# Final Report

# Study on the consequences of the documentation of the risk assessment (Article 9 of Directive 89/391/EEC) by very small enterprises engaged in low-risk activities, compared with a possible exemption from that obligation

## Contract VC/2011/0451

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# SUMMARY OF KEY POINTS

Europe Economics has carried out a study for DG Employment, Social Affairs and Inclusion (contract VC/2011/0451) on the documentation of health and safety risk assessments by micro-enterprises.

Article 9 of Directive 89/391/EEC currently requires all firms to document a health and safety risk assessment. Our study compared three scenarios:

(a) The current situation, taking account of actual levels of compliance with this obligation;

(b) A scenario of 100 per cent compliance; and

(c) A scenario in which micro-enterprises in low risk sectors are exempted from having to document a risk assessment (while retaining the requirement that all firms have to carry out a risk assessment).

In addition to qualitative analysis of the three scenarios, we developed a quantitative model to assess the costs and benefits of the 100 per cent compliance and exemption scenarios. The results of the model must be treated with caution given data limitations. To address the uncertainty caused by the data limitations we present results for low, medium and high sensitivity scenarios.

In order to analyse the impact of the exemption scenario, we needed to analyse how Member States might define "low risk". We concluded that this could be done by sector, by occupation, or by hazard exposure. The data available only allowed us to model the impact of different scenarios for a sector-based definition of low risk.

The information available suggests compliance with the documentation obligation decreases with firm size, and is likely to be lowest among micro-enterprises.

Exempting micro-enterprises in low risk sectors will lead to a reduction in administrative burdens. If the exemption also leads to firms not carrying out a risk assessment at all, then there will be further cost savings due to firms not incurring the cost of the risk assessment or the cost of taking actions on the basis of the risk assessment. At the same time, such non-compliance with the obligation to carry out a risk assessment may lead to increases in health and safety problems and the associated costs.

Under our medium sensitivity scenario, our modelling suggests there would be a small net benefit from exempting micro-enterprises from the documentation obligation for two of the three low risk definition scenarios (of between €5 million and €60 million). However, in the most conservative low risk definition scenario there would be a small net cost of the exemption of €6 million. Our analysis of uncertainty also suggests that there is a risk that the policy might lead to a negative outcome under all three low risk definition scenarios, as they all give rise to a negative net benefit in our low sensitivity scenario.

The scenario of increasing compliance to 100 per cent would lead to impacts in the opposite direction i.e. there would be cost increases due to more documentation, more risk assessments, and more actions taken on the basis of risk assessments, but this would potentially lead to benefits in terms of reduced health and safety problems. However, enforcement bodies would also incur substantial costs carrying out inspections to achieve this level of compliance (regardless of the type of inspection). Our modelling suggests that achieving 100 per cent compliance would lead to a substantial net cost of between €15 billion and €20 billion over 10 years in our medium sensitivity scenario. It may be beneficial to take actions aimed at increasing compliance without aiming for a compliance level as high as 100 per cent; however this analysis is beyond the scope of this report.

Our study also qualitatively considered various impacts on workers, governments, enforcement bodies and wider product and labour markets of the obligation to document health and safety risk assessments. For example, we identified that documented risk assessments can sometimes play a role after a health and safety incident has occurred.

# EXECUTIVE SUMMARY

This is the executive summary to the final report from Europe Economics for DG Employment, Social Affairs and Inclusion as part of contract VC/2011/0451.

Article 9 of Directive 89/391/EEC currently requires all firms to document a health and safety risk assessment. This study examines the consequences of the documentation of risk assessments by very small enterprises (less than 10 employees). We compare three scenarios:

a) The current situation, taking account of actual compliance with this obligation among micro-enterprises;
b) A scenario of 100 per cent compliance among micro-enterprises; and
c) A scenario in which micro-enterprises in low risk sectors are exempted from having to document a risk assessment (while retaining the requirement that all firms have to carry out a risk assessment).

## Conceptual framework

We developed a conceptual framework of how the documentation obligation affects firms' behaviour and health and safety outcomes.

The transposition and implementation of the Directive by Member States places firms under an obligation to document a risk assessment, which they may or may not be aware of. If they are aware of this obligation, they choose whether or not to comply, and if they do comply, whether they do so thoroughly or not.

Where the documentation obligation leads firms to do a risk assessment that they would not otherwise have done, or where it increases the quality or effectiveness of the risk assessment, it may lead to changes in the working environment and/or in the behaviour of workers and managers. These actions generate costs, in addition to the administrative burden of documentation. These costs, however, have to be set against the reduced exposure to hazards that these changes should result in and the consequent improvement in health and safety outcomes. These improvements bring benefits to firms, workers and governments. In theory, these costs and benefits may also feed through into other kinds of market impacts (e.g. in product or labour markets).

Enforcement bodies may also incur costs enforcing the documentation obligation, or they may find documentation reduces the cost of enforcing other health and safety laws.

The conceptual framework identifies possible impacts at a theoretical level. Our study gathered qualitative and quantitative evidence to assess how significant these various impacts are likely to be in practice. Our work includes a cost-benefit model that estimates the possible quantitative impacts of the exemption and 100 per cent compliance scenarios. It must be noted that limitations in data availability mean the modelling results should be treated with caution. To address some of the uncertainty relating to the input data, we present low, medium and high sensitivity scenarios for the net benefit of the exemption and 100 per cent compliance scenarios.

## Low Risk Definition

The definition of 'low risk' is relevant to the exemption scenario, where only micro-enterprises engaged in 'low risk' activities would be exempt from the documentation obligation. Following a review of previous approaches to the definition of low risk and an analysis of the different dimensions of the definition of low risk, we conclude that the following are plausible ways in which an exemption for low risk micro-enterprises might be implemented:

**Range of Low Risk Definitions**

| Regulatory definition of low risk | Possible derivation of list by policy-makers (although policy-makers could also derive a list in other ways) |
|---|---|
| All firms in the following sectors: [list of sectors] | Sectors in the bottom [x] per cent in terms of number of days lost per employee due to accidents and work-related health problems, excluding any sectors with a high incidence of fatalities and permanent incapacity |
| All firms only employing workers in the following occupations: [list of occupations] | Occupations that fall into the bottom [x] per cent in terms of number of days lost due to accidents and work-related health problems, excluding sectors with a high incidence of fatalities and permanent incapacity |
| All firms where employees are not exposed to any of the following hazards:[list of hazards] | List derived on basis of expert health and safety analysis |

We have analysed data on health and safety outcomes to identify the kinds of sectors, occupations or hazards that might be captured within a low risk definition. However, for the purpose of our cost-benefit modelling, we needed

to identify the number of micro-enterprises captured by our low risk definition, and the data were only available to do this for sector-based definitions.

Hence, for our modelling we examined data on three indicators, by sector:

a) days lost due to accidents and work-related health problems,
b) permanent incapacity due to accidents and work-related health problems, and
c) fatalities due to accidents at work.

We then applied illustrative thresholds for the value of these indicators below which a sector might be considered low risk. Different thresholds for these indicators were applied to select low risk sectors under three scenarios. These three scenarios are Low Risk Scenario 1 (which is the strictest definition of low risk with the lowest threshold of accidents and illnesses below which sectors are considered low risk); Low Risk Scenario 2 (a medium scenario with a higher threshold); and Low Risk Scenario 3 (the least strict definition of low risk with the highest threshold of accidents and illnesses below which sectors are considered low risk).

As the most conservative scenario, Low Risk Scenario 1 has least number of sectors (four sectors, representing 1.4 per cent of micro-enterprises); Low Risk Scenario 2 contains eight sectors (representing 4.7 per cent of micro-enterprises); and Low Risk Scenario 3 as the least conservative scenario contains 14 sectors representing 13.2 per cent of micro-enterprises.

The number of micro-enterprises contained within these low risk scenarios is relatively small. This partly reflects the fact that the number of sectors which fell below the thresholds we applied was a small proportion of all sectors (ranging from 4.8 to 17 per cent of all sectors). However, it also appears to be due to the composition of low risk sectors (for example, the sector with the largest number of micro-enterprises is agriculture which is not included in any of our low risk scenarios).

### Implementation by Member States

Transposition and implementation are important to our analysis because the way in which Member States have transposed the Directive into national legislation and implemented it will affect the costs and benefits of the Directive.

We have grouped Member States following an analysis of the ways in which they have implemented the Directive. This analysis draws upon responses to a questionnaire distributed by the European Commission to Member States on their transposition and implementation of the provisions of the Directive. The analysis has been checked against information obtained from interviews with enforcement bodies and takes account of feedback from the Working Group.

### Awareness and Compliance

Based on the evidence from the literature and information from interviews with enforcement bodies, the extent of compliance with risk assessment increases with the size of the company. Compliance with the documentation obligation is likely to be lowest among micro-enterprises.

Achieving 100 per cent compliance would require a significant increase in activity by enforcement bodies, and this would give rise to substantial costs which have been included in our cost-benefit modelling.

### Administrative Burdens

Administrative burdens are costs specifically linked to the information that businesses would not collect and provide in the absence of a legal obligation. The Standard Cost Model (SCM) is designed to calculate administrative burdens in a consistent way across different areas of policy. We have used a variant of the Standard Cost Model in which we take account of actual levels of compliance.

We report on past attempts to quantify relevant administrative burdens. While we have drawn on data from these studies where appropriate, we have made a number of adjustments to arrive at our own estimate of administrative burdens. In particular, we have focused on administrative burdens specifically for micro-enterprises, focusing on low risk sectors in the exemption scenario. We have also taken account of differences in transposition and other implementation measures across Member States.

Where the documentation obligation leads firms to carry out risk assessments that they would not otherwise have done (i.e. by increasing compliance with the obligation to do a risk assessment), there will be additional costs associated with the risk assessment itself. Similarly, in some cases when a firm no longer has to document the risk assessment it may decide not to comply with the requirement to carry out a risk assessment, in which case the

costs associated with the risk assessment are avoided. Although this is not an administrative burden, this is an important cost and has been calculated separately in our modelling.

## Health and Safety Impacts

The impact of an exemption scenario and a 100 per cent compliance scenario on health and safety outcomes in firms is a key element of our analysis. Data on the existing prevalence and costs of work-related accidents and illnesses are limited in some areas and for some Member States, as is information on the effect of documentation on firms' health and safety practices. The results of this analysis are therefore subject to substantial uncertainty.

We first analysed cross-country data to assess whether differences in the percentage of firms conducting risk assessments or the existence of an exemption from the documentation requirement appear to be related to health and safety outcomes. We found *prima facie* evidence of a relationship (i.e. conducting and documenting risk assessments appears to be associated with better health and safety outcomes), although there is substantial uncertainty around this analysis and some of the results are not statistically significant.

In order to investigate potential impacts in more detail, we analysed the chain of causality by which the documentation obligation may lead to benefits in terms of improved health and safety. The links in this chain of causality are:

a) The documentation obligation affecting compliance with the risk assessment obligation and/or increased the quality or effectiveness of risk assessments
b) The number and/or quality of risk assessments affecting health and safety practices
c) Health and safety practices affecting health and safety outcomes
d) Health and safety outcomes affecting the welfare of relevant stakeholders, i.e. workers, businesses, and governments.

An important way in which the documentation obligation may improve outcomes is through the compliance effect, i.e. firms may not comply with the underlying obligation to carry out a risk assessment if they do not have to document it, since it will be more difficult for anyone to prove they have not carried out a risk assessment. We have found some qualitative evidence to support the existence of a compliance effect. For example, we note that:

a) Findings from our interviews support the claim for a compliance effect
b) The importance of documentation in ensuring compliance has been recognised in other contexts.

Evidence on the size of this effect, however, is not available, and the stakeholders we spoke to were divided as to whether the documentation obligation has a large or small effect on firms' compliance with actual risk assessments.

We identified four further impacts of documentation which seem likely to improve the quality of risk assessments, and two potential negative effects whereby documentation may reduce the effectiveness of risk assessments. We concluded that these negative effects are unlikely to offset the positive ones, and hence documentation seems likely overall to have a positive impact upon the quality of risk assessment and the compliance of firms with the obligation to conduct a risk assessment.

When more and better risk assessments are undertaken, the evidence that we have reviewed supports the case that this leads to improved health and safety practices. For example, a Dutch study that we have reviewed found that risk assessments are associated with a 15 per cent increase in measures intended to improved health and safety outcomes.

These actions will tend to reduce health and safety problems at work. We drew on evidence from Social Europe (2011) report to produce a range estimate for the potential reduction in accidents and work-related health problems that may result from such actions. We also used the data from the Social Europe study to produce an estimate of the costs of carrying out these actions to improve health and safety.

In our modelling, we have combined the above evidence with data on the current costs of health and safety problems at work to produce a monetary estimate of the potential health and safety impacts of an exemption scenario and a 100 per cent compliance scenario.

## Modelling of Impacts

We have modelled the impact of achieving 100 per cent compliance (across all micro-enterprises), and the impact of exempting firms in low risk sectors.

Due to uncertainty surrounding the data for some of the inputs, we have applied uncertainty, or sensitivity, analysis to our results. This entails using values for the inputs that result in a low, medium or high net benefit of the scenarios that are modelled.

*Current situation*

The current situation is of interest in its own right, and also provides the benchmark (or counterfactual) against which to measure the additional impacts of either an exemption from the documentation obligation, or a move to 100 per cent compliance with the obligation.

Our model estimates that the current administrative burden to micro-enterprises in the EU of the documentation obligation is approximately €170 million per year with a net present value of €1.28 billion over ten years. This takes into account the current low levels of compliance with the obligation.

The total costs in terms of lost output arising from current health and safety incidents in micro-enterprises (comprising non-fatal accidents, permanent incapacity and fatalities from accidents, and work-related ill-heath) is estimated at €21.6 billion for 2012. The model may underestimate this value as it does not include fatalities from work-related ill-heath.

*100 per cent compliance scenario*

Our modelling exercise considers the costs and benefits of achieving 100 per cent compliance with the documentation obligation. Under this scenario, firms will incur increased costs conducting and documenting risk assessments and implementing measures to improve health and safety practices, and enforcement bodies will incur increased enforcement costs. Benefits include improved health and safety outcomes from the link between documentation, risk assessment and health and safety practices of firms.

The results in the tables below suggest that the costs of achieving 100 per cent compliance (which include significant enforcement costs) are likely to outweigh the benefits. This is the case under two different enforcement scenarios, whereby enforcement bodies can either ensure 100 per cent compliance through full inspections of firms' health and safety practices, or through inspections of the documentation only. The net cost of the full inspection model is approximately €15 billion in the medium sensitivity scenario over 10 years, and the net cost over ten years of the documentation-only inspection scenario is approximately €20 billion in the medium sensitivity scenario.

**Model Results for 100 per cent compliance – full inspection scenario (€ millions)**

| | **Net present value over 10 years** | | |
|---|---|---|---|
| | **Low** | **Medium** | **High** |
| ***Benefits*** | | | |
| Reduction in lost output from health and safety incidents | 4,224 | 8,069 | 13,115 |
| Reduction in healthcare system costs from health and safety incidents | 845 | 1,614 | 2,623 |
| Reduction in other costs of health and safety incidents | 296 | 565 | 918 |
| Reduction in non-financial costs of health and safety incidents | 7,097 | 13,556 | 22,033 |
| ***Costs*** | | | |
| Increase in administrative burdens | 18,222 | 8,896 | 2,823 |
| Increase in risk assessment costs | 9,057 | 7,246 | 5,434 |
| Cost of additional measures taken | 2,347 | 3,294 | 4,231 |
| Additional regulator costs | 35,631 | 19,369 | 10,204 |
| ***Overall net benefit*** | **- 52,795** | **- 15,001** | **15,997** |

*Note. The full inspection scenario assumes that enforcement bodies inspect firms' health and safety practices alongside the documentation to make sure that 100 per cent compliance with the documentation translates into 100 per cent compliance with genuine risk assessments. These inspections would be relatively thorough and would result in higher health and safety benefits as all firms would comply with both the documentation obligation and the obligation to carry out a risk assessment.*

**Model results for 100 per cent compliance – documentation only scenario (€millions)**

| | Net present value over 10 years | | |
|---|---|---|---|
| | **Low** | **Medium** | **High** |
| ***Benefits*** | | | |
| Reduction in lost output from health and safety incidents | - | 2,017 | 6,557 |
| Reduction in healthcare system costs from health and safety incidents | - | 403 | 1,311 |
| Reduction in other costs of health and safety incidents | - | 141 | 459 |
| Reduction in non-financial costs of health and safety incidents | - | 3,389 | 11,016 |
| ***Costs*** | | | |
| Increase in administrative burdens | 18,222 | 8,896 | 2,823 |
| Increase in risk assessment costs | - | 1,811 | 2,717 |
| Cost of additional measures taken | - | 823 | 2,115 |
| Additional regulator costs | 26,723 | 14,527 | 7,653 |
| ***Overall net benefit*** | **- 44,945** | **- 20,107** | **4,036** |

*Note: The documentation-only inspections scenario assumes that enforcement bodies only inspect firms to ensure compliance with the documentation obligation. Although this would entail fewer resource costs from simpler inspections, firms would have no additional incentive to undertake genuine risk assessments or to take actions on the basis of their findings, since the inspections would not cover actual health and safety practices.*

*Exemption scenario*

Under the exemption scenario, micro-enterprises engaged in low risk activities are exempt from the documentation obligation. To model the potential impact, we used the three low risk scenarios discussed earlier, and for each one we produced high, medium and low sensitivity scenarios for the net benefit of an exemption.

Under our medium sensitivity analysis scenario, our modelling suggests there would be a small net benefit from exempting micro-enterprises from the documentation obligation for two of the three low risk definition scenarios (between €5 million and €60 million over ten years). However, in Low Risk Scenario 1 there would be a small net cost of €6 million.

The net impact of an exemption is relatively small. This is partly due to relatively low savings from reduced administrative burdens, largely because of current low levels of compliance with the obligation. In addition, cost savings from an exemption may be partly offset (or wholly offset in the case of Low Risk Scenario 1) by increased costs from worse health and safety outcomes. The latter impact assumes that if firms are no longer required to document the risk assessment, a certain proportion will also cease to undertake a risk assessment due to the 'compliance effect' discussed earlier.

Our analysis of uncertainty also suggests that there is a risk that the policy might lead to a negative outcome under all three Low Risk definition scenarios, as they all give rise to a negative net benefit in our low sensitivity scenario.

**Model Results for Exemption of Low Risk Micro-enterprises (€ million)**

| | Net present value over 10 years | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Low risk scenario 1** | | | **Low risk scenario 2** | | | **Low risk scenario 3** | | |
| | Low | Medium | High | Low | Medium | High | Low | Medium | High |
| ***Benefits*** | | | | | | | | | |
| Reduction in administrative burdens | 7.0 | 21.7 | 47.8 | 10.3 | 31.6 | 69.0 | 29.6 | 88.4 | 188.1 |
| Reduction in risk assessment costs | 5.2 | 3.5 | - | 11.5 | 7.7 | - | 27.3 | 18.2 | - |
| Savings from fewer measures | 13.0 | 5.0 | - | 14.2 | 5.5 | - | 19.1 | 7.4 | - |
| ***Costs*** | | | | | | | | | |
| Increase in lost output from health and safety incidents | 40.2 | 12.4 | - | 44.2 | 13.6 | - | 59.2 | 18.2 | - |
| Increase in healthcare system costs from health and safety incidents | 8.0 | 2.5 | - | 8.8 | 2.7 | - | 11.8 | 3.6 | - |
| Increase in other financial costs of health and safety incidents | 2.8 | 0.9 | - | 3.1 | 1.0 | - | 4.1 | 1.3 | - |
| Increase in non-financial costs of health and safety incidents | 67.5 | 20.8 | - | 74.2 | 22.8 | - | 99.4 | 30.6 | - |
| ***Overall net benefit*** | **-93** | **-6** | **48** | **-94** | **5** | **69** | **-99** | **60** | **188** |

## Other Impacts

There are a number of qualitative impacts of an exemption from the documentation obligation that are not captured by the modelling. In terms of the role of the documentation on firms' health and safety practices, the model only captures the effect that the document has on firms' carrying out a risk assessment. However there is evidence that the document also has an effect on the quality of risk assessments and on the number and effectiveness of health and safety actions taken to address risks, both which have an effect on overall health and safety outcomes.

There may be impacts additional to those upon administrative burdens and health and safety impacts resulting from compliance with the documentation obligation. In particular, our research suggests that documented risk assessments can play an important role after workplace health incidents occur, particularly under certain kinds of insurance or compensation schemes within Member States.

An exemption from the documentation obligation can also impact the ability of enforcement bodies to monitor firms' compliance with health and safety practices. Labour inspectorates in some Member States rely heavily on the documentation as a signal of firms' compliance with the health and safety legislation, and in the absence of any documentation such monitoring would need to be done through inspections, at a greater cost. This is not the case across the board, however; some enforcement bodies place little weight on the documentation and would not find the absence of such documentation a problem.

It could be argued that an exemption from the obligation would infringe the rights of workers to be informed and consulted, but we concluded that there are other means by which information may be provided and consultation can occur, which may be more feasible in relatively small firms.

## Conclusion

While our modelling results must be treated with caution given the uncertainties involved, the results suggest that an exemption from the documentation obligation for micro-enterprises in low risk sectors would lead to a small net benefit under our medium scenario for two of the three Low Risk definition scenarios. However, our uncertainty analysis suggests that the possibility that an exemption might lead to a negative net benefit under all of the Low Risk definition scenarios cannot be ruled out, as they all give rise to a net cost in our low sensitivity scenario.

Our analysis suggests that it would not be worthwhile to attempt to increase compliance with the documentation obligation to 100 per cent, since the costs of doing this (including enforcement costs) are likely to outweigh the benefits. This does not exclude the possibility that increasing compliance to a level less than 100 per cent may be beneficial; however the modelling of this is beyond the scope of this report.

# 1 INTRODUCTION

1.1 Europe Economics is pleased to submit this final report to DG Employment, Social Affairs and Inclusion as part of contract VC/2011/0451.

1.2 This report and contract are concerned with a study on the consequences of the documentation of the risk assessment (Article 9 of Directive 89/391/EEC) by very small enterprises in low risk sectors, compared with a possible exemption from that obligation.

1.3 This final report compares the following three situations:

(a) the actual situation: the present-day transposition and application by very small companies (i.e. with fewer than 10 workers) of the existing obligation in the Directive to document the risk assessment;

(b) the situation of 100 per cent compliance by very small enterprises with the existing obligation in the Directive to document the risk assessment; and

(c) the alternative situation as proposed in the HLG recommendation: the exemption of very small firms undertaking certain low risk activities from the obligation to document the risk assessment.

1.4 This report is composed of the following sections:

(a) Background (section 2): This sets out the motivation for this study and the relevant legislation.

(b) Conceptual framework (section 3): In this section we set out the conceptual framework that has structured our analysis.

(c) Scenarios for the definition of low risk (section 4): This section suggests several definitions of 'low risk', assesses them, and comments on the robustness and implications of the definitions. It then applies a statistical method to derive definitions of low risk based upon both the sectors in which micro-enterprises are based and the occupations of workers within micro-enterprises.

(d) Worker sub-groups (section 5): This chapter begins by exploring workplace risks which may be particular to certain sub-groups of workers (e.g. pregnant women) and assesses the prevalence of these groups within the sectorial based definition of low risk derived in the previous chapter.

(e) Implementation by Member States (section 6): This section describes the transposition of the Directive and other implementation measures by Member States.

(f) Awareness and compliance (section 7): This section assesses how aware micro-enterprises are of their obligations under the Directive and how compliant they are with them.

(g) Administrative burdens (section 8): This section analyses the administrative burdens on micro-enterprises created by the obligation with the Directive to document risk assessments, and the reduction in administrative burdens that might result from the proposed exemption.

(h) Health and safety impacts (section 9): This section begins by setting out the current situation with regard to health and safety problems in micro-enterprises. We then assess the potential health and safety impacts of either increasing compliance with the obligation to document risk assessments to 100 per cent, or of exempting micro-enterprises in low risk sectors from the documentation obligation.

(i) Other impacts (section 10): In this section we discuss other impacts that may arise from the proposed exemption for small low risk firms from the obligation to document risk assessments. These are in addition to any direct and indirect health and safety impacts, which have been covered in the previous section.

(j) Conclusions (section 11): This chapter draws upon the results of our model and other analysis to provide our responses to the key questions addressed by this research.

1.5 Additionally, we include a glossary of some of the terms used in our report in an appendix. We also include separate appendixes with, first, details on who was interviewed as part of this project and the issues discussed in these interviews; second, the standard cost model for estimation of administrative burdens; third, a review of information sources relevant to health and safety impacts; and fourth an explanation of our modelling and the input data used.

1.6 Finally, we also submit two excel folders that have formed part of our analysis. One of these folders contains our statistical analysis of low risk workplaces. The second one draws upon the first to model the expected costs and benefits of full compliance and the exemption against the counterfactual of unchanged policies.

1.7 As specified in the ITT, this report includes analysis on:

(a) *The extent to which the benefits and drawbacks of the three situations can or cannot be expressed in monetary terms*. Although there is substantial uncertainty about many of the impacts, we have attempted to quantify both the costs and the benefits of increasing compliance with the documentation obligation to 100 per cent, and of exempting micro-enterprises in low risk sectors. Model results are presented in relevant places throughout the report.

(b) *The feasibility and evidence for distinguishing between "low-risk" versus "high-risk" sectors and activities*. Section 4 of the report addresses this question in detail. We show that there are a number of feasible approaches to defining low risk, although any approach is likely to involve both errors of inclusion and errors of exclusion. Section 5 considers the issue of risks which affect particular sub-groups of workers.

(c) *The extent to which there is a risk that very small companies will not perform a risk assessment when they are no longer under an obligation to document such an*

*assessment*. We have analysed this issue in section 9 in our discussion of the "compliance effect". We consider that there is a strong theoretical case for thinking that there will be such an effect, but have not been able to identify any quantitative data on its likely magnitude. In the absence of data, our modelling has explored the potential impact on health and safety outcomes of some plausible scenarios for the proportion of micro-enterprises that currently conduct risk assessments that may cease to do so if they are exempted from the documentation obligation.

# 2 BACKGROUND

2.1 In this section we begin by explaining the relevance of the policy proposal under consideration to the Commission's Better Regulation Agenda. We explain the place of this proposal within the relevant Directive (89/391/EEC) and summarise the opinions of the Advisory Committee on Safety and Health at Work (ACSH) and the Senior Labour Inspectors Committee (SLIC) on this proposal. The section concludes by setting out some other obligations under the Directive and another piece of EC legislation that may be affected by the proposal.

## Better Regulation Agenda

2.2 The Commission's Better Regulation Agenda aims are:[1]

(a) implementing a strategy to simplify existing legislation through a rolling programme composed of about 185 initiatives in all policy areas;

(b) reducing administrative burdens by 25 per cent by 2012;

(c) placing greater emphasis on the use of impact assessments and public consultations when drafting new rules and regulations;

(d) monitoring the application of EU law.

2.3 Within this context, the Commission adopted an Action Programme for Reducing Administrative Burdens in the European Union in January 2007. This was followed in August 2007 by the establishment of the High Level Group of Independent Stakeholders on Administrative Burdens (HLG). The remit of the HLG is to provide advice on the implementation of the Action Programme.

2.4 The recommendation of the HLG which is the subject of the current study, is:[2]

> to exempt very small firms undertaking certain low risk activities from having to produce a written assessment of the risks to health and safety.

2.5 The HLG based its opinion on data provided by a Consortium of private contractors, hired for the purpose of helping with the mapping and measuring of information obligations in 13 priority areas. This recommendation is under consideration by the Commission.

2.6 The recommendation implies a modification of the current EU legislation, specifically to articles in Directive 89/391/EEC. The Commission is of the view that since the EU legislation at issue has a direct impact on the safety and health of workers in the EU, this recommendation needs

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1 As stated in the Specifications of the Information to Tender for this contract.

2 HLG (2009) "Opinion on Administrative burden reduction; priority area Working environment / Employment relations", point 56

to be carefully considered. Any possible initiative would have to be preceded by an extensive assessment of its impact, which this study contributes towards.

## Directive 89/391/EEC

2.7 Directive 89/391/EEC (hereafter, the Directive) introduces measures to encourage improvements in the safety and health of workers at work. It contains general principles and guidelines for the implementation of the principles, concerning the prevention of occupational risks, the protection of safety and health, the elimination of risk and accident factors, the provision of information, consultation, and the participation and training of workers and their representatives.

2.8 The Directive specifies certain obligations for employers and workers. Among other requirements, employers are obliged to assess the occupational risks with respect to work equipment and workplaces and to make provision for protective and preventive measures. Employers are also obliged to record the findings of these risk assessments.

2.9 The HLG's recommendation would require changes specifically to Article 9(1)(a) and (2) of the Directive, under the title "Various obligations on employers", which states the following:

> 1. The employer shall:
>
> (a) be in possession of an assessment of the risks to safety and health at work, including those facing groups of workers exposed to particular risks;
>
> (b) decide on the protective measures to be taken and, if necessary, the protective equipment to be used;
>
> (c) keep a list of occupational accidents resulting in a worker being unfit for work for more than three working days;
>
> (d) draw up, for the responsible authorities and in accordance with national laws/or practises, reports on occupational accidents suffered by his workers.
>
> 2. Member States shall define, in the light of the nature of the activities and size of the undertakings, the obligations to be met by the different categories of undertakings in respect of the drawing-up of the documents provided for in paragraph 1 (a) and (b) and when preparing the documents provided for in paragraph 1 (c) and (d)."

2.10 The obligation for all companies to document the risk assessment follows from Article 9(2) of the Directive, which explicitly refers to a "document". This was confirmed by the Court of Justice in case C-5/00.[3]

[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2000:135:0003:0003:EN:PDF

2.11 The Directive leaves it to the Member States "to define, in the light of the nature of the activities and size of the undertakings, the obligations to be met (…)" (Article 9(2)). Hence, Member States can vary the contents of the obligations according to the size of the undertaking. In some Member States, companies of all sizes must comply with the same requirements while in other countries the requirements are less onerous for small companies than for larger enterprises.

## Opinion of ACSH and SLIC

2.12 The Advisory Committee on Safety and Health at Work (ACSH) and the Senior Labour Inspectors Committee (SLIC) were consulted on the opinion of the HLG in December 2009.

2.13 SLIC was established in 1982 to assist the Commission in monitoring the enforcement of EU legislation. Its role is to monitor the enforcement of secondary Community law on health and safety at work and to analyse practical questions involved with monitoring the enforcement of legislation in this field.

2.14 ASCH is a tripartite body set up in 2003 by Council Decision 2003/c 218/01 to streamline the consultation process in the field of health and safety. It is composed of workers' representatives, employers' representatives and representatives of Member State governments.

2.15 The Commission services invited the SLIC to advise on two specific aspects of the opinion of the HLG with respect to inspections. However as this is not the subject of the current study we do not report further on this aspect.

2.16 The ACSH opinion commented specifically on the recommendation that is the subject of the current study, stating:

> [a]s well as administrative costs, it is important to remember the costs of health and safety failures (mentioned in para 7 of the HLG Opinion). The historical reduction achieved in these partly reflects the benefits of OSH [Occupational Safety and Health] Directives. The relation between costs and benefits will help to determine whether the administrative burden imposed by the obligation to possess a written risk assessment is unnecessary or not.
>
> There is a limited evidence base in this area, both on the potential for cost savings from the recommendation (as noted in para 58 of the HLG Opinion) and on the benefits arising from the current obligation. Therefore a thorough analysis should be carried out on this far reaching recommendation.

2.17 This project provides the analysis for which ACSH have called.

## Other Potential Amendments to Directive 89/391/EEC

2.18 A possible amendment of the Directive at Article 9(1)(a) and (2) may create a need for modification of several other provisions of the Directive.[4]

2.19 For instance, Article 10 on "Worker Information" requires the employer to take appropriate measures so that workers, their representatives and employers of workers from outside undertakings engaged in work on the premises have all the necessary information concerning safety and health risks and preventative measures. "Appropriate measures" are not defined precisely in the Directive, but a documented risk assessment would generally be considered sufficient. Article 10 does caveat this obligation by stating that "appropriate measures" should be undertaken in accordance with Member State law which may take account, *inter alia*, of the size of the undertaking. Either at Member State or EU level it may be necessary to provide a revised definition of what is meant by "appropriate measures" in the event of granting the exemption that is the subject of this study.

2.20 In addition, Article 11 consists of obligations on "Consultation and participation of workers", which includes consultation on Article 9 (1). Where the risk assessment documentation exists, it is possible for consultation to occur in respect of the contents of the document. It would not be possible in small firms in low risk settings for consultation to take this form in the event of the exemption that is the subject of this study being granted. This is not to say that the absence of the document would necessarily prevent workers from participating and being consulted; however the lack of a document may be an impediment to this occurring.

## Charter of Fundamental Rights

2.21 The Charter of Fundamental Rights of the European Union (2000/C 364/01) Article 27 ("Workers' right to information and consultation within the undertaking") states the following:[5]

> Workers or their representatives must, at the appropriate levels, be guaranteed information and consultation in good time in the cases and under the conditions provided for by Community law and national laws and practices.

2.22 Where the risk assessment documentation exists, this might be taken to satisfy the workers' right to information and consultation, at least in respect of health and safety issues. This is not to say that the absence of the document necessitates that workers' rights have been infringed, but should firms become exempt from the obligation to document their risk assessment and choose to take up this exemption it would become necessary for firms to find alternative means of informing and consulting workers to ensure this fundamental right.

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[4] A modification of Directive 89/391/EEC may imply the need for modification of other directives such as the Chemical Agents Directive 98/24/EC (Art. 4(2)), the Vibrations Directive 2002/44/EC (Art. 4(5) and the Noise Directive 2003/10/EC (Art 4(7).

[5] http://www.europarl.europa.eu/charter/pdf/text_en.pdf

# 3 CONCEPTUAL FRAMEWORK

3.1 This section sets out the conceptual framework that we have used to analyse the impact of the requirement to document a risk assessment, and hence the impact of increasing compliance with this obligation to 100 per cent on the one hand, or of exempting micro-enterprises engaging in low risk activities on the other hand.

3.2 There are two aspects to the conceptual framework:

(a) Understanding the actual situation. This is of interest in itself, and it also forms the baseline or counterfactual against which to assess other scenarios (i.e. 100 per cent compliance and the HLG proposal).

(b) Developing a framework which allows the incremental costs and benefits of the alternative scenarios to be assessed and if possible quantified. This framework goes beyond the cost impacts of the documentation obligation, and considers potential impacts such as those on health and safety outcomes.

3.3 We discuss these two aspects of the conceptual framework below.

## Understanding the Actual Situation

3.4 It is necessary to specify what is referred to as a "counterfactual" as a benchmark against which the impact of other policy options can be assessed. The counterfactual will normally comprise the "do nothing" policy option (i.e. the actual situation).

3.5 A key aspect of the current situation which needs to be understood is the actual level of compliance with the obligation to document a risk assessment, particularly among the very small firms working in areas which might fall under potential definitions of "low risk activities". The actual level of compliance with the documentation obligation is crucial in working out how the actual situation differs from 100 per cent compliance on the one hand and from the situation if the HLG recommendation is implemented on the other hand.

3.6 In constructing the counterfactual, it should not be assumed that the "do nothing" scenario implies a continuation of the status quo. This is because various developments may take place even with no changes in this area of policy. Examples include:

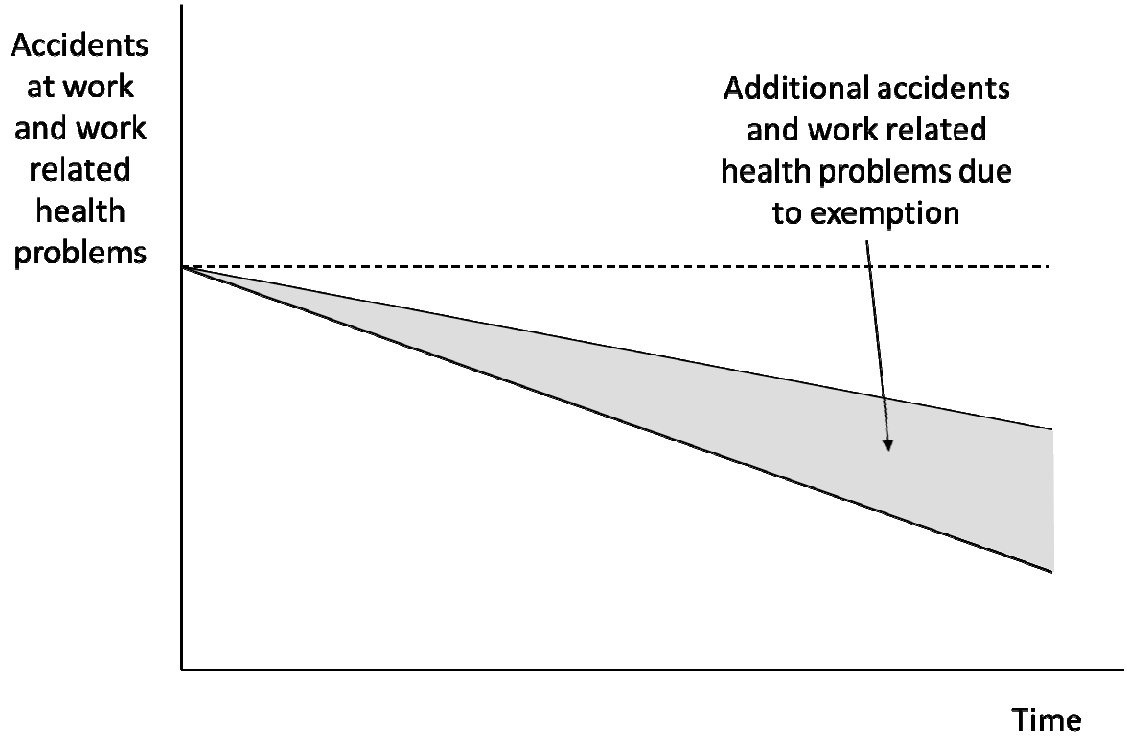
(a) The possibility that administrative burdens caused by the requirement to document the risk assessment may fall over time if there is growing awareness and use by small firms of the On-line interactive Risk Assessment tool that the Bilbao Agency (EU-OSHA) is currently developing, or of other eTools.

(b) Trend changes in health and safety outcomes not related to health and safety risk assessments (e.g. due to changes in the type of economic activity carried out within the EU).

3.7 The counterfactual scenario or scenarios should be based on reasonable expectations of what might happen in the absence of any policy change.

3.8 The importance of defining the counterfactual is illustrated in Eroare! Fără sursă de referință.. The diagram shows a hypothetical case in which accidents and work related health problems at work are falling through time under the counterfactual (i.e. with no change in policy), and where they would fall through time at a lower rate if the exemption proposed by the HLG were introduced. In this hypothetical case, the effect of the exemption would be to increase accidents and work related health problems at work *compared to what would otherwise happen*, even though accidents at work would continue to fall through time.

**Figure 3.1: The Importance of Defining a Counterfactual**



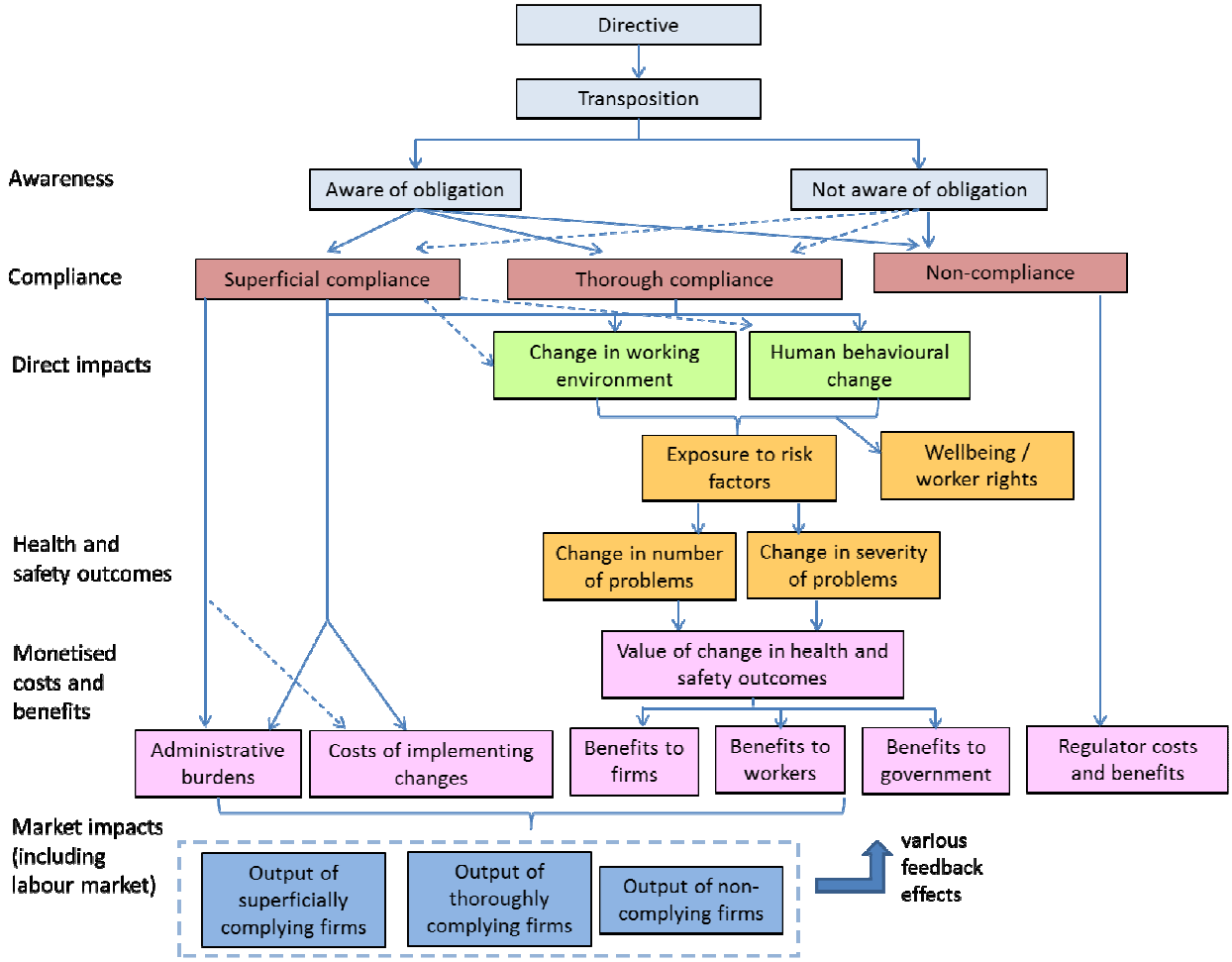

3.9 We discuss the counterfactual relevant to this study in the first part of section 9.

## Framework for Assessing Costs and Benefits

3.10 Health and safety regulation seeks to create safe working environments that reduce the risk of accidents and negative impacts on the health of workers. These intended health and safety benefits have to be compared with the costs and benefits which compliance with the regulation generates for businesses and regulators.

