Assessing the cumulative economic impacts of health and safety regulations

Scoping study

Prepared by the Centre for Strategy & Evaluation Services (CSES) for the Health and Safety Executive 2009
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Scoping study

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The aim of this study was to identify and analyse evidence on the cumulative economic impacts of health and safety regulations.

The study examined two types of cumulative economic effects – the impact of regulations on business performance and, secondly, the wider effects on other groups in society and society overall. The research, which involved a review of about 100 items of original research from the UK, Europe and elsewhere, included several case studies examining the impact of three regulations (COSHH, Asbestos at Work, and Work at Height) on two sectors (Construction and Chemicals).

The focus on the cumulative economic impacts of health and safety regulations distinguishes this study from other studies and the approach of assessing the economic impacts of individual health and safety regulations in isolation from one another. The purpose of the research was to support efforts within the HSE (and elsewhere in the UK Government) to conceptualise and measure the impacts associated with health and safety regulations, in order to deliver improved health and safety outcomes while minimising regulatory burdens.

The study was carried out for the Health and Safety Executive by the Centre for Strategy & Evaluation Services (CSES) in 2008.

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EXECUTIVE SUMMARY

The aim of the study was to identify and assess evidence on the cumulative economic impacts of health and safety regulations. The purpose of the research was to support efforts within the HSE (and elsewhere in the UK Government) to conceptualise and measure the impacts associated with health and safety regulations in order to deliver improved health and safety outcomes while minimising regulatory burdens.

The study, which was carried out for the Health and Safety Executive by the Centre for Strategy & Evaluation Services (CSES) in 2008, involved wide-ranging research – a literature review, interview programme and case studies. This includes a review of about 100 items of original research on the economic impact of health and safety regulation in the UK, Europe and elsewhere. A total of 51 interviews were undertaken. This included interviews with HSE staff, officials from Government Departments, trade associations and individual businesses. The empirical research concentrated on examining the impact of three particularly significant health and safety regulations (COSHH, Asbestos at Work, and Work at Height) on two sectors (Construction and Chemicals).

The focus of the research on the cumulative economic impacts of health and safety regulations distinguishes this study from others and the approach to be found elsewhere of assessing the economic impacts of individual health and safety regulations in isolation from one another. Furthermore, in much of the existing research, the impact of health and safety on businesses is addressed primarily from the perspective of costs (relating to general sickness absence, employers’ liability claims, insurance premiums, accident costs, etc) whereas this study examines wider costs and benefits to not only businesses but also to society as a whole.

Based on an assessment of existing research, the assignment involved developing a framework for assessment and evaluation of the cumulative economic impacts of health and safety regulations and validating this framework using available evidence. The study suggests that there are a number of key steps in examining the cumulative economic impacts of health and safety regulations: (1) definition of regulatory objectives, rationale and counterfactual; (2) identification of targeted business process/work activity; (3) assessment of economic impact on businesses including dynamic impact and regulatory interactions; and (4) analysis of wider economic impact on other stakeholders. Impact assessments should include a range of economic impacts including private and social effects, direct and indirect, as well as both intended and unintended effects.

The final report presents a number of recommendations. A key suggestion is that there is a need to strengthen linkages between the ex-ante and ex-post stages in assessing the economic impacts of health and safety regulations. Another recommendation is that the focus on business processes in impact assessments and evaluations should be more pronounced. Last but not least, it is argued that additional research should be conducted into the role of regulatory design in influencing the impacts of health and safety regulations.
EXECUTIVE SUMMARY

1. STUDY AIMS AND METHODOLOGY

1.1 The aim of the study was to identify and assess evidence on the cumulative economic impacts of health and safety regulations. Based on an assessment of existing research, the assignment involved developing a framework for assessment and evaluation of the cumulative economic impacts of health and safety regulations and validating this framework using available evidence.

1.2 The study, which was carried out for the Health and Safety Executive by the Centre for Strategy & Evaluation Services (CSES) in 2008, is based on wide-ranging research. This includes a review of about 100 items of original research on the economic impact of health and safety regulation in the UK, Europe and elsewhere. A total of 51 interviews were undertaken, including with HSE staff and officials from Government Departments, and with some 32 individual businesses. The focus of the empirical research was on the impact on two sectors – Construction and Chemicals - of three particularly significant health and safety regulations (COSHH, Asbestos at work, and Work at Height).

2. FRAMEWORK FOR IMPACT ASSESSMENT AND EXISTING RESEARCH

2.1 The three main groups of stakeholders in health and safety are individuals, employers and society. The key steps in assessing the impact of health and safety regulations can be summarised as being: (1) definition of regulatory objectives, rationale and counterfactual; (2) identification of targeted business process/work activity; (3) assessment of economic impact on businesses including dynamic impact and regulatory interactions; and (4) analysis of wider economic impact on other stakeholders.

2.2 Impact assessments should include a range of economic impacts including private and social effects, direct and indirect, as well as both intended and unintended effects. In relation to these and other types of effects, there is a need to identify the key variables that drive the impacts of different regulations and help to explain why differences in the impacts arise. The extent of regulatory compliance may affect the benefits and costs associated with regulation, with potentially significant distributional consequences.

2.3 There is a lot of existing research on the economic impacts of health and safety regulations. However, much of this focuses on compliance costs and does not capture the wider effects or different types of impacts, including cumulative and interactive effects. There is also little in-depth consideration of regulatory interactions or dynamic effects over time in the existing literature.

2.4 The starting point for an assessment of economic impacts is to map out the intervention rationale and develop relevant counterfactual scenarios. The primary rationale for government intervention in all policy areas is the existence of a market failure but stakeholders may want the government to take action to bring about or prevent a course of action even when the features of market failure do not apply.

2.5 Two types of counterfactual are of particular relevance in assessing the impact of health and safety regulations – ‘do nothing’ and alternative versions of the regulatory proposal in question. Development of a relevant counterfactual helps in an assessment of added value, facilitates the integration of the ex-ante/ex-post stages of the evaluation and appraisal process, and helps identify interactions across regulations.
3. ECONOMIC IMPACT ON BUSINESSES

3.1 In much of the existing research, the impact of health and safety on businesses is addressed primarily from the perspective of costs. Oft-cited cost concerns relate to general sickness absence, employers’ liability claims and insurance premiums. Accident costs per se appear to be a less prominent motivator for health and safety within businesses.

3.2 The common distinction between direct and indirect costs of health and safety failures is somewhat arbitrary and it is often driven by methodological rather than theoretical concerns. Instead, this study suggests that the focus on business processes that are affected by regulations should be strengthened to enable a comprehensive assessment of all economic impacts (positive or negative).

3.3 The organisation of the production process can substantially affect the business impacts of health and safety regulations. By requiring firms to restructure their production processes, health and safety regulations may generate productivity gains that would not have otherwise been identified and realised. These impacts are likely to differ across sectors and types of firms, and depend on how regulations are designed and implemented.

3.4 Several studies find that small and medium sized enterprises (SMEs) are affected disproportionately by the costs of health and safety regulation. For example, SMEs with good health and safety systems tend not to be rewarded through lower insurance premiums. SMEs are also more likely to require external resources to help meet the cost of health and safety related investments. Maintaining high health and safety standards is widely seen as an indicator of good management and there is evidence that this is borne out by better business economic performance.

3.5 Research has shown that the cost and effect of health and safety regulations are linked to the macro and micro level conditions under which the regulated firm operates. Changes in the economy over time may affect how and to what extent health and safety regulation impacts on businesses. The incremental costs of health and safety regulation for companies also depend on cost internalisation which can strengthens incentives for companies to prevent health and safety failures even in the absence of regulation.

3.6 In addition to the business processes that are affected, regulatory impacts also depend to a large extent on the level of response required from the regulated business. There is evidence that many businesses consider health and safety of strategic importance, though there are differences across sectors and for companies of different sizes. Company age, life cycles and growth experience and expectations also affect how businesses address health and safety. One of the key reasons for non-compliance is the competing demand for management time from other aspects of the business.

3.7 Regulatory design can have a significant effect on the types of costs that regulated businesses incur, the required compliance behaviour and interactions between regulations. There is some evidence that regulation and especially self-regulation regimes are particularly challenging for small employers.

4. WIDER ECONOMIC IMPACT

4.1 There is a relative dearth of empirical research and evidence on the cumulative economic impacts of health and safety regulations. However, existing research indicates that workplace accidents and work-related ill health generate economic costs in terms of impacts on quality of life and health, lost output, and other resource costs to individuals, the exchequer (taxpayers), and to society overall.
4.2 Existing research has produced estimates of the costs of workplace accidents and work-related ill health at a societal level. The cost to public health budgets and insurance of work-related injuries and ill health is also reflected in tax bills and productivity losses, which can have implications for economic performance.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 There is little in-depth discussion of many aspects of the cumulative economic impacts of regulation in the existing literature. While there is a large body of literature documenting the impact of health and safety regulation on businesses, the evidence base is less comprehensive for other stakeholders, including individuals and society as a whole.

5.2 In particular, there is little information on the extent and impact of regulatory interactions, and this is an area where additional research would be very valuable. Some of the evidence discussed in this study suggests that the potential economic impact of regulatory interactions including overlaps and conflicting requirements might be significant.

5.3 A key recommendation in the study is that there is a need to strengthen linkages between the ex-ante and ex-post stages in assessing the economic impacts of health and safety regulations. In addition, there should be significant advantages in strengthening the focus on business processes in impact assessments and evaluations.

5.4 Although already a feature of impact assessments and evaluations, this study highlights the need for empirical inputs that are specific to health and safety. For instance, the appropriateness of Department of Transport figures as a basis for estimates of the economic impact of health and safety outcomes should be reviewed and, if possible, parameters developed that are OSH-specific. Finally, additional research should be conducted into the role of regulatory design in influencing the impacts of health and safety regulations.
SECTION 1
INTRODUCTION

1.1 STUDY AIMS

The aim of this study was to identify existing evidence regarding the cumulative economic impacts of health and safety regulations. The objective was to develop a robust analytical framework for assessment and evaluation of the cumulative economic impacts of health and safety regulations, and validate this framework using available evidence in existing research and literature. The study also included a limited fieldwork programme with stakeholders and businesses. Finally, the report identifies options for future research to further develop evidence and understanding in the area.

The study focuses on two types of “cumulative” economic impacts of health and safety regulations - impacts of health and safety regulations on business economic performance and, secondly, wider effects on other groups in society and society overall. The focus on the cumulative economic impacts of health and safety regulations distinguishes this study from the approach of assessing the economic impacts of individual health and safety regulations in isolation. The purpose of the research was to support efforts within the HSE (and elsewhere in the UK Government) to conceptualise and measure the impacts associated with health and safety regulations, in order to deliver improved health and safety outcomes while minimising regulatory burdens.

1.2 METHODOLOGICAL APPROACH

The study was carried out in three phases:

• **Phase 1 – Preliminary Tasks:** a set up meeting, initial interviews at the HSE, preliminary desk research, finalising the methodology and preparation of an inception report

• **Phase 2 – Desk Research and Interviews:** carrying out a literature review and fieldwork interviews with relevant stakeholders, analysis of findings and preparation of a draft report

• **Phase 3 – Presentation of Final Report:** conducting further analysis of interview research and incorporating feedback on the draft report, development of a final report and presentation of the findings at a workshop

Figure 1.1 on the next page shows a summary of the work plan.

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1 This report focuses on conventional health and safety regulations, and the economic impacts of major hazards regulations are not a focus of the study.
In addition to the chronological presentation above, the study can also be divided into several distinct methodological stages. This is described in more detail below.

1.2.1 Literature Review

The objective of the literature review was to identify existing evidence of the cumulative economic impacts of health and safety regulations, and to develop a robust conceptual assessment and evaluation framework. The literature review therefore constituted the main part of the study and it informs all sections of this report.

The process of compiling the literature review started with a close review of work that CSES has carried out in the past, including for the European Commission, the Business, Enterprise and Regulatory Reform department (BERR) and the European Occupational Safety and Health Agency. Taking the findings of these reports and the references upon which they were based as a starting point, the search was then widened in order to:

- Update the review of existing literature;
- Extend coverage and focus on developing a methodological framework for this study;
- Include empirical evaluation evidence on the impact of OHS regulations in the UK and elsewhere.

The review was carried out through library searches at the British Library of Political and Economic Science and through various internet searches, including databases of scholarly articles and searches of the HSE website and other similar authorities across Europe.

In addition to this a limited review was undertaken of relevant literature available in other EU Member States including through contacts suggested by the HSE. A limited amount of research from the US, Australia and New Zealand are also included. Of course, due to institutional and political differences across countries, findings from other countries cannot
always be directly transposed to the UK and they should be interpreted with care. In as far as possible, and where it is likely that findings cannot be directly projected onto the UK, an effort was made to point out inconsistencies or methodological weaknesses in existing research. Appendix C contains the full list of references consulted for this study.

1.2.2 Interview Programme with Stakeholders

In order to obtain further evidence of the cumulative economic impacts of health and safety regulations on various stakeholders, a number of interviews were carried out with organisations that were identified as being affected by health and safety regulations, and/or that have studied the impact of health and safety regulations. In addition, the objective of these interviews was to verify some of the quantitative and qualitative information collected through the case studies (described in more detail below) and to inform the interview programme with individual businesses. Interviewees were identified through the literature review and through initial interviews with the HSE.

<table>
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<tr>
<th>Table 1.1: Interview Programme</th>
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<tr>
<td><strong>Type of Organisation</strong></td>
</tr>
<tr>
<td>Public Sector</td>
</tr>
<tr>
<td>Business/Trade Association</td>
</tr>
<tr>
<td>Individual Companies</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

1.2.3 Case Studies

Three regulation case studies were also carried out as part of the study. The objective of the case studies was to obtain a perspective from a limited number of businesses and other stakeholders on the cumulative economic impacts of health and safety regulations. The case study findings also helped identify practical suggestions and policy recommendations on the way in which regulatory impacts should be evaluated.

The case studies also allowed initial testing of the feasibility of aggregating from analysis of individual health and safety regulations to the level of cumulative impacts. It should be noted that these case studies were not intended to provide evaluation evidence for the impact of the specific regulations under consideration.

The overall approach to the case studies is summarised in the following diagram.
Each case study involved approximately five focussed interviews with stakeholders including trade associations, cross-sectoral associations, individual businesses, and other relevant organisations. As a starting point for each case study, a representative within the HSE was also interviewed, to provide feedback on the study, and to recommend further interviewees and, where possible, literature.

The case studies focused on particular regulations, selected in consultation with the HSE - Control of Substances Hazardous to Health COSHH (risk assessment), Control of Asbestos at Work Regulations (duty to manage asbestos) and Work at Height Regulations. Appendix D has a more detailed description of these regulations. The focus of the case studies was on how these individual regulations overlap and interact with health and safety regulations more broadly.

Several factors influenced the choice of regulations for the case studies. First, regulations were selected that affect a wide range of business activities. Taking the case of COSHH for instance, companies that use hazardous substances in production will need to comply with these regulations in their day to day activities. Companies that produce hazardous substances are also affected by these regulations in their outward-focussed business processes such as marketing, sales or product development. In terms of the second dimension of business processes (strategic/operational), the three proposed regulations also offer some interesting variation. Whereas risk assessments as part of COSHH for instance will involve the strategic level of the company (i.e. senior management), safety checks and equipment maintenance as part of the work at height regulations will be carried out primarily by employees as part of their day to day routine.

Second, the three selected regulations have significantly different effects across a wide range of industry sectors. The COSHH and Asbestos regulations have been identified as among the most costly pieces of health and safety regulation in terms of the administrative burdens that they impose. In comparison, the scale of costs imposed by the third case study regulation (Work at Height) is estimated to be only 1% of the total administrative burden of
COSHH. The table below summarises the administrative costs identified in the Administrative Burdens Measurement Exercise for the HSE for the three case study regulations, including their total cost, the percentage of departmental costs and the number of information obligations (IO) that they impose.

Table 1.2: Administrative Burdens - Case Study Regulations

<table>
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<tr>
<th>Case Study Regulation</th>
<th>Cost (£m) (¢ of Total)</th>
<th>IO</th>
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<tbody>
<tr>
<td>1. COSHH (risk assessment)</td>
<td>£171.4 (6%)</td>
<td>44</td>
</tr>
<tr>
<td>2. Control of Asbestos at Work (Duty to Manage Asbestos)</td>
<td>£121.2 (4%)</td>
<td>27</td>
</tr>
<tr>
<td>3. Work at Height</td>
<td>£1.7 (0.5%)</td>
<td>6</td>
</tr>
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Source: Health and Safety Executive Administrative Burdens Measurement Exercise. Final Report, 2006; Note: IO = information obligation; DR = data requirement

Third, given their scope, these regulations are likely to demonstrate a certain amount of overlap and interaction with other regulations, and the effects of these regulations may vary over time. For instance, many chemicals companies are likely to be affected by both the COSHH risk assessment obligations and the duty to manage asbestos, which also includes a risk assessment obligation. In comparison, there is likely to be less overlap with the Work at Height Regulations which do not target a particular substance but instead focus on an activity or work practice/process. As such, the selection of three case study regulations provides a testing ground for the link between overlapping requirements and the regulatory impact of H&S regulations.

In addition, the three case study regulations demonstrate dynamic impacts, which is important from the perspective of economic impacts. While the three proposed case study regulations are relatively recent, the current asbestos regulations (2006) represent a continuation and extension of previously existing legislation. Work at Height regulations came into force in 2005 and COSHH regulations are a result of the transposition of EU Directives in 2002. These different timeframes offer multiple points for learning effects and business process adaptation to occur.

The focus of the case study research was on two sectors - Chemicals and Construction. These two sectors are among the primary foci of the HSE’s activities and comprise companies that are affected by all three case study regulations. At the same time, these sectors include a wide range of different types of companies. For instance, the Chemicals sector includes both upstream and downstream industries (i.e. companies that produce chemicals as well as those that use them). In the Construction sector, business activities and, as a result the impact of health & safety regulation, also vary widely between builders, painters/decorators and designers for instance.

1.3 STRUCTURE OF THE FINAL REPORT

The final report is structured in a way that reflects key issues set out in the terms of reference and in the assessment and evaluation of the cumulative economic impact of health and safety regulations:

- Section 2 – Background and Previous Research: examines the policy context and provides an overview of previous research;
• **Section 3 – Framework for Impact Assessment and Evaluation:** sets out key elements in a proposed framework for assessment and evaluation;

• **Section 4 – Economic Impacts on Business:** reviews evidence of the economic impact of health and safety regulations on business;

• **Section 5 – Economic Impacts on Other Stakeholders:** reviews evidence in respect of wider economic impacts.

• **Section 6 – Conclusions and Recommendations:** the final section of the report provides a summary of the main study findings and conclusions, together with recommendation.

The report is supported by two appendices – a list of sources used for the research and information on the case studies.
SECTION 2
BACKGROUND AND PREVIOUS RESEARCH

By way of background, this section summarises the role of the Health & Safety Executive and policy context, and provides an overview of existing research on the impact of health and safety regulations.

2.1 ROLE OF THE HEALTH AND SAFETY EXECUTIVE

The Health and Safety Executive is responsible for the regulation of a large number of risks to health and safety arising from work activity in Britain. The HSE’s mission is to ensure that risks to people’s health and safety from work activities are properly controlled. The Revitalising Health and Safety Strategy aims to help people at work to protect themselves and their business, make work a better place to be and help people decide how to make work safer and healthier.\(^2\) Health and safety regulations affect a wide range of groups in society, including businesses, individual workers, the exchequer (tax payers), and society overall.

The objectives of Health and Safety interventions in the UK centre on the HSE’s overall mission - to protect people’s health and safety by ensuring risks in the changing workplace are properly controlled. In order to fulfil this mission, the body of health and safety interventions address the following three aspects:

- Risk prevention;
- Risk management;
- Enforcement and remedies.

Clearly, in assessing or evaluating the economic impacts of health and safety regulations, it is important to relate individual regulations back to these overall objectives of health and safety policy in the UK. Most regulations cover several or all of these objectives.

Risk prevention refers to efforts to prevent work-related injuries and ill-health where possible.\(^3\) Examples of regulations with a risk prevention component include, for instance, exposure limits to hazardous substances or requirements to demonstrate that the use of a ladder for work at height is justified because of low risk, short duration of use or existing features on site which the employer cannot alter\(^3\).

Risk management involves raising awareness about hazards in the workplace through obligations such as the risk assessment requirements as part of the Health and Safety at Work Act. A third strand of activities relates to remedies in case of a breach of health and safety regulations. These include requirements to change work processes found in breach with existing legislation during an inspection, information provided to businesses by inspectors, and investigations in case of accidents or fatalities.

\(^2\) http://www.hse.gov.uk/revitalising/

\(^3\) See Work at Height Regulations (2005), http://www.opsi.gov.uk/si/si2005/20050735.htm
Since 1974, HSE has reduced its legislative stock (all the legislation it is responsible for) by over 55%. In the early 1990s, and more recently in 2004, reviews led to major reforms of the legislative programme reflecting new priorities and better regulation principles. In recent years the HSC/E have:

- Started to explore alternatives to regulation. For example, the Stress Management Standards, a non-mandatory approach to tackling stress at work launched in November 2004; e-COSHH Essentials, an electronic, risk-based tool for carrying out chemical risk assessments; and in 2006, Workplace Health Connect, a national telephone advice line and expert service;
- Built on the established approach to wide consultation by engaging directly with small and medium-sized enterprises;
- Adopted the Government’s policy on the use of Common Commencement Dates;
- Put in place a robust internal policy challenge process, with a strong small business focus.

