverage within each region, but still confined largely to individual länder. Thus far, there appears to have been little evidence of the inter-regional centralisation postulated by some influential writers in this area, although there is some suggestion of centralisation in the larger towns and cities at within länder..

The changes to regional systems that have recently taken place in Italy and Germany have been particularly pronounced, involving in each case a substantial reduction in the numbers of banks and a major reorganisation and consolidation of local and regional banking systems. Across much of the EU, local banks have traditionally provided an important source of finance for local SMEs. Two rather different arguments have been advanced as to how the current restructuring of local and regional banking systems in the EU will change this traditional role: on the one hand that bank consolidation will lead to a reduction in the supply of local finance, and on the other that it will in fact increase the supply as larger regional and national banks tend to be less risk averse, more efficient and cheaper. While this research finds some support for the second argument in both Italy and Germany, the evidence for bank funding of SMEs in the UK regions suggest that regional financing gaps could open up in Italy and Germany as the latter move increasingly to the sort of banking system found in the UK.

In addition, work on **legal aspects of venture capital** is being developed by John Armour and Simon Deakin in conjunction with the current project on corporate law and economic performance which is reported in Programme 2 (above). This will focus on the legal framework relating to venture capital financing of SMEs in the UK, and will look at other countries including the USA as comparators. The Cambridge region will be studied as an area in which close relations between SMEs, venture capital providers and specialised legal advisers have developed. The goal will be to examine the ways, and extent to which, various legal institutions facilitate venture capital investment. Specifically, attention will be paid at a macro level to the regulation of investment funds, and at a micro level to the way in which standard venture capital investment terms which seek to overcome asymmetric information problems are supplied by providers of legal services. The investigation will be carried out through longitudinal case studies of local firms and analysis of existing datasets.

Training and SMEs

A major theme of CBR work has been the importance of human resource development and management competence in the growth and survival of SMEs. This has been the subject of a series of research projects commissioned by the Department for Education and Employment. This series of projects began by analysing data from the CBR's SME survey data covering the periods 1987-1990 and 1991-1995 (**investment in training and small firm growth and survival**: Andy Cosh, Alan Hughes, David Storey (University of Warwick) and John Duncan) [811]. It has been extended to include the analysis of extra training variables, introduced in collaboration with DfEE, into later surveys. The most recent project is concerned with the extension of the econometric methods developed in the first two projects to a new national telephone survey covering firms of all sizes. This has been designed and conducted for DfEE by the CBR team (Bullock, Cosh, Hughes and Weeks). This research is unusual in that it has as its focus the impact of training on the performance and survival of the firm, rather than the impact of training on employees and their skills, productivity or pay. Moreover it breaks down training by skill group within the firm and includes measures of expenditure on training as well as binary variables on the incidence of training.

The empirical analysis carried out at the CBR has attempted to address a number of shortcomings in the existing literature which had failed to tackle both simultaneity and possible self-selection biases (i.e., firms which provide training do so because they are in some sense already superior performers who value its effects) and sample attrition biases (i.e. only surviving firms may be included in a sample but training may itself affect the likelihood of surviving in business). The panel nature of the CBR dataset makes possible the explicit modeling of failure and its link with training as part of sample selection modeling approach. The approach has also made use of robust regression techniques to handle problems of extreme heterogeneity in SME performance. Since a number of these businesses failed between the 1991 and 1995 SME Surveys it was possible to analyse the links between both training and survival, and training and growth using this data set. The analysis focused on the provision of 'formal' as opposed to 'on the job' training, and distinguished between management training and training for other skill groups.

After correcting for the two-way nature of the training performance relationship and for extreme observations, these successive studies have provided evidence that training provides a positive impetus to employment growth. The effect of training was found to be positive and significant for both persistent trainers and those beginning training, with the former effect the stronger. For firms which began training some time between 1991 and 1997, the effect on growth performance was significant only when beginning training was associated with more sophisticated management practices. Expenditure on training as a percentage of sales had a strong positive influence on growth performance. The interrelationship between training and the implementation of advanced human relations practices is a particularly interesting finding and has implications for the effectiveness of training schemes which are introduced without reference to the wider pattern of human relations practices within the firm. These issues will be explored further in the current DfEE project underway in the CBR.