3.11 These benefits and costs are captured within the conceptual framework set out in Figure 3.2.

**Figure 3.2: Conceptual Framework**




3.12 Below we discuss the various elements of this conceptual framework in turn.

## Directive

3.13 Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work was designed to increase the protection of workers at work. The approach taken in the Directive was to legislate for preventive measures to guard against accidents at work and work-related health issues and to ensure the provision of information, consultation, balanced participation and training of workers and their representatives.

3.14 Directive 89/391/EEC specified certain obligations for employers and workers. Among other requirements, employers are obliged to assess the occupational risks with respect to work equipment and workplaces and to make provision for protective and preventive measures. Employers are also obliged to record the findings of these risk assessments, as specified in Article 9(1)(a) and (2):

> "1. The employer shall:

> (a) be in possession of an assessment of the risks to safety and health at work, including those facing groups of workers exposed to particular risks";
>
> "2. Member States shall define, in the light of the nature of the activities and size of the undertakings, the obligations to be met by the different categories of undertakings in respect of the drawing-up of the documents provided for in paragraph 1 (a) and (b) and when preparing the documents provided for in paragraph 1 (c) and (d)."

3.15 As currently drafted, the Directive requires all employers to complete a risk assessment and to maintain a written record of it.

**Transposition and implementation by Member States**

3.16 Member States have interpreted the Directive in a number of different ways when transposing the Directive into national legislation. In some countries companies of all sizes must comply with the same requirements while in other countries the requirements are less onerous for small companies than for larger enterprises. In most cases, however, a risk assessment must be conducted and a written record must be retained by all employers.

**Awareness**

3.17 Awareness is concerned with the extent to which the relevant firms are aware that they have a legal obligation to document a health and safety risk assessment. Awareness is likely to be a particular issue with very small firms, given they will have limited staff resources to keep track of legal obligations and are unlikely to employ health and safety specialists.

3.18 *Prima facie*, one might assume that firms that are not aware of their legal obligation to document a risk assessment are unlikely to produce one. However, our framework notes the possibility (see arrows drawn with dashed lines) that in some cases even firms that are not aware of their legal obligation might choose to document a risk assessment (e.g. because they perceive it as best practice).[6]

**Compliance with documentation of assessment**

3.19 While producing a documented risk assessment is a legal obligation, the assessment needs to take account of the actual level and nature of compliance with this obligation. Hence, compliance is concerned with the decision that firms take about whether and how to comply. The regulation may have varying degrees of scope for interpretation and flexibility in implementation. This leads to one of the following responses:

(a) **Non-compliance:** Firms might decide not to comply. This possibility means that enforcement bodies either need to incur costs seeking to bring about compliance or accept that compliance will not be absolute and the health benefits that the legislation is intended

[6] It is also possible that firms keep other business documents that, while not explicitly documenting health and safety risks, help to fulfil a similar function (such as a health and safety policy or standard operating procedures).

to secure may, consequently, be foregone. However, in some cases, firms may not comply with the documentation requirement but may still undertake a risk assessment.

(b) **Superficial compliance:** Firms might comply with the regulation in a superficial way without complying with the spirit of the regulation. In other words, they may produce a written document without putting any real effort into a proper risk assessment or taking any actions to improve health and safety. These firms will incur an administrative burden but will not incur any wider costs or receive any wider benefits.

(c) **Thorough compliance:** Firms might comply thoroughly with the obligation, with the possibility that documenting the risk assessment leads to changes to the physical environment and to the behaviour of management and workers that improve health and safety outcomes.

3.20 Hence, the benefits and costs generated by the regulation depend upon the compliance decision taken by firms. We recognise that to some extent the above represent stylised possible responses to the obligation – in practice, there will be a spectrum of possible responses between superficial and thorough compliance. For example, the possibility that even relatively superficial compliance might sometimes lead to changes in the physical working environment and in human behaviour with associated implementation costs is shown by dashed arrows in the diagram.

**Direct impacts**

3.21 Where regulated entities comply in full or in part with the documentation obligation there may be direct impacts, such as the following:

(a) **Change in the working environment:** The documentation of the risk assessment may result in new equipment being purchased or existing equipment being adapted in some way, or in other changes being made to the working environment (e.g. removal of trailing wires).

(b) **Human behaviour change:** The documentation of the risk assessment may lead to managers and/or workers adapting their practices in some way. For instance, firms may provide training to their workers on how to operate equipment safely.

3.22 In considering these direct impacts, it is important to separate out effects which arise from *documentation* of the risk assessment from those which arise from the wider legal obligation to carry out the risk assessment itself. There are various ways in which *documentation* may lead to such impacts, including:

(a) First, by *increasing compliance with the underlying legal obligation* to carry out a health and safety risk assessment. In other words, if firms did not have to document the risk assessment, then some firms might not carry it out at all, either because it would be difficult for anyone to prove that they had not done a risk assessment or because the need to document was the means by which they became aware of the requirement.

(b) Second, by *increasing the quality and effectiveness of health and safety risk assessments*. For example:

- Firms may put more effort into a risk assessment if they know there is going to be a written record.
- Company management may be more likely to act on recommendations contained in a written assessment.
- Firms will have a record of what was found and hence any findings are less likely to be forgotten.

(c) Third, by *clarifying responsibilities and thus increasing the likelihood that both employers and workers will take action to improve occupational health and safety practices*. For example:

- Workers who are provided with the documented assessment may be clearer about what they can expect their employer to do (thus potentially allowing them to put pressure on employers to improve the physical working environment), and may also be clearer about their own responsibilities (thus potentially leading to positive behavioural change).
- The document helps to establish whether fault lies with the employer or worker after an accident or work related health problem, which might assist in any subsequent legal proceedings. The knowledge that responsibilities can be proven in court may provide sharper incentives on both groups to fulfil those responsibilities.

3.23 We analyse the potential impact of the documentation obligation (as opposed to the risk assessment obligation) in section 9, where we discuss various "mechanisms of effect" in more detail. However, most of the evidence that we have been able to find on these mechanisms of effect is qualitative rather than quantitative in nature.

**Health and safety outcomes**

3.24 One intended effect of changes in the working environment and human behaviour at work is a reduction in exposure to risks, which will affect both:

(a) **The number of health and safety incidents** (i.e. accidents and work-related health problems); and

(b) **The severity of incidents**, where health and safety incidents still occur.

3.25 Changes in the working environment and in behaviour at work may also have impacts upon worker wellbeing and worker rights. A documented risk assessment, and workers inputting into this, is one way in which workers could perhaps achieve a sense of control over their working lives and feel valued by their employer, which would feed into the workers' wellbeing.

On the other hand, it could have negative effects, if the regulation were regarded as unjustifiable in the circumstances.

**Monetised costs and benefits**

3.26 One of the issues that has been considered in the project is the extent to which the benefits and drawbacks can or cannot be expressed in monetary terms. Typically, it is easier to quantify costs than to quantify health and safety benefits (although methodologies do exist for monetising such benefits). Nonetheless, our starting point is that ideally one would attempt to quantify all of the major impacts of the policy, even if ranges are used to capture the uncertainty in these quantitative estimates. Hence, in this report we have attempted to produce estimates of both the costs and benefits of increasing compliance with the documentation obligation to 100 per cent and of exempting micro-enterprises in low risk sectors.

3.27 Key impacts that have been estimated in monetary terms are:

(a) **Administrative burdens:** Documentation of a risk assessment involves an administrative cost associated with producing the written record.

(b) **Cost of risk assessments:** increasing compliance with the documentation obligation to 100 per cent or exempting micro-enterprises in low risk sectors may alter the proportion of micro-enterprises that comply with the underlying obligation to carry out a risk assessment. This will have an impact on the total costs incurred across the economy carrying out risk assessments.

(c) **Costs of implementing changes:** Where the documentation obligation (as opposed to the obligation to carry out a risk assessment itself) leads to changes in the physical environment and in the behaviour of management and workers, it may generate wider costs for firms (e.g. cost of new equipment, cost of training).

(d) **Value of change in health and safety outcomes:** Where the documentation obligation is successful in reducing the number and severity of health and safety incidents, then the key benefit of the current policy is the improvement in health and safety. The benefits may take three forms:

- *Benefits to complying firms*. For example, fewer or less severe health and safety incidents at work may reduce absenteeism due to sick leave.[7]

- *Benefits to workers*. Workers will enjoy a higher quality of life if they suffer from fewer accidents and health problems.

[7] In addition to the potential benefits to firms from improved health and safety outcomes, there may be other benefits to complying firms as well. For example, firms with a good documented risk assessment may be better able to prove legally that they have fulfilled their health and safety obligations if an accident were to occur due to employee negligence.

- *Benefits to governments*. For example, the government may benefit from lower health spending, lower welfare payments and less incidence of early retirement.

(e) An alternative way to classify health and safety impacts is in terms of:

- *Lost production* due to working days lost as a result of accidents at work and work-related health problems. The costs of lost production may be shared in different proportions between firms, workers and governments in different Member States.

- *Harm and suffering* experienced by the individual affected by the health or safety problem.

We have used this second classification in our modelling of health and safety impacts.

(f) **Costs and benefits to enforcement bodies:** These are the inspection and enforcement costs for enforcement bodies associated with ensuring that firms comply. Our research found that enforcement bodies currently spent little resource inspecting micro-enterprises in low risk sectors, and hence the key impact that we have monetised is the estimated cost to enforcement bodies of carrying out inspections to increase compliance with the documentation obligation among micro-enterprises to 100 per cent.

**Market impacts**

3.28 When comparing the benefits of the documentation obligation against its costs we have also considered potential market impacts.

3.29 For instance, we have considered the possibility whether there would be any impacts in the product markets into which micro-enterprises sell their output. Two alternative hypotheses could be put forward:

(a) The documentation obligation might mean that compliant firms end up with a higher cost base than non-compliant firms due to the costs of documentation. Where these firms are competing in the same market and compliance costs are material, the non-compliant firms could in theory end up gaining market share from the compliant firms as a result.

(b) On the other hand, if the documentation obligation reduces health and safety incidents for compliant firms, this may give compliant firms a competitive advantage over non-compliant firms by increasing productivity, reducing absenteeism etc. In this case, market impacts will potentially reinforce the benefits of the policy since compliant firms may gain market share at the expense of non-compliant firms.

3.30 It is also in theory possible that there might be labour market impacts in respect of the following:

(a) Exempt firms may be perceived as less good employers and this may affect their ability to attract workers.

(b) If the obligation to document a risk assessment only applies if a micro-enterprise involved in low risk activities employs workers from vulnerable groups, then there is the possibility that it might lead to discrimination in employment (i.e. employers might attempt to avoid having to document a risk assessment by not employing workers with certain characteristics).

3.31 Whether such market impacts would occur in practice is discussed in Chapter 10.

# 4 SCENARIOS FOR THE DEFINITION OF LOW RISK

4.1 For the analysis in this study to have traction, we need to proceed with a clear view on what firms are within the 'low risk' world.

4.2 The recommendation of the HLG that motivates the current study stated the following:[8]

> The Member States are best placed to make judgements about which types of firms and what levels of risk should be allowed to be exempt, and the way in which they should be exempted, since they understand the framework of national practices and how the documentation of a risk assessment is used by the national authorities.

4.3 While the HLG may be justified in this view that Member States are best placed to make judgments about which firms are operating in sufficiently low risk settings as to be exempt, for the purposes of completing the analysis involved with this study we need to understand how low risk might be defined.

4.4 This chapter reviews previous attempts to define low risk, analyses possible approaches to developing a definition of low risk, and presents some statistical results on which sectors appear to have the lowest risk.

## Previous Attempts to Define Low Risk

4.5 The Commission provided us with the results of a questionnaire which it sent to all Member State regulatory authorities on the implementation of Directive 89/391/EEC. Below we briefly summarise responses which specially make reference to distinguishing between low or high risk. We then summarise previous attempts to define low risk in the wider literature.

### Responses to the Commission questionnaire on the implementation of Directive 89/391/EEC

4.6 While all 27 Member States replied to the Commission's questionnaire, not all of these responses contained points relevant to the definition of low risk. We discuss those that did below.

*Hungary*

4.7 Hungarian occupational health and safety legislation does not define "low-risk", but does define different occupational health classes. The definition of each class is based on whether the job is manual or non-manual by sector. The lowest risk class (Occupational health class D), includes workers performing research, cultural, educational and other administrative activities, as well as workers who work in non-manual jobs in other sectors.

[8] HLG (2009) "Opinion on Administrative burden reduction; priority area Working environment / Employment relations", point 57

*Ireland*

4.8 The Irish response notes that there are references made in Irish legislation to areas of work where risk may be greater, for example work at height and the control of physical agents such as noise and vibration. The response states that targeted inspection programmes focus on manual handling, workplace vehicle transport, bullying, occupational hygiene and transport and storage of dangerous substances.

*Lithuania*

4.9 In the Lithuanian response it is highlighted that the definition of "high risk activities" may be equivalent to such definitions as "work with dangerous equipment" and "works carried out in dangerous facilities", which are defined in Lithuania's regulatory acts. According to the response, in Lithuanian legislation dangerous work means work which entails higher occupational risks which increase the probability of an injury or other harm to the health of the worker due to exposure to a hazardous and/or dangerous factor (factors) in the working environment. Similarly, dangerous facility means the whole area under the control of an operator, including the common and related infrastructure which is located or the activities which are carried out within the territory, where one or more pieces of equipment contain dangerous substances.

*Luxembourg*

4.10 Although it does not include a definition of low risk, the labour legislation in Luxembourg does include notions of risk based on exposure to certain, very broadly defined factors, applying to workers and third parties, and also the conditions under which the worker is working (e.g. at night).

*Latvia*

4.11 Latvian regulation includes a list of types of commercial activity for which the employer must bring in a competent institution to undertake a risk assessment, and this sets out the types of commercial activity which are deemed hazardous from an occupational health and safety point of view. The list includes construction, agriculture, logging, the manufacture of various products, hospital activities, transport, etc. The definitions of these types of activity are in line with the NACE classification of economic activities.

*Malta*

4.12 The reply from Malta highlights that Maltese legislation distinguishes between places of work based on the possible prevalence of higher risk. For example, regulations dealing with physical agents or work in quarries require that a written copy of the risk assessment be kept.

4.13 Other regulations give examples of what can be construed as low or high risk activities based on the anticipated level of prevailing risks. The Work Place (First Aid) Regulations (LN11/02) are one such example as they distinguish between work places with relatively low hazards,

including offices, shops, and banks, and work places with a greater degree of hazard, including factories, ship repair and ship building yards, and docks.

4.14 It is noted in the questionnaire response that it is now accepted that the distinction described above can cause problems, and this approach towards the legal quantification of risk has been dropped in favour of one based on the evaluation and quantification of the actual risk present at any place of work.

*Poland*

4.15 Polish legislation contains a definition of 'high-risk activities', which the relevant authorities in Poland take to refer to building, demolition, renovation and installation work carried out without entirely or partly stopping the establishment's activities, work carried out inside tanks, in sewers, inside technical equipment and in other dangerous enclosed spaces, work involving the use of hazardous materials and work carried out at height; also other high-risk work or work carried out in difficult conditions recognised by the employer as particularly hazardous.

*The UK*

4.16 The UK does not have a definition of low risk. In response to the questionnaire, it is stated that weight is given to likelihood and consequence when assessing the level of risk. The extent of the risk is determined by the likelihood of harm occurring, the potential severity of that harm and the number of people who might be exposed. Low risk activities are taken to be those that have a low likelihood and minor consequences, such as those that may be conducted in a small office, shop or community hall. Examples of high risk activities include those carried out in waste handling businesses, construction and agriculture where the likelihood of an accident occurring is higher and the consequences arising may be more serious.

**Wider Literature**

4.17 The Social and Economic Council (SER) in the Netherlands produced advice for the Deputy Minister for Social Affairs and Employment on a number of proposed amendments to Dutch Working Conditions Act (1998).9 The following quote is of interest here:

> The SER does not consider practicable the suggestion of creating a distinction between low and other (i.e. high) risks. SER holds that the classification of risks according to degrees of seriousness would mean that the potential effects associated with these risks would also have to be ranked. Creating such a classification would therefore be an enormous task. The absence of clear boundaries between the different categories would lead to the classification being extremely arbitrary.

4.18 The UK Health and Safety Executive (HSE) document entitled "Reducing Risks, Protecting People" reports on its approach to the control of risk.10 The HSE characterises the risk

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9 The Social and Economic Council (SER) (2005), "Advisory Report: Evaluation of the Working Conditions Act 1998".

quantitatively and qualitatively, assessing risks by identifying the hazards associated with the risk issue, and then assessing the likelihood that harm will actually be experienced by a specified population and what the consequences would be.

4.19 The HSE believes that an individual risk of death of one in a million per annum for both workers and the public corresponds to a very low level of risk and should be used as a guideline for the boundary between the broadly acceptable and tolerable regions. This can be compared to a "background level" of risk of death of one in a hundred per year, averaged over a lifetime.

4.20 Lord Young of Graffham in 2010 produced a report to the Prime Minister following a Whitehall-wide review of the operation of health and safety laws and the growth of the compensation culture.11 The report states that:

> Low hazard workplaces are places where the risk of injury or death is minimal. These include shops, offices and classrooms. The latest figures show that only around 3% of all workplace injuries in Great Britain involve offices and that no office workers died as a result of accidents at work in 2009.The main risks encountered in a low hazard workplace include repetitive strain injury, injuries from lifting and moving things and minor slips and trips.

4.21 The report makes reference to simplification of procedures for "low hazard" workplaces. In this report, he gives examples of low hazard workplaces as offices (including the office areas of industrial companies), classrooms, shops, pubs, cinemas and residential care homes. He recommends exempting employers from risk assessments for workers working from home in a low hazard environment. He also recommends exempting self-employed people from risk assessments unless they are in manufacturing, construction or industrial activity or are using hazardous chemicals or otherwise posing a potentially serious risk to others through their work activity.

4.22 The UK All-Party Parliamentary Group on Occupational Safety and Health criticised Lord Young's conclusion that offices, schools and shops were low risk on the basis that this was not borne out in HSE figures and the definition of low risk seemed only to take account of fatality rates, whilst these sectors shows particular vulnerability to musculoskeletal disorders.12 The Group stated that it would be concerned if there were any attempt to reduce the level of intervention and support for these sectors.

4.23 Bristow (2011)13 draws upon the work of the UK HSE and Lord Young's report in exploring some of the issues related to defining 'low risk' activities. He thinks comparing risks from work with risks that people are prepared to run in their domestic lives is useful, though this should be caveated by noting that risks at work are taken principally for the benefit of the employer, not

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10 The Health and Safety Executive (HSE) (2001) "Reducing risks, protecting people".
11 Lord Young of Graffham (2010) "Common Sense, Common Safety".
12 All-Party Parliamentary Group on Occupational Safety and Health, "Health and safety and the Health and Safety Executive, What the spending cuts will mean".
13 Bristow, S (2011) "Towards a Working Definition of 'Low Risk' ", HSE.

for the worker's benefit, and that it is not generally regarded as acceptable for people to be paid 'danger money'. Following this thinking, Bristow concludes that perhaps "a low risk business or workplace is one in which the hazards are more or less the same as you would find in the home" (e.g. offices, shops, classrooms), though it would be important to separate workplaces where the hazards are kept at a low level due to regulatory and/or worker pressure, without which the workplace could revert to a higher level of risk.

4.24 Bristow suggests that a definition of 'low risk' could also be sought by determining the likelihood of workplace injuries for all occupations and then determining which industry sectors (by industry classification, size, etc.) have a preponderance of these occupations, while bearing in mind that aggregate risk may not be 'low' because of the numbers of people individually affected.

## Approaches to Defining Low Risk

4.25 This section analysis the various approaches that could be taken to defining low risk. It does so by working through the following steps:

(a) Requirements of the definition;

(b) Approaches to assessing low risk;

(c) Scope of the definition;

(d) Categorisation of firms;

(e) Focus of the definition;

(f) Threshold of the definition.

### Requirements of the definition

4.26 It would be possible to determine whether a firm is low risk by conducting a risk assessment at the individual workplace. Clearly, this is the most robust way to determine whether or not a workplace is low risk, since it would take into account the specific characteristics of each workplace. However, it is unlikely to be suitable for policy purposes, since there may be an element of judgment involved in assessing some risks and hence there would be a lack of clarity in the regulation about whether or not a specific firm is required to document its risk assessment.

4.27 For policy purposes, therefore, a simple rule needs to be applied which defines whether a workplace should be deemed low risk and therefore exempt from the documentation obligation. This would give greater regulatory clarity, although it will not take all characteristics of each specific workplace into account.

4.28 For the definition to be satisfactory for these purposes, it should:

(a) *Appropriately distinguish between low and high risk workplaces*. As we have discussed, low risk testing can be applied to particular workplaces to determine whether these workplaces are low risk or not. However, it seems infeasible to imagine that such testing could be applied to every workplace in advance of extending an exemption from the obligation to document a risk assessment. Thus, this criterion seeks to arrive at a distinction between low and high risk workplaces that is practical for policy purposes in the sense that it does not require testing to be applied to every workplace but which is as consistent as possible with the distinction between low and high risk workplaces that such testing would result in if it were to be universally applied.

(b) *Provide regulatory clarity*. The definition must be able to provide regulatory clarity, either at an EU or Member State level, through drawing an unambiguous distinction between low risk and other risk such that the category that a firm falls into is clear. Part of the purpose of this requirement is to allow low cost interpretation. Understanding the definition should not be costly for firms: they should not, for example, need to seek expert help in order to apply the definition and discover what obligations apply to their firm.

4.29 While we take these to be the requirements of a satisfactory definition of low risk, it should be recognised that any process which seeks to categorise based on the validity or not of a statement will typically lead to certain kinds of error. In statistics these errors are referred to as Type I and Type II errors (error of exclusion/error of inclusion). For the case in which there are just two types of risk, low and high:

(a) A Type I error (error of exclusion) would occur when we test for low risk and a firm is incorrectly rejected. In this case it would mean a firm that is in reality low risk is incorrectly defined as high risk.

(b) A Type II error (error of inclusion) would occur we test for low risk and a firm is incorrectly accepted. In this case, it would mean that a firm is labelled low risk when it is in fact high risk.

4.30 There is a trade-off to be made between the two types of errors, in the sense that it is possible to minimise the occurrence of one of the error types at the expense of a larger occurrence of the other type.

4.31 A possible approach to adopt in cases where the downside risk is significantly larger than upside gains is to follow the precautionary principle. Here, this may mean minimising Type II errors at the expense of Type I errors, such that cases in which high risk firms are incorrectly labelled low risk are minimised, even though under this definition some low risk firms are excluded.

**Scope of the definition**

4.32 The definition for low risk will seek to encompass risks from accidents at work, occupational diseases and work-related health problems.

4.33 Directive 89/391/EEC is on measures "to encourage improvements in the safety and health of workers at work". The focus of the Directive, therefore, is on workers and as such the definition of low risk sought should unambiguously apply to workers. There is a question as to the extent to which it should also cover the health and safety of "other persons" who may be affected, be it customers or members of the public.

**Categorisation of firms**

4.34 There are several possible approaches by which to categorise firms. We consider the following approaches below:

(a) by sector;

(b) by occupation;

(c) by organisational model;

(d) by work environment;

(e) by activity;

(f) by work environment and activity;

(g) by full risk assessment;

(h) by exposure to hazards.

*By sector*

4.35 A widely used approach to categorising firms is by sector. The Commission questionnaire cites traditionally high risk sectors as, for example, construction, agriculture, transport, fishing, health care and social services.

4.36 Sectors are codified at the European level through applying NACE codes (in French 'Nomenclature générale des activités économiques dans les Communautés Européennes'). The current NACE codes (Revision 2) follow from the Regulation (EC) No 1893/2006 of the European Parliament and of the Council, which established the statistical classification of economic activities.

4.37 Categorising firms by sector would involve a choice as to the level of disaggregation; for example, at the lowest level there are a very significant number of sectors within the European Union, as exemplified by the large number or NACE codes in use, whilst it is possible to reduce this complexity through using higher level NACE codes which could mask distinguishing characteristics between certain sectors, though this could be presumed to generally not to be a significant issue.

4.38 A drawback from categorising firms into low risk and other risk by sector is that within each sector workers may be undertaking very different types of tasks and facing different risks. For

example, in the construction sector, builders would face different risks to the construction support staff who worked in an off-site office. Therefore, categorising by sector could lead to some firms being placed in the incorrect risk category when the real risks they face are considered.

*By occupation*

4.39 Another approach is to define low risk by occupation categories based on the International Standard Classification of Occupations (ISCO) codes for which the International Labour Organisation (ILO) is responsible, which organises jobs into defined groups according to the tasks and duties undertaken in the job. According to the UK HSE, occupation is a strong determinant of OSH risks.

4.40 A problem with basing the low risk definition of firms on this categorisation is that within one firm there is likely to be different types of occupation. Where this is the case, firms could be categorised by the highest risk occupation present.

4.41 In practice, it is possible that categorisations by occupation or sector may produce similar results. This would only be the case if sectors are composed of a single or a limited number of occupations.

*Organisational model*

4.42 A report by Eurofound (2009) categorised firms by type of work. Although this study focused on salaried workers in firms employing 10 or more people, the approach to classifying firms is potentially still of interest here.14 The report categorised work organisations into four categories namely, 'discretionary learning', 'lean production', 'Taylorist' and 'traditional' or 'simple structure', and assessed the physical risk factors present in each organisation class.

4.43 The report defines these forms of work organisation as follows:

(a) Discretionary learning forms: This is said to be characterised by a high incidence of autonomy in work, learning and problem solving, task complexity, self-assessment of work, and, to a lesser extent, autonomous teamwork. 38 per cent of EU workers are said to be in this category.

(b) Lean production forms: This is said to be characterised by a high incidence of teamwork, autonomous or otherwise, and job rotation, particularly multi-skilling. 26 per cent of EU workers are said to be in this category.

(c) Taylorist forms: This is said to be characterised by a high incidence of mechanistic bureaucratic forms of work organisation. 20 per cent of EU workers are said to be in this category.

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[14] Eurofound (2009) "Working conditions in the European Union: Work organisation".

(d) Traditional or simple structure forms: This is said to be characterised by largely informal and non-codified methods of work organisation. 16 per cent of EU workers are said to be in this category.

4.44 The report notes that health or safety is thought to be at risk because of work by more than one worker in three in the Taylorist forms (37 per cent) and in the lean production forms (36 per cent), while far fewer workers – about one in five – share this view in the discretionary learning forms (18 per cent) and in the traditional or simple structure forms (21 per cent).

4.45 This approach is interesting in that through categorising firms by work type there is a commonality in the risk factors workers are exposed to. However, this approach does not lend itself well to being used for policy purposes because there is considerable fuzziness around the edges of these definitions which makes it difficult to know which category applies to which firm.

*By work environment*

4.46 As can be seen from the responses to the Commission's questionnaire and the wider literature, risk has often been considered on the basis of the type of work environment, for example office, house or construction site. Implicit in this approach is the assumption that activities of similar risk take place in any given type of work environment. This may not be the case and so this approach may mask differences in risks faced across workplaces within each type of work environment.

*By activity*

4.47 As mentioned above, categorising by work environment makes assumptions as to the activities which take place within each work environment. These assumptions may not be entirely accurate, however. An approach which removes the need for this assumption is to categorise firms by the activities which their workers undertake.

4.48 Categorisation could be on the basis of whether the work is manual or non-manual (it was found in the LFS ad hoc module 2007 that there were fewer accidents reported in Europe in the past 12 months for non-manual work15) and a description of the main activity, e.g. handling hazardous substances or equipment, desk-based work, etc. With an eye to the precautionary principle, it would be appropriate to categorise the firm according to the highest risk level activity which takes place in the firm.

*By work environment and activity*

4.49 Some work environments become risky because of the activities which take place in them; similarly, some activities are more risky due to the work environment in which they are

[15] Eurostat (2010), "Health and safety at work in Europe (1999–2007), a statistical portrait".

conducted. In this approach, both the work environment and the activity are taken into account.

*By full risk assessment*

4.50 Full risk assessments might be carried out on each firm to categorise them into low and high risk. However, as has been noted, it seems infeasible to imagine that such testing could be applied to every workplace in advance of extending an exemption from the obligation to document a risk assessment.

*By exposure to hazards*

4.51 Workplaces might be categorised by the prevalence within them of things which may give rise to health and safety problems. For example, Lithuania's regulatory acts refer to "work with dangerous equipment" and "works carried out in dangerous facilities". The hazards identified here are contextual factors such "dangerous facilities", which might be correlated with an increased incidence of accidents and work-related health problems.

*Assessment against requirements of definition*

4.52 Our assessments of the different approaches towards this dimension of a definition of low risk against our established requirements for this definition are shown in **Table 4.1**.

**Table 4.1: Categorisation of Firms: Assessment against Requirements**

| | **Requirement 1: Appropriately distinguishes between low and high risk workplaces** | **Requirement 2: Provides regulatory clarity** |
|---|---|---|
| By sector | Medium | High |
| By occupation | Medium | High |
| By organisational model | Low | Low |
| By work environment | Medium | Medium |
| By activity | Medium | Medium |
| By work environment and activity | High | Low |
| By exposure to hazards | High | Medium |
| Based on full risk assessment | Very high | Low |

4.53 In respect of our assessment against requirement 1 we make the following observations:

(a) By sector: A drawback from categorising firms into low risk and other risk by sector is that within each sector workers may be undertaking very different types of tasks and facing different risks. However, some risks are likely to be common across a sector.

(b) By occupation: A problem with basing the low risk definition on this categorisation is that within one firm there is likely to be different types of occupation. Equally, occupations are

defined by a range of activities and typically work environments, with risks common to these activities and environments.

(c) By organisational model: This approach does not lend itself well to being used for policy purposes because there is considerable fuzziness around the edges of these definitions which makes it difficult to know which category applies to which firm.

(d) By work environment: Implicit in this approach is the assumption that activities of similar risk take place in any given type of work environment. This may not be the case and so this approach may mask differences in risks faced across workplaces within each type of work environment.

(e) By activity: The risk involved with some activities may depend upon the environment in which they are performed, so to look at activities in isolation from the environments in which they are performed may provide an incomplete account of the risks involved.

(f) By work environment and activity: Some work environments become risky because of the activities which take place in them; similarly, some activities are more risky due to the work environment in which they are conducted. This combined approach overcomes these limitations.

(g) Based on full risk assessment: By definition, having a full risk assessment undertaken on each firm, would accurately distinguish between low and high risk firms.

4.54 In respect of our assessment against requirement 2 we make the following observations:

(a) By sector: Many firms operate across a plurality of sectors, so there may be uncertainty involved with a sector based approach. Nonetheless, firms can be grouped by NACE code and so categorised into sectors.

(b) By occupation: While occupation types may be becoming more heterogeneous, most firms are clear about the occupations within them and could attach these occupations to a recognised categorisation of occupation (e.g. ISCO codes). This means that legal certainty should be provided by a definition based upon occupations.

(c) By organisational model: The fuzziness around the edges of the definitions involved here fails to provide legal certainty.

(d) By work environment: Some firms operate across a plurality of working environments, so there may be uncertainty involved with this approach.

(e) By activity: Many firms work across a range of activities and the categorisation of work activities is not as well-established as that in respect of occupations or sectors.

(f) By work environment and activity: The difficulties associated with basing a definition on work environment and activity are not resolved by use of a composite indicator.

(g) Based on full risk assessment: This approach would lack legal certainty, as firms could claim that they do not have a documented risk assessment because they have undertaken a risk assessment classifying them as low risk. However, this claim could be based on convenience, rather than an actual assessment.

1.2 The three approaches to categorisation which perform best against our criteria are sector, occupation and exposure to hazards. These three approaches each score "high" against one of the criteria and "medium" against the other.

**Focus of the definition**

4.55 An assessment as to whether the risks are low or not could be derived by focusing on any of the following measures:

(a) Likelihood: The likelihood of an accident/work-related health problem occurring;

(b) Outcome: Severity of the accident/work-related health problem;

(c) Likelihood and outcome: The likelihood and severity of an accident/work-related health problem

(d) Hazard exposure: Exposure to risk factors at work.

4.56 The measure chosen would then be used to work out which firms would be included in the low risk definition.

*Likelihood: The likelihood of an accident/work-related health problem occurring*

4.57 This could be applied by looking at the average number of accidents and work-related health problems in each workplace. Given that more accidents and work-related health problems might be expected in total in larger firms simply due to scale, it may be appropriate to focus on averages per worker.

4.58 A drawback to this approach could be that all problems are treated equivalently, with no account taken of the consequences or impact of the problem. This could potentially lead to a distorted picture as to where high risk lies. It should be noted, however, that in a survey by the European Agency for Safety and Health at Work a number of the Member States' focal points recognised that reporting of accidents at work is subject to a degree of under reporting and that it is primarily accidents with less serious consequences that tend not to be reported.[16] Therefore, although in theory all problems would be treated equally, the data may only take account of cases in which there were more serious consequences.

[16] This is highlighted in DG EMPL (2011) "Socio-economic costs of accidents at work and work-related ill health".

4.59 Another drawback of looking only at the occurrence of accidents and work-related health problems is that this excludes consideration of other factors which impact upon the likelihood of an accident or work-related health problem in a certain work place. For example, demographics are not balanced across work places, and it may be that differences in demographics could explain some of the variation in the likelihood of health problems by work place. (That said, one could argue that if certain workplaces have a higher incidence of health and safety problems due to demographics, then they should be treated as higher risk workplaces).

*Outcome: Severity of the accident/work-related health problem*

4.60 In this approach to the definition, the focus would be on the outcome as measured by the severity of the accident or problem. It would be necessary to establish which kind of accident or problem we are interested in reviewing. Two means by which this might be done are:

(a) The most severe kind of accident or problem in the workplace setting of interest

(b) The most common kind of accident or problem in the workplace setting of interest

4.61 There are of course a range of consequences to accidents and work-related health problems. There are consequences not just for the worker, but also for family and friends, colleagues, the company and society. The consequences could be non-tangible, such as pain or psychological suffering, or more or less tangible, such as loss of salary for the worker, or decrease in production for the company.

4.62 Severity could be considered in several different ways:

(a) By length of absence from work. Severity is measured by EU-OSHA as the length of absence from work. A problem with this measure is that some health problems may not lead to extended periods off work, even though the problem could last a significant length of time so as to negatively impact the individual's quality of life.

(b) By the type of impairment and absence from work. In the DG EMPL (2011) study entitled "Socio-economic costs of accidents at work and work-related ill health", the severity of accidents at work and work related ill health is defined based on Schüler (2001). This scheme has three categories (low, medium and high severity), based on the type of impairment experienced and the number of days of absenteeism.

(c) By workers' own views. Asking people which types of health problem they perceive as being the most severe is one way in which to take account of the extent to which the problem affects the person's quality of life. The difficulty with this approach is that most people will not have experienced the full range of health problems, so they are more likely to pick the ones they have experienced as being most severe, leading to biased results.

(d) By the costs of an individual's accident or problem. The length of absence from work is one type of cost which falls on the employer. There are also other costs of an accident or a work-related health problem which fall on the employer, the individual and society. The

severity of a problem may in fact depend upon the different perspectives of those affected. For instance, the worker, the company and society may view severity in differing ways due to the way in which the impacts are distributed. A comprehensive approach would consider the costs for all of these parties, and so would take account of such factors as the length of absence from work, the duration of the problem, the cost to public healthcare systems and benefit payments.

*Likelihood and outcome: The likelihood and severity of an accident/work-related health problem*

4.63 Through jointly focusing on the likelihood and severity of an accident or a health problem, this approach would allow the categorisation of firms by how likely it is that a certain degree of harm will occur. This approach takes account of the degree of harm – which an approach focused just on the number of problems does not do – and the number of people affected by an accident/problem – which an approach focused just on severity does not do.

4.64 Severity could be measured by any of the ways described above. For example, severity could be measured by the costs of the accident/problem. Taking into consideration the number of people affected by accident/problem and the costs of the accident/problem could provide a useful insight, since for certain conditions, the individual costs may not be high, but the condition may be severe at the aggregate societal level in terms of the total value of lost working days, the burden on the NHS and benefit payments.

4.65 The importance of taking both likelihood and severity into account is illustrated by data showing that the occurrence of work-related health problems increased from 1999 to 2007 in nine European countries, while the severity of the health problems, appeared to decline since the figures on sick leave decreased in the same period.

*Hazard exposure: Exposure to risk factors at work*

4.66 Risk factors refer to factors at work that can adversely affect health or well-being, which can be physical or psychological.

4.67 In order to identify risk factors, the most comprehensive method would be first to assess accidents/problems in terms of their severity, using one of the approaches described above, and then look at the causes.

4.68 It is possible that a risk factor could lead to some consequences which would be deemed highly severe, as well as other consequences which would be deemed less severe, such that ranking the risk factors may not be straight forward.

4.69 Once the risk factors are identified, firms could be categorised by whether the risk factor is present or not, or by some scale of exposure.

4.70 Risk factors can be placed into groups. For example, risk factors may be ergonomic, biological/chemical or relate to noise/temperature, as set out in the Eurofound (2007) report.17

4.71 Linking cause and effect is not necessarily straightforward. For example, in some cases there may be a significant time period between exposure and disease, and there may also be other factors that are hard to identify and/or control for that may also contribute to the effect.

4.72 However, under this kind of approach, low risk environments can be thought of as being defined in the negative, i.e. by lack of exposure to those factors considered to be associated with risks.

*Assessment against requirements of definition*

4.73 Our assessment of these different approaches against our established requirements is shown in the table below (**Table 4.2**).

**Table 4.2: Focus of Definition: Assessment against Requirements**

| | **Requirement 1: Appropriately distinguishes between low and high risk workplaces** | **Requirement 2: Provides regulatory clarity** |
|---|---|---|
| Likelihood: The likelihood of an accident/work-related health problem occurring | Medium | n/a |
| Outcome: Severity of the accident/work-related health problem | Medium | n/a |
| Likelihood and outcome: The likelihood and severity of an accident/work-related health problem | High | n/a |
| Hazard exposure: Exposure to risk factors at work | High | n/a |

4.74 In respect of our assessment against requirement 1 we make the following observations:

(a) Likelihood: The likelihood of an accident/work-related health problem occurring: A drawback to this approach could be that all problems are treated equivalently, with no account taken of the consequences or impact of the problem.

(b) Outcome: Severity of the accident/work-related health problem: A drawback to this approach is that it does not take account of the likelihood of problems.

[17] Eurofound (2007), "Fourth Working Conditions Survey".

(c) Likelihood and outcome: The likelihood and severity of an accident/work-related health problem. This combined approach overcomes the limitations of looking at likelihood and outcome in isolation.

(d) Hazard exposure: Exposure to risk factors at work: Risk factors refer to factors at work that can adversely affect health or well-being, with some factors tending towards low risk environments and others towards high risk environments.

4.75 Requirement 2 is not applicable here as it seems highly unlikely that a legal proposal would ever be presented in these terms, e.g. the exemption would not be presented in terms of firms with less than a certain likelihood of health and safety incidents. It is more likely to be presented in terms of a list of sectors or occupations (or whatever categorisation of firms is chosen), with this list based on the policy-maker's analysis of which sectors or occupations are low risk using one of the approaches to defining low risk from **Table 4.2**.

4.76 The approaches to the focus of the definition which perform best against the relevant criterion are a composite measure of likelihood and outcome, or hazard exposure. However, data focusing only on likelihood or only on outcomes may be relevant if data on one of the preferred measures are not available.

**Threshold of the definition**

4.77 Some cut-off or threshold needs to be applied to the definition to separate low-risk from 'other', higher risk. The type of threshold will depend upon the approach.

4.78 Where likelihood is a part of the definition, comparisons of the likelihood of accidents or work-related health problem compared to other situations may be useful. Decisions at the UK HSE as to whether a work-related risk is sufficiently serious to take action are made by applying the criterion of a risk of death of one in a million per year. HSE considers that risks below this residual level are regarded as broadly acceptable. Bristow (2011)18 notes that the broadly acceptable risk level is extremely small when compared to the background level of risk, or the level of risk people are prepared to accept in the activities they undertake in their daily lives for the benefits such activities bring.19

4.79 The background level of risk could be taken to be the level of risk that people are exposed to at home. Bristow cautions on reading across the level of risk that is acceptable at home to the level that should be accepted at work, since at work risks are taken principally for the benefit of the employer, not for the individual.