In terms of health and safety regulations in the UK, the main piece of legislation is the Health and Safety at Work Act 1974. The Act sets out the general duties which employers have towards employees and members of the public, and employees have to themselves and to each other. These duties are qualified in the Act by the principle of ‘so far as is reasonably practicable’. In other words, an employer does not have to take measures to avoid or reduce the risk if they are technically impossible or if the time, trouble or cost of the measures would be grossly disproportionate to the risk.


2.2 EUROPEAN AND UK POLICY CONTEXT

Regulations that originate at the European level form the basis for most national legislation in the UK. An overall framework for the European regulations is provided by the Community strategy, of which the latest was announced by the European Commission in February 2007. Improving quality and productivity at work: Community strategy 2007-2012 on health and safety at work (COM (2007) 62) aims to achieve an overall 25% reduction of occupational accidents and diseases in the EU. It sets out a series of actions at European and national levels in four main areas, of which one is improving and simplifying existing legislation and enhancing its effectiveness.
As a result, a large proportion of the administrative burden of health and safety legislation originates in Europe. The European framework directive 89/391/CEE adopted on 12 June 1989 governs health and safety provisions in the member states. Some variations exist in the transposition of this directive into national law. The primary difference between the European directive and previous health and safety at work provisions lies in its approach to regulation. Whereas previous regulations sought to prescribe particular measures in great detail, the current directive is limited to the definition of certain outcome objectives in the area of health and safety, leaving it up to national authorities and companies to decide on the process that will allow them to achieve those outcomes.

In the UK, HSE has continued the work of the 2005 UK Presidency in promoting the drive towards better EU regulation. The HSE has also actively engaged with the Davidson Review, a cross-government review of over-implementation of EU legislation in the UK. The Review was set up to look at how the UK implements European legislation and how this affects the competitiveness of the UK economy. HSE has systems in place to ensure there is no over-implementation of EU requirements. However, in July 2006, the Davidson Review identified an allegation of over-implementation in the application of EU health and safety legislation to the self-employed.

At a national level, the UK government has set up a specialised institutional framework to promote Better Regulation. In the area of health and safety, specifically, the Revitalising Health and Safety Strategy aims to help people at work to protect themselves and their business, make work a better place to be and help people decide how to make work safer and healthier. The Department for Business, Enterprise and Regulatory Reform (BERR), has overall responsibility for improving and promoting the competitiveness and productivity of UK business. As part of this remit, it is responsible for taking forward regulatory reforms, particularly where these assist in cutting unnecessary administrative burdens.

Following changes in 2007, BERR now includes the Better Regulation Executive (BRE), which was previously part of the Cabinet Office. BRE has helped launch a number of initiatives designed to reduce administrative burdens and produced various publications on Better Regulation / administrative simplification over the past 5 years. The Better Regulation Task Force (BRTF) defines regulation as:

“Any government measure or intervention that seeks to change the behaviour of individuals or groups. It can both give people rights (e.g. equal opportunities), and restrict their behaviour (e.g. compulsory use of seat belts).”

In 2005, the Better Regulation Task Force published a report entitled ‘Regulation - Less is More: Reducing Burdens, Improving Outcomes’. This report recommended that the UK government adopt targets for reducing administrative compliance costs faced by business and a “One in, One out” rule for regulation, where new regulations have to be matched by deregulatory measures. According to the BRTF report, this approach would lead to a potential £16 billion increase in GDP for an investment of some £35 million and provide the government with an opportunity to help increase the innovation, productivity and growth of business.

The Administrative Burdens Measurement Exercise (ABME) was launched by the government in response to the Better Regulation Task Force’s report, ‘Regulation: Less is More’ as part of the Chancellor of the Exchequer’s Better Regulation Action Plan (BRAP). In total, for all health and safety regulations that place an administrative burden on duty holders, the ABME indicated an annual cost of £2.03 billion following the removal of

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4 http://www.hse.gov.uk/revitalising/
5 Principles of Good Regulation, Better Regulation Task Force (BRTF), 2003.
6 Further information is available at http://www.berr.gov.uk/files/file35995.pdf
‘business as usual’ costs\textsuperscript{7} (activities that businesses would do anyway irrespective of legislation). HSC/E have committed to work towards a 25% target reduction in administrative burdens by May 2010. The exercise therefore estimated a required reduction of £508 million if the 25% target is to be met. In reaching this target reduction, HSE will also take into account any additional costs created by new legislation that comes into effect over the period of the plan.

The ABME identified ten sets of regulations that account for 77\% of HSE’s total annual costs figure.\textsuperscript{8} To make a significant difference to duty holders as quickly as possible, the HSE’s simplification plan has focused on initiatives that:

- Address the highest cost requirements as shown in the ABME;
- Remove/reduce forms requirements;
- Affect the largest numbers of duty holders;
- Address stakeholder proposals where appropriate;
- Can quickly and easily simplify HSE’s stock of regulation and guidance.

2.3 REGULATORY IMPACT ASSESSMENTS

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<tr>
<td>Regulatory Impact Assessments have formed an important part of the UK’s efforts to promote better regulation.</td>
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<tr>
<td>In addition to impact assessments in the UK, several initiatives are currently underway to obtain a better understanding of the economic impacts of regulation, including health and safety.</td>
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Regulatory Impact Assessments (RIA) have formed an important part of the UK’s efforts to promote better regulation. They are prepared as part of the policymaking process, to provide an assessment of the costs, benefits and risks of a proposal, including on businesses, the voluntary sector, and other affected groups. They identify and assess a number of options (including a “do nothing” option) for meeting policy objectives, both regulatory and non-regulatory, and determine whether the benefits of the proposed regulation justify the costs. The RIA process has the aim of helping policy makers to think through the consequences of proposals, improving the quality of advice to departments and Ministers and encouraging informed public debate. Since the mid 1990’s, all health and safety regulations have, prior to their implementation, been subject to a RIA.

In November 2007 the scope for impact assessment was extended to all types of interventions and the assessment is now referred to as an “Impact Assessment” (or IA). These IAs are required to follow the guidance for Impact Assessments that is published by the Better Regulation Executive.\textsuperscript{9} Impact Assessments generally cover only one specific regulation or intervention, and examine the costs and benefits as estimated to occur before the regulation is introduced (\textit{ex-ante} costs and benefits). It is expected that regulations should also be evaluated

\textsuperscript{8} http://www.hse.gov.uk/simplification/abme.htm
\textsuperscript{9} Available at http://bre.berr.gov.uk/regulation/ria/ia_guidance/
ex-post, that is after they have been implemented. Most HSE ex-post evaluations of regulations have also focused on individual regulations, rather than looking at the cumulative impact of health and safety regulations overall.

In addition to impact assessments, in the UK (as well as in other European countries) several initiatives are currently underway to obtain a better understanding of the economic impacts of regulation, including health and safety. In 2006, the Better Regulation Executive published a document on routes to reduction of administrative burdens. The report was intended to raise awareness among policymakers of the consequence of their regulatory decisions for business. The report discusses five ways to minimise the burden of regulation and provides an overview of good practice examples.

### 2.4 REVIEW OF EXISTING RESEARCH AND METHODS

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<tr>
<td>• There is a large body of existing research on the impact of health and safety at work regulations;</td>
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<tr>
<td>• Recent research on the impact of regulation confirms the importance of distinguishing between different types of impacts, in particular those resulting from cumulative and interactive effects.</td>
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<tr>
<td>• Much of the existing research focuses on compliance costs and does not capture the potential benefits of regulation or different types of impacts including cumulative and interactive effects;</td>
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Overall, there is a wealth of existing research on the impact of health and safety available. A survey of EU Member States by the European Agency for Safety and Health at Work, published in 1999, indicated that the UK was one of the frontrunners in Europe in terms of policy evaluation. While the situation has developed quite substantially since 1999, with several other Member States rolling out regular impact assessments in the context of national and European efforts at Better Regulation, it is nevertheless the case that the UK has relatively longstanding expertise with impact assessment and policy evaluation techniques across a wide range of policy fields.

From a methodological perspective, much of the existing research on regulatory impacts across a range of policy fields has a relatively narrow focus on compliance costs or, in some cases, different types of compliance costs. Most obviously, this is the case for the recent Administrative Burdens Measurement Exercise carried out in the UK and in various European countries which focuses on administrative costs but does not include policy costs. Other studies in the UK with a focus on compliance costs more generally include a London Economics study into the impact of safety, health and environmental Regulation on the UK.

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10 Available at http://www.berr.gov.uk/files/file44369.pdf
11 These five ways are: (1) remove, reduce, merge or improve regulations (2) Simplify the process to comply with regulations (3) Data-sharing and joined up government (4) Develop ICT-based solutions and services (5) Provide better guidance and information
13 To the extent that we review non-UK research, we have made an effort to alert the reader to potential political or institutional differences that may affect the extent to which the findings can be applied to the UK. Similarly, there are significant differences in the quality of the research that we have reviewed (e.g. in terms of sample size) and, where appropriate, we point this out throughout the text.
14 Health and Safety Executive, Administrative Burdens Measurement Exercise, Final Report, July 2006
industrial coatings, aerosols and specialty chemicals sectors\textsuperscript{15} aiming to “estimate the cost of compliance with current SHE [safety, health and environment] regulations in excess of the minimum costs necessary to ensure current levels of protection”. Another example is an HSE commissioned ENTEC study on the costs of compliance with health and safety regulations in SME’s commissioned by the HSE.\textsuperscript{16} Outside health and safety, the focus on compliance costs is apparent in a NERA study on cost-benefit analysis in financial services and a CSES study for the European Commission (DG Enterprise) on the burden of environmental regulations for SMEs.\textsuperscript{17} A Frontier Economics study for the DTI distinguishes between administrative burdens where the main difficulty lies in determining to what extent they are incremental and policy costs which are difficult to quantify “because the affected population is harder to identify and data is [sic] often scarce”. The results of these studies are discussed in greater detail later in this report.

The advantage of this focus on compliance costs is that it adopts a relatively clear definition of costs to be measured and that it provides a clearly defined business perspective on regulatory compliance. In addition, companies that are affected by health and safety regulation are likely to have at least a limited understanding of the scale of compliance costs that they incur and they may be able to provide quantitative data to corroborate any qualitative information gathered.

Within the wider research programme on the costs of (health and safety) regulation, there are large differences not only in the type of costs to be measured but also in the way costs are defined. For instance, the London Economics study on the chemicals sector focuses on cumulative compliance costs.\textsuperscript{18} Cumulative costs here refer to the costs of all health and safety regulations at a single point in time. As a result, the study captures the impact of overlaps, contradictions and other regulatory interactions without having to identify these individually.

A focus on compliance costs fails to capture any of the benefits of the (set of) regulation(s). It also restricts coverage of both the range of stakeholders affected and the scope of regulatory impacts to the smallest possible number (i.e. the company and compliance costs respectively). As this study shows, these limitations can lead to erroneous estimations of the net impact of a particular regulation or body of regulations because they ignore different types of impacts, some of which may be difficult to quantify, and different types of value generated by the regulatory intervention (e.g. use and non-use value).

Cost benefit analysis

The main component of most impact assessments is a Cost-Benefit Analysis (CBA). In a CBA, all relevant costs which accrue from the inputs (human, physical or financial) into a health and/or safety intervention are identified and costed. Likewise, all relevant benefits arising from the intervention are identified and, to the extent possible, expressed in monetary terms. This includes benefits in terms of health and safety outcomes but also non-health and safety benefits that can be counted against costs incurred by the duty holder.

\textsuperscript{17} NERA, The FSA’s Methodology for Cost-Benefit Analysis, 2004; CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.
Ideally, a cost-benefit analysis includes “as many of the costs and benefits of a proposal as feasible, including items for which the market does not provide a satisfactory measure of economic value”. The advantages of the cost benefit methodology are two-fold:

- Because of the quantification of costs and benefits, CBA provides a clear method for evaluating the impact of a regulation;
- It provides a simple decision-making rule about whether the intervention should or should not go ahead - an intervention should be pursued if the benefits exceed the costs.

However, for health and safety, the CBA decision-rule is modified to take into account the particular characteristics of that policy area. Health and Safety legislation requires that health and safety risks are kept “as low as reasonably practicable” (ALARP). As the HSE guidance on cost-benefit analysis points out, “a CBA cannot form the sole argument of an ALARP decision nor can it be used to undermine existing standards and good practice.” Instead, the decision-making rule in ALARP cases is that “something is reasonably practicable unless its costs are grossly disproportionate to the benefits”. Gross disproportion is measured as the factor by which costs exceed benefits.

In addition, the HSE issues specific guidance about which costs and benefits must be included and excluded. A list of relevant costs and benefits as well as a series of good practise examples to guide duty holders in ALARP decisions is also published by the HSE. Nevertheless, as the remainder of this section shows, it is not always clear which costs and benefits should be included and how they should be valued. This report argues that both use and non-use costs and benefits are relevant to health and safety and that they should be valued using a combination of willingness-to-pay and market prices.

A recent study on evaluating the impact of regulation confirms the importance of distinguishing between different types of impacts, in particular those resulting from cumulative and interactive effects. Whereas cumulative impacts refer to the effect of a “package” of legislation on the economy, a sector or stakeholders, interactive effects refer to the consequences of overlaps/contradictions between one regulation and others. As the authors point out, there is little evidence in the UK on either the cumulative or interactive impacts of regulation and approaches that consider both the cumulative costs and benefits caused and regulatory interaction require either a general equilibrium model or a limitation to certain “types” of regulations (e.g. fees, standards). Finally, from a methodological point of view it is important to underline that ex-ante impact assessments cannot capture the full range of costs and benefits of (a body of) regulations, particularly because they are not able to fully anticipate and take into account dynamic effects that occur ex-post.

In an attempt to further formally develop the conventional cost-benefit analysis approach to policy assessment and appraisal in government, the concept of public value has been proposed and considered in related research. Public value refers to ‘the value created by government through services, laws, regulation and other actions’ (Kelly et al. 2002:4). Within a public value framework, the role of public officials is to create (or maximise) public value given a fixed amount of resources and a set of political and economic constraints. The public value approach emphasises that in assessing and evaluating the impacts of regulations, a wide range of stakeholders and impacts should be incorporated using performance measurement tools that capture value creation across a range of areas.

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23 The public value approach is further discussed in Annex 1.
From a methodological point of view, an assessment of costs and benefits depends on the availability of quantitative data from a sample of enterprises because with purely qualitative research, extrapolation to a wider population of enterprises can be difficult. In theory, triangulation (i.e. the use of several methodological approaches in a single study) lends credibility to research findings because it combines the advantages of both qualitative and quantitative research designs. Indeed, most studies reviewed include at least elements of quantitative and qualitative research designs.
SECTION 3
FRAMEWORK FOR IMPACT ASSESSMENT AND EVALUATION

SECTION 3 SUMMARY

- There is a large body of research on the impact of health and safety.
- Much existing research focuses on compliance costs and does not capture potential benefits of regulation or different types of impacts, including cumulative and interactive effects.
- Cost-Benefit Analysis constitutes the central element in impact assessments though the decision rule is applied more flexibly in policy areas (such as health and safety) where this is considered appropriate.
- The extent of regulatory compliance affects the benefits and costs associated with regulation with potentially significant distributional consequences.
- The impact assessment framework needs to identify the key variables that drive the impacts of different regulations and help explain why differences arise.
- Economic impacts include health and safety “outcomes”, “service” provision and public “trust”.
- Impact assessments should include a range of economic impacts including private and social effects as well as both intended and unintended impacts.
- There is little in-depth discussion of regulatory interactions or dynamic effects over time in the existing literature.
- A systematic analysis of the business processes targeted by a regulatory intervention may facilitate identification of dynamic impacts and regulatory interactions.

3.1 OVERALL APPROACH

The literature reviewed in this study suggests that there are two possible approaches to assessment and evaluation of the cumulative economic impacts of health and safety regulations:

- **Bottom up**, i.e. to build from assessment and evaluation of individual health and safety regulations, and examine how these overlap and interact with other health and safety regulations, to aggregate to the cumulative economic impacts at the broad level of the body of health and safety regulations;

- **Top down**, i.e. to assess the cumulative economic impacts of health and safety regulations at a macro (economy-wide) level, to consider how the body of health and safety regulations overall impacts on broad measures such as business productivity, labour market outcomes (including employment), and costs of workplace accidents and work-related ill health, at an economy wide level.

Both of these approaches are considered in this study with relevant existing evidence and research being identified and assessed. However, in summary, the advantage of a ‘bottom-up’ approach is that it is easier to identify the impact of specific regulations or combinations of
regulations. However, a drawback is that it is more difficult to identify and assess wider impacts. Whilst this particular difficulty is overcome with a ‘top-down’ approach, this type of methodology cannot tackle attribution so effectively, i.e. establish the relationship between regulation and economic impacts.

From a different perspective, in assessing the impact of health and safety regulations there is a need to ensure that ex ante and ex post stages are linked. The Treasury’s Green Book outlines the Appraisal and Evaluation cycle (ROAMEF) which is expected to guide impact assessments and evaluations in the UK. The idea behind the ROAMEF cycle is to ensure that impact assessments, monitoring, and evaluations are conducted in an integrated manner to facilitate collection of the best possible feedback on individual regulatory interventions ex-ante and ex-post.

Figure 3.1 summarises the different stages of the ROAMEF cycle as envisaged in the Green Book.

![Figure 3.1: The ROAMEF Cycle](image)

Within this overall framework, Figure 3.2 illustrates how an assessment or evaluation of the economic impact of a health and safety regulation might be conceptualised. This framework is discussed in the following section of the report. The framework builds on the range of existing appraisal and evaluation “best practice” that is currently applied across UK Central Government and in many other countries across Europe and the world. Most notably, in the UK, this includes the HM Treasury’s “Green Book”\(^\text{24}\) and the BRE Impact Assessment Guidance\(^\text{25}\).

The framework also takes into account experience with regard to impact assessments and evaluations at an EU level. This includes guidelines on impact assessment and evaluation

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\(^{24}\) See [http://greenbook.treasury.gov.uk](http://greenbook.treasury.gov.uk)

produced by the European Commission, and previous research including studies undertaken by CSES.

**Figure 3.2: Framework for Assessing the Impact of a Health & Safety Intervention**

Economic impacts in this framework focuses on health and safety outcomes, but also identify impacts on service provision and impact on public trust as measures that may also be included within a public value approach. For each of these three dimensions, any costs incurred as a result of public intervention need to be set against the use and non-use value that is generated.

### 3.2 INTERVENTION RATIONALE

**SECTION SUMMARY**

- The primary rationale for government intervention in all policy areas is the existence of a market failure but stakeholders may want the government to take action to bring about or prevent a course of action even when the features of market failure do not apply;
- If stakeholders are not willing to pay for a regulation then it is doubtful that the regulation will create significant value. Willingness to pay is already being used in a number of policy areas in the UK, including health and safety and there is some evidence to suggest that employers and individuals are willing to pay for benefits in health and safety outcomes for others;
- While WTP estimates are often used to estimate how individuals value risk reduction to themselves they are less commonly applied to determine the value of risk reduction for others or for society as a whole.
The primary rationale for government intervention in all policy areas is the existence of a market failure. Based on the Treasury’s economic appraisal and evaluation guidance, market failures, in the context of health and safety, can be identified as including:

- **Information problems**, where individuals and/or businesses do not have good information about risk and its consequences. In the case of health and safety for instance, this may include risks associated with particular technologies or materials. In this situation, the value of government intervention lies in the provision of impartial information and advice that can inform decisions and behaviour and build public trust.

- **Externalities** where individuals and businesses create risks that affect people other than themselves, and that are not taken into account when decisions are taken. Examples include risks to wider society from the use of hazardous substances, such as pollution, disability or the cost of medical treatment. Such externalities reduce the incentive for individuals or businesses to incur potential costs associated with risk reduction because they do not benefit wholly from these measures.

- **Public goods** - the consumption of which is non-rival and non-excludable. Examples of public goods include increases in quality of life within society as a result of a fair, trustworthy and stable body of health and safety regulation. Individuals cannot be excluded from the benefits of a safer working and living environment arising from health and safety improvements carried out by businesses.

In addition, the Treasury’s appraisal guidelines indicate a number of intervention rationales that are not directly linked to market failures. These include situations where social and physical contexts inhibit effective risk management, the legacy of past decisions that do not address risks appropriately (e.g. asbestos), inequality in risk exposure or involuntary exposure.

The public value approach identified earlier in this report builds on the market failure justification by recognising that stakeholders may want the government to take action to bring about or prevent a course of action even when the features of market failure do not apply. In this approach, a rationale for intervention exists when stakeholders are willing to incur an opportunity cost (i.e. to give something up) in return for regulatory action even when the intervention is not itself premised on a market failure. It has been highlighted that this approach recognises an inherently subjective – or value based - rationale for intervention.

The opportunity cost that stakeholders are willing to incur corresponds to the benefit that they expect to derive from the regulation. In other words, the value to the public of a regulatory intervention is defined by the “price” that they are willing to pay for this regulatory

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27 The case studies in this report will further investigate this intervention rationale for three regulations that deal with the use of asbestos, substances that are hazardous to health and risks associated with work at height.

28 Non-rival means that the consumption of the good by one person does not prevent someone else using or consuming that good. Clean air is a good example. Non-excludable means that if a public good is made available to one consumer it is effectively made available to everyone, and can give rise to a problem called free-riding. This is when some consumers fail to pay for the provision of the public good because they expect others will do so. See Annex I of the Green Book, http://greenbook.treasury.gov.uk/annex01.htm

29 Kelly, Mulgan and Muers illustrate this point with the example of government intervention to prevent a market in body parts even though such a market might be “efficient” from an economic perspective. In UK health and safety, this argument is already implicit in the concept of ALARP (as long as reasonably practicable) which justifies regulatory intervention even in cases where the costs of intervention exceed its benefits. ALARP and gross disproportion are discussed in further detail in the main text.

intervention. Sometimes, these opportunity costs include financial payments (i.e. taxes/charges) which are relatively easy to quantify. Often, stakeholders might also (or only) be willing to make non-monetary sacrifices (e.g. granting inspection and enforcement powers to the state, banning particularly risky choices, etc.). These opportunity costs need to be taken into account in determining the potential value to the public of a particular regulation or regulatory proposal.