Public policy and support for SMEs

Policy work by Alan Hughes resulted in an analysis of the implications for policy towards SMEs in developing countries of the experience of the UK and the USA [649]. This paper, which was published for the United Nations in preparation for the 2001

World Summit on Development, emphasised the importance of internal managerial and organisational factors relative to external capital market constraints. In addition, Cosh, Hughes, Keeble, and Kattuman wrote keynote thematic chapters for the European Commission's Sixth annual report on *Enterprise in the European Community*. These chapters used the CIS2 survey database of Eurostat and the BACH set of harmonised company accounts and other sources to analyse the finance, and regional aspects of SME performance and to role of SMEs in transition economies which are candidates for entry to the EU.

The issue of policy design in relation to advice and information has been at the forefront of policy discussions over the optimum design of support services. A major contribution has been made by the CBR in this area in a series of influential papers by Bob Bennett, Paul Robson, Colin Smith and William Bratton [68-69, 306-312, 484-6]. Patterns of information and advice provision were explored in a Newton Trust funded project on **the market for SME information and advice** (Robert Bennett, Paul Robson). A further core funded project on **business advice, public support and the supply chain** (Robert Bennett, Paul Robson and Colin Smith) extended this work with a particular focus on the relative roles of the public sector and private sectors in providing business advice. This project also paid particular attention to the impact of client /supplier distance on patterns and impacts of advice and information provision. The projects used responses from questions specifically built into the CBR SME surveys and from supporting separately designed telephone surveys. The respondents provided information on their utilisation and satisfaction levels for the range of services provided by the Business Link Programme. Business Link (BL) is a DTI initiative, launched in 1992, to develop a national network of local business advice centres. They also provided data on the fields of advice sought, the suppliers by field of advice and levels of satisfaction with and impact of the advice sought. The survey dataset was also augmented by the addition of detailed locational variables. The work demonstrated that in the late 1990s the private sector (professionals, customers, suppliers, business friends and business associations) accounted for 86% of all external advice sought, and that Business Links was the most widely used government source of advice, used by 25 per cent of respondents accounting for 5% of advice sought. The most popular BL services were general business information, grants, specialist advice, and training/IiP. The number of firms seeking financial assistance or advice from central government business support schemes was very low.

From a policy design point of view a disaggregated knowledge of client needs is important. The research revealed significant differences between groups of client firms by extent and type of advice sought. Using multivariate logit models, the project found that size of firm, rate of growth and innovation appear to be the main variables influencing the likelihood of firms seeking external advice, both from different sources and from different fields. Other grouping variables investigated with insignificant effects included, age, profitability, skill levels, manufacturer/services, and exporter/non-exporter. The impact of advice has also been assessed. Ordered logit models of the impact of the advice demonstrate that there are significant differences between clients' perceived impact of advice and the sources of advice they use, chiefly as a result of firm size, and to a lesser extent for growth, innovation and export levels. Taken as a whole the main reported impact is 'moderate', highest in fields such as computer services, product and service design, taxation and financial management and staff training and development; and lowest in the fields of advertising, staff recruitment and market research**.** On average, users of central government business support schemes were more inclined to satisfaction than dissatisfaction, and in almost all cases had higher satisfaction levels than users of BL services. Impacts were most strongly related to growth history of the company and to business size; sector effects were at best weakly significant.

A further paper assessed the interaction intensity between advice suppliers and users using the existence of site visits and/or a written brief/contract as indicators. This is of interest not only from a policy perspective, but also for the light it sheds on theories of trust and contract design and implementation, and theories of the determinants of market segmentation structure. This work demonstrated clear and significant differences between suppliers in terms of interaction intensity, use of contracts and impact. Three broad categories emerge: private sector consultancy (low trust, high intensity, high impact), business associations (high trust, low intensity, moderate impact) and government support agencies (moderate trust, moderate to high intensity, moderate or low impact). Using multivariate estimation methods they demonstrate that significant differences in interaction intensity, use of contracts and impact by client type are much less important than differences in supplier type. This indicates that suppliers generally develop more into niche service fields or groups of services rather than niches related to types of firm. The moderate results for public sector provision raise questions about the design contracting and charging for such services.

In a further aspect of this research, an examination was carried out of the external advisors used by small businesses to help them solve their problems, which focussed on distance between client and advisor. This is of particular relevance to theories of the impact of clustering and geographical proximity on business performance as well as policy design. The distance between client and advisor, cost and extent of site visits by the advisor was examined, focusing on differences between types of advisor, fields of advice, types of firm by size and sector, and types of location. The analysis demonstrated the importance of localization: 60.5% of advisors are drawn from within 10km of the client, and 81.5% from within 25km. The high degree of localization is shown to be chiefly dependent on accessibility and advisor location. The general pattern of client-advisor relations is demonstrated to be modelled accurately by a standard spatial interaction model. A key finding was that the spatial pattern of the location of the supply of advisors, particularly the size of the business centres in which they are located, must be taken into account simultaneously with the role of distance in order to explain the pattern of choice of business advisors.