4.80 Bristow also suggested that low risk workplaces could be those in which the likelihood to injury was significantly lower than the average likelihood of injury. "Significantly lower" would in itself

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[18] Bristow, S (2011), "Towards a Working Definition of 'Low Risk' ", HSE.

[19] The HSE have also developed the concept of risk being "as low as is reasonably possible" (ALARP). However, this level of risk varies by workplace, therefore, does not provide a threshold that can be applied workplaces,

need to be defined to take this forward. Choosing some percentile below which workplaces would be classified as low risk, could be seen as arbitrary.

4.81 In practice, therefore, Bristow suggests two thresholds of the definition:

(a) Relative to background level of risk

(b) Relative to risks in other workplaces

*Assessment against requirements of definition*

4.82 **Table 4.3** assesses the two different thresholds of the definition against the requirements of a low risk definition.

**Table 4.3: Threshold of the Definition: Assessment against Requirements**

| | **Requirement 1: Appropriately distinguishes between low and high risk workplaces** | **Requirement 2: Provides regulatory clarity** |
|---|---|---|
| Background level of risk | High | n/a |
| Relative to other workplaces | Medium | n/a |

4.83 In respect of our assessment against requirement 1 we make the following observations:

(a) Background level of risk: A threshold based upon the background level of risk contains a value-judgment, i.e. workplaces characterised by risks equivalent to the background level of risk are low risk workplaces. Many would consider this a sound value-judgment and a reasonable interpretation of low risk as we confront background risk in our daily lives and in our homes without performing or documenting risk assessments.

(b) Relative to other workplaces: Under this approach a judgment needs to be made as to what level of risk is to be considered low risk, so as to make a threshold relative to other workplaces meaningful in practice. This could be done, for example, by analysing health and safety data across (say) sectors and defining the bottom x per cent of sectors as low risk. Under this approach, the value of x would be set higher if the policy-maker is more concerned about errors of inclusion (i.e. incorrectly treating low risk firms as high risk) and set lower if the policy-maker is more concerned about errors of exclusion (i.e. incorrectly treating high risk firms as low risk).

4.84 Requirement 2 is not applicable here as it seems highly unlikely that a legal proposal would ever be presented in these terms of the threshold itself. It is more likely to be presented in terms of a list of sectors or occupations (or whatever categorisation of firms is chosen), with this list based on the policy-maker's analysis of which sectors or occupations are low risk using one of above approaches to setting a threshold.

4.85 This assessment suggests that basing the threshold on the background level of risk would be the ideal approach, but if this were not feasible to implement then a threshold based on risk relative to other workplaces could be used instead.

**Conclusion on possible definitions**

4.86 Based on our assessments of the different approaches that might be taken to the various dimensions of a definition of low risk, **Table 4.4** below presents some potential definitions of low risk.

4.87 The three definitions are based on the most promising approaches identified earlier for the categorisation of firms. In the case of the third approach (exposure to hazards), the list of hazards would be based directly on technical health and safety analysis. In the case of a definition based on sectors or occupations, the policy-maker would need to do some analysis to identify which sectors or occupations should be included in the list. **Table 4.4** suggests doing this by looking at measures such as the number of days lost per worker, the incidence of fatalities and the incidence of permanent incapacity,[20] which are measures that capture both likelihood and outcome of health and safety problems. Since there is not likely to be data on the number of days lost due to background risk factors, in practice implementation of this approach would require use of a relative threshold, which could be set higher or lower depending on the policy-maker's attitude towards errors of inclusion or errors of exclusion.

**Table 4.4: Regulatory definition and derivation of low risk scenarios**

| Title | Definition of low risk in regulation | Possible derivation of list by policy-makers |
|---|---|---|
| Regulatory definition 1: Sectors | All firms in the following sectors:<br>[list of sectors] | Sectors in the bottom [x] per cent in terms of number of days lost per employee due to accidents at work and work-related health problems, excluding any sectors with a high incidence of fatalities and permanent incapacity |
| Regulatory definition 2: Occupations | All firms only employing workers in the following occupations:<br>[list of occupations] | Occupations that fall into the bottom [x] per cent in terms of number of days lost per employee due to accidents at work and work-related health problems, excluding any sectors with a high incidence of fatalities and permanent incapacity |
| Regulatory definition 3: Hazards | All firms where workers are not exposed to any of the following hazards:<br>[list of hazards] | List derived on basis of expert health and safety analysis |

[20] It might be necessary to adjust such data to take account of fatalities, if these were not already included.

## Statistical Analysis

### Regulatory definition 1: Sectors

*Method and data limitations*

4.88 We have undertaken statistical analysis with the aim of selecting sectors which are low risk. This involved analysing data across three categories of severity: the incidence of fatalities, permanent incapacity, and working days lost. The data on permanent incapacity and working days lost related to both accidents at work and work-related health problems, whereas data on fatalities were only available in relation to accidents at work.

4.89 The data were standardised by employment to take account of differing employment levels across sectors, and different thresholds for fatalities, permanent incapacity and working days lost were applied to select "low risk sectors" for three scenarios. These three scenarios are Low Risk Scenario 1 (which is the strictest definition of low-risk with the lowest threshold of fatalities, permanent incapacity and working days lost below which sectors are considered low risk); Low Risk Scenario 2 (a medium scenario with higher thresholds); and Low Risk Scenario 3 (the least strict definition of low risk with the highest threshold of fatalities, permanent incapacity and working days lost below which sectors are considered low risk). As the most conservative scenario, Low Risk Scenario 1 will have the least number of sectors; likewise Low Risk Scenario 3 will have the most sectors.[21]

4.90 The following data from Eurostat have been used:

(a) Days lost from accidents at work by economic activity;

(b) Number of accidents leading to fatality or permanent incapacity;

(c) Standardised prevalence rate of work-related health problems by economic activity at EU level;

(d) Number of work-related health problems by severity at EU level;

(e) Number of persons employed by NACE code;

(f) Number of enterprises by NACE code.

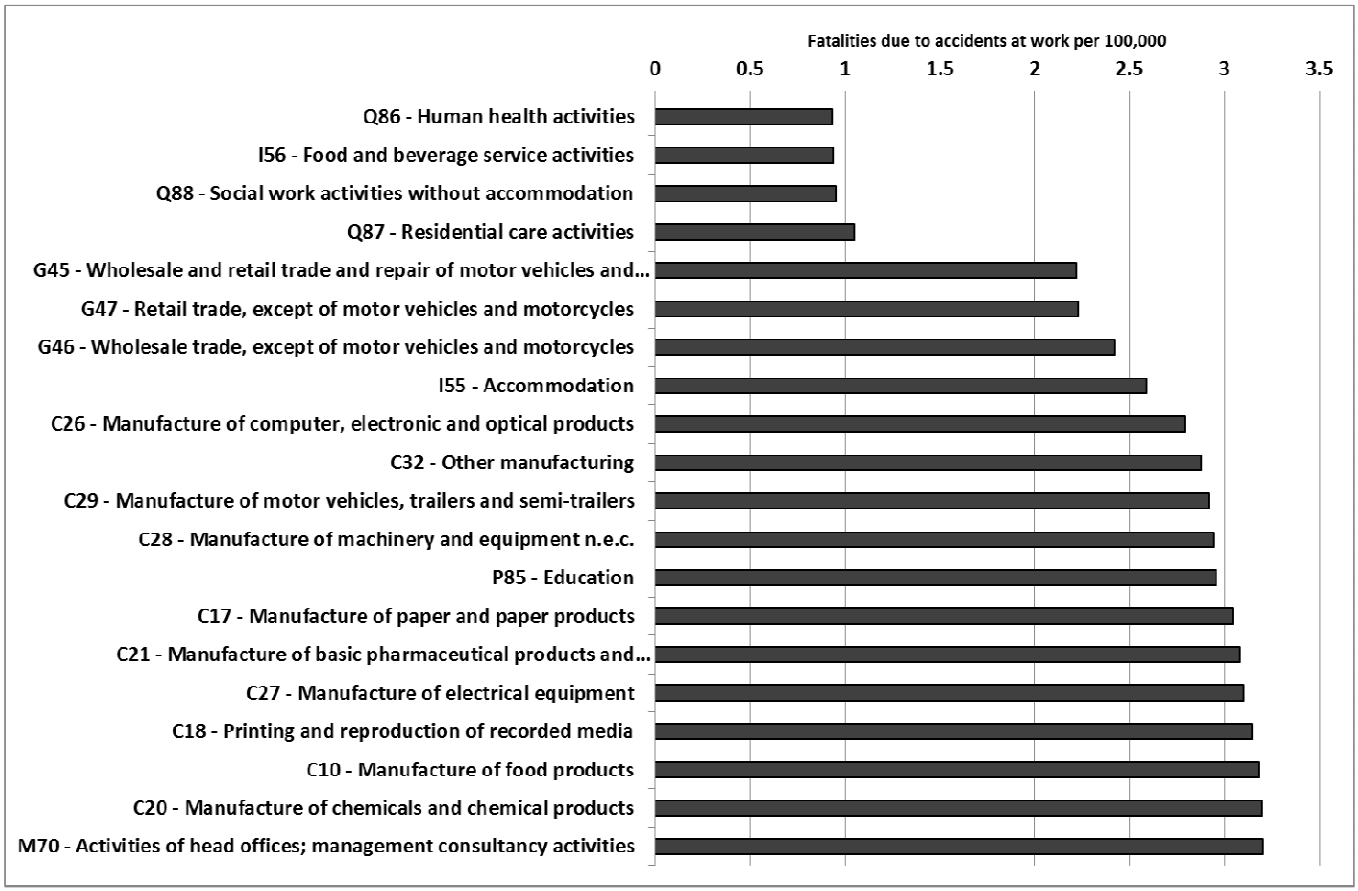
4.91 The data used in the analysis for accidents at work per 100,000 employees are presented in the figures below (**Figure 4.1** to **Figure 4.3**) for fatalities, permanent incapacity and working days lost, for the 20 sectors with the lowest incidence (number of fatalities/permanent incapacities/working days lost per 100,000 employees).[22] It can be seen that the sectors with

[21] The values of the thresholds are described later in this section.

[22] Only 20 sectors were chosen for the charts to be concise, and this bears no relation to the threshold used to determine whether or not a sector is classified in one of the Low Risk scenarios or not. Full charts with all sectors can be found in the Appendix.

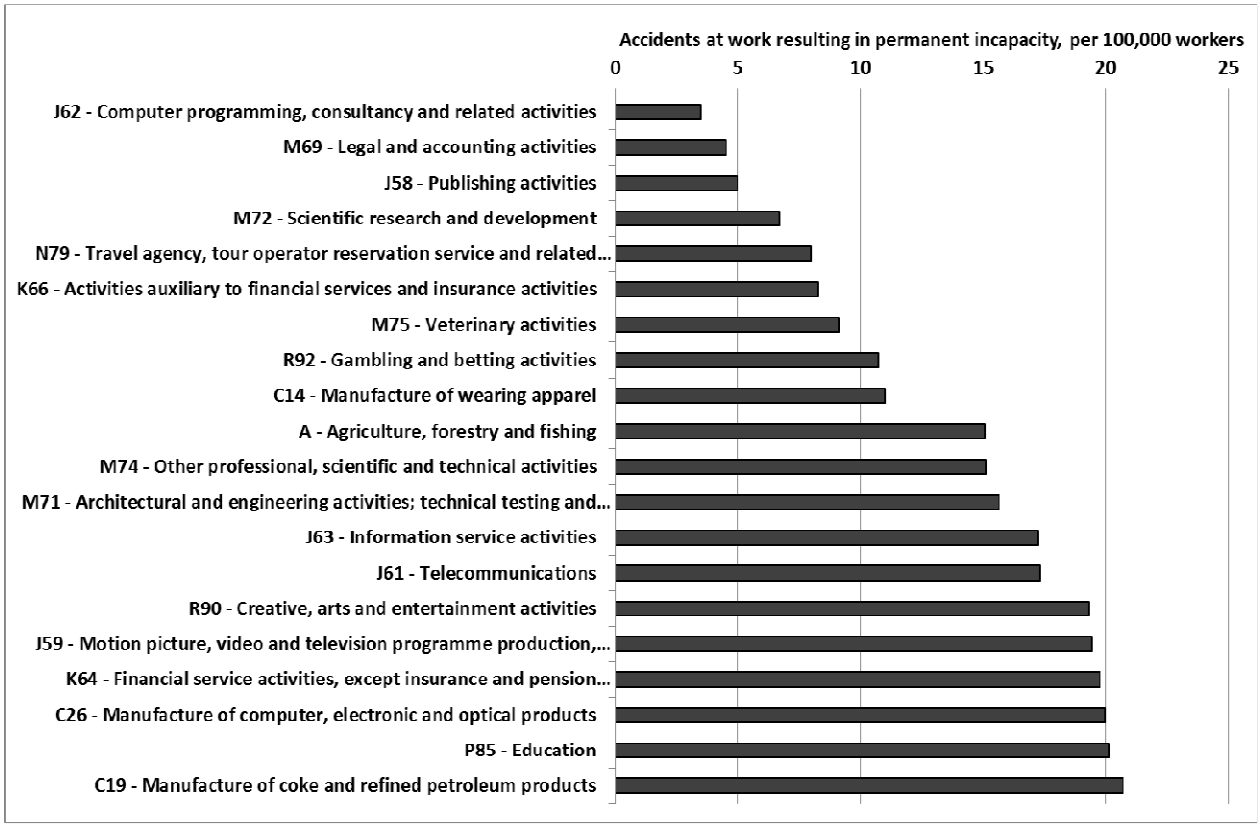
the lowest incidence varies across these three categories of severity; for instance, a sector may have a high incidence of working days lost from accidents, but a relatively low incidence of fatalities.

**Figure 4.1: Twenty best-performing sectors in terms of number of fatalities from accidents at work per 100,000 employees at NACE 2 level**



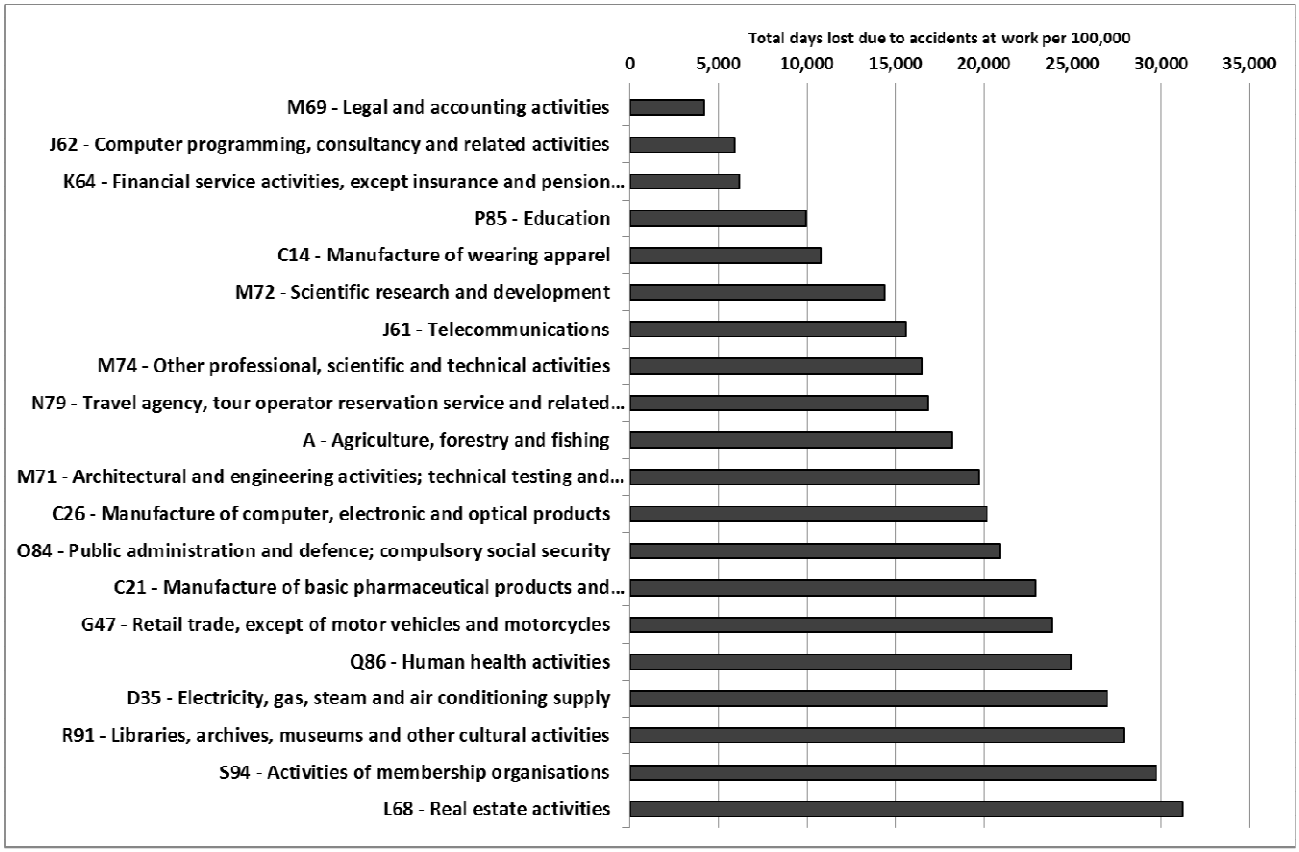

*Source: Europe Economics analysis of Eurostat data (2008) Number of accidents leading to fatality or permanent incapacity [hsw_n2_02]. Excludes the UK, Finland, Denmark due to unavailable data by sector*

**Figure 4.2: Twenty best-performing sectors in terms of number of accidents at work resulting in permanent incapacity per 100,000 employees at NACE 2 level**




*Source: Europe Economics analysis of Eurostat data (2008) Number of accidents leading to fatality or permanent incapacity [hsw_n2_02]. Excludes the UK, Finland, Denmark due to unavailable data by sector*

**Figure 4.3: Twenty best-performing sectors in terms of number of working days lost due to accidents per 100,000 employees at NACE 2 level (exc. fatalities and permanent incapacity)**




*Source: Europe Economics analysis of Eurostat data (2008) Days lost from accidents at work by economic activity [hsw_n2_04]; Excludes the UK, Finland, Denmark due to unavailable data by sector*

4.92 Using data on days lost allows us to take account of both the likelihood and the outcome of accidents and other work-related health problems. Data could either have been analysed at NACE 1 or NACE 2 level, and we chose to use the NACE 2 level since this presents sector data at a more disaggregated level.

4.93 The employment data was inferred by using two datasets: the number of non-fatal accidents at work by economic activity; and the incidence of accidents at work by economic activity. The employment data was used to standardise the outcomes data for the number of people employed in each sector.

4.94 There are several limitations to the available data, discussed below, which serve as caveats to the results that follow.

4.95 The datasets on the number of days lost due to accidents and fatalities due to accidents is for 2008. These datasets have missing data points for some sectors in some Member States due to the data points not being available to download from Eurostat. We imputed values for the gaps in the data in order to have a complete dataset, in the following ways. Where data were only available at NACE 1 level, it was assumed that the same incidence applied to all sub-

sectors at the NACE 2 level. This introduces inaccuracies since this does not take account of specific subsector differences, and is particularly problematic where a NACE 1 sector contains sub-sectors that are likely to do different in terms of health and safety risks. Where NACE 1 level data were not available, then the values were inputted by using the EU average adjusted by the average difference of the Member State's values from the EU average, which again could lead to inaccuracies.

4.96 The data on number of days lost due to accidents are in grouped categories (e.g. 1-3 days lost). In order to calculate the number of days lost, we had to pick a point within this range, which could lead to either an under- or over- estimate of days lost.

4.97 The data available for the number of work-related health problems is presented in **Figure 4.4**.[23] The dataset is older than would be preferred (i.e. from 1999) and is not as detailed as the dataset on accidents. We therefore made the following assumptions about this dataset in order to incorporate it within the analysis. We used correspondence tables to make the data correspond to the NACE Revision 2 codes and we adjusted the data using the average change in the proportion of people reporting work-related ill-health in the 1999-2007 period from the LFS survey,[24] in order to bring the data closer to the time period that the accident data relates to, so that the two datasets are more consistent. The data on prevalence of work-related health problems is only available at NACE 1 level. Since prevalence data are adjusted for the number of employees in the sector, we assumed that the prevalence rate that was available for a NACE 1 sector was the same across the NACE 2 subsectors of that sector.

4.98 Data on the severity of work-related health problems (i.e. how many days lost) are available only at an aggregate EU level, not by NACE code (see Table 4.5). We therefore assumed that the distribution of severity of work-related health problems is the same across all NACE codes.

4.99 Due to the self-reported nature of the data source, fatalities due to disease or ill health are not captured by the data. Reporting errors may also exist regarding work-related health problems that have a long latency period and which may only be discovered once a worker has moved away from the job, or retired. Therefore the available data will underestimate the impact of work-related ill health.

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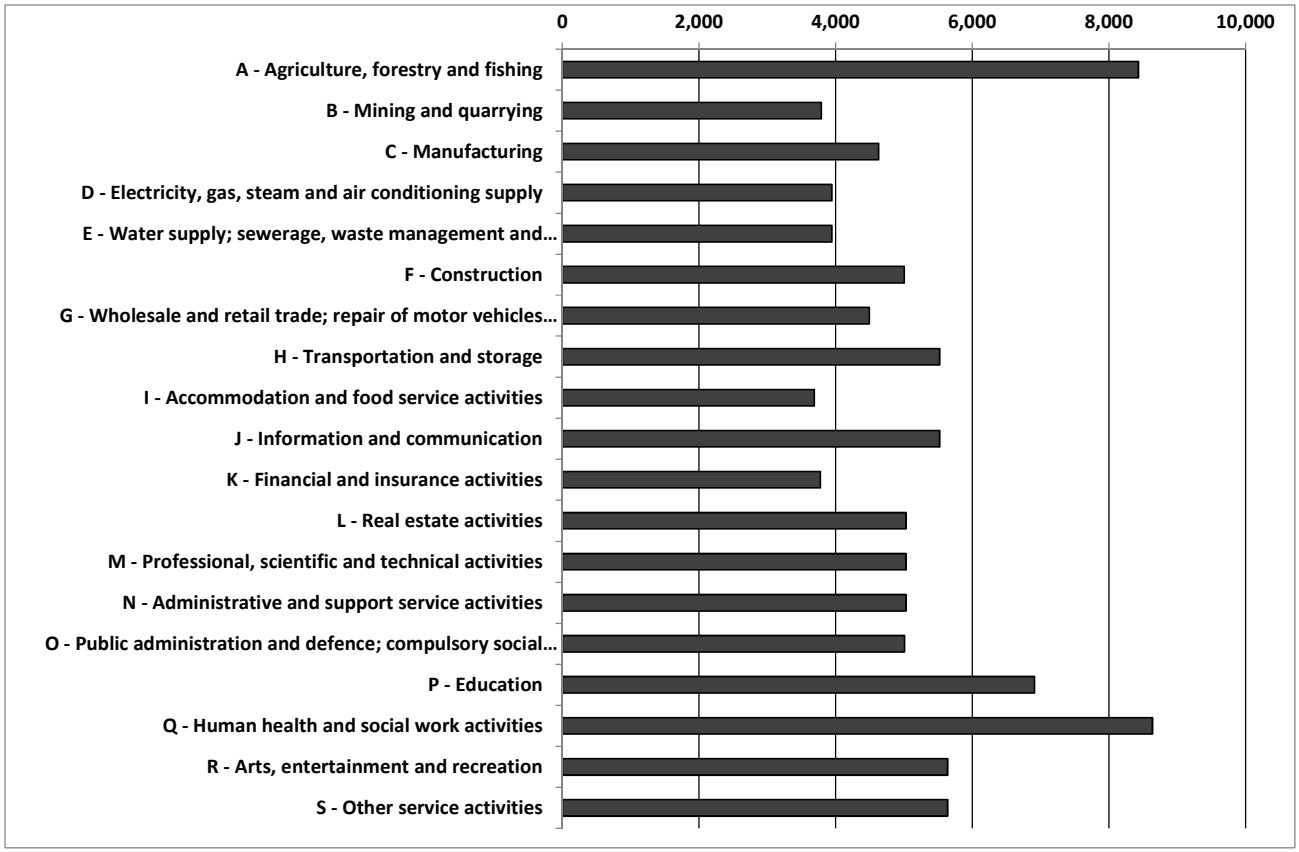
[23] This figure is based on data from the 1999 LFS. More recent data on work-related health problems is available in the 2008 LFS ad hoc module. However. for the purposes of our health and safety modelling we require data on the *number* of work-related health incidents so that the corresponding costs in terms of number of working days and lost output can be estimated. The LFS ad hoc module survey provides data on the *proportion* of people reporting work-related ill health. Whilst more up to date, we cannot use this data to estimate the number or severity of ill-health incidents (as it is not clear if individuals experience more than one health problem, and no indication is given of the severity of the problems).

[24] LFS ad hoc module: Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait"

**Figure 4.4: Standardised prevalence rate of work-related health problems at NACE 1 level**




*Source: Europe Economics analysis, Eurostat data (1999 ) Standardised prevalence rate of work-related health problems by economic activity at EU level [hsw_hp_dinag], updated to 2007 values*

**Table 4.5: Breakdown of work-related health problems by severity at the EU level**

| Severity | EU aggregate | Percentage of total |
|---|---|---|
| None or less than one day's absence from work | 1,516,165 | 37% |
| 1 - 3 days lost | 305,371 | 7% |
| 4 - 6 days lost | 306,260 | 7% |
| 7 - 13 days lost | 349,241 | 9% |
| 14 - 29 days lost | 449,686 | 11% |
| 1 month lost - 3 months lost | 455,391 | 11% |
| 3 or more months lost | 550,753 | 13% |
| Permanent incapacity (to work) | 51,204 | 1% |
| Unspecified | 112,494 | 3% |
| **TOTAL** | **4,096,565** | **100%** |

*Source: Eurostat data (1999) Number of work-related health problems by severity at EU level [hsw_hp_svdwa], updated to 2007 values*

*Methodology for developing low-risk scenarios*

4.100 In order to account for all types of accidents and ill health arising from occupational risks, we must select sectors that can be considered low risk across all categories of severity (e.g. that have a low incidence of fatalities, permanent incapacity and working days lost). However, the data on the number of accidents leading to fatality or permanent incapacity are not readily comparable with data on days lost. One possibility would be to assume a value for the number of working days lost due to fatality or permanent incapacity. However, not only is it difficult to make such an estimate, but this seemed to us to miss a fundamental difference between the categories of severity.

4.101 Instead, therefore, we use three criteria, each of which must be satisfied for the sub-sector to be part of one of the three low risk scenarios which we have developed:

(a) Below threshold for days lost due to accidents and work-related health problems. This was done by first ranking the sectors by the number of days lost due to accidents and work-related ill health problems, and then selecting the bottom 20 per cent of sectors (in Low Risk Scenario 1), the bottom 30 per cent (in Low Risk Scenario 2) and the bottom 45 per cent (in Low Risk Scenario 3). Below threshold for permanent incapacity due to accidents and work-related health problems. This was done in the same way as for the days lost due to accidents and work-related health problems, this time ranking the sectors by the number of cases of permanent incapacity, and applying the same thresholds.

(b) Below threshold for fatalities due to accidents at work. This was done by comparing the incidence of fatalities in a sector to the EU average incidence of fatalities. The thresholds were set at 1 times the EU average (in Low Risk Scenarios 1 and 2) and 2 times the EU average (in Low Risk Scenario 3).

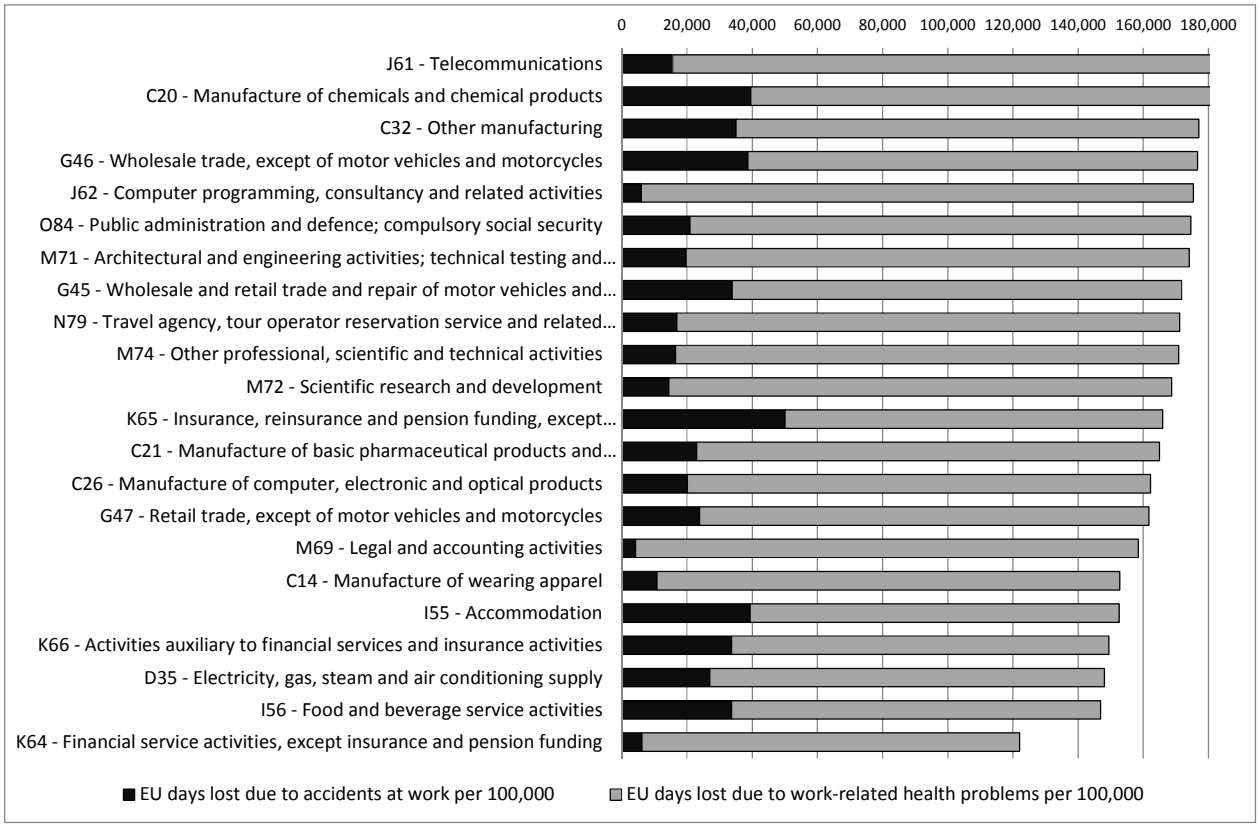
4.102 Any choice of threshold inevitably involves a matter of judgment as to what society is willing to deem "low risk". Hence, the thresholds we have used should be seen as illustrative values chosen to explore a range of scenarios for what might be deemed "low risk".

4.103 This approach allows us to take account of days lost, permanent incapacity and fatalities. These three indicators of types of severity are not always correlated together across sectors (see the figures below), so using three thresholds allows for a more robust analysis.

4.104 The **Figure 4.5** below show working days lost due to both accidents and work-related ill-health per 100,000 employees. It can be seen how large a proportion days lost due to work-related ill-health constitutes of the total. **Figure 4.6** similarly shows the large proportion of total permanent incapacity due to work-related ill-health.[25]

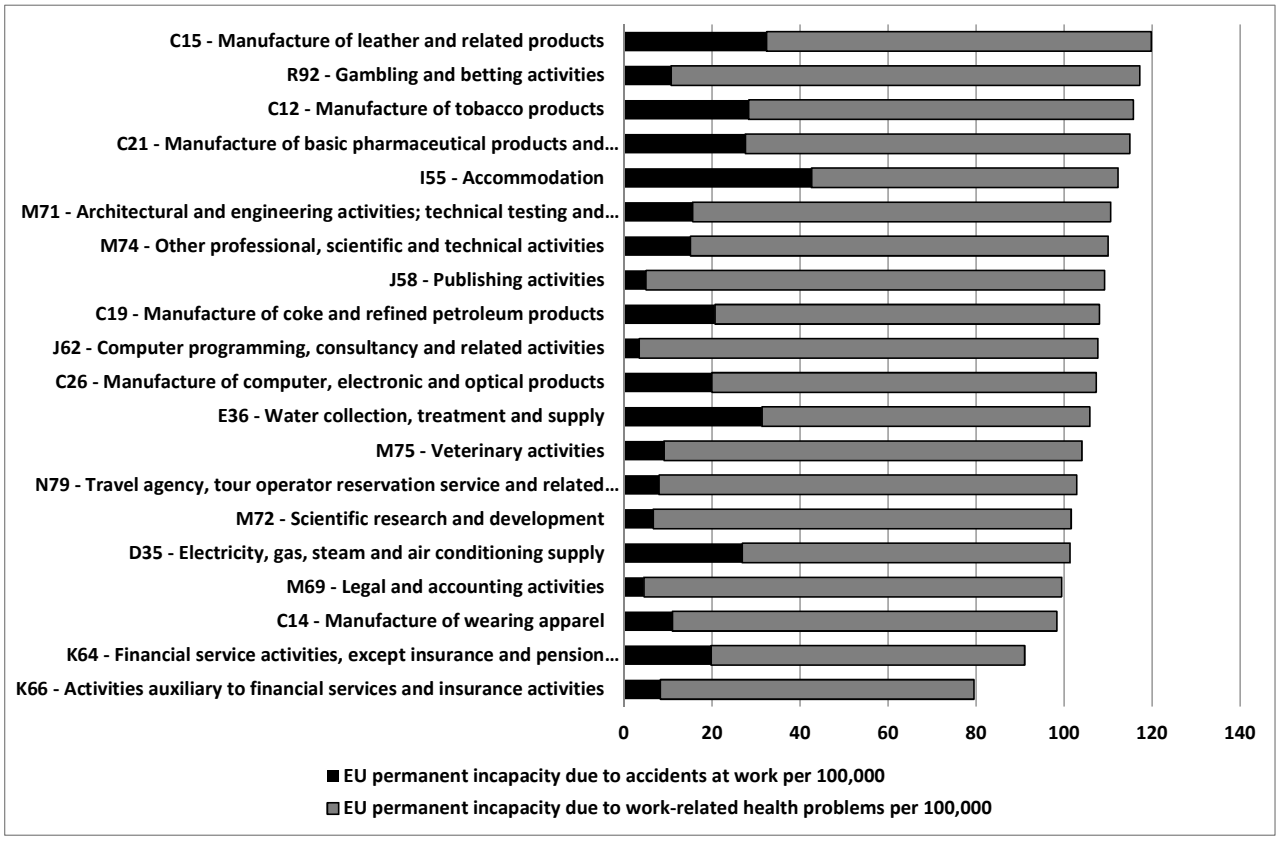
[25] The importance of ill-health in overall OSH risks means that any inaccuracies in this dataset (or in the assumptions that we have employed in interpreting the data) will have a significant impact on the results. Hence, the results we present for the sectors that are low risk should be treated with caution.

**Figure 4.5: Sectors with the lowest number of working days lost due to accidents and work-related ill-health per 100,000 employees**




*Source: Europe Economics analysis, Eurostat data (*1999) *Number of work-related health problems by seve*rity at EU level [hsw_hp_svdwa], and (2008) *Days lost from accidents at work by economic activity [hsw_n2_04];*

**Figure 4.6: Sectors with the lowest number permanent incapacity due to accidents and work-related ill-health per 100,000 employees**




Source: Europe Economics analysis, Eurostat data(1999) Number of work-related health problems by severity at EU level [hsw_hp_svdwa], and (2008) Number of accidents leading to fatality or permanent incapacity [hsw_n2_02]

*Results*

4.105 The results of the analysis are presented in **Table 4.6.**

**Table 4.6: Sectors included in low-risk definition using different thresholds**

| Threshold for days lost due to accidents and work-related health problems | Threshold for permanent incapacity from accidents and work-related health problems | Threshold for fatalities due to accidents at work | Sectors included in low-risk definition | Percentage of firms in low-risk sectors | Percentage of micro-enterprises in low-risk sectors | Percentage of workers in low-risk sectors |
|---|---|---|---|---|---|---|
| Lowest 10 per cent of sectors | Lowest 10 per cent of sectors | 1 times EU average | C14 - Manufacture of wearing apparel<br>D35 - Electricity, gas, steam and air conditioning supply<br>K64 - Financial service activities, except insurance and pension funding<br>K66 - Activities auxiliary to financial services and insurance activities | 2.3% | 1.4% | 4.1% |
| Lowest 20 per cent of sectors | Lowest 20 per cent of sectors | 1 times EU average | C14 - Manufacture of wearing apparel<br>C26 - Manufacture of computer, electronic and optical products<br>D35 - Electricity, gas, steam and air conditioning supply<br>K64 - Financial service activities, except insurance and pension funding<br>K66 - Activities auxiliary to financial services and insurance activities<br>M69 - Legal and accounting activities<br>M72 - Scientific research and development<br>M74 - Other professional, scientific and technical activities | 7.7% | 4.7% | 7.0% |
| Lowest 30 per cent of sectors | Lowest 30 per cent of sectors | 2 times EU average | C14 - Manufacture of wearing apparel<br>C21 - Manufacture of pharmaceutical products<br>C26 - Manufacture of computer, electronic and optical products<br>D35 - Electricity, gas, steam and air conditioning supply<br>I55 - Accommodation<br>I56 - Food and beverage service activities<br>J62 - Computer programming, consultancy and related activities<br>K64 - Financial service activities, except insurance and pension funding<br>K65 - Insurance, reinsurance, pension funding, except compulsory social security<br>K66 - Activities auxiliary to financial services and insurance activities<br>M69 - Legal and accounting activities<br>M71 - Architectural and engineering activities; technical testing and analysis<br>M72 - Scientific research and development<br>M74 - Other professional, scientific and technical activities | 21.5% | 13.2% | 15.0% |

*Different threshold values were chosen to explore the impacts of different levels of risk. In the absence of any evidence, these thresholds values are illustrative.*

**Regulatory definition 2: Occupations**

*Method and data limitations*

4.106 We have undertaken statistical analysis with the aim of selecting occupations which are low risk.

4.107 The following data have been used from Eurostat:

(a) Number of accidents at work leading to three or more days lost by International Standard Classification of Occupations (ISCO);

(b) Number of fatal accidents at work by ISCO;

(c) Relative prevalence rate of work-related health problems leading to more than 14 days lost;

(d) Employment by occupation.

4.108 A key data limitation is that data by ISCO category are less disaggregated than the data available by sector. In particular, relevant data are only available by 1-digit ISCO codes. The ISCO categories for which there is data are the following:

(a) ISCO1 – Legislators, senior officials and managers;

(b) ISCO2 – Professionals;

(c) ISCO3 – Technicians and associate professionals;

(d) ISCO4 – Clerks;

(e) ISCO5 – Service workers and shop and market sales workers;

(f) ISCO6 – Skilled agricultural and fishery workers;

(g) ISCO7 – Craft and related trades workers;

(h) ISCO8 – Plant and machine operators and assemblers;

(i) ISCO9 – Elementary occupations.

4.109 There are several limitations to the data which should be borne in mind when considering the results. The datasets allow us to take account of the likelihood and the severity of accidents; however, the data are not in a consistent format across the datasets. The data on work-related health problems is for the year 1999, and only data on the relative prevalence rate of health problems (relative to the rate in the total of all participating countries) for more than 14 days lost are available. The data on number of accidents at work leading to days lost only record whether three or more days were lost, which means

that we are unable to estimate accurately the number of days lost due to accidents. The data on accidents and work-related health problems record data of differing severities: data on accidents includes accidents with three days lost, whereas the work-related health problems data only includes problems with more than 14 days lost. In addition, as discussed above, combining data on days lost due to accidents and data on the number of accidents leading to fatalities does not allow the severity of an accident leading to a fatality to be fully accounted for.

4.110 In order to make use of this data despite these differences across datasets, we used three criteria, which each had to be satisfied for the occupation to be part of the low risk scenarios:

(a) Below threshold for the number of accidents at work leading to three or more days lost. This was done by ranking the occupations by the number of days lost through accidents and then applying thresholds to this ranking (for the thresholds used, see **Table 4.7**).

(b) Below threshold for the relative prevalence rate of work-related health problems. This was done in the same way as described above, this time ranking the occupations by the relative prevalence of work-related health problems, and applying the same thresholds.

(c) Below threshold for fatalities due to accidents at work. This was done by comparing the incidence of fatalities in an occupation to the EU average incidence of fatalities. The threshold was set at 1 times the EU average.

4.111 The employment by occupation data was used to standardise the number of accidents and fatal accidents by the number of people in each occupation.

*Results*

4.112 The results of the analysis are presented in the table below (**Table 4.7**).

**Table 4.7**: **Occupations included in the low risk definition**

| Threshold for the number of accidents at work | Threshold for the relative prevalence rate of work-related health problems | Threshold for fatalities due to accidents at work | Occupations included in low-risk definition | Percentage of workers in low-risk sectors |
|---|---|---|---|---|
| Must be in lowest 3 occupations by rank | Must be in lowest 3 occupations by rank | 1 times EU average | ISCO3 - Technicians and associate professionals | 16% |
| Must be in lowest 5 occupations by rank | Must be in lowest 5 occupations by rank | 1 times EU average | ISCO1 - Legislators, senior officials and managers<br>ISCO3 - Technicians and associate professionals | 25% |
| Must be in lowest 6 occupations by rank | Must be in lowest 6 occupations by rank | 1 times EU average | ISCO1 - Legislators, senior officials and managers<br>ISCO3 - Technicians and associate professionals<br>ISCO4 - Clerks | 36% |

*Any choice of threshold inevitably involves a matter of judgment as to what society is willing to deem "low risk". Hence, the thresholds we have used should be seen as illustrative values chosen to explore a range of scenarios for what might be deemed "low risk".*

**Regulatory definition 3: Hazards**

4.113 Under the third proposed definition, all firms where workers are not exposed to certain hazards are considered low risk.