### 3.3 DEFINING THE COUNTERFACTUAL

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<td>• Two types of counterfactual are likely to be of particular relevance – ‘do nothing’ and alternative versions of the regulatory proposal under study;</td>
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<tr>
<td>• Development of a relevant counterfactual should facilitate integration of the ex-ante/ex-post stages of the evaluation and appraisal process and help identify interactions across regulations</td>
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Once the intervention rationale has been established, it is necessary to determine the baseline against which the regulation under study should be evaluated. This is important so that the assessment focuses on the incremental impact of the regulation without including effects that would have occurred irrespective of the regulation under study.

**Two types of counterfactual are likely to be of particular relevance – ‘do nothing’ and alternative versions of the regulatory proposal under study.** The “do nothing” scenario is particularly important because it establishes the baseline against which incremental impacts of proposed regulations should be assessed. In an ex-ante assessment, the “do nothing” option is a projection of the regulatory status quo into the future. In an ex-post assessment, the “do nothing” option requires removing the impact of the regulation(s) of interest from the analysis. This type of counterfactual is also helpful in determining the validity of a particular intervention rationale. If removal of regulations that respond to a particular rationale (e.g. a type of externality, or a non-market failure rationale such as “equity”) leads to an improvement in outcomes, this would constitute powerful evidence for re-examining the underlying intervention rationale.

**The second type of counterfactual is used to compare different regulatory options.** For instance, it may be of interest to examine the overall value of different regulatory proposals that respond to the same intervention rationale or the costs and benefits for different stakeholder groups under a variety of regulatory design scenarios. For example, in risk prevention, this type of counterfactual could provide valuable information on differences in the impact of HSE guidance and advice relating to work at height versus imposition of safety checks, training and inspection. This type of counterfactual assumes that the underlying intervention rationale is sound and it examines the incremental impact of various regulatory proposals for addressing this rationale. Similarly, in some circumstances it may be interesting to examine the effect of binding regulation in a particular area versus self-regulation, such as codes of conduct and voluntary schemes.

**As the ROAMEF cycle discussed earlier in the report indicates, the development of a relevant counterfactual needs to be seen in the wider context of an integrated impact assessment and evaluation process.** Figure 3.3 below shows potential links between counterfactuals developed at different stages of the evaluation/appraisal cycle and between counterfactuals developed at the same stage of the ROAMEF cycle but for different regulatory interventions.
In this figure, **vertical integration** refers to the link between counterfactuals developed for regulations at the *ex-ante* appraisal and the *ex-post* evaluation stages. Such vertical integration is of crucial importance to capturing any dynamic impacts of the regulation that may have occurred over time, such as learning effects among regulated businesses or other stakeholders and other behavioural impacts.

**Horizontal integration** refers to the links between counterfactuals developed at the same stage across different regulations. Integrating procedures for developing counterfactuals across regulations both at the *ex-post* and *ex-ante* stages, facilitates identification and analysis of regulatory interactions. If significant interactive and/or dynamic effects are present, it is necessary to take those interactions into account.

### 3.4 TYPOLOGY OF ECONOMIC IMPACTS

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<tr>
<td>• In addition, there is a need to take into account regulatory interactions and dynamic effects, preferably over time. There is little in-depth consideration of these factors in the existing literature;</td>
</tr>
<tr>
<td>• A systematic analysis of the business processes targeted by a regulatory intervention facilitates identification of dynamic impacts and regulatory interactions.</td>
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At any particular point in time, three different types of economic effects of health and safety regulations can be distinguished:

- **Private effects** accrue to businesses or individuals that have directly incurred costs of complying with regulations (for example, by changing work processes and practices) and are not shared with the rest of society. Examples include the direct business benefits arising from lower rates of sickness absence and employee turnover, and the business benefits of increased productivity from a reduction in the number of accidents and occurrence of ill-health.

- **Social effects** are shared between groups and individuals across society. Often, these effects accrue to society as a whole and they include a reduction in the cost of treating conditions due to work in a dangerous and unhealthy workplace. They also include some of the non-use values of health and safety interventions, such as stability and public confidence, accountability and trust in the regulatory system and a perception of fairness in employment relations.

- **Intended/unintended effects** - among private and social effects, a further distinction can be made between intended economic effects of health & safety legislation which emanate immediately from the objectives of the legislation, and the “unintended consequences” of health and safety regulation. Unintended consequences may include reallocations of resources between business processes within individual firms (private) or on consumer choice (social).

Figure 3.4 illustrates how these different types of economic effects relate to each other and provides some examples to illustrate the distinction. In practice, the distinction between private and social effects may not always be very clear. For example, business benefits of improved productivity are likely to be, to some extent, passed to employees (in the form of higher wages) and consumers (in the form of lower prices).

**Figure 3.4: Economic Impacts of Health and Safety Regulations**
Overall, the evidence reviewed in this study indicates that, conceptually, a wide range of potential measures of intermediate and final outcomes of business economic performance might be affected by health and safety regulations. These include innovation, productivity, and profitability. In terms of a positive relationship between health and safety regulations and business economic performances, these could play out through the following impacts, according to the World Health Organisation:

- Increase in health of employees, who in turn are more productive and can produce at a higher quality.
- Lower incidence of work-related illnesses leads to less sick leave. In turn this results in lower costs of sickness absence and less disruption of business production processes.
- Equipment and a working environment that is optimised to the needs of the working process lead to higher productivity, better quality and less health and safety risks.
- Reduction of injuries and illnesses means less damages and lower risks for liabilities.

However, as the report notes, “though there is a general conceptual relation between OHS on the one hand and economic performance on the other, the actual quantitative and qualitative relationship is sometimes difficult to discern.” Because the benefits are difficult to measure, it is possible that they are often underestimated.

At the same time, it is possible that health and safety regulations may also, at least in theory, have a negative impact on business economic performance. For example, business resources, including expenditure and employee time, that are allocated to complying with health and safety regulations may be diverted from other business activities and investment that would have a higher financial return to the business affected. In the context of regulation more generally, it has been argued that regulation “reduces the rewards of business ownership, disincentivises market entry, investment, innovation and business growth, all of which leads to a sub-optimal level of economic activity from which businesses, workers and consumers suffer,” particularly where effects are concerned. More generally, regulations could affect the allocation of scarce company resources -- financial but also management time – across different business processes, with significant implications for productivity and competitiveness.

Apart from business impacts, health and safety regulations may be expected to generate costs and benefits to a wide range of other groups in society, and this may account for a considerable proportion of their impact. This may be expected to be, in particular, via influencing the incidence of workplace injuries and work-related ill health, which generally is the primary objective of health and safety regulations. Workplace injuries and work-related ill health generate costs for businesses, but also for individuals (for example, via unemployment and loss of income), the exchequer (tax payers) and society as a whole (for example, medical resource costs, costs of benefits payments, and lost tax revenue). Some research, discussed in further detail later in this report, has indicated that the majority of the costs of workplace injuries and work-related ill health are placed on groups other than businesses. Health and safety regulations may influence these costs to the extent that they influence the incidence of workplace accidents and work-related ill health.

In summary, the economic impacts of health and safety regulations are varied and complex and it is necessary to reach beyond simplistic models of measuring the interrelationship. As noted by the study carried out by the Small Business Research Centre at

Kingston University, it is necessary “to develop methodological approaches that tell us how regulation generates changes in owner-manager behaviour and wider effects, good and bad”.

### 3.5 WILLINGNESS TO PAY AND OTHER VALUATION TECHNIQUES

**SECTION SUMMARY**

- If stakeholders are not willing to pay for a regulation (or if they are willing to pay only very little) then it is doubtful that the regulation will create significant value.
- Willingness to pay is already being used in a number of policy areas in the UK, including health and safety.
- Other valuation techniques are also used to estimate the potential health and safety benefits of a regulatory intervention.

If stakeholders are not willing to pay for a regulation (or if they are willing to pay only very little) then it is doubtful that the regulation will create significant value. For instance, in an assessment of different regulatory proposals, some proposals might impose costs greater than the maximum amount that stakeholders overall are willing to give up in return for the regulatory intervention. In this case, these options should not be chosen because they would not, on the whole, create value (government failure).

Willingness to pay is already being used in a number of policy areas in the UK, including health and safety. This is especially the case for quantifying how individuals value a reduction of risks to themselves. For instance, the Value of a Prevented Fatality (VPF) based on willingness to pay (WTP) describes the rate at which people are willing to trade off wealth against risk ‘at the margin’ (i.e. with very small variations in wealth and risk). In the UK, VPF estimates are produced by the Department for Transport (DfT) to estimate the value of avoided road deaths. The HSE uses DfT VPF figures to estimate “human costs” in its impact assessments. Human costs include the cost of “pain, grief and suffering to the casualty, relatives and friends, and, for fatal casualties, the intrinsic loss of enjoyment of life over and above the consumption of goods and services”.

The methodology for these estimates based on the concept of willingness to pay and their application to health and safety is described in a 1999 HSE publication on the “Costs to Britain of Workplace Accidents and Work-related Ill Health”.

An HSE-commissioned study on the true costs of occupational asthma shows how a methodology based on willingness to pay for assessing the costs and benefits of a health and safety regulation might be operationalised in the assessment or evaluation of health and safety regulations. The study uses a WTP estimate for human costs (grief, suffering, pain) incurred by victims of occupational asthma in conjunction with other cost estimates that are not based on WTP. Table 3.1 summarises the types of costs and stakeholders that the study considers.

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33 It should be made clear that VPF is not the value of life as such. Indeed, most people would probably bankrupt themselves to stay alive. Instead, VPF is a risk-weighted concept, based on the idea that a decrease in risk is valued before the negative incident occurs.

34 See http://www.hse.gov.uk/economics/eauappraisal.htm


Table 3.1: Costs and Stakeholders considered in the Study on the True Costs of Occupational Asthma

<table>
<thead>
<tr>
<th>Description of Cost</th>
<th>Stakeholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect Costs</td>
<td></td>
</tr>
<tr>
<td>Willingness to pay human costs</td>
<td>Victim</td>
</tr>
<tr>
<td>Value of foregone productive time</td>
<td>Victim</td>
</tr>
<tr>
<td>Value of foregone leisure time</td>
<td>Victim</td>
</tr>
<tr>
<td>Direct Costs</td>
<td></td>
</tr>
<tr>
<td>Medical resource utilisation</td>
<td>Victim</td>
</tr>
<tr>
<td>Non-medical resource utilisation</td>
<td>Victim</td>
</tr>
</tbody>
</table>


Other valuation techniques are also used to estimate the potential health and safety benefits of a regulatory intervention. Value of a Preventable Fatality figures from the Department for Transport are sometimes weighted to reflect aversion to different types of death. For instance, in the past the HSE has doubled the VPF to take account of individual aversion to dying from cancer in the context of, for example, estimating the benefits of reducing exposure to asbestos, although it is not clear what evidence supports this approach. Estimates of “lost output” and “resource costs” are based on actual market prices, and are not based on willingness-to-pay. QALYs (Quality of Life Adjusted Years) and DALYs (Disability Adjusted Life Years) are not based on willingness to pay though they can also be applied to estimate regulatory benefits from the perspective of the preferences of individuals affected by a regulation. QALYs are the principle measure used by the Department of Health for evaluation of the health benefits of interventions. QALYs take into account life expectancy and also effects on quality of life, and allow the impact on both number of life years and quality of life to be expressed in a single measure.

A disadvantage of QALYs/DALYs is that they cannot be aggregated with other gains because they are not usually monetised in terms of willingness to pay and, therefore, cannot be used to compare the relative merits of regulatory interventions in areas where health benefits might account for a different share of the regulation’s overall value. There are also difficulties with estimating the preference weights that are required for calculation of QALYs.

Nevertheless, QALYs have been used as an alternative to the VPF in HSE impact assessments and they are a commonly used estimate of health benefits across Europe. A project is currently being undertaken by the Department of Health to examine the feasibility of estimating the monetary value that individuals attach to a QALY, for use in assessment of Department of Health interventions. A related project, led by HM Treasury, is currently investigating the possibility of developing a consistent methodology for valuing benefits to health and life, for application across government departments and agencies.

Table 3.2 below indicates the 2005 economic appraisal values used by the HSE in its impact assessments, including WTP based Human Costs and estimates for lost output and resource costs that are not based on willingness to pay.
Table 3.2: 2006 Economic Appraisal Values (£)

<table>
<thead>
<tr>
<th></th>
<th>Human Cost</th>
<th>Lost Output</th>
<th>Resource Costs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatality</td>
<td>£991,200</td>
<td>£520,700</td>
<td>£900</td>
<td>£1,500,000</td>
</tr>
<tr>
<td>Major injury</td>
<td>£18,400</td>
<td>£16,200</td>
<td>£5,800</td>
<td>£40,500</td>
</tr>
<tr>
<td>Other reportable injury</td>
<td>£2,700</td>
<td>£2,600</td>
<td>£500</td>
<td>£5,800</td>
</tr>
<tr>
<td>Minor injury</td>
<td>£200</td>
<td>£100</td>
<td>£50</td>
<td>£350</td>
</tr>
<tr>
<td>Av. case of ill health</td>
<td>£5,800</td>
<td>£2,300</td>
<td>£800</td>
<td>£8,900</td>
</tr>
</tbody>
</table>

Source: HSE website

While WTP estimates are often used to estimate how individuals value risk reduction to themselves they are less commonly applied to determine the value of risk reduction for others or for society as a whole. Quantitative estimates of such altruistic willingness to pay are particularly difficult to construct because respondents may not reveal their true preferences.

There is some evidence to suggest that employers and individuals are willing to pay for benefits in health and safety outcomes for others. For example, it has been reported that the vast majority of employers feel they have “a duty to protect their employees”37. Similarly, HSE research has found that moral duty (in combination with commercial considerations) drives health and safety policy within companies.38 An Ipsos/Mori poll of business owners confirms that general regulations – such as health and safety – are considered part and parcel of business life.39 Similarly, an Ipsos/Mori study of perceptions among the general public found that work-related safety, preventing slips and trips and falls were considered “key” among a list of regulatory priorities.40

In terms of service provision, the same Ipsos/Mori study found that regulatory enforcement priorities should include health in the workplace, work-related safety and accidents from transport and machinery. An HSE commissioned study also found almost universal public agreement about the need for regulation of large-scale enterprises and big businesses.41

In terms of public trust, research has established that the HSE is perceived by the public as performing a “fundamentally altruistic role” in an area where the state needs to assume responsibility.42 In the same study, “independence from political influence” was considered very important for ensuring the effectiveness of health and safety regulation and respondents viewed acting in the public interest, accountability and effectiveness as the three most desired qualities of a risk regulator.

39 Ipsos/Mori, Businesses perceptions of regulation, 2007.
40 Ipsos/Mori, Citizen perceptions of regulation, 2007.
41 University of East Anglia, University of Wales Cardiff, Perceptions of and trust in the Health and Safety Executive as a risk regulator, Research Report 100, 2003.
42 University of East Anglia, University of Wales Cardiff, Perceptions of and trust in the Health and Safety Executive as a risk regulator, Research Report 100, 2003.
3.6 CUMULATIVE EFFECTS AND REGULATORY INTERACTIONS

SECTION SUMMARY

- The cumulative economic impact of regulatory interactions depends on the nature of the interaction.
- The costs and benefits and the economic implications of interactive effects may change over time.
- Impacts could also change as a result of new business activities or as a result of changes in the industry mix.

The cumulative economic impact of regulatory interactions depends on the nature of the interaction (e.g. additional, rival or overlapping requirements). For instance, both COSHH and Asbestos regulations contain a risk assessment component where there may be a potential overlap in requirements for some businesses in some sectors. By comparing the different objectives of health and safety interventions, the business processes that they target and the stakeholders that they affect, a systematic approach can be taken to identifying interactions and determining the incremental impact of individual regulations. There is little in-depth discussion of regulatory interactions in the existing literature. Anecdotal evidence collected as part of the literature search and through interviews conducted for this study is reviewed in Sections 4 and 5.

The costs and benefits and the economic implications of interactive effects may change over time. For instance, the benefits of health and safety regulations relating to toxic chemical substances change with the extent to which these substances are used among regulated companies. In the context of asbestos regulations, the HSE recognised this effect in a 2004 workshop on occupational cancer which found that “with regard to future estimates of burden it needs to be recognised that asbestos is being continuously removed and levels of exposure in future will continue to reduce”. 43

Impacts could also change as a result of new business activities (e.g. product innovation) or as a result of changes in the industry mix (e.g. relative decline of UK manufacturing, rise of the services sector, etc.). “Learning by doing” (e.g. process innovation) on behalf of regulated businesses, workers or the regulator may also alter the cost-benefit relationship of a particular regulation. Similarly, wider changes within society may affect some of the non-excludable costs and benefits mentioned above, such as unemployment benefits or the cost of treatment services. Finally, regulatory change (anticipated or not) can create significant uncertainty for affected stakeholders, which may influence the impact of the regulation. This process is described in greater detail in a recent paper published by BERR. 44

Research published by the HSE and other stakeholders indicates that regulatory impacts may change over time. According to a report published by the DTI, for example:

“Over time both consumers and businesses adapt […] leading to changes in the type and size of costs and benefits. Adaptation to new regulations may initially be costly

43 HSE, Burden of Occupational Cancer in Great Britain Summary Report of Workshop held on the 22nd and 23rd November 2004 in Manchester, HSL/2005/54
for firms and individuals but over long periods the same regulations may become ingrained in social and market norms, reducing their ongoing costs”.  

Similarly, the HSE-commissioned Trends and Context study shows that even in the absence of any regulatory change, health and safety outcomes would be expected to be influenced by wider changes in the economy, including the structure of employment and economic activity:

“The rate of reportable non-fatal injuries would be expected to decline by approximately 6 per cent between 2004 and 2012 […] the rate of reported injuries would be expected to decline by 7-8% over the same period. The largest declines in workplace injuries are estimated to occur in those sectors that are projected to exhibit a relative large movement away from employment within manual occupations such as F: Construction and I: Transport, Storage and Communication […]These [effects] could be either offset or reinforced depending upon the relative position of the economy within the business cycle.”

Because it is difficult to capture benefits that change over time, a report prepared for the DTI suggested that impact assessments should “return to the initial intervention rationale to identify the extent to which the regulation in question contributes to the identified benefit.”

A systematic analysis of the business processes targeted by a regulatory intervention should facilitate identification of dynamic impacts and regulatory interactions. For instance, the impact of regulations that target outward-focussed business processes may be more likely to change as a result of product innovation or changes in consumer/market characteristics. In contrast, regulation of inward focussed processes is more likely to be affected by process innovation or “learning by doing” within the firm. An ex-post evaluation can help identify learning effects that have occurred in the past and that can inform estimates of dynamic effects for future policy targeting similar processes and/or responds to a similar intervention objective.

3.7 COMPLIANCE WITH HEALTH AND SAFETY REGULATIONS

SECTION SUMMARY

• Because failure to comply is difficult to foresee ex ante and to measure ex-post, many cost-benefit analyses of health and safety regulations have assumed full compliance (or complete non-compliance);

• However, there are a number of reasons why regulatory compliance might not be absolute and this could affect the extent of the benefits and costs associated with regulation with potentially significant distributional consequences.

• Regulatory approaches that are regarded as cost effective, efficient, and that set feasible goals, are more likely to enhance compliance behaviour

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The extent of compliance with the body of health and safety law is an important factor in determining the costs and benefits – and wider impacts - of regulations. Because failure to comply is difficult to foresee ex ante and to measure ex-post, many cost-benefit analyses of health and safety regulations have assumed full compliance (or complete non-compliance).

However, there are a number of reasons why regulatory compliance might not be absolute. This includes low awareness of regulatory requirements by affected stakeholders (e.g. businesses), varying compliance capacity among different types of stakeholders (e.g. small versus larger businesses) and willingness to comply. The likelihood of less than full compliance has, in particular, been recognised in the approach to more recent Impact Assessments for proposed health and safety regulations.

A review of evidence regarding the determinants of compliance with regulations, focusing on health and safety regulations, has recently been published by the HSE. This identifies that there is a complex and varied set of factors that influence compliance with regulations, and that there is no agreement in the published literature as to the key determinants. However, it identifies that regulatory approaches that are regarded as cost effective, efficient, and that set feasible goals, are more likely to enhance compliance behaviour.

Clearly, if compliance is only partial, this may distort the benefits and costs associated with regulation with potentially significant distributional consequences. For instance, if compliance is costly and regulatory benefits are social rather than private, there may be an incentive for some stakeholders to free-ride on the compliance activities of others. Intervention rationale, regulatory objectives and the design of regulations (explored in detail in Section 4) may have an impact on compliance rates.

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48 This research can be obtained from http://www.hse.gov.uk/research/rrhtm/rr638.htm
SECTION 4
ECONOMIC IMPACT ON BUSINESSES

CHAPTER SUMMARY

• The impacts of health and safety regulations can be categorised according to the (inward/outward) business processes affected by the regulatory intervention and the level of (strategic/operational) decision-making involved in compliance.

• In much research, the impact of health and safety failures on productivity is addressed primarily from the perspective of costs. The common distinction between direct and indirect costs of health and safety failures can seem as somewhat arbitrary and it is driven by methodological rather than theoretical concerns.