Further analysis also showed that for private sector advisors, (accountants, consultants etc) and for collaboration with suppliers and customers, the intensity of use does not vary significantly with location in most cases. Only the input of business friends and relatives is strongly locationally constrained. EU Structural Fund status of an area also has few major effects on use of private sector advice. However, the impact of external advice, and the extent of local collaboration between similar firms, is influenced by location, with impact generally increasing with the size of business concentration, density and closeness to a business centre; i.e. there are positive effects of urban location and agglomeration economies. For public sector support agencies (such as the Small Business Service Business Link, TECs/LECs, enterprise agencies, and also chambers of commerce) the reverse is generally true. Levels of use are locationally influenced but impact is not.

Detailed evaluation research of particular policies has also been carried out at CBR. An **evaluation study of the Small Business Initiative** (Andy Cosh, Alan Hughes, Mark Cox (DTI)) was funded by the British Bankers' Association and the DTI (Small Business Service) [18]. The aim of this project was to investigate the impact on small business performance of financial management training and in particular to evaluate the impact of the Small Business Initiative, a DTI sponsored financial management training scheme for SMEs, completion of which is associated with financial incentives offered by participating commercial banks. The analysis involved the comparison of the pre- and post-course growth, profitability and financial performance of participating firms compared to a non-participating control group, as well as the impact upon the introduction within businesses of a range of intermediate financial control systems and management practices. The principal method of analysis was the econometric analysis of a complex panel survey data set compiled by repeat surveys of a sample of several hundred users and a matched sample of non-users of the SBI package. The analysis revealed that the SBI training package had a significantly positive impact on self assessment of management competence, and upon the introduction of a wide range of financial management techniques. There was not a statistically significant impact on the probability of survival, or bottom line profitability or growth performance of firms undertaking SBI compared to non-users. However the independent views of bank managers and personal business advisers concurred with the positive self-assessment impact of the participants.

In addition, two studies were carried out for the Low Pay Commission on **the impact of the National Minimum Wage (NMW) on SMEs** (Frank Wilkinson Alan Hughes and Anna Bullock) [557-8]. This involved augmenting in two ways the biennial CBR survey of small and medium sized enterprises: first, by adding cleaning and security services to the surveys sectoral coverage, and second by adding questions on the impact of NMW. The sectors added have high concentrations of low paid workers in which the Low Pay Commission was particularly interested. The first of the questions added asked the firms what proportion of their workforce was paid at the National Minimum Wage. The second question asked about the effects of the NMW on the employment of different categories of workers, hours worked, labour turnover, training, capital/labour substitution, wage differentials, and cost control (both labour and non-labour). The third question asked about the impact of the introduction of the minimum wage on the price and non-price ways by which firms competed in their main product markets. It was found that small minorities of small and medium sized businesses experienced an employment effect resulting from the minimum wage and, for most of these, employment increased. There was no evidence of the substitution of lower paid younger workers for workers on the full NMW rate. Only a small minority of firms changed hours, with more firms reducing than increasing them. Similarly, few firms experienced changed labour turnover, with a greater number experiencing an increase than a decrease. However, almost a quarter of the firms raised wages to maintain differentials after the NMW. The increased efficiency response to the introduction of the NMW was also confined to a minority of firms. Only 7% increased training (some reduced it) although closer to 20% increased control of labour and non-labour costs. The impact on price and non-price product market strategies ranged from the 20% or more firms that put greater emphasis on personal attention to the needs of clients, price and the quality of the services, to the 14% or less that put greater emphasis on flair and creativity, marketing and promotion, and product and service design. Overall, for most the firms surveyed the NMW had little or no effect on how they conducted their business. But for those that were affected, the NMW appears to have had had a greater effect in inducing small and medium sized businesses to improve their performance than to reduce their employment.

A recent project on **the role of technology policy in incubating European new technology based firms** (Hugh Whittaker, Thelma Quince, Tim Marshall and Mike Kitson), funded by the EU, brings together researchers from eight countries in the EU and Israel, and focuses on high-tech incubation and the role of universities and technology policy in promoting this. Incubation/acceleration has been a particular focus of policy interest, and this project aims to bring together the experiences of the respective countries in order to promote better practice. The CBR hosted the first workshop after the project was officially launched, and surveys of innovation practice are currently being conducted in the respective countries.