4.114 The European Working Conditions Survey (EWCS) 2005 results show that exposure for at least a quarter of working time was reported by workers for each of the following hazards:

(a) Vibration

(b) Noise

(c) Smoke, fumes, powder or dust

(d) Vapours

(e) Tobacco smoke

(f) Infectious materials

(g) Radiation

(h) Handling chemical products

(i) Tiring or painful positions

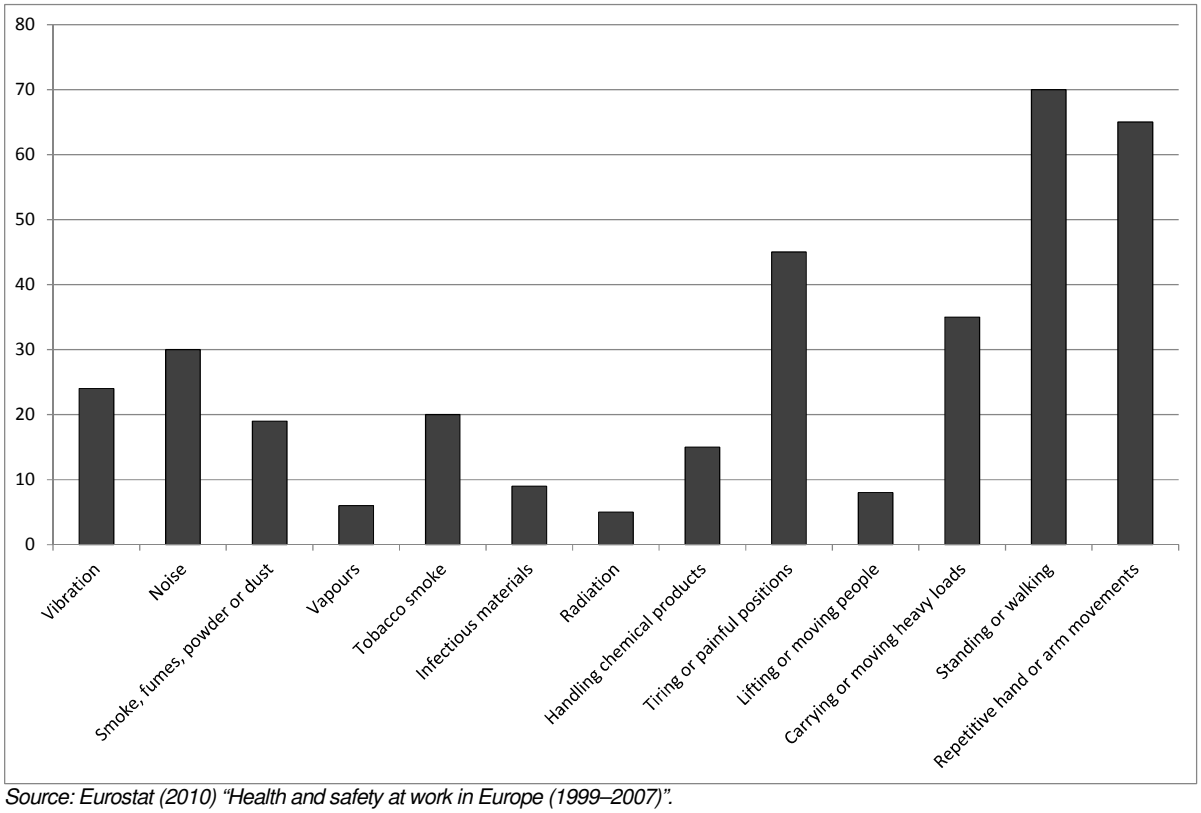
(j) Lifting or moving people

(k) Carrying or moving heavy loads

(l) Standing or walking

(m) Repetitive hand or arm movements

**Figure 4.7: Exposure (for at least ¼ of the time) to physical risk factors reported in the EWCS 2005 (%)**




*Source: Eurostat (2010) "Health and safety at work in Europe (1999–2007)".*

4.115 Psychosocial risk factors reported in the survey were:

(a) Physical violence from other people

(b) Physical violence from people from the workplace

(c) Threats of physical violence

(d) Bullying/harassment

(e) Working at high speed (> 1/4 of the time)

(f) Working to tight deadlines (> 1/4 of the time)

4.116 Data are not available to us on the number of micro-enterprises at which workers are exposed to these hazards.

### Conclusions from statistical analysis

4.117 Although all three approaches could be used for the definition in regulation, there are data challenges in determining what sectors/occupations/hazards should be covered by the definition.

4.118 Seeing as there is no widely accepted definition of low and other risk, this inevitably leads to the exercise of categorising low risk sectors as being somewhat subjective in nature and therefore having the corresponding limitations, including the possibility of inappropriate inclusion/exclusion of sectors from the low risk definition. The HLG recommendation was for Member States to decide on a definition, which implies that different approaches could be used by different Member States, for example by taking into account the data available at national level.

4.119 To be tractable for our modelling purposes, we need to know the number of micro-enterprises covered by the definition. We only have data on this by sector, and hence have only been able to conduct the cost-benefit analysis for different scenarios for a sectorial definition. This does not mean that the definitions by occupation/hazard are not feasible for policy purposes (simply that it is more difficult to estimate the potential impact of using them).

4.120 **Table 4.8** below summarises the low-risk sectors that have been derived from our analysis, and that will be used in our modelling. These are presented across the three Risk Scenarios discussed earlier.

**Table 4.8: Low-risk sectors as defined in this report**

| | Risk scenario 1 | Risk scenario 2 | Risk scenario 3 |
|---|---|---|---|
| C14 - Manufacture of wearing apparel | ● | ● | ● |
| C21 - Manufacture of basic pharmaceutical products and | | | ● |
| C26 - Manufacture of computer, electronic and optical | | ● | ● |
| D35 - Electricity, gas, steam and air conditioning supply | ● | ● | ● |
| I55 - Accommodation | | | ● |
| I56 - Food and beverage service activities | | | ● |
| J62 - Computer programming, consultancy and related | | | ● |
| K64 - Financial service activities, except insurance and | ● | ● | ● |
| K65 - Insurance, reinsurance and pension funding, except | | | ● |
| K66 - Activities auxiliary to financial services and insurance | ● | ● | ● |
| M69 - Legal and accounting activities | | ● | ● |
| M71 - Architectural and engineering activities; technical | | | ● |
| M72 - Scientific research and development | | ● | ● |
| M74 - Other professional, scientific and technical activities | | ● | ● |

# 5 WORKER SUB-GROUPS

5.1 The previous chapter suggested some plausible definitions of low risk workplaces and applied a statistical method to derive these definitions for both sectors and occupations. However, it may be that some workplaces can generally be considered low risk but feature risks to certain groups of workers that would not be considered acceptable. These worker groups might be defined, for example, by age, gender, length of time spent in the Member State (i.e. migrant workers), and disability.

5.2 This chapter begins by exploring some of the workplace risks that are specific to these groups of workers and concludes by assessing the prevalence of these groups within the sector-based definitions of low risk derived in the previous chapter.

## Risks Specific to Worker Sub-Groups

### Gender differences

5.3 There are significant differences between men and women; for instance, in the age structure of the working population (e.g. there tend to be fewer older women in work than men), in the number of hours worked (32 per cent of women and 7 per cent of men work part-time), and between permanent and temporary contracts (women are more likely to be employed on temporary contracts than men, even at higher age).[26]

5.4 We note that these differences in working arrangements may lead indirectly to differences in health and safety experiences between men and women. In particular:

(a) Full-time employees with fixed term contracts have reported higher levels of muscular pains and fatigue, compared to full-time employees with permanent contracts.[27] Given that women are more likely than men to be employed on temporary contracts, they may be at greater risk of muscular pain and fatigue. An increased incidence of fatigue might be explained by fixed term workers being more likely to be employed at peak times with intensified work. Women also undertake a disproportionately large number of night shifts.

(b) As women are more likely to be employed on temporary contracts, they may be exposed to higher risk than workers with permanent contracts who perform different tasks and may have more training and knowledge. There is some evidence that workers with temporary contracts may have more accidents than those employed on

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[26] Paoli, Merllié (2001), Third European survey on working conditions 2000, European Foundation for the Improvement of Living and Working Conditions (http://www.eurofound.ie/publications/files/EF0121EN.pdf),
Fagan, Burchell (2002), Gender, jobs and working conditions in the European Union, European Foundation for the Improvement of Living and Working Conditions, Risks and Trends in the Safety and Health of Women at Work, European Risk Observatory.

[27] Goudswaard, Andries (2002), Employment status and working conditions, European Foundation for the Improvement of Living and Working Conditions.

a permanent basis.[28] The increased risk could be due to the differing nature of work and less knowledge of the particular workplace or tasks. These effects could be higher than recorded because temporary workers may be reluctant to report such accidents.[29]

5.5 Another reason for different exposure to health and safety hazards is the gender segregation between and within sectors:[30]

(a) Sectors with a relatively high presence of females are: services in private households, health, education and other care-related activities, sales, hotels and catering, and the public sector.

(b) When employed in the private sector, women are more likely than men to work in small and medium-sized companies.

(c) Sectors with a relatively high presence of males are: construction, manufacturing, transport, agriculture and financial services.

(d) Men hold more than 60 per cent of legislative and managerial occupations, and more than 70 per cent of corporate managers and senior government officials are men.

(e) One third of the self-employed are women.

5.6 Furthermore, the work load of unpaid domestic responsibilities tends to disproportionately fall upon women[31], which may affect the likelihood of them being affected by occupational risks and hazards.[32] This may be workers who complete a lot of domestic responsibilities may be more tired at work than they otherwise would be and, therefore, more susceptible to falling victim to risks and hazards at work.

5.7 Empirical literature finds significant differences in work-related injuries and illnesses between men and women. Partly, these differences are thought to stem from different work patterns of women and men. However, even when adjustments are made for full-time equivalents in employment and the number of hours worked, men and women suffer different accident rates and also different types of accidents and illnesses.

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28 Notkola, Vänskä (2000): Occupational injuries and diseases of fixed-term workers, in: Työn vaarat 1999 (Hazards of work 1999), pp. 46-59. Ed. Paananen S. Labor market 2000:15. Statistics Finland, Helsinki 2000.

29 Benavides, Benach , Muntaner , Delclos, Catot , Amable (2006): Associations between temporary employment and occupational injury: what are the mechanisms? Occupational and Environmental Medicine 63 pp. 416-421.

30 Fagan, Burchell (2002), Gender, jobs and working conditions in the European Union, European Foundation for the Improvement of Living and Working Conditions.

31 In the fifth European Working Conditions Survey 31.7 per cent of women report to spend more than 70 hours or unpaid domestic work per week (men: 13,6 per cent). See also Fagan, Burchell (2002), Gender, jobs and working conditions in the European Union, European Foundation for the Improvement of Living and Working Conditions, table 13.

32 Fagan, Burchell (2002), Gender, jobs and working conditions in the European Union, European Foundation for the Improvement of Living and Working Conditions, p. 27.

5.8 Many studies explain these remaining differences by gender segregation across and within sectors.[33] To explore this, we now analyse data on accidents and work-related illnesses by gender and sector.

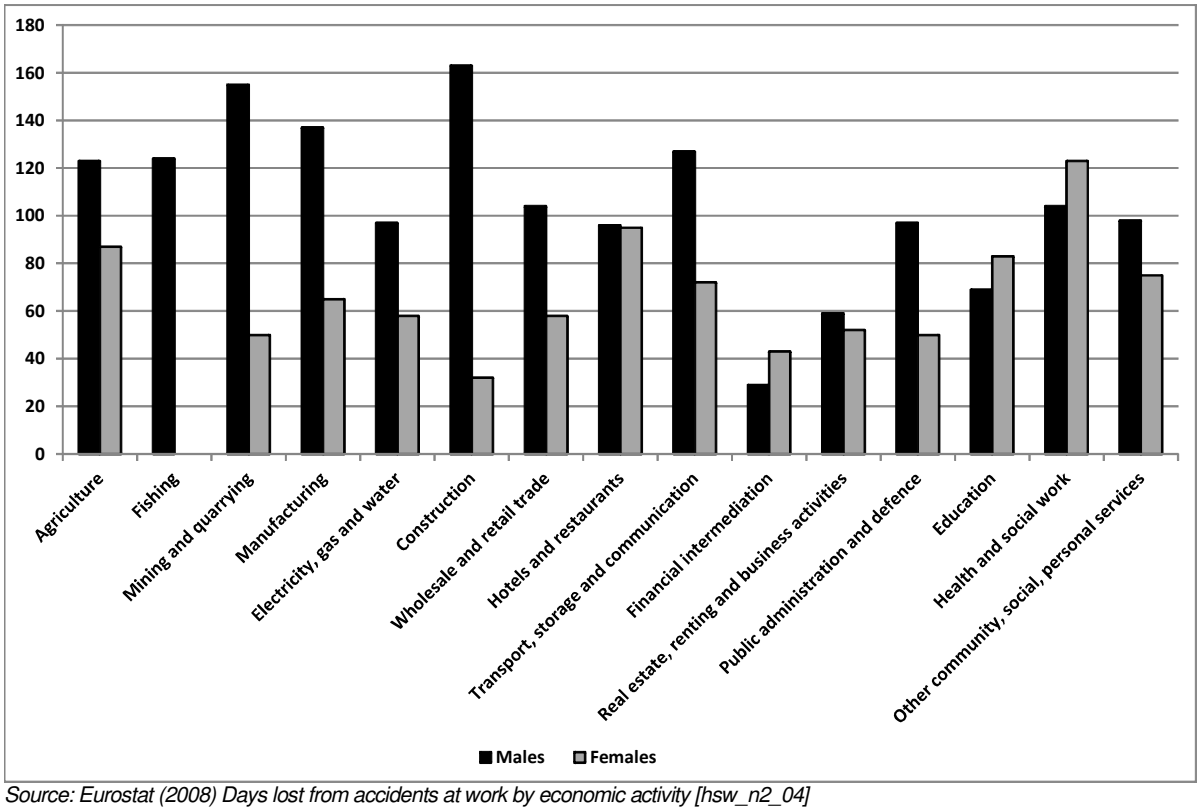
*Accidents*

5.9 The prevalence of accidents experienced by men and women exhibits differences which do not seem to be explained by working hours or job characteristics, according to a 2002 study[34]: Men are more likely to suffer major or fatal accidents at work than women. Their average workplace injury rate is 75 per cent higher than for women. When adjusted for hours worked and job characteristics, it is still 20 per cent higher. The gap between the accident rates of men and women is more pronounced when less serious accidents are excluded, with the rate for men being 3 times higher. For less serious accidents (resulting in less than four days or no absence), after adjusting for the differences described above, the incidence rate of accidents at work was still over 1.33 times greater for men than for women.

5.10 **Figure 5.1** illustrates the relative incidence rate of accidental injuries at work by economic activity and gender.

[33] See for instance: European Agency for Safety and Health at Work (2003): Gender issues in safety and health at work, p. 36.
[34] Fagan, Burchell (2002), Gender, jobs and working conditions in the European Union, European Foundation for the Improvement of Living and Working Conditions.

**Figure 5.1: Relative incidence rate of accidental injuries at work by economic activity and gender (EU mean rate = 100) 1999**




*Source: Eurostat (2008) Days lost from accidents at work by economic activity [hsw_n2_04]*

5.11 We note that in the figure above (**Figure 5.1**) the difference in incidence of accidents within sectors is much larger in those sectors with a higher total incidence of accidents. Contrast, for example, the difference in accident rates for men and women in construction, which has a relatively high total amount of accidents, with that for financial intermediation, which has a relatively small total amount of accidents. Differences in the incidence of accidents within sectors may be explained by men and women taking on different roles within these sectors. Men are more likely to occupy supervisory, managerial[35] or technical jobs or perform tasks where risk is more visible (e.g. heavy lifting is often assigned to men).[36] This again highlights the significance of occupation as a determinant of OSH risks.

5.12 In the figure above (**Figure 5.1)** we identify financial intermediation, education, and health and social work as sectors in which the incidence rate of accidents is higher for women than for men. These differences may stem from different roles within sectors as well. In the health and social work sector women represent the majority of nursing staff who are in

[35] In 9 out of 14 surveyed EU countries, women are more than 5 percentage points under-represented in the ISCO occupational group "Legislators, officials and managers" relative to their share of all employment in the country in question (European Agency for Safety and Health at Work (2003): Gender issues in safety and health at work, p. 189).

[36] Risks and Trends in the Safety and Health of Women at Work, European Risk Observatory.

regular contact with harmful chemicals and who perform potentially dangerous tasks, such as heavy lifting, whereas men are more likely to be engaged in managerial tasks or in surgery or intensive care areas.[37] The same situation where men are less likely to be in direct contact with clients or the public may explain the gender difference in incidence rates in the financial intermediation and education sectors. Machines and tools designed for the average male anatomy and used by female workers may also contribute to women's work accident risks.[38]

*Work Related Health Problems*

5.13 In the Labour Force Survey 2007 rates of work-related health problems were similar for female and male workers: 12.8 per cent of men and 12.7 per cent of women reported one or more work-related health problems during the 12-month period before the survey. The prevalence of work-related health problems increased with age for both genders from approximately 3 per cent in the age group 15-24 to nearly 12 per cent in the age group 55-64. This is in contrast to the frequency of accidents at work, which remained nearly constant in women and declined with age in men.[39]

5.14 It is difficult to identify the cause of the different incidences of health problems by gender and age, but there are numerous medical studies on exposures, health problems and occupational diseases for specific jobs or exposures.[40] Some key points are:

(a) Within the group of female workers with a work-related health problem, 60 per cent reported musculoskeletal disorders (MSDs).[41] Women report musculoskeletal disorders more frequently than men; however, this difference appears to be less marked for lower back disorders and when men and women are compared within homogeneous job groups.[42]

(b) Stress, depression and anxiety were reported by 16 per cent of women and headache and/or eyestrain by 6 per cent. Women are reported to be more likely to suffer from mental health problems when they work in public service roles with direct contact with service users or "emotionally demanding" jobs. They also report more bullying and harassment at work.[43]The European Working Conditions Survey (2010)[44] reported that female workers are more often exposed to infectious materials such as waste,

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37 Dassen, Nijhuis, Philipsen (1990): Male and female nurses in intensive-care wards in The Netherlands; Journal of Advanced Nursing, 15; pp. 387-393

38 However, this evidence has been found in a high risk environment: Messing, Tissot, Saurel-Cubizolles, Kaminski, Bourgine (1998): Sex as a Variable Can Be a Surrogate for Some Working Conditions: Factors Associated With Sickness Absence, Journal of Occupational & Environmental Medicine: March 1998 - Volume 40 - Issue 3 - pp 250-260.

39 Risks and Trends in the Safety and Health of Women at Work, European Risk Observatory.

40 For instance, PubMed (http://www.ncbi.nlm.nih.gov/pubmed) lists 6320 publications on occupational diseases.

41 European Union Labour Force Survey (EU LFS) 2007.

42 Punnett, Herbert (2000): Workrelated musculoskeletal disorders: Is there a gender differential and, if so, what does it mean?, in Goldman, M. and Hatch, M. (eds), Women and health, Academic Press, San Diego (and others).

43 In the European Working Conditions Survey (2010) 4.4 per cent of women and 3.9 per cent of men reported to have been subjected to bullying or harassment at work in the past year.

44 Previous surveys report the same findings.

bodily fluids and laboratory materials at work; and female workers report more infectious diseases than men. Handling chemical substances and infectious materials is more likely in the health sector, which has a relatively high proportion of female workers. Moreover workers in service sectors, such as health care, hairdressing and cosmetology may also be exposed to dangerous carcinogens at work. Food manufacturing and the textile and leather industries are other sectors where women may be exposed to a variety of chemicals and biological agents.

5.15 Research has focused on jobs thought to be higher risk, and therefore often on male workers. It has been found, however, that women have a different uptake and metabolisation of dangerous substances than men due to hormonal, genetic and other gender-related biological differences which may significantly increase the risk of certain health hazards in women.[45]

*Pregnant Women*

5.16 Pregnant women are more vulnerable to certain health hazards, such as chemical substances, radiation, night/shift work or diseases. The EU has published a specific directive (Council Directive 92/85/EEC) on the protection of pregnant workers and workers who have recently given birth or are breastfeeding which contains a comprehensive list of hazards.[46]

5.17 Scientific evidence increasingly shows that some industrial chemicals, known as endocrine-disrupting compounds (EDCs), or hormone disruptors, can have considerable effects on foetal development. Other stages of rapid development are also vulnerable to hormone disruption. With exposure to these chemicals, women and girls are at greater risk for developing reproductive health problems such as early puberty, infertility, and breast cancer.[47]

5.18 In addition to the health effects on the worker, some diseases can affect the foetus of pregnant workers, such as rubella to which women who are in frequent contact with children may be exposed.[48]

5.19 In a study conducted on female hairdressers in Sweden, the authors found that frequent exposure to chemicals and certain working conditions may explain why this group has a

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[45] See for instance: Wizemann, Pardue (2001): Exploring the Biological Contributions to Human Health: does sex matter? Academic Press. Washington DC: National Academies Press and
Swiatkowska B. (2011): Occupational factors influencing lung cancer in women in epidemiological studies; Med Pr. 2011;62(6):659-65.

[46] European Commission (2000): On the guidelines on the assessment of the chemical, physical and biological agents and industrial processes considered hazardous for the safety or health of pregnant workers and workers who have recently given birth or are breastfeeding (Council Directive 92/85/EEC).

[47] Risks and Trends in the Safety and Health of Women at Work, European Risk Observatory, p.27.

[48] http://en.wikipedia.org/wiki/Congenital_rubella_syndrome

higher incidence of low birth weight babies or infants with major malformation compared with women from the general population.[49]

**Age differences**

5.20 A second concern arises from age specific differences in the likelihood or severity of safety and health outcomes. Older and younger workers are more vulnerable to some health hazards than other kinds of workers.[50]

5.21 Younger workers[51] are one category of worker which receives special attention by health and safety organisations[52] because they may be more at risk than their older co-workers. The main factors that give rise to these concerns are the lack of experience that may increase the probability of occupational accidents. Biological factors may also make them more susceptible to the adverse impacts of noise, vibrations, heat and cold, and the handling of dangerous substances.

5.22 The incidence of work injuries among adolescents appears to be higher than the incidence among their older colleagues. **Figure 5.2** shows the standardised incidence of accidents at work by economic activity, severity and age. It shows that the incidence of accidents tends to be lower for workers aged over 55 than for younger workers, which may be because of workers taking on less risky roles as they get older or becoming more aware and better able to manage risks. Analysis conducted by the UK HSE suggests that short job tenure (i.e. lack of experience) increases the risk of health and safety incidents, and that this is correlated with age.[53]

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[49] Rylander, Axman, Torén, Albin (2002): Reproductive outcome among female hairdressers, Occupational and Environmental Medicine 59, pp. 517–522.

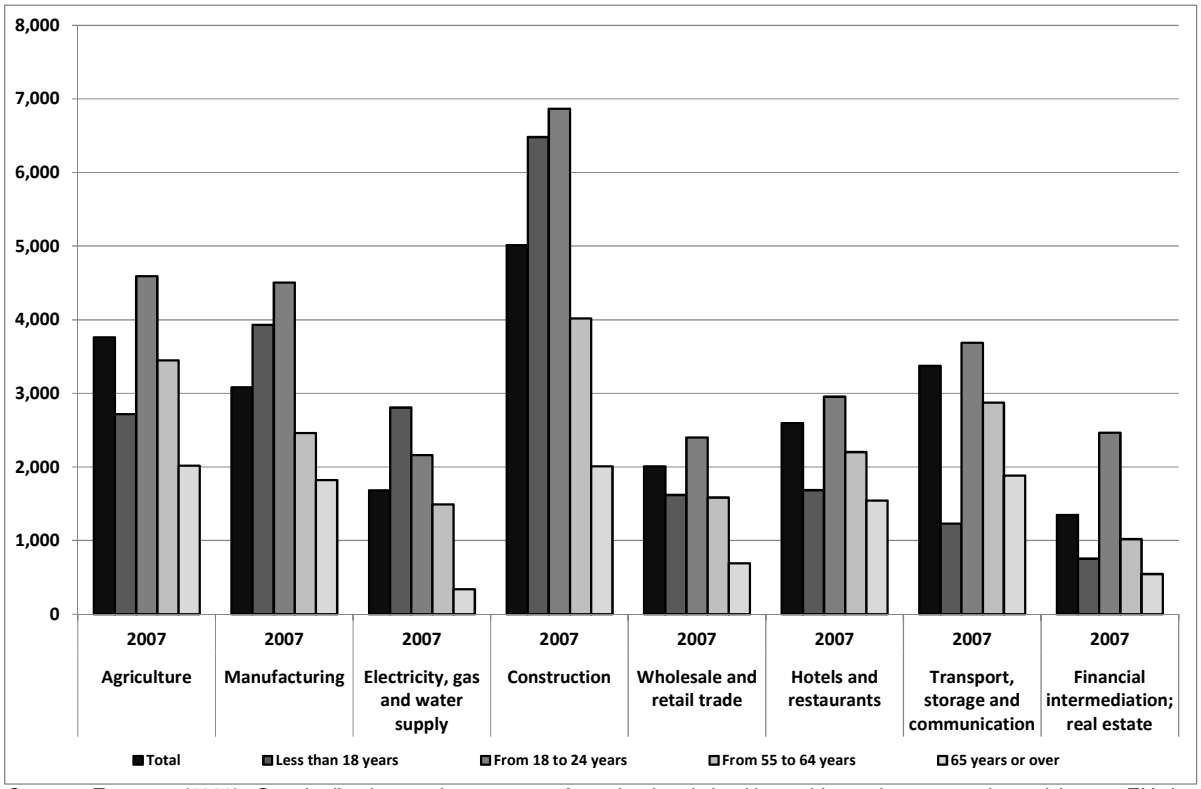
[50] See for instance: Gopinath B, Thiagalingam A, Teber E, Mitchell P. (2011): Exposure to workplace noise and the risk of cardiovascular disease events and mortality among older adults; Prev Med. 2011 Dec 1;53(6):390-4 and
Rasmussen K, Hansen CD, Nielsen KJ, Andersen JH. (2011): Incidence of work injuries amongst Danish adolescents and their association with work environment factors, in: Am J Ind Med. 2011 Feb;54(2):143-52.

[51] The European Agency for Safety and Health at Work and many statistics refer to workers up to the age of 24 years.

[52] See for instance: European Agency for Safety and Health at Work (2009): Preventing risks to young workers: policy, programmes and workplace practices.

[53] Warwick Institute for Employment Research (2005): 'Trends and context to rates of workplace injury' HSE UK

**Figure 5.2: Standardised incidence rate of accidents at work by economic activity, severity and age (2007)**




*Source: Eurostat (1999) Standardised prevalence rate of work-related health problems by economic activity at EU level [hsw_hp_dinag];updated to 2007 values*

5.23 For women, no significant variation in accidents is reported between the age groups.[54] However, the data also suggest that the severity of those accidents is lower than average.[55]

5.24 The majority of 63 non-fatal studies analysed in a report showed that young workers had a higher injury rate than older workers.[56]

5.25 The Youth and Work 2006 barometry carried out by the Finnish Institute of Occupational Health showed that the occupational injury rate of permanent young workers aged 15-29 years was statistically significantly higher than that of fixed-term workers.[57]

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[54] Health and Safety Executive (2000): Key messages from the LFS for injury statistics: gender and age, job tenure and part-time working, HSE Books, Sudbury, UK (http://www.hse.gov.uk/ keyart.pdf).

[55] European Agency for Safety and Health at Work (2007): OSH in figures: Young workers — Facts and figures

[56] Salminen (2004): Have young workers more injuries than older ones? An international literature review (Journal of Safety Research 2004, 35(5):513-21)

[57] Sulander, Viluksela, Elo et al (2007): Nuoret ja työ 2006 -barometri (Youth and Work barometry 2006). Taulukkoraportti. Työterveyslaitos.

5.26 According to the European Occupational Diseases Statistics (EODS), workers under the age of 24 account for 7.3–7.54 per cent of all occupational diseases in Europe. The incidence rate of non-fatal occupational diseases in 2003 for workers under 18 years is 27.5 in every 100,000 workers and for workers aged 18–24 years it is 38.9, as compared to 62.8 across all ages. [58] The most common occupational diseases among workers aged 15–35 years are allergic reactions, irritations of the skin, pulmonary disorders, infectious diseases, musculoskeletal disorders and problems due to stress, depression and anxiety. Some of these diseases correlate with common risks in sectors with a high prevalence of young workers. As an example, dermatitis, upper limb disorders and stress are some of the predominant forms of work-related illness in retail. The effects of labour time characteristics on circadian rhythm, dormancy habits and social contacts may also be particularly detrimental to young workers.[59]

5.27 Older workers receive special attention by health and safety organisations because of their specific health and safety risks and their growing importance in ageing societies. The deceleration in physical and mental processes with increasing age and the diminishing abilities of the sensory functions such as hearing and eyesight modify the health and safety risks for older workers. The correlation between workers' age and their physical as well as mental processes has resulted in the development of specific guidelines for particular tasks.[60] Nonetheless, a study by Doyal highlights that older workers are not a homogeneous group and within this group the issues of gender segregation and "precarious work" may be more pronounced.[61]

5.28 Whereas the probability of accidents at work is smaller for elderly workers than for younger ones across all sectors, the incident rate of fatal accidents is higher across all sectors. The incidence rate of fatal accidents is shown in the figure below (**Figure 5.3**).

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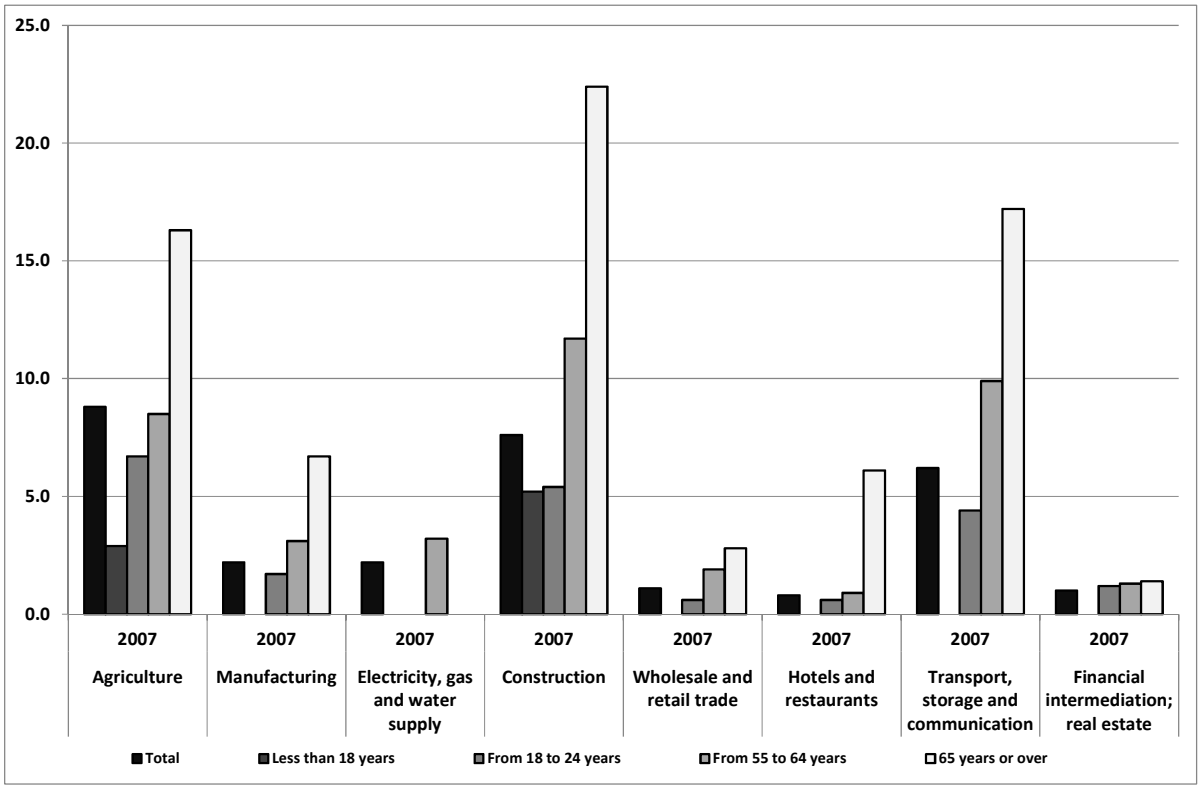
58 European Agency for Safety and Health at Work (2007): OSH in figures: Young workers — Facts and figures, p.149.

59 Grzech-Šukalo, Hänecke (2011): Auswirkungen der Arbeit von Jugendlichen am Abend und in den Nachtstunden (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin).

60 See for instance: Riedel, Gillmeister, Kinne (2012): Einflüsse altersabhängiger Veränderungen von Bedienpersonen auf die sichere Nutzung von Handmaschinen.

61 Doyal (2002): The health and work of older women: a neglected issue, Pennel Initiative for Women's Health/Trade Union Congress.

**Figure 5.3: Standardised incidence rate of fatal accidents at work by economic activity, severity and age (2007)**




*Source: Eurostat (data gaps for <18 years) ESAW 2007: Standardised incidence rate of accidents at work by economic activity, severity and age (hsw_aw_inaag)*

5.29 A study by DARES revealed that an accumulation of more than one health risk, such as night work or physically demanding work is frequent in the cohort of elderly workers.[62] This may explain the higher risk of occupational diseases because older workers usually have a longer employment history and some diseases need a cumulative exposure or longer latency period before being noticed.

5.30 The LFS *ad hoc* module data show that the reporting of sick leave for one day or more is relatively stable over age groups, but prolonged sick leave is related to age. Older workers more often experience prolonged absence from work following an accident than younger workers: 31.7 per cent of accidents experienced by people aged 55-64 resulted in sick leave of more than one month, while the average for all age groups is 22 per cent.[63]

[62] Direction de l'animation de la recherche, des études et des statistiques (DARES), Ministère du travail, de l'emploi et de la santé (2011): Santé et itinéraire professionnel.

[63] Eurostat (2010): Health and safety at work in Europe (1999–2007), p.59.

### Other individual characteristics

*Migrant workers*

5.31 Migrant workers have been identified as a priority group by the European Agency for Safety and Health at Work.[64] This group may be exposed to poorer working conditions (physically demanding, monotonous, longer working hours, lower wages, shift work).[65] They may suffer from language barriers and a lack of health and safety knowledge, and they may be discouraged from filing claims, or be misinformed about their rights.[66]

5.32 In relation to this group, gender issues, temporary or irregular working hours, and age-related health and safety problems are all present together (for instance, the cleaning industry employs a high proportion of workers from ethnic minorities, many of whom are middle aged and older women).

*Disabilities*

5.33 Disability includes many forms of physical and mental impairments and different forms of conditions that may affect the ability of these workers to manage risks which confront them at work. The definition of disability used by the European Agency for Safety and Health at Work[67] includes all workers with long-term or progressive conditions as well as people with more stable disorders. As the group of people with disabilities is very heterogeneous, the focus of studies and literature is rather specific to certain tasks and disabilities. There is, however, extensive anti-discrimination and safety and health legislation relating to this worker group.

## Sub-Groups in Defined Low Risk Sectors

5.34 In this section we will discuss the representation of the above sub-groups in sectors that we derived as low risk in the previous chapter under our sector-based definitions of low risk. Table 5.1 below recaps the low risk sectors defined in Chapter 4 for ease of reference.

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64 See European Agency for Safety and Health at Work: Literature Study on Migrant Workers.

65 James, Vickers, Smallbone and Baldock (2004): The use of external sources of health and safety information and advice: the case of small firms.

66 Institute for Work and Health (2011): Immigrant workers' experiences of injury reporting and claim filing.

67 http://osha.europa.eu/en/priority_groups/disability/intro.php

**Table 5.1: Low-risk sectors as defined in this report**

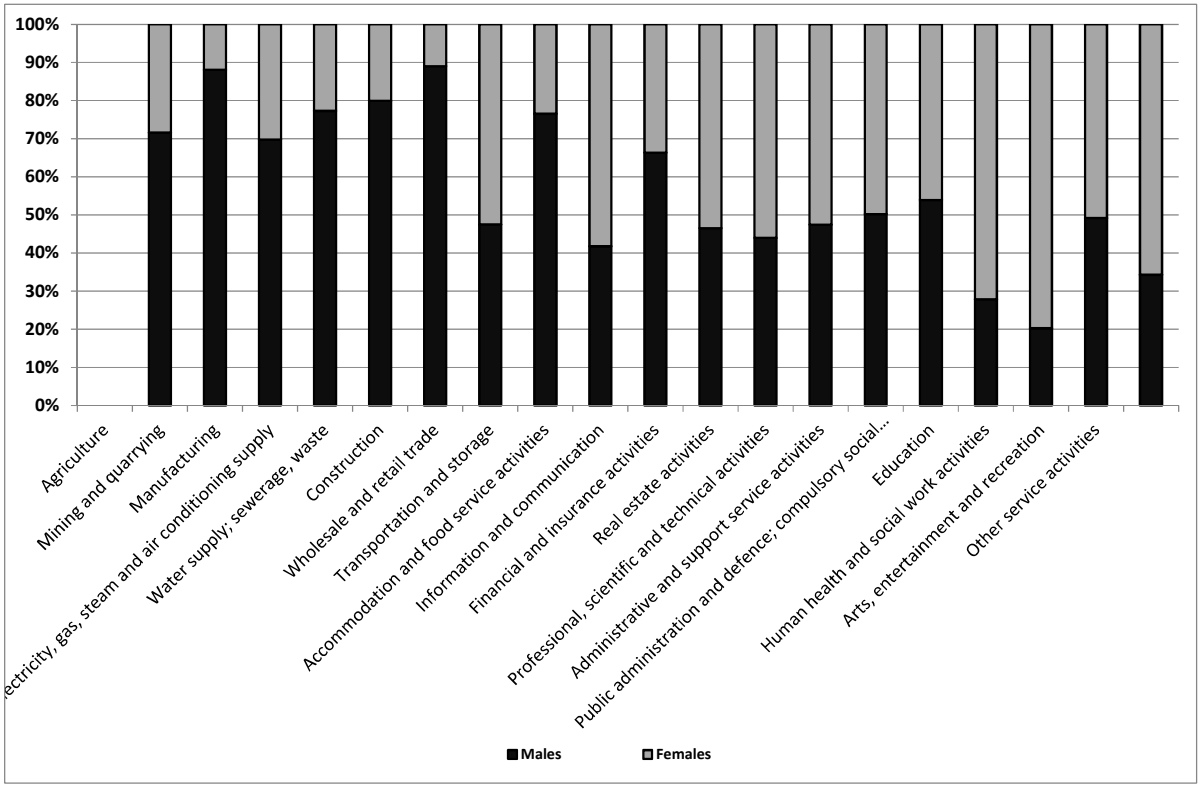
| | Risk scenario 1 | Risk scenario 2 | Risk scenario 3 |
|---|---|---|---|
| C14 - Manufacture of wearing apparel | ● | ● | ● |
| C21 - Manufacture of basic pharmaceutical products and | | | ● |
| C26 - Manufacture of computer, electronic and optical | | ● | ● |
| D35 - Electricity, gas, steam and air conditioning supply | ● | ● | ● |
| I55 - Accommodation | | | ● |
| I56 - Food and beverage service activities | | | ● |
| J62 - Computer programming, consultancy and related | | | ● |
| K64 - Financial service activities, except insurance and | ● | ● | ● |
| K65 - Insurance, reinsurance and pension funding, except | | | ● |
| K66 - Activities auxiliary to financial services and insurance | ● | ● | ● |
| M69 - Legal and accounting activities | | ● | ● |
| M71 - Architectural and engineering activities; technical | | | ● |
| M72 - Scientific research and development | | ● | ● |
| M74 - Other professional, scientific and technical activities | | ● | ● |

5.35 While this low risk analysis was conducted at NACE-2 level, the data for sub-groups are not available on a NACE-2 level.

**By gender**

5.36 As we discuss above, women are disproportionally represented in the retail and food sectors as well as in the "people work" of the education and health and social work sectors (see **Figure 5.4**). The figure below shows employees by gender and economic activity.