• The organisation of the production process can substantially influence the business impacts of health and safety regulations. By requiring firms to restructure their production processes, health and safety regulations may generate productivity gains that would not have otherwise been identified and realised. These impacts are likely to differ across sectors/types of firms.

• The cost of health and safety regulations is closely linked to the macro and micro level conditions under which the regulated firm operates. Changes in the economy over time may affect how and to what extent health and safety regulation impacts on businesses.

• Regulatory impacts depend to a large extent on the level of response required from the affected business. One of the key reasons for non-compliance is the competing demand for management time from other aspects of the business.

• Company age, life cycles and growth experience and expectations also affect how businesses address health and safety and the effect of regulations on them.

• Several studies find that SMEs are affected disproportionately by health and safety regulation. SMEs with good health and safety systems tend not to be rewarded through lower insurance premiums. SMEs are also more likely to require external resources to afford health and safety related investments

• Investors generally support the idea that health and safety performance is an indicator of good management and there is evidence that this is borne out by better economic performance.
4.1 Introduction

**SECTION SUMMARY**

- In principle, most impacts of health and safety regulations on business can be considered “economic” in the sense that they affect the economic performance of businesses, individuals or other societal stakeholders;
- The common distinction between direct and indirect costs of health and safety failures can be somewhat arbitrary and driven by methodological rather than theoretical concerns;
- Oft-cited cost concerns relate to general sickness absence, employers’ liability claims and insurance premiums. Accident costs per se appear to be a less prominent motivator for health and safety within businesses.

In principle, most impacts of health and safety regulations on business can be considered “economic” in the sense that they affect the economic performance of businesses, individuals or other societal stakeholders. Some of these impacts can easily be quantified (e.g. the costs of investment in equipment as a direct result of regulatory requirements), others have to be valued using an appropriate methodology (e.g. reduced accident rates, improved health at work), while others are difficult to quantify (e.g. the economic benefits of improved employer/employee relationship). In addition, some more indirect impacts of health and safety regulations (e.g. on public trust) can be very difficult to identify quantitatively.

**There are various definitions of business economic performance adopted in the reviewed literature. These definitions mainly relate to productivity.** The concept of productivity describes the efficiency with which inputs in the production process are translated into outputs. Productivity is generally seen as an important measure of business performance with direct implications for profitability and competitiveness. The use of productivity to evaluate the impact of health and safety regulation on individual business is in line with some – though not all – existing research in the field. Box 4.1 has some examples of existing research about health and safety impacts on productivity.

**Box 4.1: Productivity Impacts of Health and Safety Regulation**
• In the UK, the HSE collected the experience of over 20 major enterprises in applying health and safety regulations to demonstrate the productivity benefits of OSH at enterprise level.\textsuperscript{49} Benefits included greater productivity, better plant maintenance, reduced compensation claims, reduced insurance costs, improved client and supplier relationships, improved image, and better staff morale and motivation.\textsuperscript{50}

• A number of productivity assessment tools have been developed to assess the economic benefits of OSH measures.\textsuperscript{51}

• In a recent survey of chief financial officers of United States corporations, the Liberty Mutual Insurance Company’s Research Institute for Safety found that increased productivity was the most frequently cited (40%) benefit of workplace safety.\textsuperscript{52}

• Across Europe, a CSES study of 250 SMEs found that 22% thought their business performance had improved as a result of environmental and health and safety regulation, 16.7% thought it had decreased and 43.7% had registered no regulatory impact.\textsuperscript{53} Environmental and health and safety regulation was perceived most positively in France and Italy, with 26% or more respondents indicating a positive overall impact on business performance. One in 5 German companies perceived such regulation as positive for business performance compared with only 13% and 14% in the UK and Belgium respectively.\textsuperscript{54}

• A Finnish study investigating the productivity factors of SMEs found that factors related to an effective health and safety policy (e.g. management, employee participation, work content, employee motivation) were the best explanatory factors for company productivity.\textsuperscript{55}

• Econometric research published by the HSE has investigated the relationship between health and safety activity undertaken by firms in a sector and sectoral economic performance in the UK. This identified that it is not possible, \textit{a-priori}, to establish whether greater health and safety regulation would reduce productivity, as firms struggle to meet regulatory requirements, or whether it would lead to the adoption of better technologies and production processes that enhance productivity. The results of the econometric analysis indicated that any impact on sectoral productivity is not very strong, but it was acknowledged that this may be because the impact of health and safety activity is felt through secondary sources such as increased capital investment or better labour. The study concluded that increased health and safety activity is not found to be detrimental to sectoral productivity.\textsuperscript{56}

Several studies refer to the costs and benefits of health and safety failures, rather than attempting to evaluate the costs and benefits of health and safety regulation. These clearly need to be interpreted differently, but evidence of the costs of health and safety failures provide

\textsuperscript{49} See http://www.hse.gov.uk/business/casestudy.htm

\textsuperscript{50} At the same time, the research highlights the difficulty in accurately capturing costs and benefits of health and safety policies: a number of different methods were applied depending on actual companies that the companies had implemented, there were significant difficulties in quantifying some of the effects and it may be difficult to draw generally applicable conclusions from the responses of a limited number of companies all of whom volunteered to participate in the project.

\textsuperscript{51} Oxenburgh et al., Increasing Productivity and Profit through Health and Safety, CRC Press, 2004; European Agency for Safety and Health at Work, Economic Appraisal of Preventing Work accidents at Company Level, 2002.

\textsuperscript{52} Liberty Mutual Research Institute for Safety, From Research to Reality, 2005.

\textsuperscript{53} CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.

\textsuperscript{54} CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.


an (upper limit) indication of the scale of potential benefits that could be obtained via more effective management of health and safety risks and reduction in the incidence of workplace accidents and work-related ill health, which may be promoted by the health and safety regulatory system.

**In much research (some of which is cited in this Section), the impact of health and safety failures on productivity is addressed primarily from the perspective of costs.** For example, H.W. Heinrich’s “iceberg theory” suggested already in the 1920s that the cost of accidents and injuries (and therefore also the economic impact of health and safety failures) can be divided into direct and indirect costs. According to Heinrich, direct costs include payroll for periods of absence, medical care and medication costs and other costs that are immediate consequences of the accident itself. Indirect costs include the loss of working hours of employees other than the injured, losses of property and output, company image, legal expenses and fines, etc.  

An HSE-commissioned study into perceptions of the cost implications of health and safety failures found that concern tended to relate to general sickness absence, employers’ liability claims and premiums. In contrast, accident costs per se were not perceived as a primary motivator for health and safety. A German study showed that health promotion programmes – with an emphasis on prevention – reduced absenteeism very significantly as well as reducing medical costs.

Table 4.1 summarises some of the main direct and indirect costs to business that existing research has identified.

**Table 4.1: Direct and Indirect Costs of Health and Safety Failures**

<table>
<thead>
<tr>
<th>Direct Costs</th>
<th>Indirect Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Productivity decline/lost production</td>
<td>• Recruitment</td>
</tr>
<tr>
<td>• Retraining</td>
<td>• Poor long-term worker retention/employability</td>
</tr>
<tr>
<td>• Medical and insurance costs</td>
<td>• Higher absenteeism</td>
</tr>
<tr>
<td>• Employee compensation</td>
<td>• Damage to company reputation</td>
</tr>
<tr>
<td>• Fines or legal costs</td>
<td>• Damage to the environment</td>
</tr>
<tr>
<td>• Damaged equipment</td>
<td></td>
</tr>
</tbody>
</table>

*Source: adapted from ILO, Occupational safety and health: Synergies between security and productivity, 2006*

While the distinction between direct and indirect costs of health and safety failures is very common in the literature, it can seem somewhat arbitrary and it is driven by methodological rather than theoretical concerns. For instance, it is not immediately clear why absenteeism should be classified as an indirect impact of health and safety failures whereas lost wages are classified as a direct impact. Several of the costs cited in Table 4.1 could be (and have been) considered direct or indirect by different authors. Rather than separating two conceptually different entities, the distinction between direct and indirect costs seems to be driven by methodological concerns to do with ease of measurement or the time-delay with which an impact is expected to occur. As a consequence, this distinction does not help explain why health and safety failures impose the costs they impose or who has to pay for them.

**4.2 BUSINESS PROCESS APPROACH TO REGULATORY IMPACTS**

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SECTION SUMMARY

- The impacts of health and safety regulations can be categorised based on the (inward/outward) business processes affected by the regulatory intervention and the level of (strategic/operational) decision-making involved in compliance;
- The economic impact of regulation depends on the characteristics of the regulated business and the way in which they interact with the regulation under study.

Instead of the direct/indirect dichotomy, an approach that is taken in some of the assessment and evaluation evidence reviewed in this study, including some HSE impact assessments, is to categorise the impacts of health and safety regulations based on the actual business processes and work activities that are affected by the regulatory intervention. With a lesser focus on input “costs” as such, a business process approach can help determine the effect of health and safety regulation on the revenue side of the business. Productivity is a measure of how efficiently inputs are transformed into output (revenue). Analysing the business processes that are affected by a regulation helps to identify those areas within a business where regulation “bites.”

The basic premise supporting a business process analysis of regulatory impacts is that the economic impact of regulation depends on the characteristics of the regulated business and the way in which they interact with the regulation under study. Within this approach, assessment and evaluation of the economic impacts of health and safety regulations involve examination of the different types of business practices/processes within firms that are affected by the intervention and identifying the resulting changes to these practices/processes. For instance, identifying affected business processes provides a good starting point for assessing which markets are affected by the regulations and whether businesses need to adjust the affected business process, obtain or replace capital equipment, retrain workers, make changes to their supply chain (in the case of larger businesses) or market their goods and services differently.

The idea that regulatory impacts depend on business structure is not new. In the US, a 1992 study for instance found that exposure to liability stemming from employees’ on-the-job exposure to hazardous materials made firms more likely to adopt a non-vertically integrated production system. More recently, Porter suggested that companies must consider the impact of government action on industry structure, its implications for their relative strategic position and adjust their activities to effectively address these challenges.

However, apart from the two BERR papers mentioned above and which focus on productivity, the literature review conducted for this study did not identify any comprehensive studies that assess or evaluate impacts based on a business process analysis. The advantage of such an approach is that it conceptualises regulatory impact from the perspective of a business’ day to day and strategic operations.

Two dimensions can be identified along which business practices/processes affected by health and safety regulation might be classified:

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61 See also CSES, The Impact of Regulation by Business Process, DBERR 2008.
• **Inward-oriented** business practices/processes refer to activities that are closely related to the production process within firms and they may include actual production, supply chains, logistics and transport and premises or location;

• **Outward-oriented** practices/processes refer to the revenue-generating side of the business, including marketing and sales, product development, etc.

Often health and safety impact studies focus on inward-oriented processes such as production. However the importance of both inward and outward oriented processes is recognised in current UK impact assessment practice: analysis of the impact of new proposals on business processes/activities forms part of the competition assessment and small firms test included in impact assessments (see Box 4.2).

A number of other impacts on outward processes have been highlighted in an EU-OSHA report. This suggests that the impact of health and safety should be characterised in terms of: the company’s attractiveness (and that of products) to customers/potential employees; internal organisation (i.e. efficiency / flexibility of production); and ability to innovate products, services and production processes.\(^{65}\)

**Box 4.2: Potential Competition Effects of Health and Safety Regulation**

<table>
<thead>
<tr>
<th>The Office for Fair Trading mandates that impact assessments consider whether a regulatory proposal:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(1) Limits the number or range of suppliers directly or indirectly?</strong> For instance, gas safety checks have to be carried out by CORGI certified personnel. This may raise the cost for new entrants into the market (e.g. costs of training, membership fees) and it may preclude some non-certified existing suppliers from carrying out safety checks.</td>
</tr>
<tr>
<td><strong>(2) Limit the ability of suppliers to compete or reduces their incentives to do so?</strong> For instance, bans on the use of certain hazardous materials (e.g. under REACH) might mean that some companies have to adjust the characteristics of their products either because they produce a banned substance or because they use such a substance as an input in their production process. Similarly, some health and safety regulations prescribe certain practises as part of the production process with potential impacts on process innovation.</td>
</tr>
</tbody>
</table>

*Source: OFT, Completing competition assessments in Impact Assessments (2007).*

Finally, the interviews undertaken for this study indicated that businesses associations are well aware of the impacts of health and safety regulations on outward as well as inward oriented activities. Box 4.3 presents a range of examples of industry perceptions of the impacts of Work at Height, Asbestos and COSHH regulations on both types of business processes, obtained from the interviews undertaken for this study.

**Box 4.3: Industry perception of the impact of COSHH, Asbestos and Work at Height Regulations on inward and outward business processes**

1. The way business processes (e.g. on work at height) are adapted on a factory floor is different from a building site. More sector-specific implementation guidance/codes of

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\(^{65}\) Mossink, Jos, *Inventory of Socio-economic costs of work accidents*, European Agency for Safety and Health at Work, 2002.
practice adapted to the specific work activities and business processes in each sector should be provided by the HSE.

- Some larger companies are quite clever at using compliance with health and safety regulation to their advantage in marketing terms (in the same way as being seen to be ‘environmentally friendly’ can produce a competitive edge).

- There are marketing opportunities in Health and Safety (e.g. work at height legislation) which may lead to application of existing technologies or reconfiguring existing products (e.g. process/product innovation).

- New chemical regulations are biting on sales and marketing of chemicals.

- Control of Substances Hazardous to Health (COSHH) regulates the use of and contact with a number of dangerous substances. For many Chemicals firms, compliance with these regulations will require alterations to internal work practices/processes such as ensuring employee safety during production. For some firms however, COSHH regulations also have an impact on the characteristics of the product that they manufacture and its marketing to either the final consumer or downstream Chemicals firms.

- Highly visible disasters obviously have an impact on reputation but generally problems do not get into public domain .. it is more a matter of employment relationships .. small firms can rapidly transform themselves into another business if there is a problem. Reputation is irrelevant

- COSHH regulations affect a large number of inward and outward oriented processes including: investment (i.e. need to make sure workers are protected); recruitment (i.e. hire people who are able to read/understand literature and willing to participate in training); Supply chain (i.e. concentration/consolidation of companies in the field pushes companies to either specialise or to pull out of the sector); Production processes (i.e. more automation to move individuals working away from risk); marketing ‘service with safety’ can be used as a marketing tool; some clients (e.g. pharmaceutical companies) tend to take a lot of care over COSHH, while others (e.g. sewage companies) tend to be less careful; some clients can be persuaded

- The COSHH focus and environmental issues have led to a move away from hazardous materials in products. However, many of these moves are voluntary (i.e. not required by OHS regulation)

- On the sales side, customers often need a lot of help with OHS. A caring company with a focus on product stewardship can improve its standing with customers as a result of OHS.

The second dimension classifies business practices/processes in terms of the decision-making level within the firm, i.e. what could broadly be described as the ‘administrative’ dimension of implementing health and safety regulations at company level. This can be characterised in the following way.

- At the strategic level, senior management makes decisions about investments, innovation and product development. Key decisions with regard to health and safety will usually be taken at this level.
At the operational level, other staff members ensure the day to day operations of the business, including production and support functions. At this level, it is more a question of implementing health and safety policies.

For instance, risk assessments as part of COSHH or the control of asbestos regulations can be expected to require senior management time to determine risks and make investments to ensure that adequate precautions are taken. In comparison, safety checks and equipment maintenance as part of the Work at Height regulations can be expected to be carried out primarily by employees as part of their day to day routine.

**Box 4.4: Industry perception of the impact of COSHH, Asbestos and Work at Height Regulations at the strategic and operational levels**

- The impact of Work at Height is mainly at the operational level though there are some resource implications where senior management needs to be aware.
- Work at Height and asbestos regulations impact primarily at the operational level.
- Health and safety is not deeply embedded, still unknown in some parts of management and often not considered to be part of company strategy except in specialised areas.
- Poor health and safety performance almost always means problems elsewhere in management. Good Health and Safety is part of an efficient company.

As these examples show, a business process analysis can help identify a wide range of health and safety impacts in both inward and outward oriented business activities and at the strategic and operational levels. Table 4.2 summarises the distinction between different types of business practices/processes that can be affected by health and safety regulation.

**Table 4.2: Types of Business Processes Affected by Health and Safety Regulations**

<table>
<thead>
<tr>
<th>Inward</th>
<th>Outward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Process</td>
<td>Marketing</td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>Sales</td>
</tr>
<tr>
<td>Logistics/Transport</td>
<td>Product Development</td>
</tr>
<tr>
<td>Premises/Location</td>
<td></td>
</tr>
<tr>
<td><strong>Operational</strong></td>
<td><strong>Strategic</strong></td>
</tr>
<tr>
<td>Support Functions</td>
<td>Senior Management</td>
</tr>
<tr>
<td>Production Layout</td>
<td>Investment &amp; Innovation</td>
</tr>
</tbody>
</table>

Figure 4.1 illustrates how the impact of health and safety regulations on businesses can be conceptualised. Having identified the business processes where the regulations under study ‘bite’, the assessment or evaluation sets out the business stakeholders that are affected and proceeds to quantify the costs and benefits that the regulations impose for each stakeholder. The
remainder of this section describes the current state of research on the business impacts of health and safety regulation.

**Figure 4.1: Conceptualising the Business Impact of OHS Regulation**

![Image of diagram](image)

### 4.3 IMPACTS ON INWARD AND OUTWARD ORIENTED PROCESSES

**SECTION SUMMARY**

- The organisation of the production process can substantially affect the business impacts of health and safety regulations;
- By requiring firms to restructure their production processes, health and safety regulations may generate productivity gains that would not have otherwise been identified and realised. These impacts are likely to differ across sectors and types of firms;
- Changes in the economy over time may affect how and to what extent health and safety regulation impacts on businesses;
- Research has shown that the cost of health and safety regulations is intimately linked to the macro and micro level conditions under which the regulated firm operates.

The literature on health and safety suggests that the organisation of the production process can substantially affect the business impacts of health and safety regulations.66 It

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has been suggested, therefore, that enterprises *create* the costs of worker absenteeism and the benefits of an effective health and safety system through their organisation (choice of production layout, etc) and their business process strategy. Table 4.3 illustrates this with an example of two hypothetical firms.

**Table 4.3: Impact of an Inward Process on the Incremental Cost of Health and Safety Regulations**

<table>
<thead>
<tr>
<th>Firm</th>
<th>Production Strategy</th>
<th>OHS Priority</th>
<th>Incremental Cost of OHS Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm A</td>
<td>Individual Layout</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Firm B</td>
<td>Team Production</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

In this example, firm A has adopted a production process where each worker is responsible for producing each individual unit (e.g. a piece of jewellery). In this case, the cost of health and safety related illness/absenteeism for the company is the wages of the affected worker (plus any idle equipment). In contrast, Firm B has adopted a production layout where each worker produces a small part of the final product (e.g. a consultancy report). Here, the cost of absenteeism/illness is the sum of the affected worker’s wages, any idle equipment plus the impact of the absent worker on team productivity.

These differences in the organisation of production means that firm B has a greater incentive to invest in the health and safety of its workers even in the absence of health and safety regulations. Conversely, the incremental cost of health and safety regulations imposed by health and safety regulations is lower than for a firm of type A, which would choose a lower level of protection in the absence of regulation. The way in which inward-oriented business processes are structured (e.g. the production layout or division of labour within the company) can have a significant effect on the economic impacts to businesses of health and safety regulation.

**Table 4.4 repeats this example for an outward oriented business process, such as a firm’s competition strategy.** Firm A operates a “low-cost strategy” which involves producing a good of average quality at the lowest possible price so as to capture the largest possible market share in the short term. In contrast, firm B competes on quality, which allows it to charge a price premium and remain viable even with a more modest market share.

**Table 4.4: Impact of an Outward Process on the Incremental Cost of OHS Regulation**

<table>
<thead>
<tr>
<th>Firm</th>
<th>Competition Strategy</th>
<th>OHS Priority</th>
<th>Incremental Cost of OHS Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm A</td>
<td>Focus on Price</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Firm B</td>
<td>Focus on Quality</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

Again, these differences in market strategies will filter through to the personnel policy of both firms, including their health and safety systems. In the absence of health and safety regulations, firm A whose main concern is cost control, has little short term incentive to adopt strict health and safety policies. In contrast, firm B will be more likely to invest in worker training, pay a wage premium to attract and retain a high quality team and adopt higher health

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and safety standards even in the absence of regulations. As a result, when health and safety regulations are introduced, the incremental cost of compliance is likely to be higher for firm A (which would otherwise have adopted a lower standard) than for firm B. Thus, outward-oriented business processes (such as market strategy) can also have a significant effect on the economic impact of health and safety regulations.\footnote{Example adapted from Dorman, The Economics of Safety, Health, and Well-Being at Work: An Overview, 2000.}

These are highly stylised examples and, in practice, most companies will adopt inward and outward strategies that lie somewhere in between firms A and B above. However, there may be particular characteristics of business, market or product that favour one or the other type of strategy. Many SMEs for instance may in practice be forced to compete on price against larger firms that provide a similar product, and may therefore adopt a marketing strategy that is closer to Firm A.\footnote{Of course this is not always the case: some SMEs target niche markets with a focus on quality rather than price (e.g. design engineering companies).} Similarly, SMEs generally may have greater resource constraints than larger companies.