Governance and SMEs

Two recent projects have looked at corporate governance structures in SMEs and their links to performance. A current project on **high tech CEOs and their businesses** (Hugh Whittaker and Thelma Quince) builds on an earlier CBR project led by Whittaker and involves an international comparative study of high tech CEOs in Britain and Japan seeking to place entrepreneurship in respective socio-economic and institutional contexts [45, 790-1]. The project asks whether there is a 'Japanese' approach and a 'British' approach to entrepreneurship in high tech sectors, both in manufacturing and in services. It has been found that earlier sectoral differences have diminished with the rapid growth of high-tech services in Japan in recent years. Although birth rates for firms remain lower in Japan, death rates are also lower, pointing to a different transformation dynamic analysed by Whittaker in a recent CBR working paper.

A particular focus of this research is the interaction between owner-perceptions and values and the objectives, organisation and performance of the firm. Here there are similarities between Japan and the UK. The research so far has found that differences in entrepreneurs' perceptions, attitudes, and personal objectives appear to have an important role in shaping organisational behaviour and performance, in respect of employment practices and training, innovative activity, spatial orientation of demand links and over growth. Such perceptual and attitudinal differences transcend factors such as sector, size and age which more commonly studied as determinants of organisational behaviour and growth. In general, the CEOs rank what they call 'stakeholder' objectives more highly than financial objectives, but a combination of these is often associated with the most dynamic growth and employment patterns.

A related project on **the evolution of governance arrangements in the family firm (**Hugh Whittaker, John Roberts and Simon Learmount), funded by the Daiwa Anglo-Japanese Foundation [222], has been exploring the evolution of governance structures and processes within the family founded firm as it seeks to manage growth. The first task of the research is to carry out a review of existing studies of the family firm, complemented by desk research which aims to quantify the contribution of family firms to different national economies. The second part of the research will comprise a number of case studies where governance practices of family firms will be explored in detail. The case studies will be drawn principally from the UK and Japan, but depending on the findings from the literature review and desk research, may also include cases from other countries if this is thought to be valuable. Findings from this project are due to be reported in the next 12 months.

Summary of Programme 3

The CBR's SME programme has established a national and international reputation among policy makers, practitioners and researchers as an authoritative source of information and evaluation on SME growth and survival. Particular emphasis has been placed on charting developments in training, innovation, governance, and the impact of policy. Methodological advances have been made in the measurement of SME growth and performance, and these have been incorporated into national and international data collection processes. An international and comparative dimension has been present throughout the life of the Programme and this has been strengthened through numerous collaborations with other research groups.

The Survey and Database Unit

In addition to the three Programmes just described, the CBR has a Survey and Database Unit which is led by Andy Cosh with day-to-day management by Anna Bullock, the Survey and Database Manager. The Unit was formed at the inception of the Centre and has been a key part of its success. The original purpose of the unit was to manage the CBR biennial SME surveys and this remains a key part of its work. This involves everything from the coordination of the design of the sampling frame and the survey instrument, through the conduct of the survey, to data validification and analysis. The experience of the team in carrying out such surveys is second to none, as is evidenced by the advice given to both governmental and private sector organisations about the conduct of surveys. The importance attached to the use of panel databases brings its own difficulties. This involves the constant updating of the firms' addresses and the checking of commercial databases for their status (survival or failure).

Another important function of the unit is to provide advice and management for the Centre's increasing number of surveys. Apart from the CBR biennial surveys, the unit managed the entrepreneur survey and the survey on directors' duties in 1998 and the survey on manufacturing strategy and competitiveness in 1999. The year 2000 was particularly busy with surveys covering innovation in very small enterprises, the National Minimum Wage, high tech CEOs, 5 surveys under the future of professional work project, 6 surveys under the project on the financing of SMEs in Western Europe, a survey of wholesale insurance in the City of London, and two pilot surveys (one on business performance and training, and one on piloting the CIS3 survey instrument). In most of these surveys the Unit was involved in questionnaire design, data entry and analysis.

The Unit also acts as a technical advisor to other members of the CBR on the contents of and access to proprietary and official data sets, a great number (e.g. FAME, Datastream, NOMIS, ICC) of which are utilised by CBR staff. Annex A of this report, below, lists only those datasets that have been created within CBR. All ESRC funded projects are required to deposit the resulting datasets with the ESRC Data Archive and the CBR has drawn up a time table with the Data Archive for this which is summarised in Annex A, below.