**Figure 5.4: Employees by gender and economic activity 2008**




*Source: Eurostat (2008) Number of persons employed by NACE code [lfsa_eisn2]*

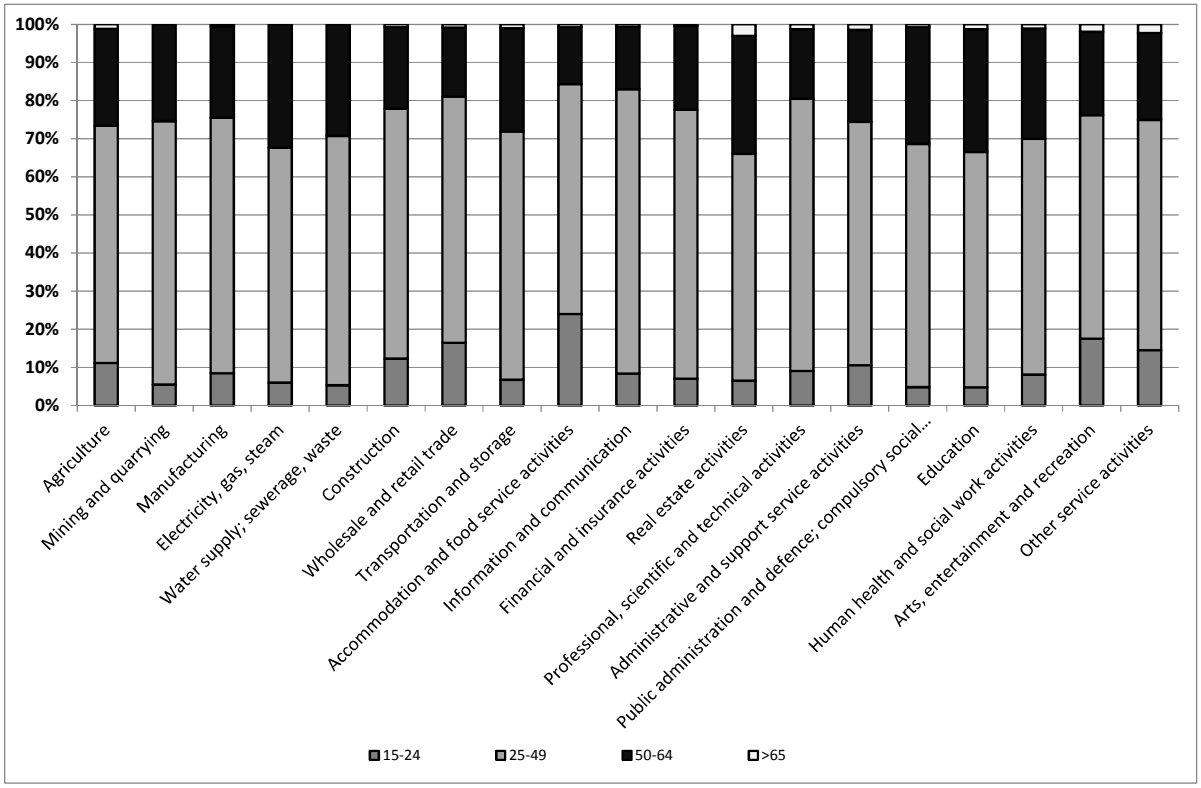
5.37 The office-based economic activities in the figure above (**Figure 5.4**) may give rise to musculoskeletal problems which seem to affect women and men equally if they are carrying out the same activity. In the accommodation sector which is included in low risk scenario 3, women cleaners will probably be disproportionately affected as there is gender segregation for these activities.[68]

## By age

5.38 The figure below (**Figure 5.5**) shows employees by age group and economic activity.

[68] Wood, Buckle, Haisman, M. (1999): Musculoskeletal health of cleaners, Health and Safety Executive, Contract research report 215/1999.

**Figure 5.5: Employees by age groups and economic activity 2008**




*Source: Eurostat (2008) Number of persons employed by NACE code [lfsa_eisn2]*

5.39 As can be seen in the figure above, older workers are more likely to be found in the supply of electricity, gas, water and air-conditioning. There are also relatively more over 65 year old employees in the transport and storage sector, the real estate sector, the arts and entertainment and "other services" sectors. Furthermore, the share of older workers is high in public administration, education and the health sector.

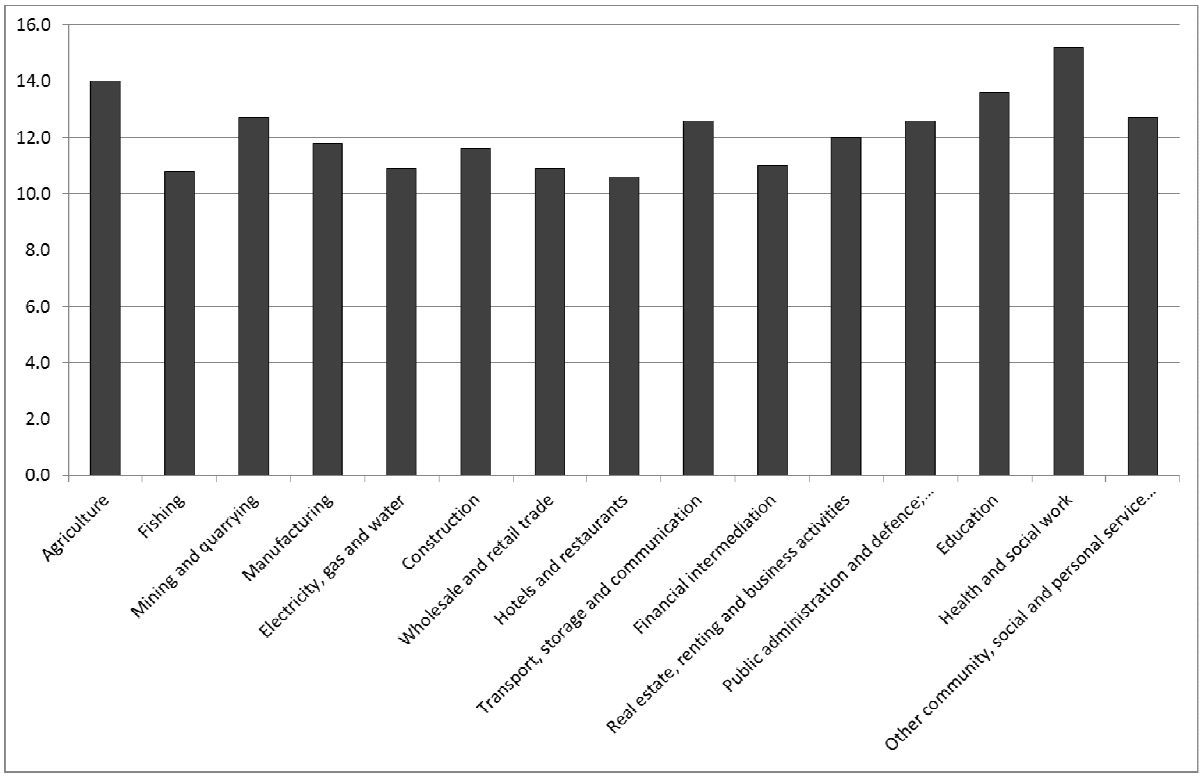
5.40 Comparing with our low-risk definitions, there are a few overlaps with sectors where the share of older workers is higher: for example, the electricity, gas, steam and air conditioning supply sector employs a relatively high number of people between the ages of 50 and 64. A higher share of employees over the age of 64 may also be affected in the "other professional, scientific and technical activities".

5.41 The share of young workers in the workforce is relatively high in agriculture, wholesale and retail, accommodation and food service, as well as the arts and entertainment sectors, as **Figure 5.5** illustrates. Mapping these sectors to those covered by our sectorial definition of low risk suggests that younger workers may be disproportionately impacted in accommodation and arts and entertainment. In both sectors, working at night or in the early morning, in poor postures or prolonged standing may feature.

### By disability

5.42 The figure below (**Figure 5.6**) shows the prevalence percentages of disability by economic activity.

**Figure 5.6: Prevalence of disability by economic activity 2002 (%)**




*Source: Eurostat (2002) FLS ad hoc module: prevalence percentages of disability by economic activity (NACE), sex and age group (hlth_db_emnaag)*

5.43 There are only slight variations in the employment of people with disabilities across sectors. There are relatively more employed in the sectors of health and social work, education and agriculture. Specific legislation on disability may also ensure the safety of these workers even in the event of exemption.

## Conclusion on Worker Sub-Groups

5.44 This chapter has explored two questions:

(a) First, whether there are workplace risks specific to certain sub-groups of workers (e.g. based on gender, age, disability and time spent in the Member State); and

(b) Second, whether there is any evidence that sectors previously defined as low risk contain disproportionately high proportions of these sub-groups.

5.45 In addressing the first question, we did find evidence for concern in some areas where workers from certain sub-groups appear to be more at risk of work-place accidents and ill health that workers in general.

5.46 However, regarding the second question, we did not find any clear evidence to suggest that the sectors that we have previously defined as low-risk systematically have significantly higher proportions of these sub-groups than other sectors, although there may be some individual low risk sectors where a particular sub-group may be highly represented.

5.47 It may be that if this analysis were to be repeated at the Member State level then a clearer understanding of these issues may emerge. This consideration reinforces the HLG recommendation that decisions on exemptions be taken at Member State level, as more robust knowledge on risks to particular workers in particular sectors may be held at that level. Individual Member States may also want to introduce requirements for risk assessments for particular sub-groups of workers, even if micro-enterprises in low risk sectors were in general exempt from the documentation requirement.

# 6 IMPLEMENTATION BY MEMBER STATES

6.1 This section presents an analysis of the transposition of the Directive and other implementation measures by Member States. We begin by discussing the importance of transposition and implementation for our study, and the different approaches that can be taken. We then present an overview of transposition and implementation measures of the Directive across all 27 Member States based on information gathered by the European Commission through its questionnaire of Member States. The results of this overview are used to group Member States according to the way in which they have approached implementation; this grouping will be used in our modelling of the three scenarios of compliance with the Directive (100 per cent compliance, actual situation and the HLG proposal).

## Importance of Implementation for our Analysis

6.2 Member States have interpreted the Directive in a number of different ways when transposing it into national legislation. For example, in some Member States companies of all sizes must comply with the same requirements while in other countries the requirements are less onerous for small companies compared with larger enterprises.

6.3 Transposition is important to our analysis because the way in which Member States have transposed the Directive into national legislation will affect the costs and benefits associated with the Directive in these Member States and thus the overall impact across the EU of the obligation to document risk assessments.

6.4 For example, in respect of costs, one Member State may have imposed in law more onerous documentation requirements than in another Member State, with the effect that administrative burdens are different between these Member States. Equally, with regard to benefits, while more onerous documentation requirements might be expected to increase administrative burdens, they may also increase the health and safety benefits which follow from documentation.

6.5 Member States have also undertaken other implementation measures to accompany the national legislation relating to the Directive. These include the provision of guidelines for risk assessments or templates for documentation.

6.6 Information on the transposition of the Directive and other implementation measures will provide insight into the likely costs and benefits to Member States from firms' full compliance with the associated legislation (100 per cent compliance with the Directive). It will also provide a basis against which to assess the costs and benefits of the possible removal of the documentation obligation for low-risk micro-enterprises. In assessing these impacts it will be important to take into account what already takes place in each Member State, so that only the *additional* costs and benefits of the proposed policy change are considered. For example, if low-risk micro-enterprises are already exempt from the documentation requirement in a particular Member State, then the proposed policy change is not likely to have any incremental impact.

6.7 The transposition and implementation elements of the Directive that are most relevant to this study are those relating to the requirement for firms to document the risk assessment. However, other elements relating to the risk assessment itself, such as the availability of guidance or requirements for the content of the risk assessment, may influence the documentation of the assessment.

6.8 In order to facilitate our subsequent modelling exercise, we have then grouped Member States according to similarities in their implementation of the Directive. These groupings reflect whether the approach to implementation is likely to lead to a large or small cost burden.

## Possible Approaches to Transposition

6.9 There are a number of broad differences in transposition that will influence the costs and benefits to firms of complying with the Directive. These include:

(a) Whether national legislation places the minimum obligations possible upon firms or whether the Member State transposition of the Directive into national law to impose obligations upon firms additional to those strictly required by the Directive, i.e. so-called "gold plating" of Directives.

(b) Whether the national legislation places obligations upon firms in a prescriptive form, allowing firms limited flexibility in how they comply, or whether it focuses upon the principles contained in the Directive, creating more flexibility for firms in how they comply. For example, prescriptive requirements might include mandating the structure and content of documentation.

(c) Whether the national legislation includes any differentiation across types of enterprises, sectors or situations, such as exemptions or additional requirements.

6.10 Our review of the information gathered from all Member States on their transposition of the Directive has highlighted a number of different dimensions that relate to these three broad approaches. The dimensions that are likely to influence the costs and benefits of complying with the documentation of risk assessments relate both to requirements for conducting the risk assessment and to requirements for the documentation itself. These are discussed in detail in the following section, along with a summary of the situation across Member States.

## Review of Transposition across Member States

6.11 The transposition of the Directive and other implementation measures in each Member State differ across a number of dimensions. These relate both to requirements for how the risk assessment is conducted (insofar as these may impact on the documentation requirement) and to requirements for the documentation of the risk assessment. In this section we discuss these dimensions, summarising the results from the European Commission Questionnaire for different Member States.

6.12 These dimensions are as follows:

(a) Requirements for conducting a risk assessment

- Update and review the risk assessment and documentation
- Consider specific risk-groups in the assessment
- Appoint an external consultant or expert
- Guidelines on conducting risk assessment and documentation

(b) Requirements for the documentation of the risk assessment

- Exemption from risk assessment or documentation
- Requirements on content or structure of documentation
- Provision of templates or checklists

**Requirements on how the risk assessment is conducted**

*Update and review the risk assessment and documentation*

6.13 The frequency with which risk assessments are required to be undertaken will directly influence any costs or benefits related to the documentation of the assessment. The more often a risk assessment must be updated, the higher the corresponding documentation burden.

6.14 In just over half the Member States the obligation to undertake a risk assessment is accompanied by the requirement for this assessment to be reviewed and updated (this applies in some form or another in 14 Member States).[69] In most cases (in Estonia, Finland, Lithuania, Malta, Portugal, Slovenia, and the UK) this must take place if there is a material change to working conditions or to the types of risks the enterprise is exposed to (examples given include the introduction of new hazardous materials or the installation of new machinery) or if the assessment is considered invalid, either by the employer or an inspector.

6.15 Some Member States (Belgium, Denmark, France and Hungary) mandate the frequency with which the review must take place; this ranges from every year to every three years. Other Member States (Austria, Germany and the Netherlands) have a more implicit requirement for review, stating that risk assessments must be 'reviewed from time to time' or 'regularly updated'.

[69] Member States with no review or updating requirement are Bulgaria, Cyprus, Czech Republic, Greece, Ireland, Italy, Latvia, Luxembourg, Poland, Romania, Slovakia, Spain, Sweden.

6.16 Given the subjective nature of the reviewing requirement in many Member States it is not possible to assess accurately how this requirement may affect the frequency, and thus the burden, of the documentation of risk assessments. Feedback from interviews suggests that the requirement to review and update the risk assessment documentation often does not entail much additional effort, as the documentation only needs to be changed should there be a material change in the risks; otherwise the existing document can simply be signed off.

6.17 In terms of benefits, not mandating a specific review period for the risk assessment is unlikely to undermine the value of the assessment provided that a review does take place whenever there is a material change in risks or working conditions. Indeed, the mandating of a specific period may cause some enterprises to forgo a review at a time that would otherwise be appropriate if it did not fall within the timeframe set out in law. (That said, in some Member States such as France and Denmark the law states that a review should be carried out 'if conditions change and *at least* every year/three years'.)

*Consider specific risk-groups in the assessment*

6.18 In 15 Member States there is a requirement for the risk assessment to identify and address risks faced by specific groups of workers or types of risks.[70] These include workers who have reduced capacity, are disabled, pregnant or breastfeeding, or young. Different types of contracts (e.g. locums, temporary workers and migrant workers) are also identified. Risk areas include, among others, risks relating to other EU Directives such as noise,[71] vibration,[72] or hazardous or biological substances and chemicals.[73,74,75,76]

6.19 Some Member States (Cyprus, Malta and the UK) further stipulate that the risk assessment must consider risks to persons who are not employed by the firm but are in some way affected by operation of the firm, such as contractors, visitors or the general public.

6.20 If the risk assessment is required to consider risks specific to certain groups of people, this implies that any documentation will be more detailed and thus likely to be more of a burden to prepare.

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[70] These Member States are Belgium, Bulgaria, Cyprus, Estonia, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, the Netherlands, Poland, Romania, Slovakia, the UK

[71] Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise)

[72] Directive 2002/44/EC of the European Parliament and of the Council of 25 June 2002 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (vibration)

[73] Directive 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

[74] Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

[75] Directive 2000/54/EC of the European Parliament and of the Council of 18 September 2000 on the protection of workers from risks related to exposure to biological agents at work

[76] Directive 2009/148/EC of the European Parliament and of the Council of 30 November 2009 on the protection of workers from the risks related to exposure to asbestos at work

6.21 At the same time, a more detailed assessment is likely to be more beneficial in terms of identifying all possible risks and tailoring preventative measures to the specific groups of workers.

*Appoint an external health and safety consultant or expert*

6.22 Some Member States have included in their legislation requirements for how, or by whom, the risk assessment must be carried out, by stipulating that firms are required to appoint an external health and safety specialist to conduct or review the risk assessment, either in all cases, or if sufficient expertise does not exist in-house.

6.23 It is unclear whether this element of transposition is likely to be beneficial or not. On the one hand, it ensures that the risk assessments are undertaken by persons with specialist expertise in occupational health and safety. This may be particularly relevant for very small enterprises where a dedicated health and safety officer or expert does not exist. However, on the other hand, an external consultant will be less familiar with the way in which the company operates than an internal staff member, and hence may be less well placed to identify health and safety risks. This may be a particular problem in the case of risks relating to on-going practices within the firm, which may be less easy for an external consultant to observe than risks arising from the physical working environment. External consultants may also have an incentive to over-implement or gold-plate their assessment and follow-up actions in order to generate more work for themselves.

6.24 If an enterprise makes use of external services, the documentation requirement may no longer lie with the original firm, although the associated costs would still need to be covered by the consultant's fees. The extent to which this may affect the burden of documentation is unclear — either the consultants would have templates and familiar procedures for producing documentation (i.e. economies of scale or efficiency through specialisation) representing a saving; or consultants could charge firms higher fees for the documents which the firm could have written up at a lower cost. In addition, documentation drawn up by an external specialist may go into more detail than one drawn up by the employer.[77] This may have a positive effect on the quality of the risk assessment documentation, but may also contribute to a higher cost of producing the documentation.

6.25 A possible negative consequence of having an external consultant undertake the risk assessment is that the outcome of the assessment may not be fully internalised by the employer and workers of the enterprise. In this case in particular, any removal of the requirement to document the risk assessment could mean that the employer is neither involved in the risk assessment nor has a record of the findings of the assessment. Necessary health and safety measures may therefore not be taken and the benefits of risk assessment undermined.

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[77] This was suggested in an interview with a health and safety consultant

6.26 A total of five Member States have requirements for the use of external health and safety experts in conducting risk assessments. Denmark, Finland and Lithuania stipulate that external help is only required if the necessary expertise are not available in-house. In Latvia, firms enlisted as 'hazardous' for OSH and that have more than five workers must appoint a certified OSH specialist or employ an external expert. Hazardous firms with fewer than 5 workers can use an in-house specialist with a basic OSH qualification. In the Netherlands, firms are obliged to use a certified health and safety service to review their risk assessment, although firms with fewer than 25 workers are exempt from this obligation.

*Guidelines on conducting risk assessment and documentation*

6.27 The availability of guidance on how to conduct a risk assessment and complete the necessary documentation is likely to have a positive effect on the quality of the risk assessment. Such guidance may also reduce the amount of time firms need to take to think about and document the risk assessment, thus representing a cost saving. On the other hand, guidance could also increase the cost of documenting a risk assessment if it recommends more detail than firms would otherwise choose to go into. Many Member States provide guidance on how to conduct a risk assessment and how to identify and address risks. In many cases additional guidance, tailored to certain sectors, is provided.

6.28 All except four Member States (Czech Republic, Estonia, Portugal and Romania) make guidance available to companies to assist them in conducting risk assessments. In eight countries (Austria, Hungary, Italy, Luxembourg, Malta, Slovakia, Slovenia and Sweden) this guidance is relatively general and covers the necessary elements that must be considered in a risk assessment, practical guides to risk identification and evaluation, frequently asked questions and answers, and examples of best practice. In Malta the EU-OSHA has a register of experts available to give advice to firms on health and safety matters.

6.29 The majority of Member States include tailored guidelines for enterprises operating in specific sectors or with specific risks, or enterprises of a certain size. Belgium, Finland, Greece, Ireland, Latvia, Lithuania and the Netherlands provide tailored guidance for sectors such as construction, agriculture, mining, quarrying, and for risks such as noise, vibration and hazardous chemicals. A significant number of Member States (Bulgaria, Cyprus, Denmark, France, Germany, Ireland, Lithuani, Poland, Spain, and the UK) provide specific guidance for SMEs. This includes guidance on how to conduct and document risk assessments in a simple and efficient way (e.g. by specifying what a 'sufficient' risk assessment looks like to avoid unnecessary length) and the development of online programmes to help small firms carry out risk assessments. In some cases guidance is not directly targeted at SMEs, but has been designed with them in mind.

**Requirements for the documentation of the risk assessment**

*Exemption from risk assessment documentation*

6.30 In the transposition of the Directive some Member States make specific provisions for the documentation of the risk assessment

6.31 The most significant provision for the purposes of this study is the exemption of certain types of firms from the obligation to provide a written documentation of the risk assessment; or the provision for certain firms to submit simplified versions of the documentation. This element of transposition will have a substantial impact on the administrative burden to firms complying with the documentation requirement, either through absolving them from this obligation or placing less onerous requirements on them.

6.32 Germany, Finland, Malta and the UK are the only Member States with a full exemption from the documentation requirement. In Germany, firms with fewer than 10 workers are not required to document the results of the risk assessment or measures adopted, although they are still required to undertake the assessment. This exemption does not apply for certain sectors: for all companies irrespective of size working with hazardous or biological substances, the risk assessment must be documented and a list of the substances maintained. Different requirements for documentation regardless of size also exist for firms working with noise and vibration risks, risks of explosion, and compressed air.

6.33 In Malta, written documentation of the risk assessment is not required for firms with fewer than five workers, with the exception of firms with risks relating to noise, vibration, optical radiation and quarries. However, the Maltese EU-OSHA is empowered to request such documentation from all firms if there is doubt about the quality of the risk assessment. The UK exempts firms with fewer than five workers from the documentation obligation. However some regulations require documentation of risk assessments regardless of worker numbers, such as where there are risks relating to asbestos, other dangerous substances, noise or vibration.

6.34 Finland does not appear to require the documentation of a risk assessment for any firm other than those in a selection of high-risk sectors (such as chemicals or construction).

6.35 Other Member States permit smaller firms to provide simplified documentation of the risk assessment. These are Austria (for firms with fewer than 10 workers); Slovenia (for firms with fewer than 10 workers and in the absence of risks that require specific health and safety measures to be defined); and Spain (firms with less than 50 can prepare simplified versions of the required documents, provided this does not imply a reduction in the level of protection against OSH risks).

6.36 Italy currently allows firms with 10 workers to complete a simplified 'auto-certification' of the risk assessment, although this will only apply until June 2012. In Lithuania, undertakings which have implemented the occupational health and safety management

system according to OHSAS 18 000 series standards[78] are not obliged to fill in the 'Health and Safety at Work' status card (the required form of documentation). Otherwise, risk assessment documentation requirements in Lithuania are uniform across firms of all sizes and natures.

6.37 We have conducted statistical analysis to explore whether actual health and safety outcomes vary significantly across Member States with exemptions from the documentation obligation. This analysis shows *prima facie* that the health and safety situation deteriorates as Member States move from no exemption to partial exemption to full exemption. However, this relationship does not hold for all indicators of health and safety outcomes and is based on very few data points, and is not sufficient to show a robust, statistically significant relationship. The sub-section in Chapter 9 entitled 'Risk Assessments and Health and Safety Outcomes' describes this analysis in more detail.

*Requirements on content or structure of documentation*

6.38 Some Member States have specific requirements about what must be included in the documentation of the assessment, or how it should be structured (including the number of documents required) whilst others have a more flexible approach.

6.39 A prescriptive approach to the content and structure of documentation may increase the burden on firms of completing the documentation by preventing them from taking an approach that is most suitable to them or most efficient for the person fulfilling the requirement. For example, if the legislation stipulates that the documentation of the risk assessment must be contained within one document, this may make revising and updating it more burdensome, as opposed to having different documents (e.g. relating to different risk areas or groups of workers) that can be updated independently if required. Similarly, if the content requirements stipulate a greater scope or more detail than firms would otherwise have included, then this would add to the burden of the requirement.

6.40 On the other hand, a more prescriptive approach to the contents of the documentation may ensure that all necessary information is covered during a risk assessment, and may produce risk assessments that are more thorough and effective than otherwise. This is more likely to be the case for requirements relating to the content of the documentation rather than the structure.

6.41 Few Member States have an official structure that is imposed, with the exception of Greece where a systematic methodology for drawing up a risk assessment is provided in legislation. Other Member States (such as Denmark, France and Spain) stipulate the elements of the documentation that must be covered (e.g. identification and mapping of OSH conditions; an assessment of problems; an action plan to address problems; and

[78] OHSAS 18 000 is an international occupational health and safety management system specification. Firms complying with the standards are considered also to comply with the national health and safety regulations.

follow-up procedures) but these are generally in line with the what should be covered by a risk assessment and do not appear overly burdensome. Germany has no content requirements other than that sufficient detail should be included to prove that a risk assessment has been conducted.

6.42 Greece, France, Italy and Lithuania make reference to the number of documents required. In Greece, firms are free to use any form of documentation (as long as the methodology for drawing up the risk assessment is followed), and can use multiple documents if this makes updating them easier. France, on the other hand, requires that all relevant information must be combined into one document. Italy stipulates that documentation must exist for each branch of the firm with financial autonomy, and in Lithuania firms are obliged to fill out separate cards for each sub-sector of the business.

*Provision of templates or checklists*

6.43 Some Member States provide templates for documenting the risk assessment. These can either be prescriptive structures that mandate the content of the documentation (as described above) or more flexible aids such as checklists to help ensure the inclusion of important information. The use of templates and checklists is likely to have a positive impact on the administrative burden of completing the risk assessment documentation by enabling the firm to save time. This would be particularly relevant for templates with draft text that allow firms to tick off relevant elements instead of writing them out in full.

6.44 The use of templates and checklists is also likely to result in more comprehensive risk assessments being carried out (assuming that the content of the documentation reflects the content of the risk assessment) and to ensure that all important elements of the assessment are recorded. The use of templates could also save time during reviews or updates, and would make any comparisons of risk assessments easier (e.g. if undertaken by different people at different times throughout the life of the business).

6.45 Six Member States provide templates for the documentation of risk assessments. In Latvia, Slovenia and Greece a template is available (in Greece this is referred to as a systematic methodology), although firms can make use of other documents if more suitable. In Lithuania the Health and Safety at work status card is designed in template form and there is an established method for completing it. Firms need only complete those tables and indicators that are relevant. In Malta templates are available from the EU-OSHA that can be adapted to different industrial scenarios and specific circumstances. Templates from other countries are also made available where the EU-OSHA has a reciprocal relationship. In the UK there are a number of eTools, including an electronic template for recording risk assessments provided by the HSE to reduce the

administrative burden on firms. In Ireland the BeSMART initiative provides an online risk assessment tool.[79]

6.46 Three Member States (Denmark, the Netherlands and Poland) make checklists available to firms. Denmark has 62 sectoral workplace assessment checklists; the Netherlands publishes lists of key risks in each industry sector; and in Poland the Central Institute for Labour Protection has created a computer programme to help SMEs carry out risk assessments that helps them identify the key risks, and which can be used as a checklist.

6.47 In two Member States, Austria and Slovenia, simplified versions of assessment forms or templates are available for SMEs (this applies in Slovenia if the firm employs fewer than 10 workers and there are no risks that require specific health and safety measures to be defined).

**Impact of implementation measures**

6.48 The table below (**Table 6.1**) summarises the likely impact of the implementation measures on the costs and benefits of documenting risk assessments.

[79] Available at http://www.besmart.ie/

**Table 6.1: Summary of Likely Impacts of Implementation Measures**

| Implementation element | Likely impact on costs | Likely impact on benefits |
|---|---|---|
| Review and keep up to date | Increase the frequency of risk assessment and thus documentation burden costs | Increase the value and relevance of the risk assessment |
| Consider risks of specific groups (including other persons involved with the business) | Increase the effort required in risk assessment and the length/detail of the documentation | Increase the quality and coverage of the risk assessment and thus safety of all affected worker and non-worker groups |
| Appoint external expert if not suitably qualified | Increase costs through higher consultancy fees | Unclear whether quality of assessment will increase (due to use of specialist expertise) or decrease (because external contractor has less knowledge of firm) |
| Guidelines on how to conduct and/or document risk assessment | Reduce documentation burden by enabling quicker and more tailored risk assessments. | Increase quality of risk assessment and coverage of all specific risks (if guidance tailored) |
| Exemptions from documentation | Full exemptions imply a full avoidance of any documentation costs | Full exemptions result in the loss of any benefit from documenting risk assessments |
| Requirements on structure or content of documents | Increased costs arising from aspects of the requirements that may not always be relevant | Increased benefit from more comprehensive risk assessments |
| Templates/checklists provided | Reduce documentation burden by allowing some automation of the process. Could also increase costs by requiring more detailed documentation | Increase comprehensiveness of documentation and ensure no important information is left out |

*Source: European Commission Member State Questionnaire and Europe Economics analysis*

## Grouping of Member States

6.49 In order to assist our cost benefit analysis we use the information on transposition presented above to group Member States according to how their transposition and implantation of the Directive may affect the costs of complying with the Directive. This will ensure that we take account of the actual situation in each Member State, and reduces the likelihood of over- or under-estimating the costs of compliance. Aspects of implementation which affect health and safety outcomes between countries are implicitly captured in our modelling by the fact that we are using data on actual accidents and work-related health problems as our starting point.

6.50 In addition, identifying groups of similar Member States will enable us to meaningfully extrapolate data from some Member States to others if necessary.

6.51 The table below (**Table 6.2)** summarises the implementation measures in each Member State according to the dimensions discussed above. We have verified the summary presented in the table where possible during interviews with relevant stakeholders (e.g. regulators).

**Table 6.2: Summary of Implementation Measures across Member States**

| | Review and keep up to date | Consider risks of specific groups | Appoint external expert | Guidelines on how to conduct risk assessment | Exemptions from documentation | Requirements on structure or content | Templates/ checklists |
|---|---|---|---|---|---|---|---|
| **Austria** | General requirement | No specific considerations | No requirement | General guidelines | Simplified documentation | No requirements | Templates; SME Specific |
| **Belgium** | Specified frequency - annually | No specific considerations | No requirement | Includes sector-specific | No exemption | General requirements | Not provided |
| **Bulgaria** | No requirement | Specific worker groups | No requirement | Includes for SMEs | No exemption | General requirements | Not provided |
| **Cyprus** | No requirement | Specific worker groups; outside persons | No requirement | Includes for SMEs | No exemption | No requirements | Not provided |
| **Czech Republic** | No requirement | No specific considerations | No requirement | No guidance | No exemption | No requirements | Not provided |
| **Denmark** | Given changes, at least every three years | No specific considerations | Only if lacking expertise | Includes for SMEs | No exemption | General requirements | Checklists; SME specific |
| **Estonia** | Given changes | Specific worker groups | No requirement | No guidance | No exemption | No requirements | Not provided |
| **Finland** | Given changes | No specific considerations | Only if lacking expertise | Includes sector-specific | Full exemptions for all firms except those in specific risk areas | No requirements | Not provided |
| **France** | Given changes, at least annually | No specific considerations | No requirement | Includes for SMEs | No exemption | General requirements | Not provided |

| | **Review and keep up to date** | **Consider risks of specific groups** | **Appoint external expert** | **Guidelines on how to conduct risk assessment** | **Exemptions from documentation** | **Requirements on structure or content** | **Templates/ checklists** |
|---|---|---|---|---|---|---|---|
| **Germany** | General requirement | No specific considerations | No requirement | Includes for SMEs | Full exemptions for fewer than 10 workers except those in specific risk areas | General requirements | Not provided |
| **Greece** | No requirement | Specific worker groups; specific risks | Only if lacking expertise | Includes sector-specific; includes for SMEs | No exemption | Specific requirements | Templates |
| **Hungary** | Given changes, at least annually | Specific risks | Only if lacking expertise | General guidelines | No exemption | General requirements | Not provided |
| **Ireland** | No requirement | Specific worker groups; specific risks | Only if lacking expertise | Includes sector-specific; includes for SMEs | No exemption | No requirements | Not provided |
| **Italy** | No requirement | Specific worker groups | Only if lacking expertise | General guidelines | Simplified documentation (due to cease June 2012) | Specific requirements | Not provided |
| **Latvia** | No requirement | No specific considerations | Obligatory if enlisted as hazardous and over 5 workers. | Includes sector-specific | No exemption | No requirements | Templates |
| **Lithuania** | Given changes | No specific considerations | Only if lacking expertise | Includes sector-specific; includes for SMEs | Full exemption for firms implementing H&S management system according to according to OHSAS 18 000 series standards | Specific requirements | Templates |

| | **Review and keep up to date** | **Consider risks of specific groups** | **Appoint external expert** | **Guidelines on how to conduct risk assessment** | **Exemptions from documentation** | **Requirements on structure or content** | **Templates/ checklists** |
|---|---|---|---|---|---|---|---|
| **Luxembourg** | No requirement | Specific worker groups | No requirement | General guidelines | No exemption | No requirements | Not provided |
| **Malta** | Given changes | Specific worker groups; outside persons | No requirement | General guidelines | Full exemption if fewer than 5 workers, except firms with specific risks | No requirements | Templates |
| **Netherlands** | General requirement | Specific worker groups | Obligatory appointment unless under 25 workers | Includes sector-specific | No exemption | Specific requirements | Checklists |
| **Poland** | No requirement | Specific risks | No requirement | Includes for SMEs | No exemption | Specific requirements | Templates; SME Specific |
| **Portugal** | General requirement | No specific considerations | No requirement | No guidance | No exemption | No requirements | Not provided |
| **Romania** | No requirement | Specific worker groups | No requirement | No guidance | No exemption | No requirements | Not provided |
| **Slovakia** | No requirement | Specific risks | No requirement | General guidelines | No exemption | No requirements | Not provided |
| **Slovenia** | Given changes | No specific considerations | No requirement | General guidelines | Simplified documentation if less than 10 workers and no material risks | Specific requirements | Templates; SME-specific |
| **Spain** | Given changes | Specific worker groups | No requirement | Includes for SMEs | Simplified documentation if fewer than 50 workers and not engaged in specified activities | General requirements | Not provided |

| | **Review and keep up to date** | **Consider risks of specific groups** | **Appoint external expert** | **Guidelines on how to conduct risk assessment** | **Exemptions from documentation** | **Requirements on structure or content** | **Templates/ checklists** |
|---|---|---|---|---|---|---|---|
| **Sweden** | No requirement | No specific considerations | No requirement | General guidelines | No exemption | No requirements | Not provided |
| **UK** | Given changes | Specific worker groups; specific risks; outside persons | No requirement | Includes for SMEs | Full exemption if fewer than 5 workers, except in relation to specific risks | No requirements | Templates |

*Source: European Commission Member State Questionnaire and Europe Economics analysis*

6.52 Using the information summarised in the table above (**Table 6.2)**, we have grouped Member States according to how similar their implementation measures are. We have focussed on those implementation measures where the effect on the costs is unambiguous, and not considered those where the effect is less certain. For example, the provision of templates and checklists could reduce documentation costs for firms by allowing some automation of the process, but could also increase costs by making the documentation more detailed than firms would otherwise have produced.

6.53 **Table 6.3** presents the results of our grouping exercise. The groups are defined in terms of how the implementation measures are likely to affect the administrative costs of firms undertaking the documentation of risk assessments. These costs only refer to those that potentially seem to follow from the way in which the Member State has implemented the documentation requirement. Of course, there are many other factors that also bear upon costs in Member States, such as wage costs, which vary significantly between Member States. These other factors are taken into account in our estimates of administrative burdens..

**Table 6.3: Cost-related Member State Groups**

| Group | Member States | Criteria |
|---|---|---|
| Low Cost | Germany, Finland, Italy, Malta, UK, Austria, Slovenia, Spain | Exempt from documentation/ simplified process |
| Medium-Low Cost | Czech Republic, Portugal, Sweden | Not exempt, but no other requirements |
| Medium | Belgium, Bulgaria, Cyprus, Estonia, France Luxembourg, Netherlands, Poland, Romania, Slovakia | Either annual or more frequent review; assessment of specific groups; or requirements on content/structure |
| High cost | Denmark, Greece, Hungary, Ireland, Latvia, Lithuania | Use of external consultant and/or all three of criteria above |

*Source: Europe Economics analysis based on European Commission Questionnaire*

6.54 The Low Cost group consist of those Member States that either exempt small firms for the documentation requirement, or allow them to complete simplified versions of the documentation. This includes Member States such as the UK and Malta where the exemption only applies to firms with fewer than five workers. An exemption will of course absolve the firm from any costs associated with the documentation, and filling out a targeted, simplified version of the documentation should reduce the time and effort required by firms.

6.55 The Medium-low Cost group consists of those Member States that do not exempt small firms from the documentation obligation, but also do not have any other requirements that may increase the costs of documentation.

6.56 The Medium Cost group includes those Member States that have at least one of the following requirements that may increase the documentation costs: requirements to assess risks pertaining to specific groups or people; requirements for reviews to be

undertaken within a specific timeframe; or requirements for the specific content of the documentation.

6.57 The High Cost group consists of those Member States that either stipulate all three cost-increasing requirements captured within the Medium Cost group, or those that require the use of an external health and safety consultant (either for all firms or in the absence of sufficient in-house expertise).

# 7 AWARENESS AND COMPLIANCE

7.1 This section assesses how aware micro-enterprises are of their obligations under the Directive and how compliant they are with them. It also discusses what regulators would need to do to increase compliance, to inform our analysis of the scenario of 100 per cent compliance.

7.2 In the discussion below, we generally use compliance with the risk assessment obligation as a proxy for compliance with the documentation obligation, since more information is available on compliance with the risk assessment obligation. Since firms cannot maintain written records if they do not conduct risk assessments, the rates of non-compliance presented can be seen as upper bounds for compliance with the documentation requirement.

7.3 Information is also presented below on SMEs and firms generally, since, where there are gaps in the data, this information can be used as a basis for making inferences about compliance by micro-enterprises.

## Level of Awareness and Compliance

7.4 The first issue to consider is the extent to which the relevant firms are aware that they have a legal obligation to document a health and safety risk assessment.

7.5 According to a working paper from the European Agency for Safety and Health at Work (EUOHSA) and other studies, the main reason for less favourable occupational health and safety conditions in SMEs is their lack of knowledge and resources to manage their working environment properly, including opportunities to call on external expertise.[80] This seems to suggest that awareness of the obligation amongst SMEs may not be high.

7.6 A study by the UK HSE (2005) found that all the SMEs in the study believed that they complied with the risk assessment requirements, but in fact independent assessment by health and safety experts found that only 46 per cent did comply with all the requirements.[81] The report put this discrepancy down to compliance meaning a different thing to businesses than its use in a formal sense. Although not a very recent study, this demonstrates how actual compliance may be lower than self-reported figures based on firms' own assessments.

7.7 The European Survey of Enterprises on New and Emerging Risks (ESENER) provides some data on compliance levels for the EU27 as a whole and on how compliance differs by establishment size, Member State and sector. Survey data were collected from managers and workers' representatives within enterprises.[82]

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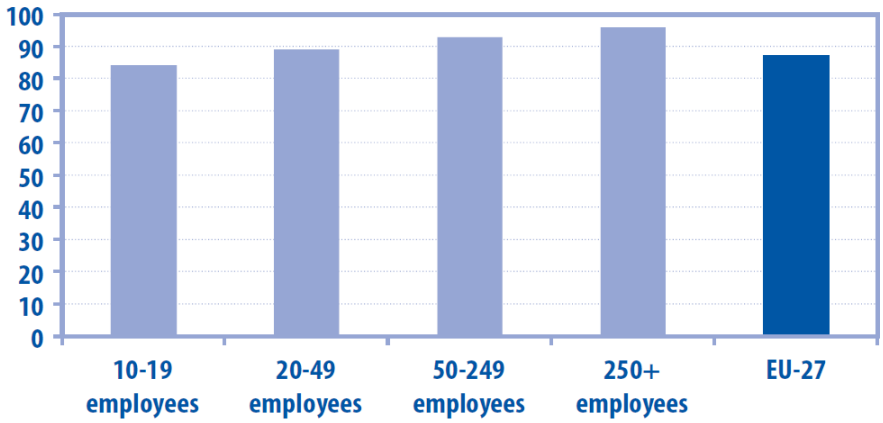
[80] European Agency for Safety and Health at Work (2009a) "Occupational safety and health and economic performance in small and medium-sized enterprises: a review".

[81] Kings College London for the Health and Safety Execute (2005) "Making an impact on SME compliance behaviour: an evaluation of the effect of interventions upon compliance with health and safety legislation in small and medium sized enterprises".

[82] European Agency for Safety and Health at Work (2010), "European Survey of Enterprises on New and Emerging Risks"

7.8 **Figure 7.1** shows that the proportion of firms that conduct a risk assessment (or similar measure) increases with the number of workers in the establishment.[83] Although a compliance figure is not available from this source for firms with fewer than 10 workers, the information is nevertheless useful as it implies (by extrapolation) that compliance with risk assessments is likely to be lower for micro-enterprises than for other firms.