A wider question arises of whether (beyond the immediate compliance costs) by requiring firms such as firm A to restructure their production processes, health and safety regulations generate productivity gains to this type of business that would not have otherwise been identified and realised. For instance, it has been hypothesised that business can benefit from government intervention (e.g. in the field of environmental regulation) because well-designed regulation might stimulate innovation, increase productivity or product value and therefore create private benefits. Specifically, this may occur because (i) regulation may have a signalling effect revealing inefficiencies of the resource management and technological improvements; (ii) the provision or demand for information by legislation can raise corporate awareness; (iii) regulation may reduce the uncertainty of investing in certain innovations and (iv), regulation may help tackle internal barriers within companies.\footnote{Porter ME and C van der Linde, Toward a New Conception of the Environment–Competitiveness Relationship, Journal of Economic Perspectives, (1995): pp. 97–118.} As a result, regulation can, under certain circumstances be conducive to innovation and create a first move advantage for companies that are subject to regulation. Subsequent research (most of which focuses on environmental regulation though its conclusions can apply to health and safety as well) has shown that the Porter Hypothesis is likely to be valid only under a relatively restrictive set of conditions.\footnote{For a review see e.g. Wagner M, The Porter Hypothesis Revisited: a Literature Review of Theoretical Models and Empirical Tests (2003) available at http://129.3.20.41/eps/prepapers/04070407014.pdf.}

Also, in some sectors, team production may make more sense than in others leading to different health and safety priorities across sectors and differences in the incremental impact of binding health and safety legislation. For instance, in construction, team work is very common and the absence of one employee is likely to affect team productivity substantially. In comparison, an industry that focuses on individual creativity (e.g. design) is likely to be less dependent on team work.

Changes in the economy over time may affect how and to what extent health and safety regulation impacts on businesses. Greater use of information and communication technologies (ICT) or increased automation has resulted in a substitution of capital for labour. For instance a greater focus on services over manufacturing in the UK, the increased importance of innovation and the creative industries to UK productivity or the rising significance of globalisation might affect how costly health and safety regulations are for UK businesses and how this changes over time. The impacts of health and safety regulation on SMEs and on specific sectors are discussed in further detail in Section 4.4 and 4.5 respectively.
This business process model highlights that the cost of health and safety regulations can be expected to be intimately linked to the macro and micro level conditions under which the regulated firm operates. At the micro-level, Box 4.5 has examples of other business processes, apart from production and market strategies that might be affected by health and safety regulations, such as supply chain management and transport/logistics. At the macro-level, changes in the economic environment for SMEs or structural changes across sectors can have a large impact on the cost of health and safety regulation, without a change in the particular regulation. For instance, if the development of Information and Communication Technologies (ICT) reduce the labour intensity of a particular sector, this might reduce the cost of health and safety compliance for companies that operate in this sector.

**Box 4.5: Perception of Business Processes affected by Health and Safety Regulations**

- Businesses were relatively amenable to changes in work practices at high height. At low levels of working height the changes to practices are often not justified and have entailed significant costs. For instance, unloading very big/heavy steel beams from a lorry now requires a scaffolding frame rather than use of a crane. This causes delays to the delivery van, increases costs, irritation, and it does not take away safety risks but shifts them to another type of risk.
- Certain H&S regulation may have significant supply chain effects where suppliers or subcontractors are affected (positively or negatively) by businesses having to comply with regulation (e.g. stricter technical standards for subcontractors; greater number of lifts sold as a result of height regulation, etc.)
- An FSB survey finds that micro businesses are forced to write down risk assessments despite an exemption because the larger companies they do business with need this to comply with regulations that affect them.72
- Similar concerns about overlaps were raised in relation to regulation where companies operate in several sectors and issues of mutual recognition of training courses across EU Member States.73

A number of recent studies in the UK and elsewhere have gathered evidence on the impact of the business process dimension on the differences in the business costs of regulation, including health and safety. In most cases, the reference to business processes is implicit without being taken further. For instance, in Sweden and in Finland the TYTA model estimates total cost of health and safety regulations on “inputs into the working environment [and] outputs of that working environment”.74 The model distinguishes the costs of absenteeism, accidents, investments, training and turnover costs. The distinction between inputs and outputs is closely related (if not identical) to the model inward processes and outward business processes that inform our conceptual framework.

A consultation document issued by BERR identifies health and safety requirements set by customers and suppliers (i.e. outward/inward oriented processes) as important influences on the management of health and safety in small businesses – though it highlights a lack of evidence to confirm this.75 Similarly, an ENTEC study on the cost of compliance with health and safety regulation in SMEs found that 25% of construction companies had implemented

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74 TYTA is the Finnish abbreviation for working environment and economics.
formal health and safety systems as a result of supplier/client pressure.\textsuperscript{77} Again, this is empirical evidence that the costs of health and safety regulations may depend on the outward business strategy of the affected company. The Federation of Small Business (FSB) comes to a similar conclusion that health and safety affects the inwards and outward oriented business processes of its members: “some businesses are aware that good H&S can reduce operating costs and help demonstrate professionalism in order to help win new contracts.” \textsuperscript{78} As one respondent to their survey states: “for businesses to compete internationally, we need to hold ourselves to a high standard in all operational respects”. \textsuperscript{79}

An HSE commissioned study found that a strategic commitment to health and safety is strongly aligned with businesses wishing to deliver high levels of job enrichment to their employees, engagement with suppliers and innovative new products and services.\textsuperscript{80} In the field of employment regulation in the UK it has been shown that some legislation, such as the National Minimum Wage, stimulates employers to implement product and process innovations to increase labour efficiency because it limits their capacity to compete on the basis of low-paid labour.\textsuperscript{81} At the same time, there is evidence that regulatory compliance may deter the development of products and markets (outward oriented processes), lower recruitment and incur a financial cost in terms of advice (inward-oriented processes).

Existing research also suggests that health and safety regulations have wider, external benefits for business. Smallman et al in their survey of UK company directors found that 79% of CEOs think health and safety has a tangible impact on the reputation of their company and 58% perceive an impact on brand protection, 58% on product and service quality, 64% on sales and profit and 64% on customer satisfaction.\textsuperscript{82} All of these responses indicate that health and safety regulations have a substantial impact on the company’s outward-oriented business processes. At the same time, 88% of CEOs who responded to the survey thought that health and safety had a significant impact on staff morale, 78% saw it as a major determinant of insurance premiums (inward processes).\textsuperscript{83} As a result, more than two thirds of British CEOs (68%) found that occupational health and safety affects the overall productivity and efficiency of their operations.\textsuperscript{84} This perception is confirmed by a recent London Economics analysis of health and safety regulations in several sub-sectors of the UK chemicals industry, which lists a range of processes that are affected (positively or negatively) by health and safety regulations.\textsuperscript{85} Table 4.5 lists some of the costs and benefits identified in that study.

\textbf{Table 4.5: Costs and Benefits of health and safety regulations in the Chemicals Sector}

<table>
<thead>
<tr>
<th>Costs</th>
<th>Benefits</th>
</tr>
</thead>
</table>

\textsuperscript{77} ENTEC, Costs of compliance with health and safety regulations in SME’s, Research Report 174, 2003.


\textsuperscript{81} Kingston University, Regulation and Small Firm Performance and Growth: A Review of the Literature, 2005.


Staff time (e.g. reading / understanding regulations, guidance notes, dealing with inspectors, risk assessments) | Forcing firms to analyse their processes systematically which they would not otherwise have done and which led to efficiency gains that were unintended by the regulation

Changes to labels after reclassifications of chemicals | Benefits of visits from regulators, such as directing firms to a problem-solving above and beyond the quickest or cheapest way or offering valuable consultancy services for free.

Changes to products, particularly after reclassifications of chemicals (e.g. CHIP) | Improving firms’ reputations with consumers and the general public

Equipment required for compliance (e.g. software) | Improving OSH performance


4.4 IMPACTS ON STRATEGIC AND OPERATIONAL DECISION-MAKING

SECTION SUMMARY

- Regulatory impacts depend to a large extent on the level of response required from the affected business
- One of the key reasons for non-compliance is the competing demand for management time from other aspects of the business
- Most businesses consider health and safety of strategic importance, though there are differences across sectors and for companies of different sizes
- Company age, life cycles and growth experience and expectations affect how businesses address health and safety

In addition to the type of business process that is targeted by health and safety regulations, the regulatory impact will depend to a large extent on the level of response from the affected business. Existing research confirms that the impacts of health and safety (and other) regulations depend to a large extent on the type of response that they engender. On the “low impact” side, Kingston University’s literature review concludes that “the law often exerts only a limited impact on owner-managers’ decision-making and business competitiveness”. 86 Focussing on the introduction of the National Minimum Wage, they find, although for a policy area that is directly related to health and safety, that “business owners were able to make adjustments to employment practices without causing major disruption to routine operations or undermining competitiveness”. This is because the changes required were minimal, the firm’s product market position was such that incurring additional regulatory costs did not seriously weaken their competitive position and the ‘informality’ of many small firms’ working arrangements allowed for adjustments at relatively low cost. 87

In relation to health and safety regulation more specifically, an HSE study suggests that one of the key reasons for non-compliance with health and safety regulation is the competing demand for management time from other aspects of the business.\textsuperscript{88} Similarly, Smallman et al. find that health and safety regulation does significantly affect strategic decision-making within the company and, indeed, that policymakers have encouraged companies to take a more strategic view of OHS issues.\textsuperscript{89} For instance, a 1999 British Safety Council study examined how OHS has moved up the corporate agenda from a regulatory need to a strategic issue. Smallman et al.’s results indicate that 29% of directors see the legal responsibility for OHS at the level of the CEO.\textsuperscript{90}

From a slightly different perspective, the Institute of Employment Studies and the Work Foundation have examined the extent to which health and safety is seen as a strategic issue by companies.\textsuperscript{91} They find that most businesses consider health and safety of strategic importance, though there are differences across sectors and for companies of different sizes. Generally, larger businesses have a more strategic view of health and safety than micro-businesses. However, in many cases, SMEs are run by owner managers who spend time dealing with both strategic issues and also the main operational aspects of their business. However, CSES’s study for the European Commission found that over and above compliance based-burdens, regulation affects strategic decision-making in SMEs, for instance through its impact on business investment.\textsuperscript{92}

Apart from existing businesses, the strategic impact of health and safety also extends into entrepreneurship, innovation and start-up decisions. As another literature review points out, although referring to regulation in general, “regulation may increase the minimum efficient scale at which businesses can operate, by requiring businesses to invest resources to comply with regulatory requirements at start-up, thereby acting as a barrier to entry for smaller firms.”\textsuperscript{93} However, they also cite the Household Survey of Entrepreneurship. The findings from this survey relate to all business regulations, of which tax and employment regulations are among the most significant, but find that between 36% and 44% of respondents thought the complexity of regulations relating to starting a business might personally stop them from starting a business.\textsuperscript{94} This came behind obtaining finance or fear of getting into debt. As Kingston concludes, these figures are similar to those reported in the 2001 Survey for those ‘not currently in business’ and ‘would-be entrepreneurs’\textsuperscript{95} and in the Follow-up Survey of 2002.\textsuperscript{96} The survey results indicate that regulation is only one among several factors influencing the decision to start a business.

Other research has shown that company age, life cycles and growth experience and expectations affect how businesses address health and safety and other regulatory matters. Smallman et al. identify four consecutive stages that companies tend to go through in their relation with health and safety regulation. These are characterised as:

- ‘Compliance’ stage, health and safety is perceived and dealt with as a pure legal duty;

\begin{itemize}
  \item \textsuperscript{88} Greenstreet Berman, An evidence based evaluation of how best to secure compliance with health and safety law, HSE Research Report 334, 2005.
  \item \textsuperscript{91} Institute of Employment Studies and Work Foundation, Work and Enterprise Panel 2 – Business Survey, 2007.
  \item \textsuperscript{92} CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.
  \item \textsuperscript{93} Kingston University, Regulation and Small Firm Performance and Growth: A Review of the Literature, 2005.
  \item \textsuperscript{94} NOP Social & Political, Small Business Service Household Survey of Entrepreneurship 2003, 2004.
  \item \textsuperscript{95} Shury J, Lomax S and Vyakarnam S. (SBS), Household Survey of Entrepreneurship 2001, 2002.
  \item \textsuperscript{96} IFF Research Ltd, Household Survey of Entrepreneurship: Follow-Up Survey, 2002.
\end{itemize}
• **‘Paternalism’ stage**, health and safety is seen as a means of retaining skilled/trained staff;
• **‘Internal efficiency’ stage**, health and safety policies are used to maximise internal efficiency by reducing accidents, etc;
• **‘External competitiveness’ stage** health and safety helps win business and implement modern processes such as Just-in-Time (JIT), sole supplier status, procurement. 97

Clearly, the stage that a company is at affects not only how health and safety regulations are perceived but also at what level of the company (strategic or operational) regulatory responses occur. This general conclusion is confirmed (though the sign of the effect reversed) in a study by the Institute of Employment Studies and the Work Foundation which concludes that older businesses tend to see health and safety less as an important strategic issue and they are less likely to agree that health and safety performance has a positive impact on business performance. 98 However, the authors point out that this could be related to the fact that further health and safety improvements in older companies have a declining marginal impact on costs. 99

Kingston University cites unpublished evidence of an interaction between a company’s growth experience and the perceived impact of regulations in general. Businesses that do not aim to grow and expect resource constraints consider regulations in general as a greater obstacle than others. 100 At the same time, firms with no past growth are less likely to cite regulations in general as an obstacle. 101 Overall, Sections 4.3 and 4.4 have summarised an approach to assessment and evaluation of the impact of health and safety regulation that distinguishes different types of business processes (inward/outward oriented) and different levels of responses (strategic/operational). This provides a key linkage between regulations and their impact on individual businesses. The next section examines health and safety impacts by business sector.

### 4.5 IMPACTS BY BUSINESS SECTOR AND SIZE

**SECTION SUMMARY**

- Regulatory impacts in health and safety depend significantly on the sector in which the regulated company operates;
- Most studies find that SMEs are affected disproportionately by health and safety regulation. SMEs with good health and safety systems tend not to be rewarded through lower insurance premiums;
- SMEs are also more likely to require external resources to afford health and safety related investments.

There is evidence to suggest that regulatory impacts in health and safety depend significantly on the sector in which the regulated company operates. For instance, referring to all regulation, a recent Kingston review has found that “production, construction and service firms are less likely to consider regulations as an obstacle compared to the primary sector”. 102

Focussing on health and safety, the Institute of Employment Studies and the Work Foundation have established that in a number of sectors, notably finance and real estate, health and safety is deemed less important than in construction, retail/hotels/catering, other community, mining and utilities.\textsuperscript{103} It is important to note that this does not mean that the cost of OHS regulation is also perceived as less important in these sectors. The authors relate differences in the strategic importance of health and safety to the perceived level of risk in these sectors. Indeed, sectors such as construction, hotels and restaurants and distribution are relatively more labour intensive than sectors such as finance and business services which are relatively more capital intensive. In addition, a substantial minority of businesses, particularly those in mining, utilities, manufacturing and agriculture, have a relatively under-skilled workforce and they suspect there may be a link between health and safety outcomes and skills.\textsuperscript{104} Finally, sector-specific regulations and legislation might explain some of the discrepancy across different industries – even though the report does not find the highest expenditure in construction, agriculture and manufacturing.\textsuperscript{105}

A London Economics study on the chemicals sector finds that many firms in this sector would carry out most of the tasks prescribed by health and safety and environmental regulation even if they were not forced to by law, in some cases for insurance purposes.\textsuperscript{106} Unfortunately, the study does not present the health and safety component of this findings separately. The study was limited to the chemicals sector but similar findings may well emerge in other sectors. This is reflected in the difference between the estimated compliance costs of health and safety and environmental regulations (£278m per year) and the excess cost of regulation of (£87.4m per year).\textsuperscript{107} In other words, the study finds that £87.4m per year could be saved without detriment of “SHE” (safety health and environment) benefits and goals through better design and implementation of current regulations.

As mentioned in some of the examples cited above, a number of studies have discovered differences in the way in which health and safety regulation affect small and large businesses. For instance, EU research has found that SMEs account for 82% of all occupational injuries and 90% of all fatal accidents.\textsuperscript{108} Small firms often have limited resources both in terms of time and money; they may not be aware of their responsibilities or give priority to finding out about them.\textsuperscript{109} Similarly, an ENTEC study distinguishes between different types of expenditure by company size and by regulation including the COSHH regulations (one of our case study regulations) and their results are presented in Table 4.6.\textsuperscript{110} The table illustrates that, company size is a significant factor in explaining differential regulatory impacts across the business community.

\textbf{Table 4.6: Costs per employee of actions taken in relation to COSHH Regulations}

\begin{verbatim}
\end{verbatim}
The emphasis on SMEs is observable throughout the UK Government’s efforts at assessing regulatory impacts. The Better Regulation Task Force has argued that regulation impacts hardest on growing businesses, which breach regulatory exemption thresholds but are too small to employ an outside or in-house specialist to deal with regulatory matters.\(^{111}\) However, estimating the impact of health and safety regulation on SMEs can be fraught with difficulty because:

- Many smaller businesses do not have formal health and safety policies, which makes it difficult to establish whether they are complying with relevant legislation and at what cost/benefit.
- SMEs do not have the resources for cost-reduction initiatives. For instance, given the choice of various health and safety measures, FSB respondents seemed little interested in low cost options for advice (e.g. NHS Plus and Workplace Health Connect), which the FSB argues could be due to low visibility of these services to smaller businesses.\(^{112}\)
- 20% of businesses found their Employment Liability Compulsory Insurance (ELCI) premium\(^{113}\) difficult to gauge because it is part of an insurance package, which again does not facilitate cost transparency.\(^{114}\)

This disproportionate impact of health and safety regulations on SMEs is confirmed by much – though not all – research. An ENTEC review of the Management of Health and Safety at Work Regulations, COSHH Regulations, Control of Pesticides Regulations, Manual Handling Operations Regulations and Noise at Work Regulations found that large organisations with greater than 5,000 employees report considerably less compliance costs per employee for all regulations compared with organisations of fewer than 5,000 employees.\(^{115}\) However, “the ‘size’ at which these costs became disproportionate varied across the different pieces of

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\(^{113}\) ELCI is a mandatory insurance cover (minimum £5m) to provide compensation to employees if they are injured at work or suffer from a work-related illness. The insurance covers legal costs and compensation.


A CSES study of 250 SMEs for the European Commission found that “smaller companies struggle more with regulatory compliance burdens than larger firms because they do not have the in-house capacity to deal with administrative requirements and they might not have the cash flow for investments that are mandated by environment-related regulations.” In this study, 63% of respondents found compliance very or fairly difficult for health and safety regulation. This is in line with an FSB study which found that 39% of UK SMEs find risk assessments ‘quite difficult’ or even ‘very difficult’ (21%) while 77% of small businesses cited keeping up to date with new health and safety regulations is cited as ‘very difficult’ or ‘quite difficult’.

The Institute of Employment Studies and the Work Foundation conclude that businesses with less than 50 employees are least likely to find health and safety performance cost positive while larger businesses are most likely to agree with this assessment. Indeed, according to their survey small businesses spend an average £2,762 per annum on health & safety (five times more than medium-sized businesses). Micro businesses spend an average £13,340 per full-time employee. The difference between micro and small businesses suggests that there may be economies of scale in business level management of health & safety.

CSES’s study of 250 SMEs for the European Commission found that on a country by country basis, environmental regulations are responsible for the largest share of the perceived increase in regulatory burdens over the last ten years in all countries except Italy. However, respondents in the UK, France and Italy felt that about 40% of the cost increase can be attributed to health and safety, compared with 27% in Germany and 21% in Belgium. Increases in energy costs contributed about a third to overall regulatory burdens in Germany and Belgium compared with only about 20% in France and the UK.

Figure 4.2: Share of Increase in Regulatory Costs by Regulatory Area and Country
However, there are also some studies which have found no or even an inverse size effect. A recent London Economics study of the chemicals sector found that compliance costs were roughly constant across firms of all sizes. However, for the sample of firms used in the study, the cost of regulation as a percentage of turnover decreased as firm size increased.ENAMoreover, a Kingston University literature review cites an unpublished study by the Institute of Employment Studies (covering all regulations) which finds that:

- Sole proprietors are less likely to consider regulations an obstacle than companies;
- Micro-enterprises are less likely to cite regulations as a constraint on business performance compared to larger businesses.EMThis may be because some micro-enterprises benefit from regulatory exemptions, though this is not investigated further in the Kingston study.

Finally, there is also some evidence to suggest that costs associated with health and safety regulations increase disproportionately with company size. For instance, the above cited Kingston review found that firms with a turnover of more than £250k and less than £1.5million are more likely to consider regulations as an obstacle compared with firms below the VAT threshold (£56k).EMAn inverse size effect may occur because, as companies grow, they engage in a larger range of activities at greater volumes. As a result, they may pass some regulatory thresholds that do not apply to smaller firms and they may only become subject to a greater range of regulations as they grow. This suggests that regulation may be a barrier to growth for small to medium-sized firms.

Figure 4.3 based on a CSES survey of SMEs for the European Commission shows that compliance becomes more complex as company size increases. Health and safety legislation is found to become significantly more complex for companies with more than 10 employees, though there is little difference between such medium sized enterprises and larger SMEs. However, health and safety compared favourably to environmental regulations which are most complex for all companies irrespective of size.