**Figure 7.1: Risk assessment by applicant size (per cent of establishments, EU27)**

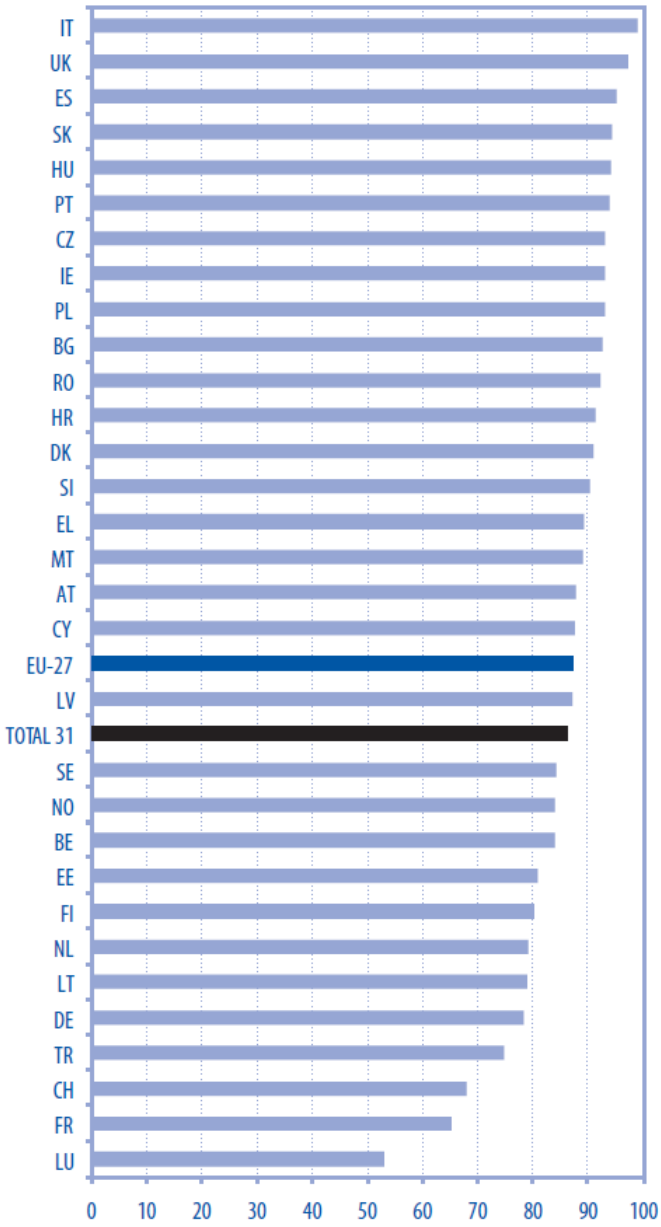



*Source: European Agency for Safety and Health at Work, Page 26, Figure 7*

7.9 **Figure 7.2** shows the proportion of establishments (of all sizes) that undertake a risk assessment in each Member State. In general the level of compliance by firms in EU Member States is similar with almost all countries having a compliance rate of at least 80 per cent. However, there is evidence of significantly lower compliance in France and Luxembourg.

[83] ESENER asked whether workplaces are 'regularly checked for safety and health as part of a risk assessment or similar measure'.

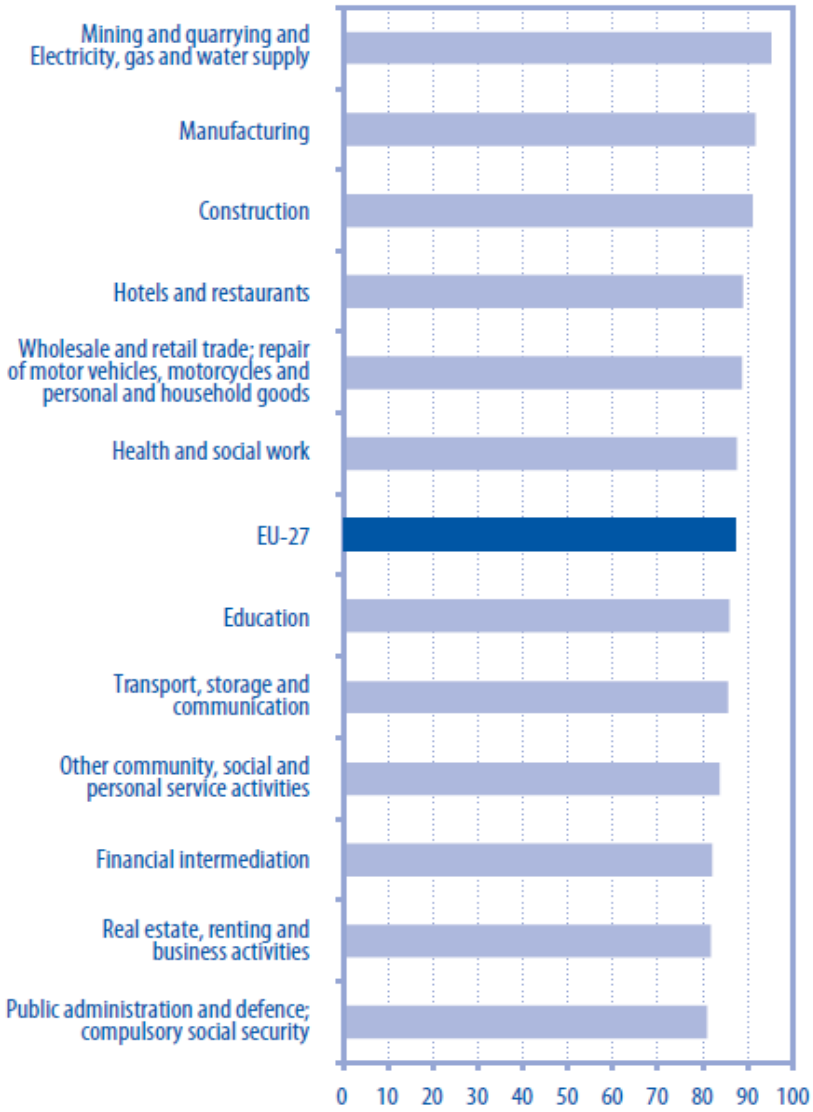
**Figure 7.2: Risk assessment or similar measure by country (per cent of establishments)**




*Source: European Agency for Safety and Health at Work, Page 26, Figure 8*

7.10 **Figure 7.3** shows how the propensity to conduct a risk assessment differs by sector. The proportion of enterprises that conduct risk assessments appears to be greatest in sectors that might be considered higher risk: mining, quarrying and electricity, gas and water supply; manufacturing; and construction. Compliance is lower in office-based employment sectors. As these sectors are the most likely to be affected by the HLG recommendation the true impact of amending Directive 89/391/EEC will be lower than it would be if there were 100 per cent compliance with the Directive as currently worded.

**Figure 7.3: Risk assessment by sector (per cent of establishments carrying out formal risk assessments)**




*Source: European Agency for Safety and Health at Work, Page 27, Figure 9*

7.11 The results from the ESENER survey have been gathered from enterprises (managers and workers' representatives) and not competent authorities, which may imply an overestimation of the levels of compliance with risk assessments.

7.12 A report by Eurofound (2010)[84] has collated information on compliance from company-level national surveys:

(a) A survey of employers in the Netherlands found that risk assessment is performed in just 22 per cent of companies with fewer than five workers, 48 per cent in companies

[84] Eurofound (2010), "Health and safety at work in SMEs: strategies for employee information"

with 5–9 workers, 56 per cent in companies with 10–49 workers and 92 per cent of companies with more than 100 workers.

(b) In Denmark a survey of enterprises found that more than three companies out of four with fewer than 10 workers (75 per cent) were found to both perform a risk assessment and hold discussions about the work environment between the employer and the workers or their representatives.

(c) In Spain, only 25 per cent or one workplace out of four was found to perform a risk assessment (one out of six in those with fewer than 10 workers). According to the 2007 Spanish national survey on working conditions, risk assessments were conducted in just over 16 per cent of companies with fewer than 10 workers, and just over 41 per cent in companies with more than 500 workers. An updated 2009 version of this survey suggested a higher rate of compliance of approximately 74 per cent. However, part of the reason for this higher figure may be that the 2009 survey asked if firms had *ever* conducted a risk assessment, whereas the 2007 survey asked if firms have conducted a risk assessment in the past 12 months.

(d) According to the Czech labour inspectorate's annual report, in 2007 there was insufficient risk analysis and risk assessment in 63 per cent of inspected SMEs. This implies an upper limit of 37 per cent for thorough compliance amongst SMEs.

(e) A German survey (by the Institute of Economic and Social Research, WSI, in 2004) of works council members found that in workplaces with fewer than 50 workers, 29 per cent carried out a risk assessment. This proportion increased to 61 per cent among those with more than 1,000 workers.

(f) A survey from 2004–2005 in France (a linked employer/employee survey combining the opinions of employers, employees and employee representatives) found a risk assessment was adopted by 77 per cent of small companies and 86 per cent of larger companies (200–499 workers).

7.13 Based on the information above, the extent of compliance with the requirement to carry out a risk assessment increases with the size of the company. The highest indicator of compliance amongst firms with 10 workers or less is the finding of 75 per cent compliance in Denmark.[85] This is comparable with the finding of risk assessments being undertaken by 77 per cent of small companies in France. In contrast, the Spanish and Dutch findings indicate much lower compliance, perhaps as low as 20 per cent amongst small enterprises. This evidence base largely relies on surveys of employers and employees, rather than information directly from competent authorities.

[85] We know from our interview with the Danish enforcement body that Denmark inspects *all* firms for compliance with health and safety obligations.

## Types of Compliance

7.14 In practise, how firms respond to the documentation obligation may not be a simple matter of compliance or non-compliance. Instead, there are a range of possibilities as to how thoroughly firms comply with the obligation. At a high level, possible responses include:

(a) **Non-compliance:** Firms might decide not to comply. This possibility means that enforcement bodies either need to incur costs seeking to bring about compliance or accept that compliance will not be absolute and the health benefits that the legislation is intended to secure may, consequently, be foregone. However, in some cases, firms may not comply with the documentation requirement but may still undertake a risk assessment.

(b) **Superficial compliance:** Firms might comply with the regulation in a superficial way without complying with the spirit of the regulation. In other words, they may produce a written document without putting any real effort into a proper risk assessment or taking any actions to improve health and safety. These firms will incur an administrative burden but will not incur any wider costs or receive any wider benefits.

(c) **Thorough compliance:** Firms might comply thoroughly with the obligation, with the possibility that documenting the risk assessment leads to changes to the physical environment and to the behaviour of management and workers that improve health and safety outcomes.

7.15 We recognise that to some extent the above represent stylised possible responses to the obligation – in practice, there will be a spectrum of possible responses between superficial and thorough compliance.

7.16 The extent of compliance with the risk assessment obligation (and the written obligation) could be gauged by the accompanying activities:[86]

(a) A German survey of works councils found that only 5 per cent of workplaces reported high levels of implementation and 47 per cent reported no implementation or poor implementation.

(b) A survey from 2004–2005 in France found that while 94 per cent of occupational health and safety committees received the risk assessment document, in 18 per cent of workplaces management did not distribute it to workers or their representatives.

(c) The European Working Conditions Survey found in 2005 that the percentage of workers that felt well-informed on occupational health and safety risks increased with company size: 78.0 per cent of single-worker companies felt well-informed on occupational health and safety risks; 80.3 per cent in 2-9 worker companies; 82.8 per cent in 10-49 worker companies; 85.1 per cent in 50-99 worker companies; 84.1 per cent in 100-249 worker companies; 87.0 per cent in 250 worker companies.

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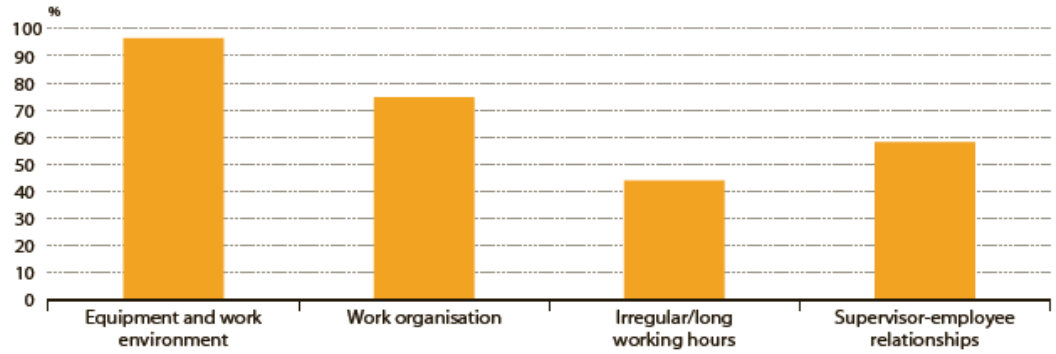
[86] Information presented in Eurofound (2010), "Health and safety at work in SMEs: strategies for employee information".

7.17 The UK HSE found that once SMEs were aware of the legal requirements, they took action to implement steps, though only 25 per cent of SMEs were found to review their risk assessments regularly.[87]

7.18 ESENER data below on the areas that are covered by risk assessments or similar checks show that these tend to focus more on the physical environment than on psychosocial and organisational aspects, such as work organisation, working hours or supervisor-worker relationships.

**Figure 7.4: Areas routinely considered in risk assessments or similar checks, in percentage share of establishments, EU27 (%)**




Source: ESENER 2009 data, presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".

## Increasing Compliance

7.19 The data presented above show that 100 per cent compliance of the written document obligation has not been achieved in all SMEs across the Member States. Achieving 100 per cent compliance is one of the three scenarios which we are analysing in this study. Here we discuss actions which could be taken by the regulatory authorities in the Member States in order to achieve higher compliance.

7.20 In a report published in 2005[88], the UK HSE notes that previous empirical work in food safety compliance has shown that educational approaches to inspections are significantly more effective than inspections driven by enforcement objectives, and that general deterrence (whereby prosecution of one affects the behaviour of many) does not occur within small food businesses. Interventions such as mailshots and leaflets have not been shown to be effective in SMEs.[89]

7.21 In a seminal article, Becker (1968)[90] presented the first formal economic theory of crime. This theory can be generalised to help analyse the non-compliance of firms. In models of this kind, an agent has to make a choice about carrying out activities or not doing so. The

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87 HSE "Making an impact on SME compliance"

88 Kings College London for the Health and Safety Execute (2005) "Making an impact on SME compliance behaviour: an evaluation of the effect of interventions upon compliance with health and safety legislation in small and medium sized enterprises".

89 Reported in Kings College London for the Health and Safety Execute (2005) "Making an impact on SME compliance behaviour: an evaluation of the effect of interventions upon compliance with health and safety legislation in small and medium sized enterprises".

90 Becker, G. (1968) "Crime and Punishment: An Economic Approach", The Journal of Political Economy 76: pp. 169–217.

agent may be caught and punished with a certain probability. If caught, he faces a penalty. The agent chooses not to comply if, once he has taken into account the perceived probability of being caught and the perceived penalty, his expected benefit is positive. In this model, both the agent's probability of being caught and his benefit are determined by the agent's own perception, not using objective data (i.e. they are subjective values). Indeed, agents may differ in the way they assess risks: some agents may underestimate the probability of being caught while others may overestimate it.

7.22 This analysis allows us to gain some insights into how to increase compliance of firms with the written documentation obligation, through sharpening the incentives of firms to comply:

(a) **Increase the perceived probability of detection.** An obvious way in which regulatory authorities could increase the probability of detection for those firms that do not fulfil the obligation is through increasing the number of inspections of firms that take place. This is a difficult intervention to operationalise on the scale needed to cope with SME numbers, since it would involve large numbers of inspectors and a large amount of time spent inspecting. It could therefore be a very costly approach.

An alternative approach would be for the regulatory authorities to require firms to provide them with a copy of the document. The cost of such an exercise could be vastly reduced is if was possible to submit the written document on-line.

It is clear, that in order for either of the above methods to ensure full compliance, the regulatory authorities must have a comprehensive database of all firms in the country, in order to check which firms had or had not complied. In some Member States, it may be the case that all firms are registered in a database already, and so this database could be used for this compliance exercise.

(b) **Increase the perceived penalties for non-compliance.** Increasing the perceived penalties for non-compliance could mean instituting or increasing a fine for non-compliance. Any change would need to be publicised so that agents' perception of the penalty changed.

(c) **Reduce the cost of complying with the obligation.** The costs of complying with the obligation (considered in isolation) reduce the profit of the firm. If the costs of complying were reduced sufficiently, the balance between the cost of complying and the penalty for not complying would alter, such that agent would gain more benefit from complying.

(d) **Increase the perceived benefit from complying with the obligation.** It is important to note that it is the perceived benefit of the obligation which matters for compliance (as opposed to the actual benefit). Therefore, in order to increase compliance, it is not necessary to increase the benefits themselves, so long as agents' perception of the benefits increase. The benefits from health and safety measures may be being underestimated by agents, and so providing more information about the potential benefits to firms through information campaigns could help to improve compliance.

7.23 It can be seen that any one of these measures could increase compliance, though the impact of all of these measures being implemented would have a larger impact on the compliance rate.

## Costs of Achieving 100 Per Cent Compliance

7.24 In order to achieve 100 per cent compliance with the documentation requirement, a significant enforcement effort would need to be in place in all Member States.

7.25 Achieving 100 per cent compliance with any regulation would typically entail substantial enforcement measures on the part of regulators, as it is very rare for 100 per cent of all individuals / firms to comply with a regulation simply because it is law. Even in contexts where compliance with the law has obvious personal safety benefits (such as wearing seatbelts in vehicles), compliance is typically well below 100 per cent. For example, a report by the European Transport Safety Council shows that in 2009, despite the legal obligation to wear a seat belt in all the EU27, seat belt use in light vehicles in the EU is estimated to be only 89% in the front seat.[91] Hence, getting every single firm to comply with a regulation such as risk assessment documentation that many currently do not perceive as necessary would be very difficult indeed.

7.26 Information gathered from interviews with a number of labour inspectorate bodies implies that inspections of all enterprises would be the only way to ensure 100 per cent compliance with the documentation obligation. This view was shared equally both by interviewees from specialist occupational health and safety enforcement bodies and by an interviewee from a generalist labour inspectorate (responsible for inspecting other labour matters as well as occupational health and safety). Furthermore, interviewees were of the opinion that merely checking documentation without any further inspection of the actual health and safety practices of the firm would lead to little additional compliance with risk assessments and hence little improvement in health and safety practices.

7.27 We considered and rejected an alternative possible assumption that all firms are required to submit their documentation to the enforcement body without any on-site visit by an inspector. We considered that this was not a sensible enforcement approach, since it would make it particularly easy for firms to submit a document (e.g. downloaded from the internet) that bore no relation to an actual risk assessment. In addition, as well as being ineffective, this approach to enforcement would also entail significant costs of a different kind – for instance, firms would incur the costs of sending the document and the enforcement body would incur the costs of checking through documents received. Finally, this approach would simply raise the further question of how the enforcement body would ensure 100 per cent compliance with the obligation to submit the document, and what the costs would be of achieving 100 per cent compliance with this further submission obligation.

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[91] ETSC (2010) 'Road safety target in sight: Making up for lost time. 4th Road safety PIN report' http://www.etsc.eu/documents/ETSC%20PIN%20Report%202010.pdf
A more recent statistic from ETSC shows that tickets for non-compliance with seatbelts are still issued widely among Member States: http://www.etsc.eu/documents/PIN_Report_6_web.pdf

7.28 For the purpose of modelling the possible costs involved, we have therefore assumed that 100 per cent compliance is achieved through regulators carrying out inspections of all firms. However, we assume each firm is only inspected as frequently as it needs to update its risk assessment, which we assume to be every three years in most Member States (unless a different frequency is specified in national law). Hence, for most Member States we are assuming that all firms are inspected over a period of three years.

7.29 We have modelled two types of inspection:

(a) Full inspection: This assumes that enforcement bodies fully inspect all micro-enterprises, checking both the documentation and the actual health and safety practices the firm has in place to address the risks identified in the risk assessment. This is our preferred approach as it would ensure that firms comply both with the documentation obligation and with the risk assessment obligation, and that genuine improvements to health and safety practices and outcomes were made.

(b) Document only inspection: This assumes that enforcement bodies only inspect the existence of documentation, and do not conduct any wider checks on the health and safety practices of the firms. Although this form of enforcement would be less costly (since inspection time would be reduced), it is likely to have much less impact on firms' further compliance with the risk assessment obligation, and thus the corresponding benefits of improved health and safety outcomes would be reduced. Interviewees from both specialist and generalist labour inspectorates emphasise that the documentation is only valuable insofar as it points to compliance with risk assessments; if this adherence to the risk assessment obligation is never checked firms will have little additional incentive to comply, and the rationale behind achieving 100 per cent compliance with the documentation is significantly weakened.

7.30 Using information about the number of inspections that can be conducted per inspector (estimated separately for each of the above types of inspection) and the average salaries of inspectors,[92] we have modelled the costs to regulators arising under two100 per cent compliance scenarios:

(a) 100% Compliance Scenario 1 represents the full inspection type, and assumes that 100 per cent compliance with the documentation results in 100 per cent compliance with risk assessments. This results in relatively higher costs but also higher benefits in terms of reduced health and safety costs.

(b) 100% Compliance Scenario 2 represents the documentation only inspection type, and assumes that 100 per cent compliance with the documentation does not lead to 100 per cent follow-on compliance with risk assessments. This results in lower costs, but also lower benefits in terms of improved health and safety outcomes.

[92] Data for these inputs have been gathered from Eurostat and interviews with enforcement bodies. Please see the detailed inputs table in the Appendix.

7.31 The results of our model are presented in the tables below for each year and as a total present value over ten years.[93] These should be viewed in light of the following considerations:

(a) To account for uncertainty in some of the input values we make use of three sensitivity scenarios, giving high, medium and low estimates of the net benefit of achieving 100 per cent compliance. As the costs to regulators reduce any net benefit arising from full compliance with documentation, the low sensitivity scenario involves the highest estimate of regulator costs.

(b) To account for uncertainty in the degree of follow-on compliance with risk assessments under documentation only inspections, our model explores three values for compliance: 50 per cent (whereby 50 per cent of firms that fully comply with the documentation obligation for the first time also carry out a meaningful risk assessment); 25 per cent (whereby only 25 per cent also undertake follow-on compliance) and zero per cent. These values correspond to the high, medium and low sensitivity scenarios described above.

(c) The costs of documentation only inspections have been estimated at 75 per cent of the costs of full inspections. This takes account of the shorter time required to inspect only documentation, but assumes the same travel times to visit firms' premises.

(d) The annual fluctuations in costs reflect the assumption that Member States would want to get compliance up to 100 per cent as quickly as possible. This would require a large number of inspections taking place in the first year of the policy, followed by subsequent inspections according to the frequency of required updates. In practice such inspections may be spread more evenly over time.

(e) As only additional costs are relevant, we do not include the current enforcement and inspection costs incurred by enforcement bodies under the current situation. This means that we exclude the proportion of firms that enforcement bodies currently inspect.

[93] Discounted at 4 per cent as recommended by the European Commission Impact Assessment guidelines

**Table 7.1: Enforcement costs of 100% compliance – full inspection model (€ millions)**

| Year | Low net benefit scenario | Medium net benefit scenario | High net benefit scenario |
|---|---|---|---|
| 2012 | 7,883 | 4,911 | 3,432 |
| 2013 | 1,174 | 732 | 511 |
| 2014 | 6,329 | 724 | 506 |
| 2015 | 2,671 | 4,864 | 1,163 |
| 2016 | 6,256 | 712 | 498 |
| 2017 | 1,137 | 708 | 2,713 |
| 2018 | 7,813 | 4,867 | 1,189 |
| 2019 | 1,127 | 702 | 491 |
| 2020 | 6,199 | 701 | 490 |
| 2021 | 2,812 | 4,915 | 1,224 |
| **Total present value** | **35,631** | **19,369** | **10,204** |

*Note: the fact that enforcement costs fluctuate from year to year reflects the limitations of the modelling assumptions. In practice, we might expect enforcement costs to be spread more evenly over the period. However, it the present value over ten years which is important for our later calculation of the net benefit of achieving 100 per cent compliance.*

**Table 7.2: Enforcement costs of 100% compliance – documentation only inspection model (€ millions)**

| Year | Low net benefit scenario | Medium net benefit scenario | High net benefit scenario |
|---|---|---|---|
| 2012 | 5,912 | 3,683 | 2,574 |
| 2013 | 881 | 549 | 383 |
| 2014 | 4,746 | 543 | 380 |
| 2015 | 2,003 | 3,648 | 872 |
| 2016 | 4,692 | 534 | 373 |
| 2017 | 852 | 531 | 2,035 |
| 2018 | 5,860 | 3,650 | 892 |
| 2019 | 845 | 527 | 368 |
| 2020 | 4,650 | 525 | 367 |
| 2021 | 2,109 | 3,686 | 918 |
| **Total present value** | **26,723** | **14,527** | **7,653** |

*Note: the fact that enforcement costs fluctuate from year to year reflects the limitations of the modelling assumptions. In practice, we might expect enforcement costs to be spread more evenly over the period. However, it the present value over ten years which is important for our later calculation of the net benefit of achieving 100 per cent compliance.*

7.32 We also model the corresponding impact on health and safety outcomes from 100 per cent compliance with the documentation. The table below shows that the reduction in health and safety incidents following increased compliance with the documentation obligation varies depending on the inspection model. For full inspections, genuine improvements to health and safety practices are made, with correspondingly higher savings. With document only inspections, the health and safety improvements depend on the level of follow-on compliance. In the Low Net Benefit scenario there are no additional benefits, as no firms undertake additional genuine risk assessments as a result of

complying with the documentation, whereas there are some follow-on benefits in the medium and high scenarios but these are lower than the benefits achieved by full inspection.

**Table 7.3: Savings from improved health and safety outcomes following 100% compliance with documentation – total present value over 10 years (€millions)**

| Type of inspection model | Low net benefit scenario | Medium net benefit scenario | High net benefit scenario |
|---|---|---|---|
| Full inspection | 12,462 | 23,804 | 38,689 |
| Document only inspection | 0 | 5,951 | 19,344 |

7.33 The full net results of 100 per cent compliance are presented later in the report, once the administrative burdens on firms have been discussed.

# 8 ADMINISTRATIVE BURDENS

## Introduction

8.1 This section analyses the administrative burdens created by the obligation in the Directive to document risk assessments. Administrative burdens are an important focus of the European Commission's Better Regulation exercise established in 2002. This aims to simplify and generally improve the regulatory environment, and has as one of its goals the reduction of administrative burdens by 25 per cent by 2012.[94]

8.2 In 2006 the European Commission introduced a distinction between "administrative costs" and "administrative burdens".[95] Administrative costs are those incurred by businesses in meeting information obligations (e.g. the provision of information) associated with certain activities. Administrative burdens describes costs specifically linked to information that businesses would not collect and provide in the absence of a legal obligation; in other words, administrative costs over and above 'business as usual' administrative costs. The documentation of risk assessments can be considered an administrative burden arising from the Directive.

8.3 Whilst the main focus of this study is on the administrative burdens arising from the documentation requirement, it may also be necessary to consider the costs of risk assessments as a whole. This is relevant insofar as the documentation requirement influences the undertaking of a risk assessment. For example, if increasing compliance with the documentation obligation to 100 per cent (one of our scenarios) also increases the number of risk assessments carried out, then the costs of carrying out the additional risk assessments would need to be included alongside the health and safety benefits which may also be achieved.

8.4 In an appendix to this report we provide a description of the Standard Cost Model methodology used to estimate administrative burdens.

8.5 In this section we provide:

(a) a review of past studies that have attempted to estimate the administrative burden of the documentation obligation; and

(b) the estimation of the administrative burden in the context of this study. This includes a discussion of the key issues involved in assessing the administrative burden for this study (such as focusing only on low-risk, micro-enterprises); an evaluation of the available information sources in terms of their relevance to our study and our cost model; and a description of our modelling exercise and results.

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[94] Within the context of reducing administrative burdens, the European Commission adopted an Action Programme for Reducing Administrative Burdens in the European Union in January 2007. This was followed by the establishment of the High Level Group of Independent Stakeholders on Administrative Burdens (HLG) in August 2007. The option for Member States to decide to exempt very small, low-risk firms from the documentation requirement was one recommendation of the HLG. See http://ec.europa.eu/enterprise/policies/better-regulation/index_en.htm

[95] http://ec.europa.eu/governance/better_regulation/admin_costs_en.htm

## Past Studies

8.6 Here we summarise the findings of key studies relating to the impact of occupational health and safety legislation on administrative burdens for businesses:

(a) An EU-wide report on the measurement of the Working Environment/Employment Relations Priority Area (2009), referred to here as the 'Consortium report'.[96]

(b) An EU-wide study of the implementation of the Directives in health and safety at work as a cost factor (2010).[97]

(c) A UK study on the cost of compliance with health and safety regulations in SMEs (2003).[98]

(d) An Irish study measuring the administrative burden in Irish businesses arising from information obligations under company law, employment law and health and safety legislation (2009).[99]

8.7 The purpose of this review is to inform our methodological approach to estimating administrative burdens and to provide information and data for our model.

### Report on the measurement of the Working Environment/Employment Relations Priority Area (2009)

8.8 In 2009 a Consortium (consisting of Capgemini, Deliotte and Ramboll Management) carried out a study to measure the administrative costs and administrative burdens for business arising from the Informational Obligations (IO) set out under the following pieces of EU legislation:[100]

(a) Council Directive 89/391/EEC of June 12 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work — specific attention was given to measuring the administrative costs and burdens from the "obligation to possess an assessment of risks to safety and health at work".

(b) Directive 92/57/EEC of 24 June 1992 on the implementation of minimum safety and health requirements at temporary or mobile construction sites — specific focus was given to measuring the administrative costs and burdens from the requirement for a

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96 "EU Project on Baseline Measurement and Reduction of Administrative Costs – FINAL REPORT – Measurement data and analysis as specified in the specific contracts 5&6 on Modules 3&4 under the Framework contract no. ENTR/06/01 - Report on the Working Environment/ Employment Relations Priority Area" (June 2009) A report for the European Commission.

97 "Implementation of the Directives on Health and Safety at Work as a Cost Factor" (October 2010) - a study for the European Parliament.

98 "Cost of compliance with health and safety regulations in SME's" (2003), a report by Entec UK Limited for the Health and Safety Executive.

99 "Measuring the administrative burden on Irish Businesses arising from information obligations under company law, employment law and health and safety legislation" (December 2009), as report by ESP Consulting for the Department of Enterprise, Trade and Employment

100 In 2009 the European Commission introduced a distinction between 'administrative costs' and 'administrative burdens'. According to the EC's definition administrative burdens are defined as those costs which are linked specifically to the information that business would not collect or provide in the absence of a legal obligation. Further information is available at: http://ec.europa.eu/enterprise/policies/smart-regulation/administrative-burdens/

'safety and health plan' and the 'obligation to prepare a file containing relevant health and safety information for any subsequent work'.

*Summary of methodology*

8.9 The study consisted of three main steps:

(a) *Step one* — Identifying and distinguishing between those IOs stemming directly from the EU legislation and those stemming for the national implementations of the IOs (as these may result in differences in administrative costs linked to the EU Directives between Member States).

(b) *Step two* — Identifying the administrative costs arising from the EU IOs and those stemming from national obligations. Data on these costs were then collected through a sample of businesses in six Member States: Bulgaria, Estonia, Portugal, Malta, Romania and Sweden (referred to as the 'measurement countries'). This information was supplemented by existing data from five Member States: Austria, Denmark, Germany, the Netherlands and the UK (referred to as the 'baseline countries') that had previously undertaken SCM measurements.

(c) *Step three* – Using the combined dataset to estimate the administrative costs and burdens for the remaining 16 Member States (referred to as the 'extrapolation countries') though extrapolation.

8.10 The baseline countries were selected so as to provide a good representation of EU Member States in terms of population, spread of geographical location and duration of EU Membership. All countries selected for data collection had transposed the legislation.

8.11 A total of seven EU IOs were identified under these two Directives, three of which were prioritised (on the basis that they would result in the highest cost estimates out of the seven IOs) and for which in-depth measurements were carried out. According to the Consortium, this approach was based on experience from previous SCM measurements which indicated that the top 20 per cent most burdensome IOs will typically represent approximately 80 per cent of the total administration costs.

8.12 In order to compare costs consistently across Member States a common denominator was established by identifying a typical 'risk assessment' in Directive 89/391/EEC and a typical 'health and safety plan' in Directive 92/57/EEC. For each of these, the 'core elements', i.e. the typical steps and processes involved, were identified which were then used in the interview conducted in the measurement countries.

8.13 Extrapolations were made using data collected from the measurement countries and supplemented with data from the baseline countries on the EU IOs administrative costs. As national IOs are country specific, those identified were not included in the extrapolation exercises.

*Summary of key findings*

8.14 The total administrative costs arising from both the EU IOs and the national IOs stemming from the two EU Directives were estimated at approximately €4.26 billion. Within this,

€4.23 billion were estimated to stem from the EU IOs while only €32.4 million were attributed to national IOs going beyond EU requirements. It should be noted, however, that the latter estimate is based only on data collected from the measurement countries so is likely to represent a lower bound for this source of administrative costs.

8.15 Of the total administrative costs, only 11 per cent were identified as business-as-usual costs while 89 per cent (which equates to €3.79 billion) were attributed to administrative burdens.

8.16 In relation to the obligation to possess an assessment of risks to safety and health at work, the total administrative cost was estimated at €2.9 billion, and the total administrative burden (i.e. excluding 'business as usual costs) at €2.7 billion. Unit measurements of time for conducting and documenting risk assessments (for businesses with fewer than 10 workers) ranged from 20 minutes in Sweden to 45 hours in Malta. The underlying reason given in the high-cost countries was the large amount of documentation that was required.[101]

8.17 However, it should be noted that the survey results are based on legally compliant companies of a sector that is exposed to a specific level of risk on a daily basis (e.g. construction companies).[102] Therefore the costs are likely to be lower for lower-risk companies and those that are not fully compliant.

8.18 The study identified population and wage level as the predominant drivers of costs across Member States. Of the measurement countries, Portugal was found to have the highest total costs (€171 million) due to the relatively high number of occupational accidents reported, and the greater amount of time spent on several of the IOs compared with the other measurement countries. Interestingly, however, the share of *administrative burdens* in these costs was noticeably lower than compared with the other measurement Member States (i.e. 78 per cent compared with 90 to 97 per cent across the other measurement countries). Estonia had the lowest overall costs of the group.

*Concerns about the study*

8.19 A number of concerns regarding the methodology employed in this study have been raised by DG Employment.[103] The main concerns relate to the:

(a) *Size of the samples within the measurement countries used* —the data compiled from the measurement countries were based on a fairly limited number of interviews. The concern is that where data at the national level are not fully representative of that

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[101] The reason given in the report for the low cost in Sweden is related in part to the fact that many companies have to draw up a more specialised risk assessment adapted to the industry sector in which they belong, which is a strictly national provision. This risk assessment, which is detailed, reduces the time needed to complete the risk assessment for EU legislation purposes. As the costs of the national risk assessment are considered as 'business as usual' costs, the additional costs of the EU obligation are small.

[102] The sampling methodology for the work consisted of recruiting from a combination of all businesses, as well as specifically from businesses in the constructions sector. Therefore the average risk level of respondents is likely to be higher than low-risk companies.

[103] See European Commission 'High Level Group of Independent Stakeholders on Administrative Burdens' http://ec.europa.eu/enterprise/policies/smart-regulation/files/hlg_opinion_working_environment_09052009_en.pdf, Page 5, Point 21

country then resulting issues in terms of reliability and representativeness of the resulting estimates are likely to be compounded through the extrapolation process.

(b) *Impact of national IOs on driving costs* — DG Employment noted that the study did not adequately reflect the fact that the Directives in questions provide broad scope for individual Member States to define the contents of the IOs and in some Member States enterprises are afforded wide scope to decide on the appropriate tools and methods for meeting national IOs. Such differences may well account for a significant proportion of the variation in administrative costs and burdens observed across Member States. This is an area that is underdeveloped in the study which only uses wage levels and population differences to account for differences in costs across different Member States.

8.20 Furthermore, our reading of the study has highlighted other factors that make the results less appropriate for our work. First, the sample of countries selected to estimate the administrative costs of the IOs appears to be largely taken from the construction sector. In the methodology section of the report it is stated that: "the target group is very widely defined, as it is made up of companies with workers for Directive 89/391/EEC and companies doing construction work for Directive 92/57/EEC"[104] which implies that the sample for the first Directive is taken from all sectors. However, in the text relating to the administrative costs for Directive 89/391/EEC, the report states: "It should be noted that the measurement results were based on the legally compliant companies of this segment, which are those that are exposed to a certain level of risk on a daily basis (e.g. construction companies)"[105] which implies that the sample is at least skewed towards a higher-risk sample.

8.21 Second, the measurement of the administrative costs was based on the time required for the action multiplied by the tariff and frequency. As we are only concerned with the costs of information provision (i.e. producing documentation), we are not interested in the costs of conducting the actual risk assessment. However, in the discussion around the estimates a number of statements imply that the time estimates include the time taken to conduct the risk assessment: "...the assessment obviously involves more time-consuming activities in a large company than a small business (talking to and interviewing workers etc.)" and "the health and safety organisation providing the external services generally perform assessments more thoroughly than companies who self-assess (i.e. health and safety organisations normally interview all the worker of a company…)".[106]

8.22 For this reason it is highly likely that the true administrative burden of conducting risk assessments is less than that estimated in the Consortium report, possibly by a non-negligible extent.

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[104] EU Project on Baseline Measurement and Reduction of Administrative Costs (2009), Measurement data and analysis as specified in the specific contracts 5&6 on Modules 3&4 under the Framework Contract n° ENTR/06/61 Report on the Working Environment/ Employment Relations Priority Area, page 112

[105] EU Project on Baseline Measurement and Reduction of Administrative Costs (2009), Measurement data and analysis as specified in the specific contracts 5&6 on Modules 3&4 under the Framework Contract n° ENTR/06/61 Report on the Working Environment/ Employment Relations Priority Area, page 71

[106] EU Project on Baseline Measurement and Reduction of Administrative Costs (2009), Measurement data and analysis as specified in the specific contracts 5&6 on Modules 3&4 under the Framework Contract n° ENTR/06/61 Report on the Working Environment/ Employment Relations Priority Area, page 73-74

**Study of the implementation of the Directives in health and safety at work as a cost factor (2010)**

8.23 In 2010 the European Parliament's Employment Committee commissioned a study on the implementation of the Directives on health and safety at work as a cost factor. This study was commissioned in the context of the target set under the European Occupational Health and Safety (OHS) strategy for a 25 per cent reduction in the incidence of workplace accidents in the EU27 over the period 2007-2012. This target also coincided with efforts to reduce administrative burdens by 25 per cent by 2012, a target set under the European Better Regulation strategy.

8.24 The key objectives of the study were to investigate the extent to which full compliance with OHS obligations is beneficial not only for individual workers but also in terms of the sustainability and efficacy of workplaces (e.g. in reducing the incidence and costs associated with work place accidents). In particular, the study examined the possible negative effects that reductions in information obligations might have on achieving targets to reduce the incidence of work place accidents and diseases.

*Summary of methodology*

8.25 In assessing the impacts of the programme for the reduction of administrative burdens the study focused on the following directives (i.e. those which would be most affected by the reduction programme):

(a) Council Directive 89/391/EEC of June 12 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

(b) Council Directive 92/57/EEC of 24 June 1992 on the implementation of minimum safety and health requirements at temporary or mobile construction sites.

(c) Directive 2004/37/EC of the European Parliament and the Council of 29 April 2004 on the protection of workers or the risks related to exposure to carcinogens or mutagens at work.

8.26 Exempting very small firms from having to produce a written assessment of the risks to health and safety was one of the six reduction measures of the European Action Plan considered in this study.

8.27 The methodological approach used in the study was a mixture of desk-based research (report, studies and other relevant documentations) and a set of 17 interviews with experts and stakeholders (including EC officials, EU Agency Officials, EU organisations, Member State organisations and individual experts) based on a semi-structured questionnaire.

*Summary of key findings*

8.28 The study reported that the expected reduction in the administrative burden for small enterprises from removing the obligation to provide a risk assessment was approximately €135 million.[107] According to the report, the *total* administrative burden (for all firms) stemming from the obligation to provide a risk assessment is estimated at €2.7 billion. We note, however, the limited number of interviews that were used to generate these cost estimates and thus the possibility for sampling and measurement bias in the overall results.

8.29 Feedback received from interviews found that opinions on the actual impacts of exempting small enterprises from these obligations varied considerably. Although no quantitative estimates were provided as part of these interviews, most respondents agreed that the burdens of these obligations were high and that the relative burden increases as the size of the company decreases. A few, however, believed that risk assessment reports constitute only a small component of the overall effort to prevent work accidents and that the relative burden was not high.

8.30 Despite differences in views on the relative administrative burden incurred as a result of obligations to produce written risk assessments, there was a consensus in relation to the potentially limited impact that exemptions might have on reducing burdens. Workers may, for example, prefer to have something in writing to prove that a risk assessment has been made in order to address liability concerns in the event of an accident occurring. As liability is a key issue for employers, respondents believed that employers may be reluctant to abandon the documentation practice entirely — thereby limiting the reductions in administrative burdens realised as a result of such exemptions.

8.31 The study also concluded that of all the proposals to reduce administrative burdens, the proposed exemptions to providing a written assessment of the risks to health and safety was the only one that was expected to have a *negative* impact on the level of OHS in small companies. While the exemptions may lead to a reduction in costs in the short run, these are expected to be outweighed by higher costs arising from increased work related incidents in the future.

**Study on the cost of compliance with health and safety regulations in SMEs (2003)**

8.32 In 2003 Entec UK was commissioned by the Health and Safety executive to conduct a study to assess whether or not the costs of compliance of different health and safety regulations affected smaller companies disproportionately, the nature of expenditure on these regulations and the effectiveness of the actions taken (e.g. on productivity, performance, sickness and time lost through accidents).

*Summary of methodology*

8.33 The findings of this study were based on:

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[107] Source: COM(2009)544 (http://ec.europa.eu/dgs/secretariat_general/admin_burden/result_burden/result_burden_en.htm)

(a) *A postal survey of organisations in the UK* — This survey sought to collect information on the costs of compliance incurred by SMEs of different sizes, their accident and incident history and their approach to health and safety management.

(b) *Company site visits* — these were made to 30 of the businesses that took part in the postal survey. The aim of these visits was, among other things, to validate the information provided in the surveys and to probe further into the costs and benefits of regulations.

8.34 The study provided estimates of the compliance costs associated with several actions required to meet Management of Health and Safety at Work Regulations including: risk assessments, health and safety arrangements, implementing control measures, health surveillance, health and safety assistance, addressing serious and imminent danger, the provision of information and training to staff and co-operation with employers that share the workplace.

8.35 The study did not however, attempt to break down the estimated costs of compliance into those that could reasonably be considered as administrative costs and those which could be regarded as administrative burdens.

*Summary of key findings*

8.36 Based on the data collected through the survey, the study estimated the average cost of compliance associated with risks assessments at approximately £7,500 (with a lower and upper bound estimate of approximately £6,200 and £8,300 respectively). This estimate, however, was considerably lower than the costs of compliance for implementation and control measures and health and safety assistance which were estimated at approximately £125,500 and £22,400 respectively.

8.37 The average compliance costs per worker of complying with assessment obligations were found to be disproportionately higher among smaller firms. For example, the average amount spent per worker on complying with risk assessment obligations was estimated at £87 for SMEs with 0-49 workers, £34 for those with 50-249 workers, £14 for those with 25-4,999 workers and £15 for companies with over 5,000 workers.

**Study on the administrative burden in Irish businesses arising from information obligations under company law, employment law and health and safety legislation (2009)**

8.38 In 2009 the Department of Enterprise, Trade and Employment in Ireland commissioned a study to measure the administrative costs and burdens of a prioritised list of IOs. The three main areas of regulation focused on in this study were:

(a) Company Law;

(b) Employment Law; and

(c) Health and Safety Law.

8.39 This study was commissioned as part of the Department's approach to meeting the Irish Government's target (set in 2008) of reducing administrative burdens by 25 per cent by 2012 (in line with the European Commission's target).

*Summary of methodology*

8.40 The approach taken in this study was consistent with the SCM used by the European Commission and was carried out using a combination of telephone surveys, interviews and expert workshops.

8.41 In applying the SCM three key steps were involved:

(a) *Phase 1: Preparatory analysis* — This phase entailed breaking down the text of the regulation into a number of IOs (from which relevant administrative activities were identified); grouping IOs according to type; identifying the population, rate and frequency; and identifying which IOs were to be assessed through interviews and those to be assessed through the use of expert assessment and by identifying the relevant costs parameters.

(b) *Phase 2: Analysis of time consumption and costs in business* — This phase entailed selecting businesses for interviews from the legislation's target group; interviewing businesses; and standardising the time and resources consumption per activity per business segment.

(c) *Phase 3: Calculation and presentation* — The final phase involved extrapolating the validated data in order to estimate administrative burdens incurred by businesses at the national level.

8.42 In making adjustments for 'business as usual' costs (BAU) the study drew on company views obtained from interviews on the proportion of the activities/costs that they would continue to perform/incur if the legal requirement were removed. These responses were grouped broadly as follows:

(a) for those IOs for which companies typically reported that they would continue to carry out all the activities associated with them even if the legal obligation were removed, the BAU was identified as 100 per cent;

(b) for those IOs for which companies typically reported that they would *to a large extent* continue to carry out all the activities associated with them even if the legal obligation were removed, the BAU was identified as 90 per cent;

(c) for those IOs for which companies typically reported that they would *to some extent* continue to carry out all the activities associated with them even if the legal obligation were removed, the BAU was identified as 45 per cent; and

(d) for those IOs for which companies typically reported that they would *not* continue to carry out any of the activities associated with them even if the legal obligation were removed, the BAU was identified as zero per cent.

*Summary of key findings*

8.43 The study found that for SMEs health and safety is typically carried out as part of general management activities, whereas larger companies tend to have personnel dedicated specifically to this function. Further, the study also found that the expertise required in complying with a number of health and safety related IOs is such that SMEs will typically rely on the use of external experts/advisers.

8.44 In assessing the administrative burdens associated with health and safety regulations, the study focused on 12 IOs including, for example, risk assessment, record of inspection of work equipment, safety file, and safety and health plan for construction projects.

8.45 Feedback from the interviews on IOs on conducting risk assessments (an IO stemming from the Irish legislation which is taken directly from Council Directive 89/391) indicated that these are typically viewed as imposing large costs on businesses and as a very onerous obligation. Estimates with regard to the time and effort incurred in meeting this IO did however vary widely across the companies interviewed and surveyed. Indeed, given the wide variation in costs provided by the businesses surveys, industry experts were consulted as a means of assessing 'typical' costs for a business in meeting this IO. Estimates on the time spent by companies across different sectors in meeting the IOs was provided by the HSA (Health and Safety Authority) which were then validated and amended by three independent health and safety experts.

8.46 Under Irish legislation business in the construction sector can opt out of conducting a traditional risk assessment and use the Safe System At Work as set out under a Code of Practice (this option is also available to companies in the agricultural sector). Although the study noted that HSA estimates were available for the costs of using these non-traditional methods, these estimates were not reported on nor where they used in overall calculations and extrapolations. This approach was taken on the basis that no reliable indicators of how many businesses had opted out of the traditional approach were available. All business were therefore assumed to use traditional methods of conducting risk assessments.

8.47 The total administrative costs resulting from the IO relating to risk assessments was estimated at €167 million, of which only 25 per cent was classified as BAU. Administrative burdens were therefore estimated at approximately €125 million.

8.48 In terms of the total administrative burdens incurred as a result of compliance with all twelve IOs considered in the study, those associated with conducting risk assessments were the largest. This IO accounted for 52 per cent of the total administrative burdens resulting from health and safety IOs.

## Key Issues to Address in the Context of this Study

8.49 There are a number of considerations that were addressed to ensure that our assessment of the administrative burden of the documentation obligation reflects the costs as accurately as possible within the context of this study.

8.50 These considerations include:

(a) Producing an estimate for micro-enterprises

(b) Producing estimates both for all micro-enterprises and for only those involved in low risk activities

(c) Producing estimates under scenarios of real levels of compliance with the documentation requirement and 100 per cent compliance

(d) Differences in transposition and other implementation measures across Member States

(e) Impact of checklists and electronic tools

*Producing an estimate for micro-enterprises*

8.51 Past studies attempting to estimate the administrative burdens of the Directive such as those reviewed above have tended to focus on all enterprises, not micro-enterprises involved in low risk activities.

8.52 Due to the narrower focus of this study our cost model only includes those firms with fewer than 10 workers and thus covers a smaller number of firms than other studies. Information on the number of micro-enterprises across all sectors was gathered from Eurostat. The data and assumptions used are discussed later in this section and in the Appendix.

8.53 The unit costs per documented risk assessment also vary across firm size and therefore for this study only those costs relevant to micro firms will be considered. In general micro-enterprises spend less time undertaking and documenting risk assessments than larger firms.[108] On the other hand, the person responsible for the risk assessment in micro-enterprises is more likely to be the owner/manager, compared to larger firms where administrative staff or dedicated health and safety personnel are more likely to be involved. The appropriate wage rate to use in the cost model may therefore be higher among micro-enterprises.

*Taking account of firms in low risk sectors*

8.54 In order to take account of firms in low risk sectors, a number of factors must be considered.

8.55 First, the number of firms involved in low risk activities will be significantly lower than firms involved in all areas of the economy. The exact number depends on the definition of 'low risk' and the results of our statistical analysis of low risk, presented in Chapter 4 Scenarios for the Definition of Low Risk. For the purposes of our cost modelling we have adopted a sector-based definition of low risk, and include three low risk scenarios in the model: each scenario captures different sectors and thus a different number of firms.

[108] The 2009 Consortium report and the 2009 study for the Irish DTI both show that the costs per risk assessment increase with firm size.

8.56 The unit costs of risk assessment documentation would also vary between low-risk enterprises and higher-risk enterprises. As suggested in the studies that we have reviewed, information available is often obtained from firms that are legally compliant with risk assessments and which tend to be those exposed to a reasonably high level of risk. Low-risk firms may be able to spend less time on risk assessments due to the smaller number of risks that need to be documented. In addition, in many Member States the national transposition of the Directive states that specific attention must be paid during the risk assessment to certain types of risks, which may increase the time required to complete and document the assessment for those firms facing those risks.

8.57 Levels of compliance with risk assessments and documentation are also likely to vary between low-risk and higher-risk enterprises. Low-risk enterprises may perceive little need to undertake and document a risk assessment. Furthermore, feedback from our interviews with regulators suggests that low-risk enterprises (especially small ones) are very unlikely to be inspected which may reduce the incentive to comply even further.

*Differences in transposition*

8.58 We note that Directive 89/391/EEC only requires a risk assessment document, while being relatively unspecific about its form and contents. The ways in which Member States have transposed and implemented the Directive may affect the costs to firms in complying, and this must be taken into account in our SCM.

8.59 The methodology of existing studies, such as the Consortium report, has consisted of measuring the administrative costs to firms in a selection of Member States, and then extrapolating these figures across the rest of the EU.

8.60 This extrapolation could be improved if differences in transposition and other implementation measures across Member States are taken into account. As discussed in Section 6, the ways in which Member States implement the provisions of the Directive can influence the costs to companies of complying with the risk assessment documentation obligation. For example, Member States that currently exempt some firms would have lower average costs per firm; Member States that require very specific structures for the documentation may experience higher per-firm costs. The likely influencing factors discussed in Section 6 include:

(a) Whether any firms are exempt from the requirement to document risk assessments

(b) Whether there are specific requirements on the content or structure of the documentation

(c) Whether there are specific requirements on the timeframe within which risk assessment documentation must be reviewed

(d) Whether there are specific requirements for the documentation to consider specific groups of risks or workers

(e) Whether firms are required to use an external health and safety consultant to conduct and document the risk assessment

*Impact of checklists and electronic tools*

8.61 The administrative burden of documenting a risk assessment is likely to be reduced if tools are available that enable the assessor to complete the documentation more quickly. Such tools could include ready-printed checklists of risks that the assessor simply needs to tick off; or online templates that can be filled in easily.

8.62 Our section on implementation measures highlights a number of Member States that make checklists or templates available to firms to help in the risk assessment process. Many of these tools are specifically developed with SMEs in mind.[109]

8.63 In addition, the Online Interactive Risk Assessment (OiRA) web application developed by the European Agency for Safety and Health at Work provides the means by which Member States can develop online interactive risk assessment tools which could further increase the ease of documentation. According to the OiRA business plan document, nine Member States are currently involved in using OiRA to develop risk assessment tools,[110] and five have shown interest in the tool.[111] It is still too early to assess the level of awareness of the OiRA web application among micro-enterprises in these Member States, as the risk assessment tools are still in the development process.

8.64 However, it is also possible that having checklists and guidelines may increase the time taken to conduct and document a risk assessment, if such checklists oblige the assessor to consider more risks than they otherwise would. Given an absence of empirical evidence to support either type of impact, we have not considered the impacts of checklists and templates on the costs of conducting and documenting risk assessments.[112]

## Our Standard Cost Model

8.65 We developed a model to assess the costs of the documentation obligation on micro-enterprises.[113] The model allows us to investigate three different scenarios:

(a) The costs of the risk assessment documentation obligation to all micro-enterprises under the current situation (the counterfactual).

(b) The costs of the obligation to all micro-enterprises in a situation of 100 per cent compliance with the obligation.

(c) The cost savings to micro-enterprises in low risk sectors if they were exempt from the obligation.

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[109] Bulgaria, Cyprus, Denmark, France, Germany, Ireland, Lithuania Poland, Spain and the UK all make guidance available that is aimed at SMEs.

[110] Belgium, Czech Republic, Greece, France, Cyprus, the Netherlands, Slovakia, Slovenia, and Sweden

[111] Germany, Italy, Lithuania, Malta, Austria,

[112] The impact of checklists and templates on the benefits of the risk assessment are, however, considered.

[113] This model is later extended to enable us to model the health and safety impacts of the exemption and 100% compliance scenarios.

8.66 The cost savings of the exemption scenario and the costs of the 100 per cent compliance scenario are calculated in relation to the current situation (counterfactual) and represent only additional costs or cost savings. For example, under the 100 per cent compliance scenario we do not estimate the costs of *all* firms complying with the documentation requirement, but only those that do not currently do so. This is so that the costs of actions that already take place are separated from the costs of actions undertaken as a result of either the exemption or a move to complete compliance.

**Structure of the model**

8.67 Our model differs in a number of respects to methodologies used in previous studies. These differences are based on information and data collected from secondary sources, and gathered through interviews with regulators, businesses and health and safety consultants.

8.68 We discuss the main elements of our model and the assumptions used here, and then turn to an assessment of the information sources used. We also present a summary table of the final inputs used in the model in the Appendix.

*Number of enterprises*

8.69 The number of enterprises that form the basis of our model are micro-enterprises in all sectors of the economy. Under our exemption scenarios we consider the cost savings to all enterprises in 'low risk' sectors (for the purposes of the modelling exercise we use the Sector-based low risk definition). The inclusion of sectors in our definition of low-risk depends on the statistical analysis of accident and illness data; we therefore present results from three low-risk scenarios, each encompassing a different number of firms.[114]

*Unit costs of risk assessment and documentation*

8.70 The unit costs of the documentation obligation consist of the time taken and the wage rate within each Member State. The time taken to document a risk assessment has been obtained from a number of sources and presented as a proportion of the time required to conduct the actual risk assessment (this is due to the absence of information relating directly to the time required for the documentation obligation). We consider that the time taken to conduct a risk assessment and document it will be lower in low-risk firms that do not need to pay special attention to specific risks; data obtained from previous studies has therefore been adjusted to account of this.

8.71 We use our cost groupings developed in our analysis of the implementation and transposition of the Directive by Member States to extrapolate available data on unit costs across the EU 27.

[114] Chapter 4 details the sectors included in our three Low Risk scenarios. Low Risk Scenario 1 includes four sectors, Low Risk Scenario 2 includes eight sectors, and Low Risk Scenario 3 includes 14 sectors.

*Timeframe of analysis*

8.72 We estimate the costs of the documentation obligation under our three scenarios over a ten year period. Within this period we distinguish between firms that have already undertaken a risk assessment and documented it (and thus only need to update it going forward), and firms that would need to undertake an assessment and documentation for the first time. This is to reflect information gathered from interviews and our literature review that suggests that the process of updating a risk assessment document after the initial risk assessment has been undertaken requires significantly fewer resources than preparing the documentation for the first time. In our model new firms (represented by enterprise birth data) incur the full one-off documentation costs whilst existing firms only incur update costs, according to how often they are obliged by national legislation to review their risk assessment.[115]

8.73 Our model also takes into account the growth of micro-enterprises over the ten year period.

*Compliance*

8.74 Previous SCM methodologies have not taken into consideration the level of compliance with the risk assessment documentation obligation, and have assumed 100 per cent compliance. The level of current compliance will affect the costs incurred as a result of the obligation under the counterfactual situation, the potential cost savings under the exemption situation, and the additional costs arising from true 100 per cent compliance. Our model therefore accounts for current compliance with the obligation. As data relating directly to compliance with the documentation obligation are not available, we have used data on compliance with risk assessments and assumed that this is equivalent; i.e. if a firm undertakes a risk assessment then it will also document it.[116]

*Costs of risk assessment*

8.75 A requirement to document a risk assessment is likely to have a positive impact on firms' compliance with the actual risk assessment obligation (this is discussed in section 8 as the "compliance effect"). Therefore, under the exemption scenario it is likely that if firms are no longer required to document the risk assessment, some will not undertake a risk assessment at all. The cost implications of a reduction in risk assessments are therefore taken into account in the model under the exemption scenario.

8.76 Similarly, under the scenario of 100 per cent compliance with the obligation, it is likely that more firms would undertake a risk assessment if they comply fully with the documentation

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[115] Information on the frequency of risk assessment updates is based on responses to the European Commission's questionnaire on the national transposition of the Directive. Where Member States did not provide an answer we have assumed that the documentation must be updated once every three years.

[116] Note that we do not assume that the *costs* of documenting a risk assessment are the same as those of undertaking and documenting one, as the documentation only represents a proportion of the entire risk assessment cost.

obligation.[117] Therefore the costs of additional risk assessments have also been accounted for in the model under the 100 per cent compliance scenario.[118]

8.77 The cost of undertaking the risk assessment itself are not formally part of the "administrative burden" of the documentation obligation, but are, for the reasons stated above, an important part of the cost impact of the exemption and 100 per cent compliance scenarios, and thus are reported in this chapter.

*Business as usual costs*

8.78 Not all previous methodologies account for the fact that some firms may undertake and document a risk assessment for reasons other than the obligation under the Directive. These 'business as usual' costs reduce the costs that can be directly attributable to the Directive under the counterfactual and 100 per cent compliance scenarios. Similarly, under the exemption scenario these business as usual costs reduce the savings that would arise from an exemption from the obligation if some firms would continue to document their risk assessments anyway. Our model takes account of these business as usual costs. The values we have used in the model are presented in Appendix 5.

**Evaluation of information sources**

8.79 Data for inclusion in the model have been collected from a number of sources. Where the inputs are based on information from previous studies and interviews, we have evaluated these studies in terms of the relevance and robustness of the information. This evaluation is summarised in the table below (**Table 8.1**).

[117] Situations where this may not be the case could include firms obtaining documents that do not reflect a real risk assessment (e.g. copied from another firm or downloaded from the internet).

[118] Again we note that the combined costs of undertaking and documenting a risk assessment will be greater than the costs of just documenting the risk assessment.

**Table 8.1: Evaluation of Information Sources**

| Element of model | Title of Study | Member State | Year | Strengths | Weaknesses | Conclusion |
|---|---|---|---|---|---|---|
| Time taken for documentation obligation | 'The measurement of the Working Environment/Employment Relations Priority Area', report for the High Level Group (2009) | EU27 | 2009 | Detailed data collection on the time taken to conduct and document risk assessments for six representative Member States. Separate costs for micro-enterprises. Separate time information for insourcing and outsourcing risk assessments. Accounts for 'business as usual' costs. Covers the EU27. | Data on time taken appear to include costs of conducting the risk assessment, not just documenting it. Firms in the sample most likely in higher-risk sectors, with more time taken for risk assessments than low-risk firms. No account taken of firms that have already undertaken a risk assessment and thus would require a lower update time. | We have used the information from the 2009 Consortium report to represent the time taken to conduct a risk assessment among micro-enterprises in high-risk sectors in six Member States. We then used information from the Irish study and the interviews to estimate the proportion of this time that would be incurred by firms in *low-risk sectors*; and the proportion of this time that would make up the *documentation* requirement. |
| | EPS Consulting (2009) 'Measuring the administrative burden in Irish businesses arising from information obligations under company law, employment law and health and safety legislation', Irish Department of Trade and Industry | IE | 2009 | Detailed data on time taken to document risk assessments among small firms in Ireland. Information broken down by sector. Accounts for 'business as usual' costs. | Does not cover micro-enterprises in particular. Limited to Irish businesses | |
| | Interviews with regulators, businesses and health and safety consultants | | | Based on first-hand experience in documenting risk assessments. Takes into account both micro-enterprises, and firms in low-risk sectors. | The interview sample is not representative of small firms across the EU (although information from regulators in specific Member States may be more robust as based on wide interaction with firms that conduct risk assessments). | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Compliance with documentation obligation | European Agency for Safety and Health at Work (2009) 'Occupational safety and health and economic performance in small and medium-sized enterprises: a review.' | EU27 | 2009 | Data on compliance with risk assessments across the EU27 and across sectors. | Does not include data for micro-enterprises. Does not consider compliance with the documentation obligation. Significantly different from statistics reported from individual regulators within certain Member States. | We have used the information from the European Agency for Safety and Health at Work to provide the base data for the EU27. We have then adjusted this data using information from the interviews to account for the fact that compliance rates among micro-enterprises are likely to be lower than larger firms. We have also adjusted the data to reflect different compliance rates among firms in low and high risk sectors. |
| | Interviews with regulators | | | Provides first-hand information specifically on micro-enterprises' rates of compliance with the documentation obligation. Draws a distinction between compliance levels among firms in low-risk and high-risk sectors. | Does not cover EU27 | |

8.80 The information gathered from these previous studies has been combined with data collected from Eurostat to form the inputs to the model. Given the need to rely on a limited number of information sources, in particular previous studies where the results may relate to a specific Member State, our modelling includes sensitivity analysis to account for the uncertainty surrounding the inputs. This is reflected in the 'high, medium, low' ranges for the final results.

8.81 Information on the time taken to conduct and document risk assessments was only available for a sample of Member States. We therefore used our cost groupings developed in section 6 to extrapolate the costs to the remaining Member States.

8.82 The 'High cost' grouping accounts for the higher costs of having the risk assessment undertaken by an external consultant. The 2009 Consortium report includes a distinction in costs between internal and external sourcing which was used as the basis for extrapolation here.

**Results of the model**

8.83 The tables below present the estimated administrative costs incurred by enterprises under our three scenarios: the current situation; an exemption from the documentation obligation; and 100 per cent compliance.

8.84 We present the cost savings arising from an exemption from the documentation obligation for three scenarios of low risk, based on our statistical analysis of the sector-based low risk definition. To recap, Low Risk Scenario 1 is the most conservative and considers those sectors with the least accidents and illnesses (four sectors). Low Risk Scenario 3 captures the greatest number of sectors (14).

*Current compliance levels*

8.85 As seen in **Table 8.2** below, the total current administrative burden on micro-enterprises in all sectors as a direct result of the obligation to document a risk assessment is €169 million in 2012, with a present value of €1.28 billion over ten years.[119] These estimates represent the administrative burden of the obligation under the Directive, and exclude the costs that are incurred by firms that would undertake and document risk assessments even in the absence of the regulation (described previously as business as usual costs). These estimates take into account the following key factors:

(a) the growth rate of micro-enterprises in all sectors, including negative growth rates in sectors such as agriculture, mining and manufacturing;

(b) only firms currently complying with the documentation requirement are included;

[119] Using a discount rate of 4 per cent as specified in the European Commission Impact Assessment guidelines.

(c) firms incur full one-off documentation costs only once followed by lower on-going update costs at set intervals.

(d) business as usual costs (the proportion of firms that would document a risk assessment without the regulation) are excluded.

8.86 **Table 8.2** also shows the potential savings that would be made if firms in the three low risk sector groups were no longer obliged to document their risk assessments. Cost savings in the first year range from €2.62 million to €10.44 million across the low risk scenarios; this translates to total savings over ten years of between approximately €22 million and €88 million across the low risk scenarios (discounted to present values).

**Table 8.2: Total one-off and on-going documentation costs under current compliance levels (€ millions)**

| Year | Costs incurred by micro-enterprises in all sectors as a direct result of the obligation | Documentation cost savings from exemption | | |
|---|---|---|---|---|
| | | Micro-enterprises in Low risk Scenario 1 | Micro-enterprises in Low risk Scenario 2 | Micro-enterprises in Low risk scenario 3 |
| 2012 | 169.7 | 2.62 | 3.80 | 10.44 |
| 2013 | 165.7 | 2.63 | 3.82 | 10.54 |
| 2014 | 162.1 | 2.64 | 3.84 | 10.65 |
| 2015 | 159.1 | 2.65 | 3.86 | 10.76 |
| 2016 | 156.4 | 2.67 | 3.89 | 10.87 |
| 2017 | 154.1 | 2.68 | 3.91 | 10.98 |
| 2018 | 152.2 | 2.69 | 3.94 | 11.10 |
| 2019 | 150.7 | 2.71 | 3.96 | 11.21 |
| 2020 | 149.4 | 2.72 | 3.99 | 11.33 |
| 2021 | 148.5 | 2.74 | 4.02 | 11.45 |
| **Total present values** | **1,278.0** | **21.66** | **31.60** | **88.38** |

*Exemption from documentation obligation*

8.87 If firms are no longer required to document their risk assessment, it is possible that this would reduce compliance with the risk assessment obligation itself. The 'compliance effect' of the documentation obligation is discussed further in Chapter 9 of this report. As discussed in Chapter 9, in the absence of quantitative evidence on the size of this effect we have varied this assumption across our high, medium and low sensitivity scenarios in order to test the effect of different values. Hence, our medium benefit scenario is based on a 25 per cent compliance effect (i.e. 25 per cent of firms that cease to document a risk assessment would also cease to carry out a risk assessment); whereas alternative assumptions of 50 per cent and 0 per cent were used respectively in the low and high net

benefit scenarios. In the tables below, we begin by presenting the results of our medium net benefit scenario.

8.88 **Table 8.3** below presents the savings that would be made by the firms that would no longer conduct risk assessments. Again, these estimates take into account only those firms currently complying with the risk assessment documentation obligation, and exclude business as usual compliance. Across our three Low Risk scenarios, the savings range from approximately €270,000 to €2.8 million in the first year, with a present value of between €2.24 million and €24 million over ten years.[120]

**Table 8.3: Risk assessment cost savings from exemption (€ millions)**

| Year | Micro-enterprises in Low risk Scenario 1 | Micro-enterprises in Low risk Scenario 2 | Micro-enterprises in Low risk scenario 3 |
|---|---|---|---|
| 2012 | 0.42 | 0.91 | 2.14 |
| 2013 | 0.42 | 0.92 | 2.16 |
| 2014 | 0.42 | 0.93 | 2.18 |
| 2015 | 0.42 | 0.93 | 2.21 |
| 2016 | 0.43 | 0.94 | 2.23 |
| 2017 | 0.43 | 0.95 | 2.26 |
| 2018 | 0.43 | 0.96 | 2.29 |
| 2019 | 0.43 | 0.97 | 2.31 |
| 2020 | 0.44 | 0.98 | 2.34 |
| 2021 | 0.44 | 0.99 | 2.37 |
| **Total present values** | **3.46** | **7.67** | **18.17** |

8.89 These savings are lower than the administrative burden savings arising from an exemption from the documentation, even though the costs of undertaking a risk assessment are greater than the costs of documenting it. This is because the 'compliance effect' means that only a proportion of firms that stop documenting the risk assessment (in this scenario 25 per cent) will also stop undertaking the risk assessment.

*100 per cent compliance*

8.90 The administrative costs to firms would increase if compliance with the risk assessment documentation increased to 100 per cent.

8.91 **Table 8.4** below compares the estimated costs to firms in all sectors in the scenario of 100 per cent compliance with the counterfactual. The scenario of 100 per cent

[120] The overall impact of the exemption scenario and the 100 per cent compliance scenario (taking account of all costs and benefits)is presented in the Conclusions chapter.

compliance represents only the *additional* costs of a change from current compliance levels to 100 per cent compliance. In other words, costs incurred by firms already complying under the counterfactual are not included.

8.92 Our model assumes that 100 per cent compliance with the documentation obligation would begin in 2014, and that all those enterprises currently not complying would begin to do so within the same year. This means that there will be a large cohort of firms that will incur one-off documentation costs in 2014, and then on-going update costs at set intervals. The majority of Member States require a review of the risk assessment documentation every three years — this is evident in the stream of costs that peak every three years. Within these intervals there will be new firms, not part of the original cohort, that will incur one-off documentation costs and then join the rest of the cohort that incur update costs in subsequent years.

**Table 8.4: Total one-off and on-going documentation costs to all micro-enterprises of reaching 100% compliance (€ millions)**

| Year | Costs incurred under current compliance levels | Additional costs of reaching 100% compliance |
|---|---|---|
| 2014 | 169.7 | 2,403 |
| 2015 | 165.7 | 509 |
| 2016 | 162.1 | 504 |
| 2017 | 159.1 | 1,818 |
| 2018 | 156.4 | 497 |
| 2019 | 154.1 | 495 |
| 2020 | 152.2 | 1,810 |
| 2021 | 150.7 | 493 |
| 2022 | 149.4 | 493 |
| 2023 | 148.5 | 1,822 |
| **Total present values** | **1,278** | **8,896** |

8.93 Given the compliance effect of the documentation obligation on risk assessments, an increase in documentation to 100 per cent compliance is likely to increase the number of risk assessments that take place. The costs of these additional risk assessments for all sectors are presented below. Costs peak in 2014 due to the cohort of firms that will undertake a risk assessment for the first time, and then fall to include only those new firms entering the market each year.

8.94 The costs of risk assessments under 100 per cent compliance are estimated in relation to the costs of risk assessments under the counterfactual and therefore represent only the *additional* costs incurred by those firms not currently complying with the documentation obligation.

8.95 Our model includes two different types of enforcement to ensure 100 per cent compliance. Under the first, full inspection scenario, 100 per cent compliance with the documentation obligation also implies 100 per cent compliance with the associated risk assessment. However, under the second, documentation only inspection scenario, due to the less rigorous enforcement measures not all firms that comply with the documentation also undertake genuine risk assessments. Under this scenario there will therefore be lower costs arising from additional risk assessments.

8.96 The costs of risk assessments to all additional firms arising from a move to 100 per cent compliance with the documentation obligation are between approximately €1.2 billion and €4.8 billion in 2014, with further updating costs in subsequent years giving a total discounted cost over the ten year period of between approximately €1.8 billion and €7.2 billion.

**Table 8.5: Additional risk assessment costs for micro-enterprises under 100% compliance across both inspection scenarios (€ millions)**

| Year | Additional costs under full inspection scenario | Additional costs under document only inspection scenario |
|---|---|---|
| 2014 | 4,806 | 1,202 |
| 2015 | 371 | 93 |
| 2016 | 368 | 92 |
| 2017 | 366 | 92 |
| 2018 | 365 | 91 |
| 2019 | 365 | 91 |
| 2020 | 365 | 91 |
| 2021 | 366 | 91 |
| 2022 | 367 | 92 |
| 2023 | 369 | 92 |
| **Total present values** | **7,246** | **1,811** |

### Analysis of uncertainty

8.97 Some of the inputs to our model have uncertain values. This is due to either differences in data that were collected from different sources; or to the need to adjust data, using assumptions, to construct the input.

8.98 In order to account for this uncertainty our model makes use of a range of values for the uncertain inputs to present low, medium and high scenarios of the net benefit of the proposed exemption. These ranges used are either based on ranges provided in the original information source, or, in the absence of this, on assumed percentage variations around a single figure.

8.99 The low scenario represents the lowest likely net benefit of the proposed exemption, and uses values for the input that result in the lowest net benefit. The high scenario represents the highest likely net benefit of the exemption. The medium scenario represents a plausible value within the range. The range used for the uncertain inputs can be seen in the inputs table in Appendix 5.

8.100 The tables discussed earlier in this chapter are based on the 'medium', or most likely, sensitivity scenario. We now present the total present values under the low, medium and high sensitivity scenario for comparative purposes.

**Table 8.6: Low, medium and high sensitivity scenarios for documentation costs under current compliance levels (€ millions)**

| Total Present Value over 10 years | Costs incurred by micro-enterprises in all sectors as a direct result of the obligation | Documentation cost savings from exemption | | |
|---|---|---|---|---|
| | | Micro-enterprises in Low risk Scenario 1 | Micro-enterprises in Low risk Scenario 2 | Micro-enterprises in Low risk scenario 3 |
| Low scenario | 401 | 7 | 10 | 30 |
| Medium scenario | 1,278 | 22 | 32 | 88 |
| High scenario | 2,886 | 48 | 69 | 188 |

8.101 **Table 8.7** below presents the savings that would be incurred by exempt firms if, as a result of not having to document the risk assessment, they no longer undertook the risk assessment. The 'high net benefit' scenario assumes no compliance effect of the documentation on the propensity of firms to carry out risk assessments. In other words, the documentation obligation has no impact on carrying out a risk assessment, and even though firms would not have to document the risk assessment they would still undertake the risk assessment and thus would achieve no savings.

8.102 **Table 8.8** and **Table 8.9** show the costs of moving to 100 per cent compliance. These are significantly higher than the cost savings under the exemption scenario.

**Table 8.7: Low, medium and high sensitivity scenarios for risk assessment cost savings from exemption (€ millions)**

| Total Present Value over 10 years | Micro-enterprises in Low risk Scenario 1 | Micro-enterprises in Low risk Scenario 2 | Micro-enterprises in Low risk scenario 3 |
|---|---|---|---|
| Low scenario | 5.20 | 11.51 | 27.25 |
| Medium scenario | 3.46 | 7.67 | 18.17 |
| High scenario | 0 | 0 | 0 |

**Table 8.8: Low, medium and high scenarios for firms' documentation costs of reaching 100% compliance (€ millions)**

| Total Present Value over 10 years | Additional costs of reaching 100% compliance – |
|---|---|
| Low scenario | 2,823 |
| Medium scenario | 8,896 |
| High scenario | 18,222 |

**Table 8.9: Low, medium and high scenarios for firms' risk assessment costs under 100% compliance (€ millions)**

| Year | Additional costs of reaching 100% compliance – full inspection scenario | Additional costs of reaching 100% compliance – documentation only inspection scenario |
|---|---|---|
| Low scenario | 5,434 | 2,717 |
| Medium scenario | 7,246 | 1,811 |
| High scenario | 9,057 | - |

## Conclusions

8.103 The results of our standard cost model imply that the cost savings that could be achieved by exempting micro firms in low-risk sectors from the documentation obligation are relatively modest – in the range of €13 million to €111 million over ten years under a medium benefit scenario, depending on the Low Risk scenario. This is due largely to the current low levels of compliance with the obligation, and the fact that full documentation costs are only incurred by a small sub-set of firms undertaking a risk assessment for the first time; the majority of firms incur only update costs, and these at set intervals. The administrative costs associated with 100 per cent compliance would be very high, even in the lowest sensitivity scenario.

# 9 HEALTH AND SAFETY IMPACTS

9.1 This section assesses the health and safety impacts of the documentation obligation.

9.2 It begins with a discussion of the counterfactual which corresponds to the situation of actual compliance and is one of our three scenarios. This discussion includes an analysis of accidents and work related health problems in micro-enterprises and how they may change through time under the counterfactual.

9.3 The chapter then assesses whether there is any direct evidence to link risk assessments with health and safety impacts, by investigating whether there is any correlation between compliance with risk assessments and health and safety outcomes across EU Member States.

9.4 In order to investigate potential impacts in more detail, we analysed the chain of causality by which the documentation obligation may lead to benefits in terms of improved health and safety. The links in this chain of causality are:

(a) The documentation obligation affecting compliance with the risk assessment obligation and/or increased the quality or effectiveness of risk assessments

(b) The number and/or quality of risk assessments affecting health and safety practices

(c) Health and safety practices affecting health and safety outcomes

(d) Health and safety outcomes affecting the welfare of relevant stakeholders, i.e. workers, businesses, and governments.

9.5 These links form the basis of the modelling which we have undertaken on the health impact of documentation. This chapter concludes by presenting and discussing this modelling and its results.

## Counterfactual

9.6 The counterfactual is one of our three scenarios (actual compliance) and it also forms the benchmark against which the other two scenarios are assessed.

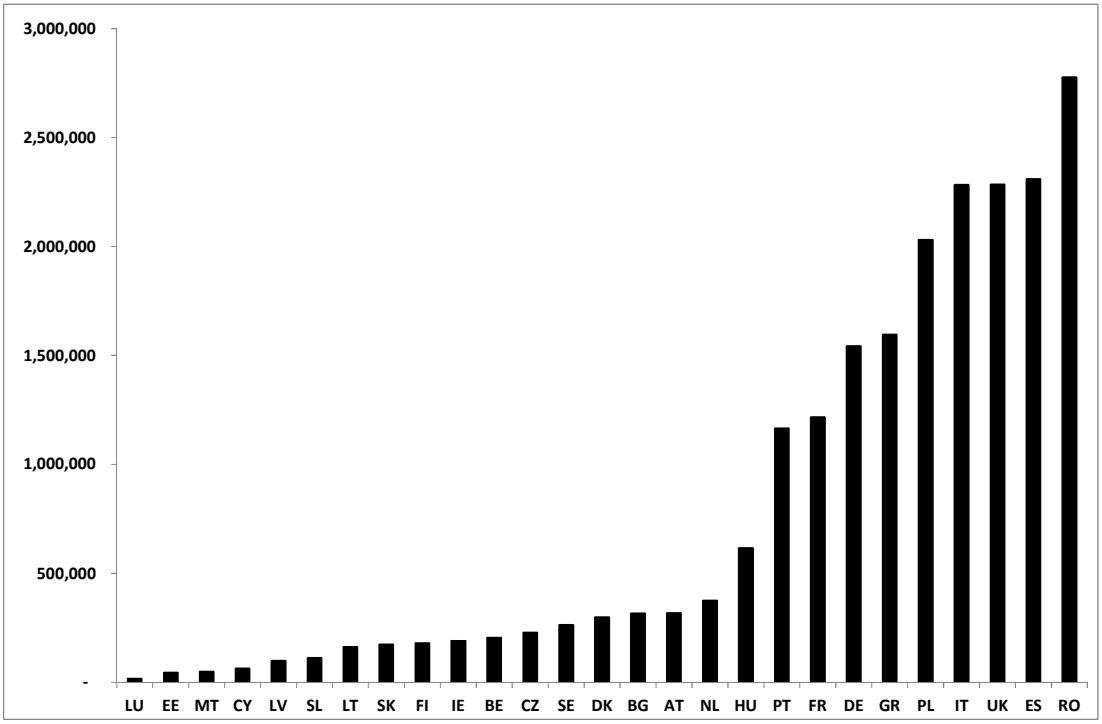
### Number of micro-enterprises

9.7 The number of micro-enterprises varies by Member State and by sector. These numbers will also be affected by changes in the structure of the EU's economy over the next decade.

9.8 **Figure 9.1** below shows the number of micro-enterprises by Member State. We present figures for 2012 by taking the 2008 data on micro-enterprises from Eurostat and applying a growth rate taken from EIM Businesses and Policy Research to these 2008 data. It shows a positive correlation between population and number of enterprises, but it is

noticeable that Romania appears to have more micro-enterprises than any other Member State. It is not clear whether this reflects a distinct economic structure in Romania or some anomaly in the data.

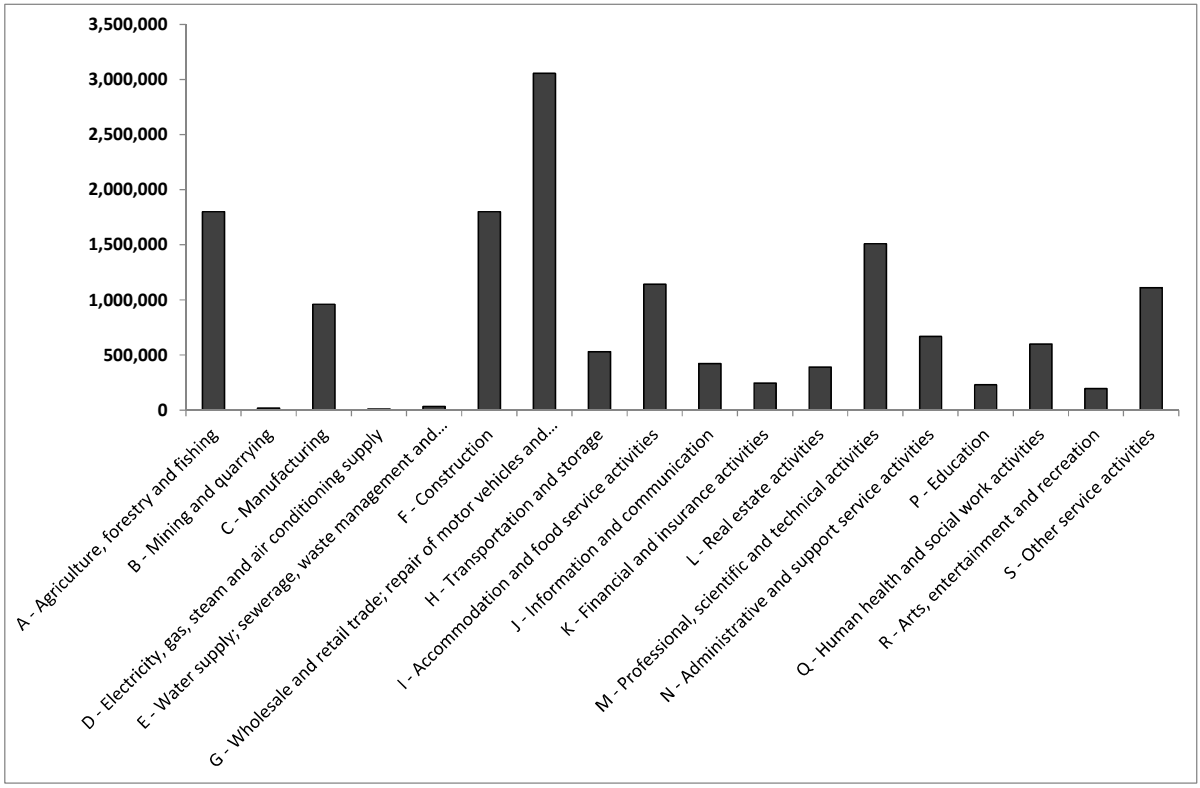
**Figure 9.1: Number of Micro-enterprises by Member State (2012)**




*Source: Eurostat, EIM Businesses and Policy Research, Europe Economics analysis*

9.9 **Figure 9.2** below shows the number of micro-enterprises by sector. By far the largest number of micro-enterprises is in the retail sector. Agriculture, construction, and professional services are also sectors with high numbers of micro-enterprises.