**Figure 4.3: Compliance is “very” or “quite” Difficult (% of SMEs)**

By Company Size and Regulatory Area

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Second, CSES research with trade associations across Europe suggests that micro-enterprises in particular may not be aware of the full range of regulations that apply to them and they may run a smaller risk of inspection and enforcement which may lead to higher rates of non-compliance among these businesses. In any case, if regulatory costs do increase disproportionately with company size, this could act as a disincentive to growth. This finding is supported by an FSB study which points out that “small firms are keen to grow and employ more people with 59% wanting to expand in the next two years – but over half see regulation (i.e. including but not limited to health and safety) as a “serious barrier to growth”.\(^\text{129}\)

Finally, a CSES survey results found that 38% of SMEs indicated that they had adapted their business processes in response to environmental or health and safety related regulatory requirements. Unfortunately, the survey did not investigate the nature of adaptations made or the extent to which these were directly related to health and safety (as opposed to environmental) regulation. Qualitative information gathered by the survey indicated that the majority of positive changes to production processes emanated from health and safety legislation. From the perspective of outward oriented processes, some literature suggested that larger companies in hazardous industries sell those parts of the business that are subject to the greatest regulation thus creating start-up opportunities for smaller firms in the most heavily regulated environments.\(^\text{130}\)

Apart from direct compliance with health and safety regulation, interaction with other market participants (discussed in greater detail below) does not always favour SMEs. Two examples cited in the literature are of particular relevance here:

First, reduced insurance premiums could be an incentive for firms to improve their health and safety records and lead to lower costs. However, insurance companies set their premiums for low value policies using a ‘book rate system’ where SMEs with good health and safety

\(^{129}\) Federation of Small Business, Lifting the Barriers to Growth in UK Small Businesses (2005).

systems are not rewarded. This is confirmed by Phil Grace representing insurer Norwich Union at a Royal Society for the Prevention of Accidents meeting on SME support:

“[Large firms] have a claims experience, a number of claims each year and their premium can be based on the cost of claims over a number of years, typically 5, if possible, and we can use that to predict a future claims cost. [...] We can’t use those computational processes on small businesses.”

Some research suggests that insurance premiums, such as employers’ liability insurance, might actually rise as a result of tightening environment and health and safety regulations. For instance, the Federation of Small Business (FSB) warns that premiums for small businesses could rise as the National Health Service begins to recover the cost of treating workplace injuries.

Second, SMEs are more likely to be affected by finance costs in relation to health and safety because they are more likely to require external resources to afford health and safety related investments. CSES’s earlier study for the European Commission examined the average size of regulatory investments by area and company size. Environmental investments were most important at an average size of €52,215 compared €38,664 for health and safety.

Table 4.7: Average Annual Investment as a Result of Regulatory Pressure by Area and Company Size (€)

<table>
<thead>
<tr>
<th>Company Size</th>
<th>Environment</th>
<th>Health &amp; Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 employees or less</td>
<td>9,686</td>
<td>9,079</td>
</tr>
<tr>
<td>11-49 employees</td>
<td>34,167</td>
<td>25,839</td>
</tr>
<tr>
<td>50-250 employees</td>
<td>151,975</td>
<td>92,841</td>
</tr>
<tr>
<td>Average investment size (€)</td>
<td>52,215</td>
<td>38,664</td>
</tr>
</tbody>
</table>

As the ILO points out, obtaining external finance for health and safety investments is not straightforward because (unlike investments in equipment, facilities, etc.) the asset for which finance is being sought is the workforce, which cannot be used as collateral. As a result, “all investments in human capital, including OSH, are subject to adverse discrimination in financial markets.”

As part of this study, a small-scale survey was conducted of SMEs in the chemicals and construction sectors. Box 4.6 summarises the perceptions of SMEs in these sectors who were interviewed as part of the case study fieldwork for this report. While based on self-reporting, and not representative of SMEs overall, most SMEs that were interviewed reported that they are well aware of health and safety regulations that affect their business and that they are willing and able to provide business input into the HSE’s impact assessment process.

As expected, most companies were mindful to state that they are in full compliance with health and safety requirements and several companies argued that they would maintain current levels of protection even in the absence of regulation because they make business sense. Interestingly, the vast majority of respondents said that alongside the costs they incur, they also derive substantial business benefits from COSHH, Asbestos and Work at Heights regulations (see Boxes 4.6-4.8).

133 http://www.fsb.org.uk/news.asp?REC=3860
Box 4.6: SME Perceptions of the Impact of Work at Height, Asbestos and COSHH Regulations

- We surveyed 32 SMEs in the construction (20) and chemicals (12) sectors.
- All surveyed SMEs in chemicals and construction claimed to be fully aware of all three regulations.
- Work at Heights affected about 65% of SMEs, Asbestos and COSHH affected 35% of surveyed firms.
- Most SMEs said the regulations affected equipment & production, though other responses included marketing, labeling, training, production and quotations. Several respondents also said all aspects of the business were affected.
- The majority of companies said they had adjusted their business processes as a result of these regulations (see Box 5.7 for examples). Only 22% of respondents said they had made no adjustments.
- 70% of respondents said the three regulations had bought increased benefits compared with 30% who said benefits had not changed (see Box 5.8 for examples).
- Almost 78% of companies said costs had also increased as a result of these regulations with only 22% stating that costs had not changed (see Box 5.8 for examples).
- One in four companies had noticed some degree of regulatory interaction. Most of these interactions were overlapping requirements, for instance for COMAH sites (see Box 5.9 for further examples).
- Only 28% of companies indicated that they measured the costs of health and safety regulations.
- The box below has some examples of business aspects that have changed as a result of OHS regulations among individual businesses interviewed for this study.

Box 4.7: Have you Changed the Way your Business Operate as a Result of Work at Height, Asbestos and COSHH regulations?

<table>
<thead>
<tr>
<th>Equipment &amp; Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Upgraded equipment. Send staff on courses to get certified.</td>
</tr>
<tr>
<td>- Total equipment upgrade, training for employees.</td>
</tr>
<tr>
<td>- Regular meetings for staff training to update H &amp; S awareness of regulations, particularly equipment.</td>
</tr>
<tr>
<td>- Upgrades to equipment, more staff awareness of H&amp;S.</td>
</tr>
<tr>
<td>- Staff training (NCFE for H&amp;S level 2).</td>
</tr>
<tr>
<td>- Tools change and upgrades to equipment and then have to retrain staff.</td>
</tr>
<tr>
<td>- Hold certificates such as FMB (Federation of Master Builders) and offer NHBC warranty etc.</td>
</tr>
<tr>
<td>- Training all staff and ensuring they work to regulations. We now hire much of the equipment we use.</td>
</tr>
<tr>
<td>- We are NASC members. A lot more training to keep up with regulations. All our men are qualified for scaffold erection with CITB, CISRS.</td>
</tr>
<tr>
<td>- Have passed H&amp;S adviser course and SMSTS (Site Management Safety Training Scheme). There is a lot of training, and retraining when amendments are made.</td>
</tr>
<tr>
<td>- All employees go on a course.</td>
</tr>
<tr>
<td>- We have safety licences for scaffolding and asbestos removal. Clothing, harnesses etc.</td>
</tr>
</tbody>
</table>
Operations
- We do Type 3 asbestos surveys and work to a very strict register
- We have worked with scaffolding for many years but now have to operate much more strictly to the safety regulations to minimise risks. There are a lot of extra inspections too, and we can't get on with job until they are done.
- Always work on safe platform
- We have to be very strict about things like Hats, gloves, boots, clothing etc and aware of asbestos
- We are very strict on regular checking of scaffolding and ladder boards and use of bins (different bins for different materials)

Services Offered
- We were a private chemical provider, but due to costs associated with regulations, we are now a contract manufacturer.
- We are an IPP site and COMAH site. Due to our high OHS standards, we have big contracts with utilities companies
- We used to remove asbestos from work sites, but now have to call in experts.
- Positive marketing of H&S compliance and we use H&S consultants.

Box 4.8 has some examples of how costs and benefits of Work at Height, Asbestos and COSHH regulations have changed for the individual businesses interviewed for this study.

Box 4.8: Over time, how have the costs and benefits of Work at Height, Asbestos and COSHH regulations changed for your business?

- Equipment costs very high, but turnover the same
- Annual licences / qualifying fees and employment of full-time H & S manager all rise over time, but offset by improved safety benefits
- Costs always rise, but we have seen the benefits as well in improved safety and awareness
- Increases in costs of safety equipment to work at height far outweigh the benefits. Regulations do not always make for added safety, just cause frustration.
- Equipment needs change over time. Staff are safer and there are fewer on-site accidents
- Use H & S contractors to ensure compliance
- Contracting costs. But the business also benefits economically so it is balanced out overall.
- Full-time H & S manager, H & S computer software ongoing expense, laser labelling very costly now.
- Equipment upgrades and staff training costs.
- Costs are minimal for us - there are no particular benefits of the regulations as we don't do anything we wouldn't do anyway.
- We have less accidents and avoid heavy compensation claims so the benefits outweigh the costs.
- Costs are so high it has greatly affected our business with absolutely no benefits
- We are COMAH and REACH registered, getting the licences is very expensive and requires added resources including a lot of time involved.
- Constant costs associated with annual licences. Just appointed a new inspector. Clients benefit as well as the company
- Less accidents for sure. Costs have gone up but we get benefits as safety was a big issue for us, and for our customers.
The costs don't really affect us much - we are small subcontractors. We get the going rate and the main contractors supply scaffolding and most of the equipment.

Everyone feels safe, that's got to be a big benefit

Hiring equipment is costly, but the contractors cover the regulations. I guess we are all safer now.

Cost of training, tools etc

The regulations cause a costly burden on the business with no benefits whatever

Cost increases are passed on to customers, but we have had no more than minor accidents in recent years

The training costs a lot and when we find asbestos, it costs to get someone in and holds up work. But there are certainly benefits in safety.

The business and our customers benefit from the safety aspect. The cost is just part of the running costs.

Box 4.9 has examples of perceived overlaps/contradictions between Health and Safety regulations for the individual businesses interviewed for this study.

**Box 4.9: In complying with these regulations, have you noticed any overlap or contradictions between them?**

- Because we are an IPP and Comah site, there are inevitable overlaps in general.
- Mechanical handling versus manual handling.
- We are a COMAH site and find a lot of overlapping which causes much confusion
- There are overlaps with various licencing. Also a lack of clarity and interpretation. We work very closely with HSE and call them for clarifications.
- There are always going to be anomalies, you just have to use your common sense. No job would get completed if you worked absolutely to the regulations, e.g. at heights, you have to stay within the tower, but if you have a large piece of plasterboard to pass up, you have to lean outside. You're not going to insist the main contractor erect a bigger tower for one board.
- It goes a bit over-the-top sometimes and yes, we find contradictions and also overlaps.
- There are occasions when there are more H & S experts than workers and work gets held up.
- There are some contradictions in ADR shipping regulations and labelling.

**4.6 IMPACTS ON SHAREHOLDERS AND INVESTORS**

**SECTION SUMMARY**

- Investors generally support the idea that health and safety performance is an indicator of good management and there is evidence that this is borne out by better economic performance;

In addition to employers themselves, shareholders and investors are one of the groups of stakeholders within businesses that are often overlooked.

An HSE commissioned study into health and safety indicators for institutional investors found that investors generally support the idea that health and safety performance is an indicator of good management though it is only one aspect of corporate social
responsibility which is only one factor among many that influences investment decisions.\footnote{136 Mansley Mark, Health and Safety Indicators for Institutional Investors, 2002.}
The study suggested that the HSE help develop, in conjunction with the accountancy profession, a “cost of poor H&S indicator” a “Health & Safety engagement index” which provides a simple indicator of high level management engagement in addressing Health & Safety.

Similarly, a study by the Occupational Health and Safety Commission of Australia composed a hypothetical portfolio of shares in corporations that had good health and safety records and compared the evolution of its value with the performance of the Australian stock market as a whole (it is not clear which sectors the companies were in).\footnote{137 Cited in ILO, Occupational safety and health: Synergies between security and productivity, 2006.} As the following graph shows, the share price of the sample OH&S portfolio increased more rapidly over the period under study than the overall share price index. This does not necessarily indicate that a good health and safety record generates above-average share performance, but it suggests that both might be influenced by a third common factor (e.g. general business management). Further research would be required to investigate this hypothesis as well as the statistical significance and robustness of the results.

**Figure 4.4: Health and Safety Records and Share Performance**

![Graph showing Health and Safety Records and Share Performance](image)

*Source: cited in ILO, Occupational safety and health: Synergies between security and productivity, 2006*

### 4.7 REGULATORY DESIGN AND REGULATORY INTERACTION
Some of the impacts of health and safety regulation depend to a large extent on the way in which the regulation is designed. For instance, regulatory design can have a significant effect on the types of costs that regulated businesses incur or the compliance behaviour that is required from them. Finally, regulatory design also has a significant bearing on the way in which individual regulations interact with others by imposing reinforcing, overlapping or contradictory requirements.

A CSES study of 250 SMEs across Europe for the European Commission identified the composition of costs imposed on businesses as a result of health and safety regulation. The results show that administrative costs are a particular problem for SMEs in the health and safety field. Indeed, unlike some financial costs, administrative requirements (including reporting, training, data gathering etc.) bear little relation to company size or environmental impacts.

As Figure 4.5 shows, administrative costs are particularly significant in the area of health and safety, and to a somewhat lesser extent in environmental regulations. For the purposes of that study, financial costs were defined as costs that involve a direct financial transfer of resources, such as one-off investments in machinery, equipment and facilities to comply with regulatory standards or recurring financial transfers, such as taxes, levies and other charges. Administrative costs were defined as expenditure related to the process of regulatory compliance that does not involve a direct transfer of financial resources.

The study also showed that administrative costs are perceived as more significant than financial costs (as defined in the previous paragraph) in some countries, namely Italy and the UK, than in Belgium, France or Germany, particularly in the fields of health and safety and environmental regulation. On a sectoral basis, chemicals and galvanising companies indicated a particular focus on administrative costs in health and safety legislation.”

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138 CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.
Given these general findings, which are supported by other research, there is some evidence that regulation and especially self-regulation regimes are particularly challenging for small employers. Small firms are seen to prefer specific advice that requires no interpretation, especially if the costs of implementing certain health and safety regulations are disproportionately high for small firms on a per employee basis. As one FSB respondent points out, “quite often the [health and safety] regulations are one-size fits all which adds to the complexity for a small business”. Similarly, a CSES study on environmental and health and safety regulations, carried out for the European Commission confirmed that:

“Incentive-based regulations tend to be more cost-effective on the whole than command and control (CAC). Generally, these regulations impose lower administrative burdens on companies and public authorities, they are proportional (if not always equal) to the environmental harm caused and the risks incurred by the company and they are less market distorting than CAC regulations. However, these instruments are not desirable if SMEs do not have the opportunity to act on the incentives created by regulation, for instance due to low cash flow or a lack of awareness. A mix of instruments is required to cover the large range of regulatory objectives and to address different types of SME activities.”

Likewise, the OECD points out that occupational health and safety regulations in the UK have in recent years increasingly adopted “general standards”, which leave it up to firms to determine what action will best meet the regulatory goal, instead of more prescriptive command and control regulation. This entails that the content of the regulation is determined ex post rather than ex ante and it creates challenges for the assessment and evaluation of regulatory proposals. There is evidence, especially for environmental regulation, that self-regulation can lead to equal protection at lower cost. Disadvantages may include the need for external checks and balances, the risk of promoting behaviour that can mislead consumers and anti-competitive behaviour. Finally, the OECD notes that lines of accountability could be undermined if the government endorses codes of practice over which it has no ongoing supervision.

Finally, regulatory design may have a significant impact on the way in which regulations interact with each other. For instance, Harris argues, although with reference to employment regulations, that the effect of regulation is highly problematic for small firm owners even when the incremental effect of individual regulations does not constitute much of a problem. In order to address this issue, regulatory interactions are sometimes considered in impact assessments. The IA for regulations covering the protection of pregnant women and women

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143 CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.
144 OECD, Regulatory Reform in the United Kingdom, Government Capacity to Assure High Quality Regulation, 2002.
145 Cited in OECD, Regulatory Reform in the United Kingdom, Government Capacity to Assure High Quality Regulation, 2002.
146 OECD, Regulatory Reform in the United Kingdom, Government Capacity to Assure High Quality Regulation, 2002.
who have recently given birth points out that some requirements are already covered by EU Manual Handlings Directive. Other examples include regulations in the environmental field. This study was not able to find research that indicated other similar findings for health and safety regulations.

Research for the European Commission found that only a few companies had experienced conflicting requirements in environmental, energy or health and safety regulations. As Figure 4.6 shows, in the five European countries (including the UK) covered by the research, about one in 10 companies identified some conflicting environmental and health and safety regulations. At the country level, the survey shows that conflicting requirements are most prevalent among health and safety and environmental regulations in Italy and for some environmental regulations in Belgium, where more than a quarter of all respondents identified some contradictory regulations. Despite these very tentative findings, there is little systematic research to date on regulatory overlaps and there remains substantial room for further consideration of such interactions in assessment and evaluation of the cumulative economic impacts of health and safety regulations. Apart from the contradictions/overlap presented in Box 4.9 and which emerged as a result of the interview programme for this study, we have not been able to identify additional research studying the interactions between the three case study regulations (Work at Height, Asbestos, COSHH) and other health and safety legislation.

Figure 4.6: SMEs Experiencing Conflicting Regulatory Requirements, (% of respondents) By Regulatory Area

![Figure 4.6](image)

Source: CSES, Study on the Burden of Environmental Regulations for SMEs, 2007.

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SECTION 5
ECONOMIC IMPACTS ON OTHER STAKEHOLDERS

CHAPTER SUMMARY

• The three main groups of stakeholders in health and safety include individuals, employers and society;

• Existing evaluations of health and safety regulations have not had economic impacts as a main focus and no consistent approach can be identified;

• There is some evidence that health and safety regulation is effective in improving management of health and safety.

• There is a dearth of empirical research and evidence on the cumulative economic impacts of health and safety regulations;

• In addition to quality of life and health, accidents at work also cause economic losses though these are of lesser significance;

• There are few attempts in the literature to tackle the complexity of assessing or evaluating the cumulative economic impacts of health and safety regulations for society overall;

• Existing research has produced estimates of the costs of workplace accidents and work-related ill health at a societal level;

• The cost to public health budgets and insurance of work-related injuries and ill health is reflected in tax bills and productivity losses, which can have implications for economic performance;

5.1 INTRODUCTION

SECTION SUMMARY

• The three main groups of stakeholders in health and safety include individuals, employers and society;

• Existing evaluations of health and safety regulations have not had economic impacts as a main focus and no consistent approach can be identified;

• However, research has found some evidence that health and safety regulation is effective in improving management of health and safety.

This section discusses the range of stakeholders other than businesses that are affected by health and safety regulations. Existing evidence is identified that is relevant to assessing and evaluating the cumulative economic impacts of health and safety regulations for each of these stakeholder groups. This is in line (though not identical) to distinctions made by other health and safety organisations. For instance, an ILO

study into the economic effects of OHS regulation considers that the cost of occupational injuries (and therefore the potential benefits of health and safety regulation) is carried by three stakeholders: employers, workers and consumers.\textsuperscript{152} It has been highlighted that:

“Health and safety regulations create benefits for workers, consumers, and the public at large. Compliance costs must be paid for by some combination of workers, business owners, and/or consumers through adjustments in wages, profits, and/or prices.”\textsuperscript{153}

These three groups can be further subdivided into smaller sub-groups of stakeholders. For instance, in the UK, a BERR publication has identified the following as significant stakeholders in the area of health and safety: employees and their representatives; trade and professional bodies; business networking groups; specialist and general media; health and safety consultants and experts; lawyers and occupational health professionals; insurers; customers; colleges carrying out checks before sending students on work placements.\textsuperscript{154} The exchequer should also be added to this list in terms of the public finance implications, particularly to the Department of Health and Department for Work and Pensions, of health and safety failures.

Figure 5.1 illustrates how some of these sub-groups relate to the HSE’s distinction between employers, individuals and society.

**Figure 5.1: Potential Stakeholders in Health & Safety Interventions**

![Diagram of potential stakeholders in health & safety interventions](image)

*Source: Adapted from BERR, Improving Outcomes from Health and Safety: a Call for Evidence and HSE, Interim update of the “Costs to Britain of Workplace Accidents and Work-Related Ill Health”*

\textsuperscript{154} BERR, Improving Outcomes from Health and Safety: A Call for Evidence, 2007.
Figure 5.2 illustrates how the cumulative economic impacts of health and safety regulations on these stakeholders can be conceptualised. Having identified the business processes where the regulation under study ‘bites’, the individual and societal stakeholders that are affected by these processes are identified. This provides a basis for the identification and, where possible, quantification of the costs and benefits that the regulation imposes for each stakeholder.

For example, in the case of COSHH or Asbestos regulations, the impact on inward-focussed processes may point to upstream stakeholders, such as suppliers of intermediate products that are hazardous to health. At the same time, both of these regulations may also have an impact on downstream stakeholders (e.g. customers) because they affect outward-focussed business processes such as product development or marketing. In addition, both regulations can also be expected to have an effect on taxpayers who have to pay for enforcement and/or part-finance health and safety failures.

Figure 5.2: Conceptualising the Impact of OHS Regulation on Individuals and Society

![Diagram showing impact of OHS regulation on individuals, employers, and society]

The HSE estimates the following breakdown of the costs of health and safety failures by type of stakeholder.

Table 5.1: HSE Cost Estimates by Type of Stakeholder (£billion)

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Ill health</th>
<th>Injury</th>
<th>Non injury accidents</th>
<th>Total</th>
<th>Share of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer</td>
<td>1.5</td>
<td>1-1.1</td>
<td>1.4-5.3</td>
<td>3.9-7.8</td>
<td>11%-14%</td>
</tr>
<tr>
<td>Individuals</td>
<td>5.9-9.4</td>
<td>3.3-6.3</td>
<td>-</td>
<td>10.1-14.7</td>
<td>27%-30%</td>
</tr>
<tr>
<td>Society</td>
<td>11.3-17.3</td>
<td>5.9-10.7</td>
<td>1.4-5.3</td>
<td>20.0-31.8</td>
<td>59%</td>
</tr>
<tr>
<td>Total</td>
<td>18.7-28.2</td>
<td>10.2-18.5</td>
<td>2.8-10.6</td>
<td>34.0-54.3</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Adapted from HSE, Interim Update of the “Costs to Britain of Workplace Accidents and Work Related Ill Health” (2002)
As this table shows, the cost of health and safety failures falls disproportionately on groups other than employers. Whereas individuals (e.g. employees) bear 27%-30% of total health and safety costs, society bears 59% of these costs compared with only 11-14% for employers. These relative shares of the costs of health and safety failures are also found in HSE commissioned research into the costs of occupational asthma which found that, for this specific condition, employers incur costs in the range of £2.0-3.7 million compared with £35.5-49.0 million for individual workers and £34-47 million for taxpayers. US figures - though based on a slightly different classification system (employers, consumers and workers) - help set the HSE estimates in a wider cross-national context.

The US classification does not provide a broader “societal” estimate but the share of the burden of health and safety regulation for employers (about 11%) resembles quite closely the HSE’s estimates. The similarity in percentage shares may be a coincidence, particularly given the different health and safety regulatory approach in the US, and the different wider context for management of occupational health and safety. However, in both countries, the non-business costs of a health and safety failure (or the potential benefits of OHS regulation) are found to far outweigh costs and benefits to employers in Section 5.155

A recent HSE commissioned study by the Institute of Employment Studies has explored the question of “what works in delivering health and safety outcomes”. This reviews the existing evaluation evidence on the effectiveness of health and safety interventions, and concludes that there is evidence that regulation provokes improved health and safety practice among those who are willing to comply, although “invisible” risks such as workplace stress are harder to police through inspections and may therefore be less amenable to regulations.

Existing evaluations of health and safety regulations have not had economic impacts as a main focus and no consistent approach can be identified in the documents reviewed for this study. Some research has examined the longer term trend in health and safety outcomes, and attempted to identify the causes of these trends in relation to changes in the wider economy. For example, in the UK Davies and Elias (2000) reported a long term (1986-1997) downward trend in injuries that can be attributed to improved safety performance (having controlled for changes in industrial structures, the economic cycle and patterns of employment).156 However, such research has not been identified the extent to which longer term trends in overall health and safety outcomes can be attributed to the impact of health and safety regulations.

The following section discusses existing evidence of the costs and benefits of health and safety regulation for individuals and for society more widely.

### 5.2 Impact on Individual Workers

<table>
<thead>
<tr>
<th>SECTION SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is a relative dearth of empirical research and evidence on the cumulative economic impacts of health and safety regulations for individuals.</td>
</tr>
<tr>
<td>• Accidents at work cause direct financial losses, but the impacts to quality of life and health constitute a higher economic cost.</td>
</tr>
</tbody>
</table>

155 The distribution of these costs between the main stakeholders suggests a key rationale for government intervention in health and safety. The relatively small costs of health and safety failures to employers create little incentive for them to implement policies of sufficiently high standard to maximise benefits to society. To the extent that businesses do not internalise the full costs of health and safety failures, government intervention may carry significant value for society and individual stakeholders.

The literature search for this study indicated a relative lack of empirical research and evidence on the cumulative economic impacts of health and safety regulations for individuals. However theoretical analysis indicates that ultimately, employees carry most of the benefits of regulation in terms of improved health and safety but also much of the potential burden “in the form of smaller wage increases, more difficult working conditions, or inability to obtain or retain one’s first choice in a job.” The extent to which these costs and benefits fall on employees depends, to a large extent, on regulatory design and on other factors, such as the characteristics of the national health system and social security. Table 6.2 summarises some of the main costs of health and safety failures (or potential benefits of effective health and safety regulation) for individuals and it sets out how these might be monetised.

Table 5.2: Costs of health and safety failure at individual level

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Monetisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Hospitalisation (bed-days); other medical care, such as non-hospital treatment, medicines; Permanent disability (numbers, age of patient); Non-medical (e.g. vocational); rehabilitation</td>
<td>Expenditures for healthcare that are not compensated by insurance or employer</td>
</tr>
<tr>
<td>Quality of Life</td>
<td>Life expectancy, healthy life expectancy; Quality adjusted life years (QALY); Disability adjusted life years (DALY)</td>
<td>Willingness to accept, willingness to pay; Value of claims and compensations</td>
</tr>
<tr>
<td>Grief &amp; Suffering</td>
<td>For victims, but also for relatives and friends</td>
<td>Value of a Preventable Fatality</td>
</tr>
<tr>
<td>Present Income Losses and loss of potential future earnings</td>
<td>Loss in income from present and subsequent employment</td>
<td>Reduction in present income, loss of wages Differences between total expected future income and total compensation or pensions</td>
</tr>
</tbody>
</table>

Source: adapted from Mossink, Jos, Inventory of Socio-economic costs of work accidents, European Agency for Safety and Health at Work, 2002.

As discussed in Section 3, there are two main ways of valuing health risks to individuals: willingness to pay (WTP), and quality of adjusted life years (QALY). As an OECD study has found, compared with QALYs, WTP measures do not impose restrictive conditions on preferences for health and longevity, although this has the implication of greater difficulty in estimating values. Furthermore, “QALYs are defined in terms of the health effect experienced by an individual and they do not allow for variation in preferences” as a result of, for instance, dread. However, in some instances, QALYs may be a preferred measure of the social value of

policies that affect health risk in a population, particularly where both quality of life and number of life years are affected.

**Willingness to pay is most often used in relation to private risks incurred by individuals in relation to themselves.** In 2006, the HSE commissioned a study to estimate the true costs of occupational asthma for different stakeholders using a cost-of-illness method. The study distinguishes between direct costs (i.e. health care resources to diagnose, treat and rehabilitate workers, and non-medical costs incurred by the ill worker such as transportation to medical services and to and from work) and indirect costs to employers (sickness absence, labour turnover, compensation and insurance) and individuals (financial costs and ‘quality-of-life’ costs). The study found that direct costs as a percentage of total costs ranged from about 10%-20%. Because indirect costs were dominated by workers’ losses of income as a consequence of changing jobs due to occupational asthma, these costs were much higher in occupations with relatively high wages.159

An EU study of the socio-economic costs of accidents at work in the European Union (extrapolated to EU-15 from samples in Italy and Portugal) found that in addition to quality of life and health, accidents at work also cause “economic losses” (i.e. income) to workers.160 However, the data showed that these costs (€1.4 billion) are relatively minor compared with the total costs of accidents at work (€22 billion for temporary incapacity to work only). Based on a small sample size, the authors therefore argue that the majority of health and safety costs in the EU are not borne by the victims of accidents.

### 5.3 IMPACTS ON SOCIETY

<table>
<thead>
<tr>
<th>SECTION SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There are few attempts in the literature to tackle the complexity of assessing or evaluating the cumulative economic impacts of health and safety regulations for society overall;</td>
</tr>
<tr>
<td>• Existing research has produced estimates of the costs of workplace accidents and work-related ill health at a societal level;</td>
</tr>
<tr>
<td>• The cost to public health budgets and insurance of work-related injuries and ill health is reflected in tax bills and productivity losses, which can have implications for economic performance;</td>
</tr>
</tbody>
</table>

If it is very difficult to measure the cumulative economic impacts associated with health and safety regulations at the level of individual workers, issues surrounding the range of affected stakeholders, the number of impacts and the quality of quantitative data are compounded when analysis is attempted at the level of societal impacts. There are only few attempts in the literature to tackle the considerable complexity of assessing or evaluating the cumulative economic impacts of health and safety regulations for society overall. There are analytical techniques that have been applied to assessing the economic impacts of other types of government policies at an economy wide level, but very little research has been found that attempts to apply these approaches to assess or evaluate the impacts of health and safety regulations.

159 We discuss the distributional effects of health and safety regulation later in this section

A number of estimates have been produced of the costs of workplace accidents and work-related ill health at a societal level. For instance, the HSE estimates that work-related injury and ill-health led to around 30 million working days lost in 2005/06 with a total cost to society of between £24 billion and £38 billion annually.\(^{161}\) However, these estimates do not indicate the extent to which the costs of work-related injury and ill health are affected by health and safety regulations, and therefore are unable to indicate the economic impacts of health and safety regulations. The Office for National Statistics found workers were absent for 1.7% of scheduled working days due to sickness or injury.\(^{162}\) One fifth of those absent at the sixth week of Statutory Sick Pay remains absent and eventually leaves work.\(^{163}\) This study also does not consider the extent to which this is influenced by regulations.

**In the US, a 2006 Government report attempted to estimate the total cost of health and safety regulations based on ex-ante regulatory impact assessments.**\(^{164}\) However, given the difficulty of estimating, ex-ante, the costs and benefits of individual regulations, these uncertainties are likely to have reflected in the straightforward approach of adding up across ex-ante estimates. By using only ex-ante estimates of costs and benefits, this approach also takes no account of the interaction between different regulations, or of how businesses may have adapted their business processes in response to the implementation of specific regulations (or as a result of other pressures and incentives to change business processes and practices over time).

**As the ILO points out in its assessment of the economic effects of OHS, the cost to public health budgets and insurance of work-related injuries and ill health is ultimately borne by society as a whole in terms of tax bills and productivity losses.**\(^{165}\) A corollary of this finding is that in countries where there is less social protection and palliative medical care, the long-term effects on economic development are likely to be relatively worse than elsewhere.\(^{166}\) The ILO estimates that the total costs of work-related accidents and ill health amount to approximately 4 per cent of the world’s GDP (i.e. over 20 times more than official development assistance). In line with this level of magnitude, the WHO has produced research suggesting that about 5% of the burden of all diseases and injury in established market economies is attributable to work.\(^{167}\) The US National Safety Council estimates that the cost of all accidents implied by a single recorded fatality (including employers’ uninsured costs) is $28.7 million.\(^{168}\) At the European level, the European Commission finds that the costs of occupational accidents in the EU15 (15 European Union Member States) in the year 2000 was €55 billion.\(^{169}\) In addition, societal costs of health and safety failure may include environmental damage from industrial accidents.

**These wider societal impacts also have strong implications in terms of economic performance.** Data from the World Economic Forum and the Lausanne International Institute for Management Development (IMD) indicate a strong correlation between national...
competitiveness and occupational accidents.\textsuperscript{170} A recent BERR call for evidence on the impact of health and safety also identifies sickness absence as a serious concern linked to productivity and incapacity benefits.\textsuperscript{171} According to CBI/AXA, work absences in the UK amounted to 3.3\% of working time in 2006, at a direct cost of £13.4bn to the UK economy.\textsuperscript{172} Incapacity-related benefits account for over a third of spending on benefits for working age people\textsuperscript{173}, with 2.7 million claimants.\textsuperscript{174} Beaton and Cole carry out an international comparison of costs and benefits of OHS at the societal level. Table 5.3 shows that the UK has the lowest overall costs, which the authors attribute to lower incidence of reported work-related injuries and diseases.

### Table 5.3: Aggregate Economic Cost of Occupational Injury and Disease in Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Base year</th>
<th>Cost (% of GDP/NI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>1995/96</td>
<td>1.2-1.4</td>
</tr>
<tr>
<td>Denmark</td>
<td>1990</td>
<td>2.5</td>
</tr>
<tr>
<td>Finland</td>
<td>1992</td>
<td>3.6</td>
</tr>
<tr>
<td>Norway</td>
<td>1990</td>
<td>10.1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1990</td>
<td>5.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>1992</td>
<td>2.7</td>
</tr>
<tr>
<td>Norway</td>
<td>1990</td>
<td>5.6-6.2</td>
</tr>
<tr>
<td>Australia</td>
<td>1992/3</td>
<td>3.9</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1995</td>
<td>2.6</td>
</tr>
</tbody>
</table>


There are various methodologies that can be used for considering the economy wide impacts of policies, including regulations, that could be applied to assessing the wider economic impacts of health and safety regulations. Two of these approaches (input-output analysis, and general equilibrium modelling) are briefly summarised below.

**Input-output (I/O) analysis** is an approach that can be applied to estimate the economic impacts of policies that result in a change in demand for goods and services, and has been applied to the estimate the economic impacts of a considerable range of policies across government. This approach has the advantage of allowing for consideration of linkages between markets in different sector of the economy. The Office for National Statistics compiles Input-Output tables for the United Kingdom, which show the flow of goods and services, as well as labour, capital, and raw materials, between industries, and are used for compiling the National Accounts. Input-output tables of this type can be used to estimate the wider economic impacts of changes in final demand for goods and services in specific sectors that have taken place in a specific year. Input-output models can be used to estimate the impact on upstream and downstream industries of a change in demand arising from a specific policy, and to estimate the overall economic impacts to employment, incomes and output.

\textsuperscript{170} Cited in ILO, Occupational safety and health: Synergies between security and productivity, 2006.

\textsuperscript{171} BERR, Improving Outcomes from Health and Safety: A Call for Evidence, 2007.


However, the approach imposes large data requirements, and requires many assumptions that may not be realistic in assessing economic impacts. For instance, an I/O model may assume that a fixed amount of labour is required to produce a good whereas a general equilibrium model would allow wage levels to affect labour demand. Although Input-output modelling has been applied widely to policy assessment and evaluation, no examples have been found with reference to health and safety regulations.

A further possible approach to assessing the impacts of health and safety regulations to society as a whole would be via general equilibrium analysis. A general equilibrium model seeks to explain the behaviour of supply, demand and prices in a whole economy (i.e. across several markets) as opposed to partial equilibrium models which focus on a single market and assume other markets are not affected by the phenomenon under study. The approach allows estimation of the direct and indirect impacts of a policy on the structure of the economy, the allocation of resources, and the distribution of incomes. The advantage of a general equilibrium approach is that it recognises the interdependence of different markets and the importance of the price mechanism and therefore provides a more comprehensive measure of the wider impacts of regulation on economy and society.

No examples have been found in this study of general equilibrium models specific to health and safety. However, an example of the application of this approach, applied to environmental regulations, is provided by Hazilla and Kopp, which devised a general equilibrium model of the social cost of federal air and water pollution control regulations in the US. They found that, in 1981, the social costs of these regulations amounted to approximately $28 billion compared with the Environmental Protection Agency’s (EPA) $42.5 billion estimate of engineering compliance costs. In other words, their results imply that a benefit-cost analysis of the regulations would underestimate the net benefits of the Clean Air and Clean Water acts by $14.5 billion or about 50% of their true social cost. Though not focussed on health and safety, the results from this model suggest that private expenditure is a poor measure of the economic impacts of regulation at a societal level. The findings suggest that it is imperative to go beyond cost-benefit calculations at enterprise and individual level when evaluating the cumulative economic impacts of regulations to society, and apply an approach that is able to take account of the interactions between markets.

In summary, while there is an understanding in the literature that health and safety regulation has significant impacts for stakeholders other than businesses, attempts to quantify these impacts have been limited and marred by methodological and data constraints. Costs to the taxpayer in terms of health costs and claims disability benefit claims have provided one measure of the impact of health and safety on society. Cross-national research has focussed on estimating the impact of health and safety failures on GDP. In the US input/output analysis tools have been developed to estimate regulatory impacts and general equilibrium analysis has been used especially in the context of environmental regulation. The next section summarises the conclusions of this study and derives a set of policy recommendations.

SECTION 6
CONCLUSIONS AND RECOMMENDATIONS

CHAPTER SUMMARY

• Government regulatory activity should be assessed and evaluated as an attempt to allocate available societal resources in a way that maximises value;

• There is little in-depth discussion of many aspects of the cumulative economic impacts of regulation in the existing literature. This includes, in particular, the extent and impact of regulatory interactions, and this is an area where additional research would be very valuable;

• Some of the evidence considered in the study acknowledges the potential economic impact of regulatory interactions including overlaps and conflicting requirements;

• There is a large amount of existing literature documenting the impact of health and safety regulation on businesses but less so for individuals or society as a whole;

• There is a need to strengthen linkages between the ex-ante impact assessment and ex-post evaluation stages of assessing the economic impacts of health and safety regulations;

• In assessments and evaluations, the rationale for health and safety regulations should be carefully examined to ensure that regulations are value creating;

• There should be significant advantages in strengthening the focus on business processes in impact assessments and evaluations;

• Although already a feature of impact assessments and evaluations, this review highlights the need for empirical inputs to estimating the impact of health and safety regulations, particularly dynamic/interactive impacts;

• The appropriateness of Department of Transport figures as a basis for estimates of the economic impact of health and safety outcomes should be reviewed and, if possible, parameters developed that are OSH-specific;

• Additional research should be conducted into the role of regulatory design and the role of the HSE within the health and safety system in the UK.

6.1 OVERVIEW

This report has identified existing evidence of the cumulative economic impacts of health and safety regulation, and included a review of available evidence in the literature and through additional information collected in fieldwork interviews with individual businesses, business trade organisations, public sector organisations and other stakeholders. The research focused on two types of “cumulative” economic impacts of health and safety regulations:

• Impacts of health and safety regulations on business economic performance;

• Impacts of health and safety regulations in terms of costs and benefits to other groups in society and to society overall.
Section 6.2 summarises the principal findings of the study. Section 6.3 provides recommendations to facilitate development of evidence on the cumulative economic impacts of health and safety regulations.

6.2 SUMMARY OF KEY FINDINGS

This section provides a summary of the main conclusions of the report as they relate to the aims of this study.

The evidence that was identified in this study indicates a consensus that government regulatory activity should be assessed and evaluated as an attempt to allocate available societal resources in a way that maximises value. In this context, a comprehensive framework for assessment and evaluation of the cumulative economic impacts of health and safety regulations needs to include consideration of the demands of a wide range of stakeholders, include measures of use and non-use value based on a combination of market prices and stakeholders’ willingness to pay.

There is little in-depth discussion of many aspects of the cumulative economic impacts of regulation in the existing literature. This includes, in particular, the extent and impact of regulatory interactions, and this is an area where additional research would be very valuable. The research reviewed in this study acknowledges that regulatory impacts may change over time as a result of macro-level (national/sectoral, etc.) and micro (firm-level) changes. Anecdotal evidence suggests that regulatory overlaps are fairly common in health and safety across Europe though there was only limited evidence of interactions in the UK for the three case study regulations.

Some of the evidence considered in the study acknowledges the potential economic impact of regulatory interactions including overlaps and conflicting requirements. However, a systematic analysis of the business processes targeted by a regulatory intervention provides an approach to facilitate the identification of dynamic impacts and regulatory interactions.

In line with much existing research, this study defines business economic performance in terms of productivity. In order to incorporate not only the input side of the production function but also the output side, it is suggested that future assessment and evaluation of the economic impacts of health and safety regulations builds on current practise to categorise impacts depending on the business processes and work activities that are affected by a regulation. This approach would distinguish between inward and outward oriented processes and between strategic and operational decision-making within businesses.

There is a large amount of existing literature documenting the impact of health and safety regulation on businesses. General conclusions about the scale of impacts are hampered by differences in methodological approach and focus though it is clear that cost internalisation plays a large role for businesses. The framework in this report draws some of this research together in a systematic analysis centred on a typology of relevant business processes. There is evidence suggesting that health and safety regulations have a disproportionate impact on smaller firms and companies in particular sectors, particularly those which are relatively more labour intensive (e.g. construction, hotels and restaurants etc). A smaller research programme has also investigated the cumulative impact of health and safety regulation on entrepreneurship and differences in the way health and safety issues are addressed depending on company age and product life cycle.

This study distinguishes between three main groups of stakeholders (individuals, employers and society), each of which consists of a number of subgroups. There is significant evidence in the literature that, of the total costs to society of health and safety
failures, the largest component consists of costs to individuals. Available evidence indicates that, in terms of direct impacts, businesses only bear a relatively small proportion of the total costs of health and safety failures. The distribution of these costs between the main stakeholders suggests a key rationale for government intervention in health and safety.

Among individuals, a number of factors need to be taken into account when assessing and evaluating the cumulative economic impacts of health and safety regulations. These include health, quality of life, grief and suffering present and future income losses and any expenses that are not covered by insurance/compensation. It is also important to take into account any distributional differences among individuals.

At societal level, there are few empirical attempts to tackle the complexity of evaluating the economic impacts of health and safety regulations. Some of the research that have been identified rely on the relatively straightforward adding up of ex-ante estimates, and considerable caution needs to be applied to the findings obtained from this approach. Attempts to measure productivity losses at societal level have found that costs of occupational injury and disease in developed countries range between 1.2% (UK) and 10.1% (Norway). These estimates are subject to a large degree of uncertainty and assumptions. Although this provides an indication of the potential scale of benefits (cost savings) from more effective management of health and safety, estimates of the costs of occupational injury and disease provide only a limited insight into the economic impacts of health and safety regulations as they do not provide estimation of either the costs of health and safety regulations, nor the benefits of regulation.

There are techniques that could be applied to assessing the cumulative economic impacts of health and safety regulations at a societal level, although these may impose several restrictive assumptions and can have considerable data and analytical requirements.

6.3 RECOMMENDATIONS

This section outlines recommendations for the development of further evidence on the cumulative economic impacts of health and safety regulations.

There is a need to strengthen linkages between the ex-ante impact assessment and ex-post evaluation stages of assessing the economic impacts of health and safety regulations. In the medium term, this could be facilitated, for example, by the development of a database (or several databases) containing ex-ante & ex-post estimates of costs and benefits of health and safety regulations at different levels of aggregation (e.g. by sector, by business size, by region, by regulatory requirement, etc). Ideally, such a database could also be designed around the business processes and work activities that are affected by health and safety regulations and that are deemed significant for impact assessment purposes.

In the short term a simple cost/benefit database collecting available information from existing impact assessments and evaluations could highlight areas where additional research is required and where current impact assessment and evaluation procedures could be refined.

In assessments and evaluations, the rationale for health and safety regulations should be carefully examined to ensure that regulations are value creating. Where there is significant potential of non-use value creation, the assessment and evaluation process should incorporate these alongside any use value in the calculation of economic impacts. Ideally, a combination of market prices and willingness-to-pay methodologies should be used as an input into evidence of potential value creation.
There should be significant advantages in strengthening the focus on business processes in impact assessments and evaluations. The business process approach should help capture a wider range of significant regulatory impacts stretching across several markets without the resource requirements of general equilibrium or input/output analyses. In order to build on the achievements of current IA methodologies, the report suggests that a business process analysis should distinguish at least between inward and outward oriented processes and between strategic & operational decision-making.

Although already a feature of impact assessments and evaluations, this review highlights the need for empirical inputs to estimating the impact of health and safety regulations. The report suggests that business impacts should be sector-specific and take into account company size as far as possible. Any costs incurred as a result of health and safety intervention should be set against estimates of the use and non-use value generated.

5. More empirical work is needed on dynamic/interactive impacts arising form health and safety regulations. The literature search undertaken for this study has found little systematic analysis of the way in which individual regulations interact apart from anecdotal evidence from individual survey respondents. On the positive side, there were very few examples of contradictory regulatory requirements, which is particularly interesting in view of the different levels of policymaking and enforcement involved in health and safety in the UK (e.g. Europe, central government, HSE, local authorities). Nevertheless, there is a clear perception among the business community and other stakeholders that where regulatory overlaps occur, any resulting potential for cost savings should be explored.

The appropriateness of using Department of Transport figures as a basis for estimates of the economic impact of health and safety outcomes should be reviewed and, if possible, parameters developed that are OSH-specific. This seems especially opportune in view of existing research commissioned by the HSE’s on societal concerns, dread and individual aversion to certain types of injuries or health effects. It is recommended that the HSE consider the emerging findings from the current cross-departmental group on valuing life and health, which is being led by HM Treasury, and the extent to which the estimates and methodology developed via this group should be applied to HSE impact assessments and evaluations.

This study recognises the considerable complexity of obtaining robust evidence regarding the relationship between health and safety regulations and changes in final health and safety outcomes. As a core input into the assessment and evaluation of economic impacts, this is an area that could considerably benefit from further research and analysis, although it may be a difficult area in which to reach firm general conclusions. A more feasible approach to evaluation of cumulative economic impacts is likely to be via further research to evaluate the impact of health and safety regulations on intermediate measures of identification, assessment and management of health and safety risks, and the extent to which these relate to final health and safety outcomes.

Additional research should be conducted into the role of regulatory design. This is needed both in terms of the economic impacts that it may create and in terms of developing a consistent methodology for estimating the impacts for voluntary or self-regulation and for incentive based regulatory interventions. It is likely that the proposed database of ex-ante and ex-post impacts could inform this research exercise.
APPENDIX A
LIST OF REFERENCES

46. Health and Safety Executive, *Costs of compliance with health and safety regulations in SME’s*, Research Report RR174
47. Health and Safety Executive, *Evaluation of the implementation of the use of work equipment directive and the amending directive to the use of work equipment directive in the UK*, Research Report RR125.


This Appendix provides a brief summary of the regulations examined as case studies in this report.

CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH (COSHH)

The Control of Substances Hazardous to Health (COSHH) Regulations were first introduced in 1988. Since then they have been progressively modified to address emerging specific issues. These modifications have included the requirement for extra controls at processes such as fumigation, for example, or making an annual test of LEV mandatory.

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) sets eight basic measures that employers, and sometimes employees, must take. Hazardous substances include: substances used directly in work activities (e.g. adhesives, paints, cleaning agents); substances generated during work activities (e.g. fumes from soldering and welding); naturally occurring substances (e.g. grain dust); and biological agents such as bacteria and other micro-organisms.

Hazardous substances can be found in nearly all working environments, and so the regulation has an impact across different industries. In the table below, we present a brief list of the steps employers need to take to comply with COSHH, of which the focus of the case study would be on Step 1, ‘Risk Assessment’.

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Assess the risks</th>
<th>Assess the risks to health from hazardous substances used in or created by your workplace activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>Decide what precautions are needed</td>
<td>You must not carry out work which could expose your employees to hazardous substances without first considering the risks and the necessary precautions, and what else you need to do to comply with COSHH.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Prevent or adequately control exposure</td>
<td>You must prevent your employees being exposed to hazardous substances. Where preventing exposure is not reasonably practicable, then you must adequately control it. The advice in this leaflet, and in the other guidance it refers to, will help you to make correct assessments and to put the appropriate controls into place.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Ensure that control measures are used and maintained</td>
<td>Ensure that control measures are used and maintained properly and that safety procedures are followed.</td>
</tr>
<tr>
<td>Step 5</td>
<td>Monitor the exposure</td>
<td>Monitor the exposure of employees to hazardous substances, if necessary.</td>
</tr>
<tr>
<td>Step 6</td>
<td>Carry out appropriate health surveillance</td>
<td>Carry out appropriate health surveillance where your assessment has shown this is necessary or where COSHH sets specific requirements.</td>
</tr>
<tr>
<td>Step 7</td>
<td>Prepare plans and procedures to deal with accidents, incidents and emergencies</td>
<td>Prepare plans and procedures to deal with accidents, incidents and emergencies involving hazardous substances, where necessary.</td>
</tr>
<tr>
<td>Step 8</td>
<td>Ensure employees are properly informed, trained and supervised</td>
<td>You should provide your employees with suitable and sufficient information, instruction and training.</td>
</tr>
</tbody>
</table>
According to the HSE Administrative Burdens Measurement Exercise, COSHH is often perceived as excessive complex, with people noting the use of overly ‘technical’ language, lack of a ‘level playing field’ when comparing the requirements of the COSHH regime with that of other EU regulatory regimes, and a disproportionate impact on smaller businesses.

HSE has been rationalising the stock of COSHH guidance, which by April 2007 had been reduced from 130 items to 30. Information provided on the Regulations has also been made more user-friendly. HSE’s focus is on accessible guidance, easily understood by non-experts and SMEs. This has concentrated work to simplify dutyholders’ understanding of COSHH requirements.

**CONTROL OF ASBESTOS AT WORK REGULATIONS**

The Control of Asbestos Regulations 2006 came into force on 13 November 2006 (Asbestos Regulations - SI 2006/2739). The Regulations bring together the three previous sets of Regulations covering the prohibition of asbestos, the control of asbestos at work and asbestos licensing. The Regulations prohibit the importation, supply and use of all forms of asbestos. They continue the ban introduced for blue and brown asbestos 1985 and for white asbestos in 1999. They also continue the ban the second-hand use of asbestos products such as asbestos cement sheets and asbestos boards and tiles; including panels which have been covered with paint or textured plaster containing asbestos.

The duty to manage asbestos is contained in regulation 4 of Regulations, by which the dutyholder is required to:

- Take reasonable steps to find out if there are materials containing asbestos in non-domestic premises, and if so, its amount, where it is and what condition it is in;
- Presume materials contain asbestos unless there is strong evidence that they do not;
- Make, and keep up-to-date, a record of the location and condition of the asbestos containing materials – or materials which are presumed to contain asbestos;
- Assess the risk of anyone being exposed to fibres from the materials identified;
- Prepare a plan that sets out in detail how the risks from these materials will be managed;
- Take the necessary steps to put the plan into action;
- Periodically review and monitor the plan and the arrangements to act on it so that the plan remains relevant and up-to-date; and
- Provide information on the location and condition of the materials to anyone who is liable to work on or disturb them.

There is also a requirement on anyone to co-operate as far as is necessary to allow the dutyholder to comply with the above requirements. The duty to manage covers all non-domestic premises. Such premises include all industrial, commercial or public buildings such as factories, warehouses, offices, shops, hospitals and schools.
WORK AT HEIGHT REGULATIONS

The Work at Height Regulations 2005 came into force on 6 April 2005. The Regulations apply to all work at height where there is a risk of a fall liable to cause personal injury. They place duties on employers, the self-employed, and any person that controls the work of others (for example facilities managers or building owners who may contract others to work at height).

The Work at Height (Amendment) Regulations 2007 which came into force on 6 April 2007 apply to those who work at height providing instruction or leadership to one or more people engaged in caving or climbing by way of sport, recreation, team building or similar activities in Great Britain.

As part of the Regulations, duty holders must ensure:

- all work at height is properly planned and organised;
- those involved in work at height are competent;
- the risks from work at height are assessed and appropriate work equipment is selected and used;
- the risks from fragile surfaces are properly controlled; and
- equipment for work at height is properly inspected and maintained.

There is a simple hierarchy for managing and selecting equipment for work at height. Duty holders must:

- avoid work at height where they can;
- use work equipment or other measures to prevent falls where they cannot avoid working at height; and
- where they cannot eliminate the risk of a fall, use work equipment or other measures to minimise the distance and consequences of a fall should one occur.
APPENDIX C
CONCEPT OF PUBLIC VALUE

Table C.1 summarises the essential elements of a public value approach to regulatory intervention and contrasts them with a more conventional approach to cost-benefit analysis.

Table C.1: Key Elements of a Public Value Approach to Regulatory Intervention

<table>
<thead>
<tr>
<th>Key Elements</th>
<th>Public Value Approach</th>
<th>Conventional Approach to Cost-Benefit Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Rationale</td>
<td>Increase value by addressing demands of stakeholders</td>
<td>Improve economic efficiency and achieve equity objectives</td>
</tr>
<tr>
<td>Performance Measures</td>
<td>Benefits and costs measured in terms of market prices and willingness to pay; Include use and non-use value</td>
<td>Benefits and costs measured in terms of market prices; focus on use-value</td>
</tr>
<tr>
<td>Type of Impacts</td>
<td>Outcomes; Service Provision; Trust &amp; Legitimacy</td>
<td>Outcomes</td>
</tr>
</tbody>
</table>

For the purpose of this report, there are a number of similarities and difference between public value and conventional approaches to cost-benefit analysis.

First, government regulatory activity is considered, within both conventional cost-benefit analysis and the public value approach, as an attempt to allocate available societal resources in a way that maximises value. This is true for all kinds of public interventions, including health and safety regulations, competition regulations, environmental policy, etc. However, in comparison with the conventional approach where regulatory intervention requires an economic efficiency or equity rationale, the public value approach argues that an intervention rationale exists when there is sufficient demand for regulation from stakeholders to justify the costs of intervention.

Second, both approaches suggest that impact assessments and evaluations should, as far as possible, include a wide range of both use and non-use value. This is particularly the case in regulatory areas where ‘non-use’ value is likely to be significant, such as health and safety. This recognises that health and safety outcomes can have value for an individual, even if they are not used directly by that individual. Non-use values can include:

- **Option value** - the value of having a facility that may be used in the future;
- **Bequest value** - the value of having a facility preserved for future generations;
- **Altruistic value** – the value of knowing that a facility is available for others to use;
- **Existence value** – the value of knowing something exists, even if it cannot be used directly;

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177 It should be noted that some impact assessments and economic evaluations, particularly in the area of environmental regulation, do consider both use and non-use values. However, this area appears to be relatively under developed in formal analysis of health and safety regulations and policies.
• **Potential value** - the value of retaining something with a use-value that may only become clear in the future

As these examples show, the concept of non-use value is of very high significance for health and safety regulations and it informs much current thinking about regulatory intervention in this area.\(^{175}\) This type of value is not straightforward to capture quantitatively, though the concepts of willingness to pay and, and techniques such as contingent valuation, have been applied to monetise non-use value.

The main difference associated with the concept of public value is that it extends the range of impacts of public intervention beyond “outcomes” (e.g. lower accident rates, lower incidence of fatalities or work-related ill-health) to also include “service” and “trust”. In the case of HSE, services delivered to the public may include information and guidance on risk avoidance or on compliance with legislation, recommendations issued as a result of company inspections or enforcement and prosecution of duty holders who have breached health and safety regulations.

“Trust” refers to (among others) the perception of legitimacy, transparency or independence of the HSE or the fairness of health and safety legislation and its enforcement. For instance, the HSE’s definition of societal concerns as “risks or threats from hazards which impact on society and which, if realised, could have adverse repercussions for the institutions responsible for putting in place the provisions and arrangements for protecting people, e.g. Parliament or the Government of the day” implicitly acknowledges the importance of trust as a health and safety impact. As an HSE commissioned study\(^ {179}\) argues the drivers of societal concern are “ethical belief, values, political beliefs, and procedural issues, political, commercial, social and professional self-interests and ways of working”.\(^ {180}\) Similarly, in 2007, an HSE study found that “blame and responsibility were an important influence upon people’s judgements about the priority to be given to reducing different hazards.”\(^ {181}\)

While outcomes, service and trust are conceptually different, they may sometimes overlap or reinforce each other. For instance, a potential switch from universal to risk-based inspections in, say, the construction sector, might not change the desired outcomes of health and safety regulation (e.g. lower accident rates) but it might affect service provision (e.g. enforcement of legal obligations) and public trust (e.g. the way in which businesses and other stakeholders perceive the role of the HSE, and the fairness of health and safety legislation).

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\(^{175}\) Other policy areas where non-use value is of relevance include the environment, cultural policy, etc.

\(^{179}\) Cited in NERA (2007) Human Costs of a Nuclear Accident, HSE; See also University of Newcastle upon Tyne, University of East Anglia, Durham University, University of London and NERA Economic Consulting (/2007) Valuation of Health and Safety Benefits: Dread Risks, HSE Research Report 541.


\(^{181}\) Cited in NERA (2007) Human Costs of a Nuclear Accident, HSE; See also University of Newcastle upon Tyne, University of East Anglia, Durham University, University of London and NERA Economic Consulting (/2007) Valuation of Health and Safety Benefits: Dread Risks, HSE Research Report 541.
# APPENDIX D
## SUMMARY MATRIX

<table>
<thead>
<tr>
<th>Key Steps/aspects</th>
<th>Existing situation</th>
<th>Comments</th>
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<tbody>
<tr>
<td><strong>Existing research on the economic impacts of health and safety regulations</strong></td>
<td>Overall, there is a wealth of existing research on the impact of health and safety available. But from a methodological perspective, much of the existing research on regulatory impacts has a relatively narrow focus on compliance costs or, in some cases, different types of compliance costs. Ideally, a cost-benefit analysis includes “as many of the costs and benefits of a proposal as feasible, including items for which the market does not provide a satisfactory measure of economic value”. However, in practice CBA of health and safety regulations has been quite limited in terms of quantifying benefits.</td>
<td>An advantage of this approach is that compliance costs are relatively easy to measure. In addition, companies that are affected by health and safety regulation are likely to have at least a limited understanding of the scale of compliance costs they incur. But this approach fails to capture any of the benefits of regulations. It also restricts coverage of both the range of stakeholders affected and the scope of regulatory impacts.</td>
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<tr>
<td><strong>Bottom up and top down approaches to assessing impacts</strong></td>
<td>There are two possible approaches to assessment of the cumulative economic impacts of health and safety regulations: Bottom up - i.e. to build from assessment and evaluation of individual health and safety regulations, and examine how these overlap and interact with other health and safety regulations, to aggregate to the cumulative economic impacts at the broad level of the body of health and safety regulations; Top down, i.e. to assess the cumulative economic impacts of health and safety regulations at a macro (economy-wide) level, to consider how the body of health and safety regulations overall impacts on broad measures such as business productivity, labour market outcomes (including employment), and costs of workplace accidents and work-related ill health, at an economy wide level.</td>
<td>The advantage of a ‘bottom-up’ approach is that it is easier to identify the impact of specific regulations or combinations of regulations. However, a drawback of a purely ‘bottom up’ approach is that it is more difficult to identify and assess wider impacts. Whilst this particular difficulty is overcome with a ‘top-down’ approach, which is better at capturing the overall impacts of health and safety regulations, this type of methodology cannot tackle attribution so effectively, i.e. establish the relationship between specific regulation and economic impacts.</td>
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<tr>
<td><strong>Step 1 - Rationale for intervention, types of impacts and counterfactual scenarios</strong></td>
<td>The primary rationale for government intervention in all policy areas is the existence of a market failure but stakeholders may want the government to take action to bring about or prevent a course of action even when the features of market failure do not apply. There are a number of intervention rationales that are not directly linked to market failures - situations where social and physical contexts inhibit effective risk management, the legacy of past decisions that do not address risks appropriately (e.g. asbestos), inequality in risk exposure or involuntary exposure.</td>
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### Defining counterfactual scenarios

- Once the intervention rationale has been established, it is necessary to determine the baseline against which the regulation under study should be evaluated.
- This is important so that the assessment focuses on the *incremental impact* of the regulation without including effects that would have occurred irrespective of the regulation.

#### Typology of Economic Impacts

Three different types of economic effects of health and safety regulations can be distinguished:

- **Private effects** accrue to businesses or individuals that have directly incurred costs of complying with regulations (for example, by changing work processes and practices) and are not shared with the rest of society.
- **Social effects** are shared between groups and individuals across society.
- **Intended/unintended effects** - among private and social effects, a further distinction can be made between intended economic effects of health & safety legislation.

- Two types of counterfactual are particular relevant:
  - The “do nothing” scenario establishes the baseline against which incremental impacts of proposed regulations should be assessed.
  - An alternative is to compare different regulatory options, e.g. overall value of different regulatory proposals that respond to the same intervention rationale or the costs and benefits for different stakeholder groups under a variety of regulatory design scenarios.

### Step 2 – Economic Impacts on Businesses

**Business practices/processes and health and safety impacts**

Two dimensions can be identified along which business practices/processes affected by health and safety regulation might be classified:

- **Inward-oriented** business practices/processes refer to activities that are closely related to the production process within firms and they may include actual production, supply chains, logistics and transport and premises or location;
- **Outward-oriented** practices/processes refer to the revenue-generating side of the business, including marketing and sales, product development, etc.

- Business process analysis can help identify a wide range of health and safety impacts in both inward and outward oriented business activities and at the strategic and operational levels.
- Changes in the economy over time may affect how and to what extent health and safety regulation impacts on businesses. Greater use of information and communication technologies (ICT) or increased automation has resulted in a substitution of capital for labour.

**Impacts on internal and external aspects of business**

- A strategic commitment to health and safety is strongly aligned with businesses wishing to deliver high levels of job enrichment to their employees, engagement with suppliers and innovative new products and services. Existing research also suggests that health and safety regulations have wider, external benefits for business.
- But apart from the type of business process that is targeted by health and safety regulations, the regulatory impact will depend to a large extent on the

- A survey of UK company directors found that 79% of CEOs think health and safety has a tangible impact on the reputation of their company and 58% perceive an impact on brand protection, 58% on product and service quality, 64% on sales and profit and 64% on customer satisfaction.
- All of these responses indicate that health and safety regulations have a substantial impact on the company’s outward-oriented...
level of response from the affected business.  

• Company age, life cycles and growth experience and expectations also affect how businesses address health and safety and other regulatory matters.

**Influence of firm size and sector**

• A disproportionate impact of health and safety regulations on SMEs is confirmed by much – though not all – research.  

• SMEs are more likely to be affected by finance costs in relation to health and safety because they are more likely to require external resources to afford health and safety related investments.

• Self-regulation regimes are particularly challenging for small employers.  

• There is evidence to suggest that regulatory impacts in health and safety depend significantly on the sector in which the regulated company operates.

• For example, a study for the European Commission found that "smaller companies struggle more with regulatory compliance burdens than larger firms because they do not have the in-house capacity to deal with administrative requirements.

• Regulations in the UK have in recent years increasingly adopted "general standards" instead of more prescriptive command and control regulation. This means that the content of the regulation is determined _ex post_ rather that _ex ante_ and it creates challenges for the assessment and evaluation of regulatory proposals.

**Step 3 - Economic Impacts on Other Stakeholders**

**Impacts on individuals and society as a whole**

• Apart from business, there are three main stakeholders - individuals, employers and society as a whole.  

• There is a relative lack of empirical research and evidence on the cumulative economic impacts of health and safety regulations for individuals.

• There are also only a few attempts in the existing literature to tackle the considerable complexity of assessing or evaluating the cumulative economic impacts of health and safety regulations for society overall.

• But the wider societal impacts have strong implications in terms of economic performance.

• The three groups of stakeholders can be further subdivided into smaller sub-groups of stakeholders, e.g. employee representatives; trade and professional bodies; business networking groups; health and safety consultants and experts; lawyers and occupational health professionals; insurers.

• There are various methodologies that can be used for considering the economy wide impacts of policies, including regulations. These include input-output analysis, and general equilibrium modelling.

• However, these methodologies can impose large data requirements, and require many assumptions that may not be realistic in assessing economic impacts.

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Assessing the cumulative economic impacts of health and safety regulations

Scoping study

The aim of this study was to identify and analyse evidence on the cumulative economic impacts of health and safety regulations.

The study examined two types of cumulative economic effects – the impact of regulations on business performance and, secondly, the wider effects on other groups in society and society overall. The research, which involved a review of about 100 items of original research from the UK, Europe and elsewhere, included several case studies examining the impact of three regulations (COSHH, Asbestos at Work, and Work at Height) on two sectors (Construction and Chemicals).

The focus on the cumulative economic impacts of health and safety regulations distinguishes this study from other studies and the approach of assessing the economic impacts of individual health and safety regulations in isolation from one another. The purpose of the research was to support efforts within the HSE (and elsewhere in the UK Government) to conceptualise and measure the impacts associated with health and safety regulations, in order to deliver improved health and safety outcomes while minimising regulatory burdens.

The study was carried out for the Health and Safety Executive by the Centre for Strategy & Evaluation Services (CSES) in 2008.

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