**Figure 9.2: Number of Micro-enterprises by Sector in EU (2012)**




Source: Eurostat, EIM Businesses and Policy Research, Europe Economics analysis

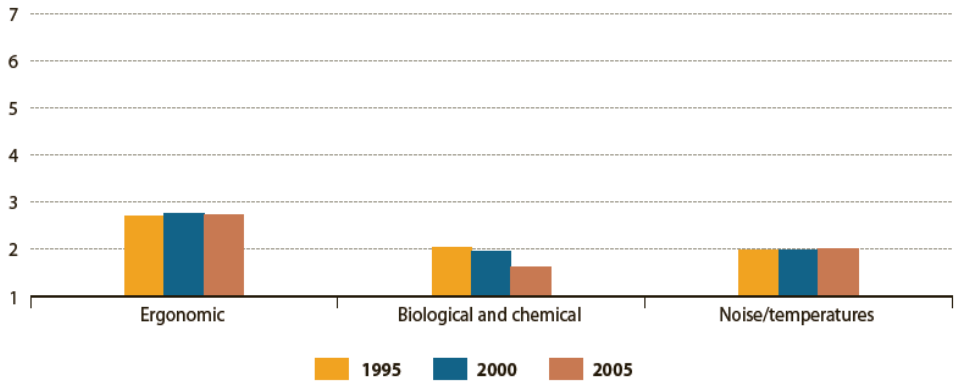
## Health and safety outcomes

9.10 Below we present and discuss the statistics on exposure to hazards at work, accidents at work and work-related health problems under current policies, focusing on micro-enterprises.

*Exposure to hazards*

9.11 **Figure 9.3** below shows data from the European Working Conditions Survey (EWCS) for the trends in a composite variable representing exposure to different types of risk: ergonomic, biological/chemical and noise/temperatures. Exposure to biological and chemical risks decreased over time, whereas exposure to the other risk factors remained relatively unchanged.

**Figure 9.3: Trends in exposure (1 = never; 7 = all of the time) to physical risk factors**




*Source: EWCS 1995, 2000 and 2005*

*Note: ergonomic risks included exposure to tiring or painful positions, to carrying or moving of heavy loads, to repetitive hand or arm movements, and to vibration from hand tools or machinery; biological and chemical risks included breathing in smoke, fumes, powder or dust and breathing in vapours such as solvents and thinners; noise/temperatures included exposure to noise, high temperatures and low temperatures.*

### *Accidents*

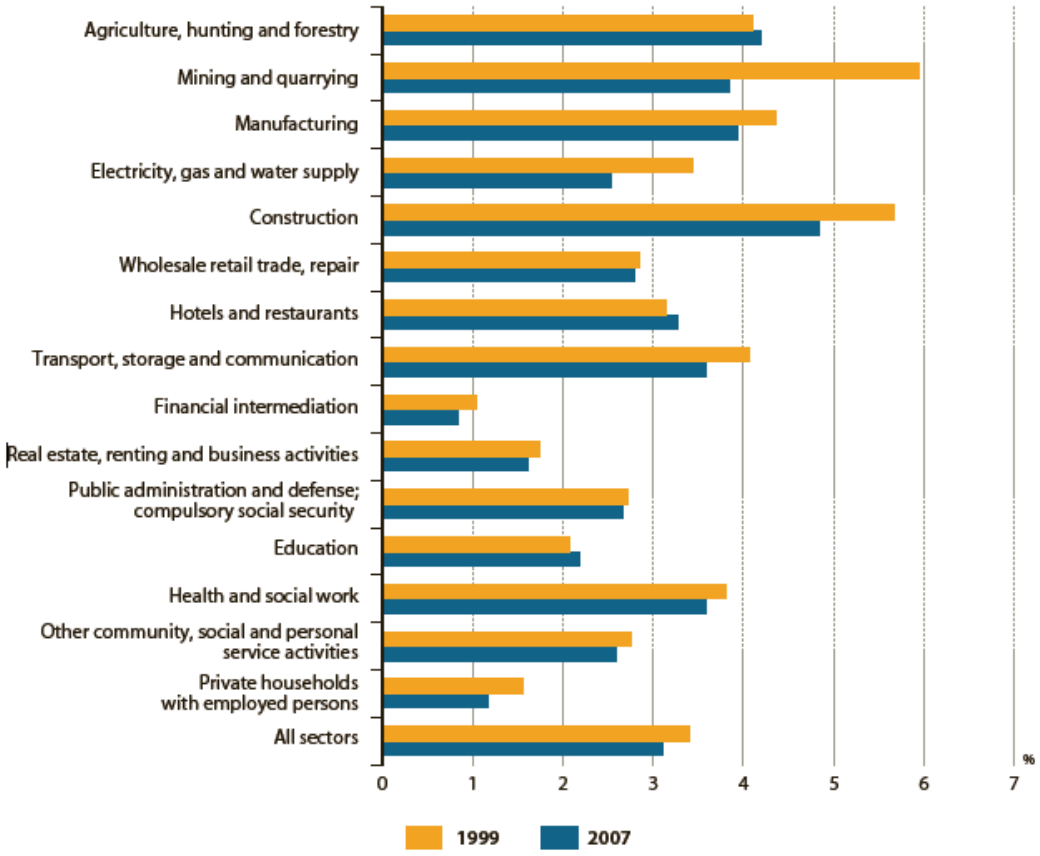
9.12 Data on accidents are available from the Labour Force Survey (LFS) *ad hoc* module for ten countries in 1999 and 2007.[121] The percentage of people who worked in the past 12 months who reported an accident at work decreased slightly from 3.5 per cent in 1999 to 3.3 per cent in 2007.[122]

9.13 There was no decrease in accidents among women (2.4 per cent in both years).[123] Accidents decreased in most age groups between 1999 and 2007, but slightly increased for workers aged 15 to 24 years from 3.8 per cent in 1999 to 4.0 per cent in 2007.[124]

9.14 The decrease in accidents at work between 1999 and 2007 was observed in most sectors in the ten European countries studied. The decrease between 1999 and 2007 was especially large in the sectors 'mining and quarrying' and 'construction' (see **Figure 9.4**).

[121] DK, ES, FI, HU, IE, IT, LU, PT, SE, UK (UK data reflect old results)
[122] Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".
[123] Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".
[124] Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".

**Figure 9.4: Workers reporting one or more accidental injuries at work or in the course of work in the past 12 months in different sectors by year (%)**

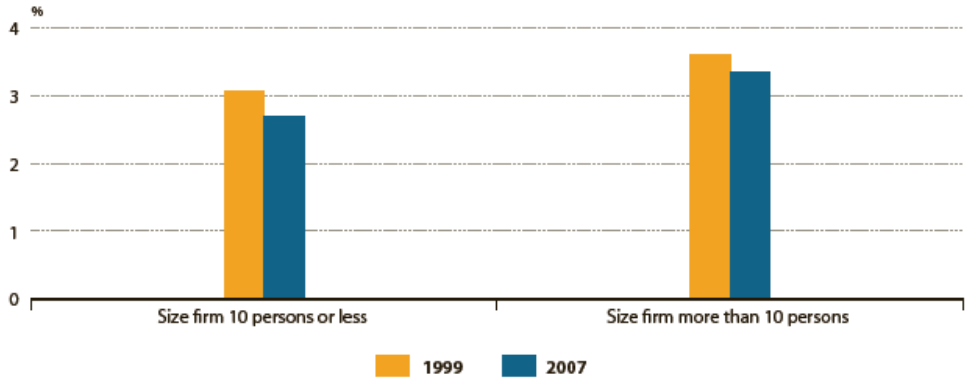



*Source: LFs ad hoc module 1999 and 2007. 10 countries included. As presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".*

*Note: sample size below publication limit for 'fishing' and 'extra-territorial organisations and bodies'.*

9.15 The decrease was slightly smaller in larger firms than in firms with less than 10 workers (see **Figure 9.5**). The figure also shows that a lower percentage of workers reported accidental injuries in micro-enterprises than larger firms. This could be as a result of a safer working environment in micro-enterprises or it could be due to underreporting of accidents from firms of this size-class. It may also be due to differences in the industry or occupation mix between firms of different sizes (e.g. micro-enterprises may be disproportionately represented in lower-risk industries or occupations).

**Figure 9.5: Workers reporting one or more accidental injuries at work or in the course of work in the past 12 months by size of the firm and year (%)**



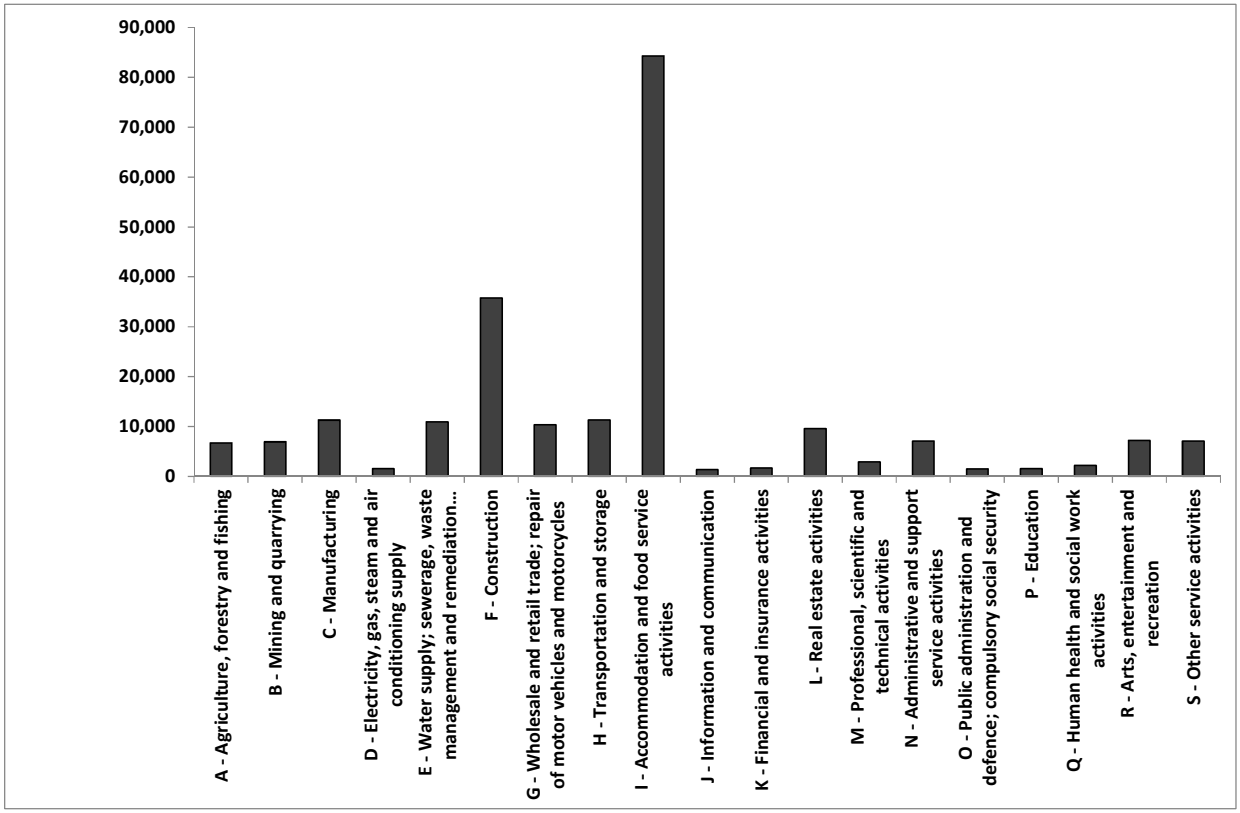

*Source: LFs ad hoc module 1999 and 2007. 10 countries included. As presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".*

9.16 In the EU15, the number of accidents leading to more than three days of absence declined from 4 per cent in 1999 to 2.9 per cent in 2007.[125]

9.17 **Figure 9.6** below shows the number of work days lost due to accidents in micro-enterprises by sector, 100,000 employees. It shows that most days were lost in accommodation and food service activities.

[125] For all available sectors and in 2007 eu15 without Greece. ESAW data in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".

**Figure 9.6: Work days lost due to accidents in micro-enterprises by sector (2008)**

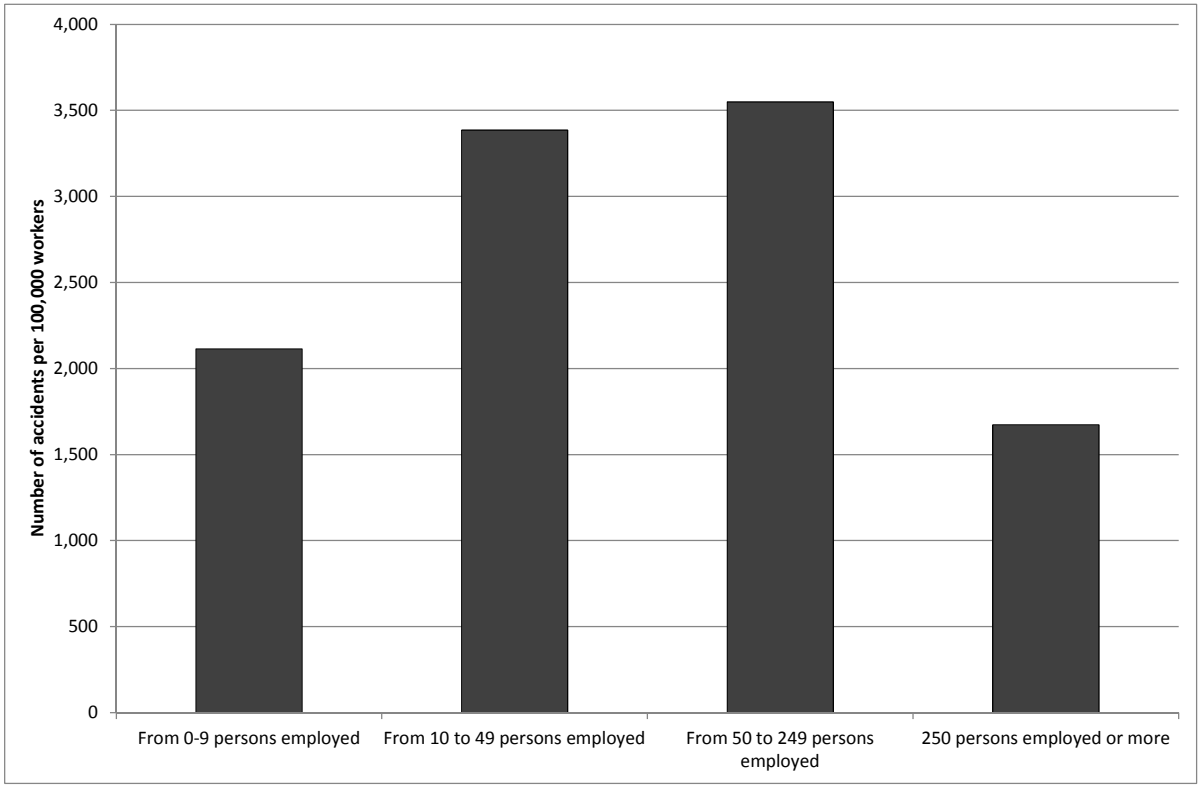



*Source:* Europe Economics analysis of Eurostat data (2008) Days lost from accidents at work by economic activity [hsw_n2_04]; Excludes the UK, Finland, Denmark due to unavailable data by sector

9.18 **Figure 9.7** below shows the number of non-fatal accidents by firm size, per 100,000 workers. Micro-enterprises have fewer accidents per 100,000 workers than firms with 10-49 or 50-249 employees, but more accidents per 100,000 workers than firms with more than 250 employees. The reason why micro-enterprises have fewer accidents than firms with 10-49 or 50-249 employees could be because of a safer working environment or it could be due to underreporting of accidents from firms of this size-class. It could also be due to differences in the industry or occupation mix between firms of different sizes (e.g. micro-enterprises may be over-represented in lower-risk industries or occupations).[126]

[126] Due to data unavailability in certain Member States, the figure below illustrates the general trend of accidents across firm size but is not fully representative of all Member States.

**Figure 9.7: Number of non-fatal accidents by firm size in the EU, per 100,000 workers**

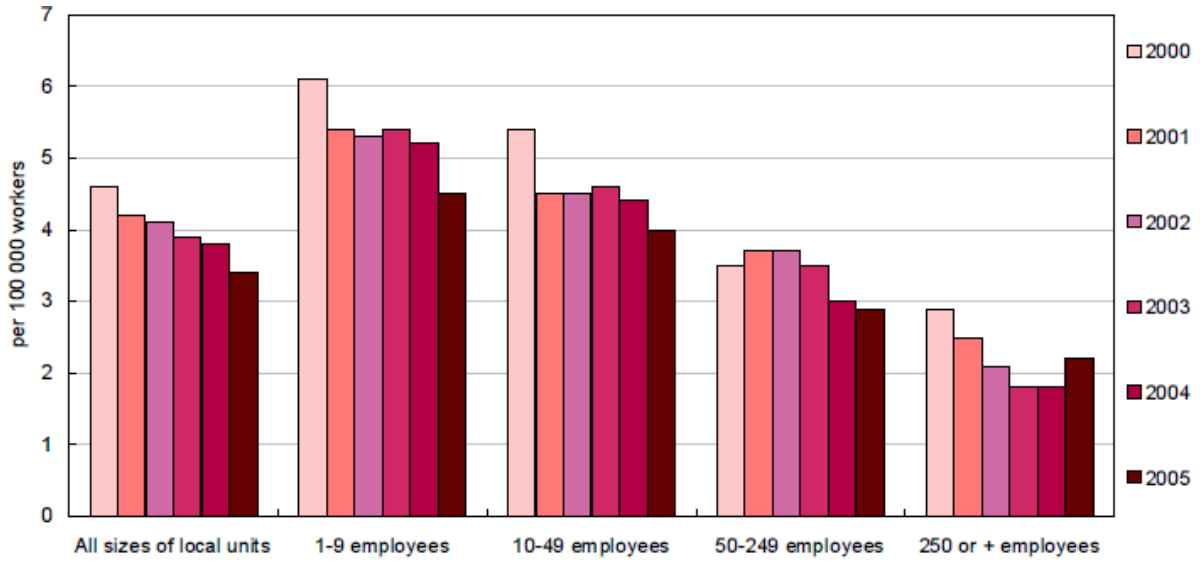



*Source: Eurostat (2008) ESAW data on accidents per firm size [hsw_n2_05] Data excluding Denmark, Finland, Greece and the UK due to lack of data on the breakdown of accidents and fatalities by size of firm.*

9.19 The trends in fatal accidents are somewhat different. Data from 2005 ESAW show that micro-enterprises have the highest incident rate for fatal accidents, as shown in the figure below.[127]

[127] More recent data on fatal accidents from Eurostat (ESAW 2008) are available, but the availability of data on the breakdown across firm size is severely limited and thus not representative.

**Figure 9.8: Fatal accidents by firm size in the EU15, per 100,000 workers**




*Source: ESAW 2005 data cites in European Commission (2005) 'Causes and circumstances of accidents at work in the EU'*

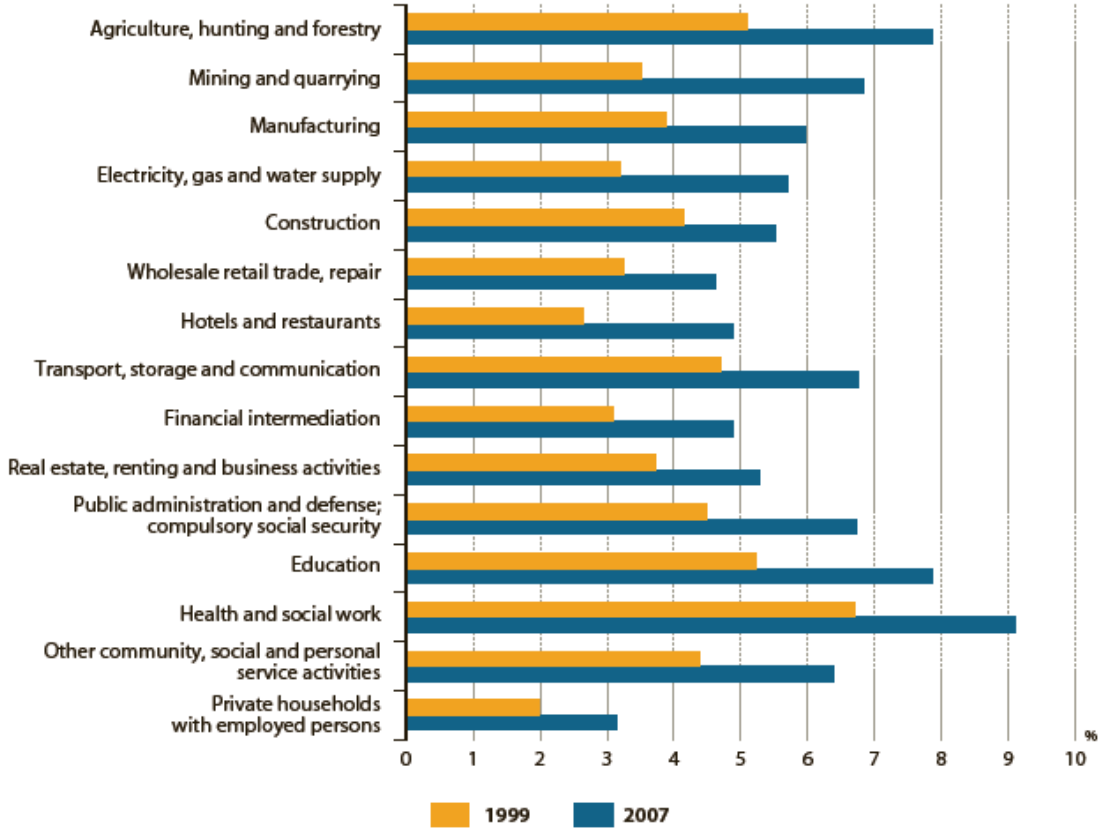
*Work-related health problems*

9.20 The LFS survey contains data from 1999 and 2007 which can be compared across nine countries, which forms part of the evidence base on work-related health problems under current policies.[128] These data show that work-related health problems increased from 4.7 per cent in 1999 to 7.1 per cent in 2007 among persons who work or worked previously.[129] The increase in work-related health problems was found in men and women and across all age groups. When considering only employed persons, the findings are similar: work-related health problems increased from 4.6 per cent in 1999 to 7.0 per cent in 2007.

9.21 The increase in work-related health problems was present in all sectors (see **Figure 9.9** below). Work-related health problems are highest in 'health and social care', 'agriculture, hunting and forestry' and 'education'. The greatest increase in work-related health problems was found in the sectors 'mining and quarrying', 'hotels and restaurants', and 'electricity, gas and water supply'. Note that due to the self-reporting nature of the information source, these data do not include fatal diseases and thus underestimate the impact of work-related ill health.

[128] DK, ES, FI, HU, IT, LU, PT, SE, UK (old results for the UK).
[129] Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".

**Figure 9.9: Occurrence of one or more work-related health problems in the past 12 months in different sectors by year (%)**

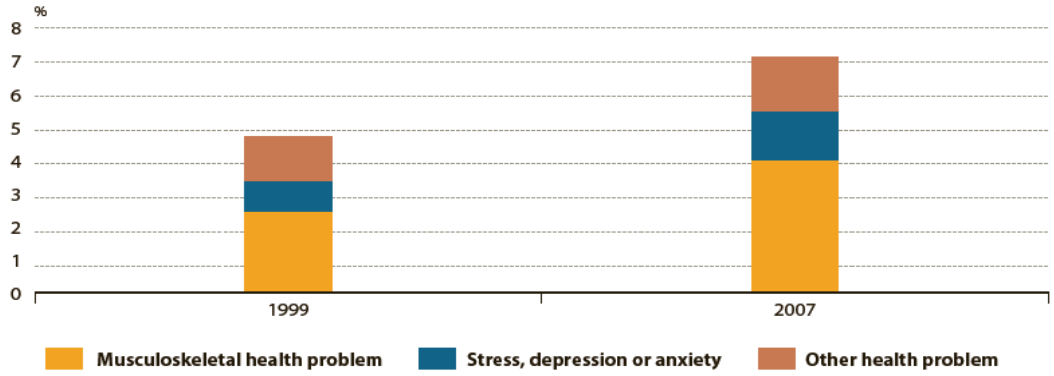



*Source: LFs ad hoc module 1999 and 2007. 9 countries included. As presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".*

*Note: sample size below publication limit for 'fishing' and 'extra-territorial organisations and bodies'.*

9.22 The proportion of people with a work-related health problem increased from 4.7 per cent in 1999 to 7.1 per cent in 2007, according to the LFS *ad hoc* modules. Musculoskeletal problems were the most serious work-related health problem, experienced by 2.5 per cent of people in 1999 and 4.0 per cent in 2007.

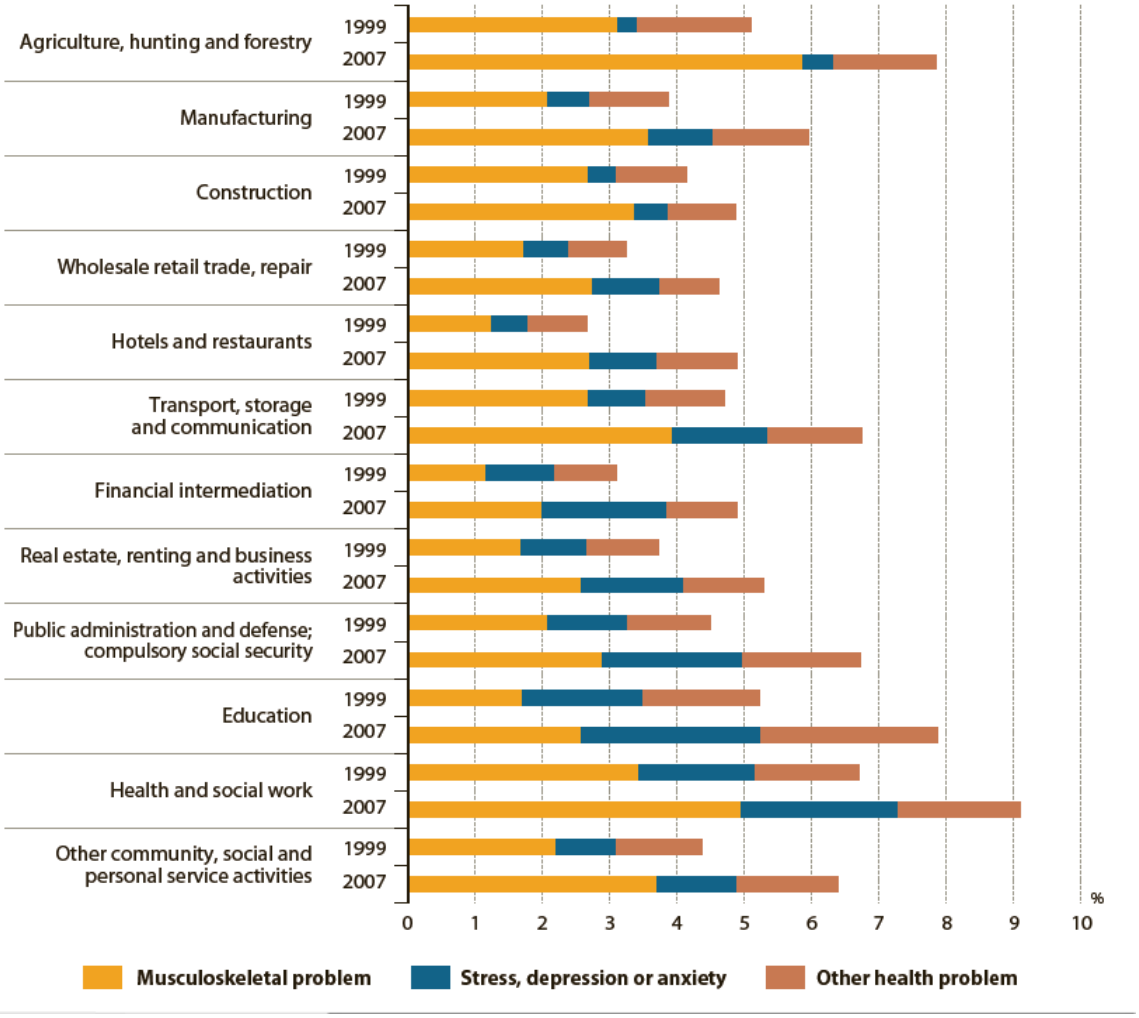
**Figure 9.10: Work-related health problems in persons who work or worked previously by year (%)**




*Source: LFs ad hoc module 1999 and 2007. 9 countries included. As presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".*

9.23 In most sectors, musculoskeletal problems increased between 1999 and 2007 (see **Figure 9.11**).

**Figure 9.11: Type of most serious work-related health problem in the past 12 months in different sectors by year (%)**

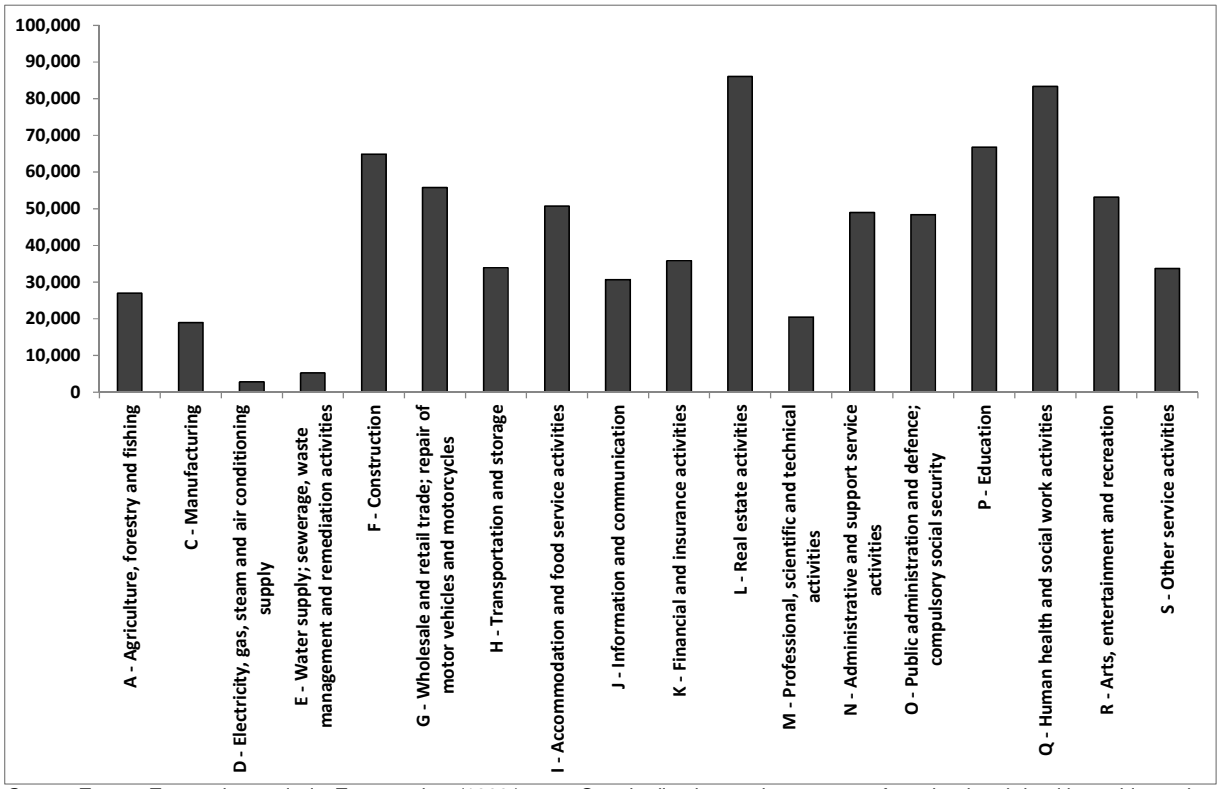



*Source: IFS ad hoc modules 1999 and 2007. 9 countries included. As presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".*

*Note: sample size below publication limit for 'fishing', 'mining and quarrying', 'electricity, gas and water supply', 'private households with employed persons' and 'extraterritorial organizations and bodies'*

9.24 **Figure 9.12** below shows the number of work days lost due to work-related health problems in micro-enterprises by sector, per 100,000 employees. It shows that most days were lost in real estate activities, and the health and social sector.

**Figure 9.12: Work days lost due to work-related health problems in micro-enterprises by sector (2007)**




*Source:* Europe Economics analysis, Eurostat data (1999 ) Standardised prevalence rate of work-related health problems by economic activity at EU level [hsw_hp_dinag], updated to 2007 values

## Costs of health and safety problems

9.25 This section presents data we have found on the costs of health and safety problems.

9.26 The cost of accidents at work and work-related ill-health has been estimated to account for 2 to 4 per cent of the GDP in several studies on the economic impact.[130]

9.27 Eurostat estimated that in the year 2000, the cost of accidents at work was €55 billion in the EU15, which corresponds to 0.64 per cent of GDP.[131] This estimate only includes accidents at work, and it is estimated in the report that the costs of non-accidental work-related health problems could cause 1.6 to 2.2 times more days of temporary incapacity to work than do accidents at work.

9.28 A report by Social Europe (2011)[132] undertook case studies to assess the costs of cases of accidents at work and work-related ill-health in several companies. The number of

[130] Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".
[131] Eurostat (2004) "Statistical analysis of socio-economic costs of accidents at work in the European Union"
[132] Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

cases covered in this study was relatively small but it indicated that the cost of incidents vary significantly by both the severity of the incident and the sector in which the incident occurs.

9.29 A study by the Ministry of Social Affairs and Employment in the Netherlands calculated that the costs of work-related absence and disability in 2004, mainly resulting from psychological problems, were up to €6 billion, or €1368 per worker.[133]

9.30 Research in Germany showed that the costs of work-related diseases amount at least to €28 billion, comprising €15 billion of direct costs (disease treatment) and €13 billion of indirect costs (loss of productivity years due to sick leave).

9.31 PriceWaterhouse Coopers (2008)[134] draws together evidence from various sources on costs for the UK:

(a) Stress and back pain cost the British economy £3.7 billion and £5 billion per year respectively.

(b) Accidents and injuries are estimated to cost an additional £512 million annually.

(c) The 30 million working days lost in the UK due to occupational illness and injury cost the economy £30 billion.

(d) Sickness absence can cost roughly £495 per worker per year.

(e) The costs of reduced performance and productivity due to poor health while at work, according to a US study, is actually more costly than absenteeism, costing approximately two to three times more than direct health costs incurred as a result of illness. Preliminary evidence suggests that such "presenteeism" could cost employers 2 to 7 times more than absenteeism.

9.32 The UK HSE estimates that each case of stress-related ill health leads to an average of 30 days off work and a total of 13,500,000 working days are lost in Britain each year to work related stress.[135]

9.33 The most recent report from the UK HSE estimates that the total costs to society of workplace injuries and work-related ill heath in 2009/10 was approximately £14 billion. This includes costs to individuals, employers and the government.[136]

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133 European Working Conditions Observatory (2004) "The cost of poor working conditions" http://www.eurofound.europa.eu/ewco/2004/12/NL0412NU01.htm

134 PriceWaterhouse Coopers (2008) "Building the case for wellness".

135 http://www.hse.gov.uk/stress/faqs.htm

136 HSE: Coststo Britain of worlplace injuries and work-related ill heatlh: 2009/10 update

**Possible future changes under the counterfactual**

9.34 Here we identify possible future changes which may occur under the counterfactual, which may affect the costs and benefits generated by the obligation to document risk assessments. These changes could include changes in the number of micro-enterprises (proxied by the change in employment within micro-enterprises for lack of more specific data) and changes in the way risk assessments are undertaken and documented.

9.35 If the number of micro-enterprises changes, then the costs and benefits associated with an exemption from the documentation obligation, or with a move to 100 per cent compliance, will also change. Similarly, if new tools enable risk assessments to be documented more easily, then the potential savings of an exemption compared to this counterfactual will fall.

*Effect of economic changes*

9.36 Changes in the wider economy will impact upon health and safety outcomes by affecting the level of economic activity, including the number of firms and the number of people in employment. Hence, the number of accidents is pro-cyclical, i.e. it increases as economic growth increases and declines as economic growth declines.

9.37 Evidence suggests that the *rate* of accidents (i.e. the number of accidents per worker) may also be pro-cyclical. This is most likely due to the fact that newly hired workers are more prone to accidents (having less experience), and during periods of expansion there are proportionately more new workers than during periods of contraction. Accident rates could also increase at times of increased worker effort, such as with increased overtime in response to increased demand.[137]

9.38 Note that these economic changes affect the rate and number of accidents *compared to what would otherwise have happened in that year*. Hence, if there is also a trend reduction in accidents at work through time, then the absolute number of accidents may continue to fall even in a year in which the economy is growing and hence accidents are higher than they might otherwise have been.

9.39 The global recession saw real GDP growth in the EU 27 slump from 3.2 per cent in 2007 to -4.3 per cent in 2009, rising to real growth of 1.5 per cent in 2011[138] There have been significant variations between countries (in 2009 Lithuania had a -14.3 per cent real GDP contraction, whereas Poland had 1.6 per cent real GDP growth). The European

[137] Warwick Institute for Employment Research (2005) 'Trends and context to rates of workplace injury, HSE http://www.hse.gov.uk/research/rrhtm/rr386.htm

[138] http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsieb020

Commission's 2012 Interim forecast[139] predicts that the EU is set to experience zero GDP growth in 2012.

9.40 Employment levels move in a cyclical way, largely related to the general business cycle: the employment rate in the EU27 reached a peak in 2008 and has dropped since then. During 2008 - 2010 employment decreased in large as well as micro, small and medium-sized enterprises. On average, an enterprise in the European Union provides employment for 6 persons.[140] Roughly one half of micro-enterprises have no employees at all, thus only providing employment and income to self-employed and family workers. The rate of self-employment has remained relatively constant for the EU27 as a whole from 2002 to 2010.

9.41 In 2010, about 67 per cent of employment in the non-financial business sector in the EU was provided by SMEs.[141] Micro-enterprises contributed about 30 per cent of these jobs, small enterprises (employing at least 10 but less than 50 persons) about 20 per cent and medium-sized enterprise (employing between 50 and 250 persons) about 17 per cent.

9.42 Between 2002 and 2010, employment in the EU non-financial business economy has on average increased by 1.1 million jobs annually, which is equivalent to 0.9 per cent a year.[142] The employment growth rate is highest in the SME size class, and within the SME group, it is largest for micro and small enterprises.

**Table 9.1: Employment change in the non-financial business economy by enterprise size**

| | **Micro (employing less than 10 persons)** | **Small (employing at least 10 but less than 50 persons)** | **Medium (employing between 50 and 250 persons)** | **Large (employing 250 or more persons)** | **All enterprises** |
|---|---|---|---|---|---|
| **Average annual change in employment (%)** | 1.3 | 1 | 0.7 | 0.5 | 0.9 |
| **Average annual change in the number of people employed** | 473,000 | 243,000 | 147,000 | 224,000 | 1,086,000 |

*Source: EIM (2011) "Do SMEs create more and better jobs?".*

139 http://ec.europa.eu/economy_finance/articles/eu_economic_situation/pdf/2012/2012-02-23-interim-forecast_en.pdf
140 EIM (2011) "Do SMEs create more and better jobs?".
141 EIM (2011) "Do SMEs create more and better jobs?".
142 EIM (2011) "Do SMEs create more and better jobs?".

9.43 The majority of SMEs are active in distributive trades (wholesale and retail trade), real estate, renting, and business activity. Other sectors in which SMEs feature are construction, manufacturing, and transport and communication.[143]

9.44 **Table 9.2** provides data on the trends in the number of people employed in each size firm by sector. It can be seen that employment growth was largest in micro-enterprises for almost all sectors. An exception to this rule, however, is in wholesale and retail trade (including repair of motor vehicles, motorcycle, and personal and household goods), in which the employment growth rate was lowest for micro-enterprises. This coincided with an increase in the number of large enterprises in this category by 21 per cent between 2002 and 2008 (whereas the total number of large enterprises in the non-financial business economy increased by only 5 per cent).[144] Generally, however, the data show that there is a trend for increasing employment in micro-enterprises in the service sector.

**Table 9.2: Employment change in the non-financial business economy by sector and enterprise size, EU27, 2002-2010**

| | Micro (employing less than 10 persons) | Small (employing at least 10 but less than 50 persons) | Medium (employing between 50 and 250 persons) | SMEs (micro, small and medium) | Large (employing 250 or more persons) | Total |
|---|---|---|---|---|---|---|
| Mining and quarrying | -0.2 | -0.5 | -0.6 | -0.5 | -3.5 | -2.6 |
| Manufacturing | -1.7 | -1.6 | -1.2 | -1.4 | -2.1 | -1.7 |
| Electricity, gas and water supply | 3 | 1.2 | 0.6 | 1 | -1.1 | -0.7 |
| Construction | 1.5 | 0.5 | 0.3 | 0.9 | 0.5 | 0.9 |
| Wholesale and retail trade; repair of motor vehicles, motorcycle and personal and household good | 0.2 | 1.2 | 1.3 | 0.7 | 2.2 | 1.1 |
| Hotels and restaurants | 1.5 | 4.3 | 3.3 | 2.6 | 1.8 | 2.4 |
| Transport, storage and communication | 1.4 | 1.9 | 2.2 | 1.8 | -0.4 | 0.6 |
| Real estate, renting and business activities | 4.5 | 2.9 | 3.1 | 3.7 | 4.4 | 4 |

*Source: EIM (2011) "Do SMEs create more and better jobs?".*

*Effect of improved risk assessment tools*

9.45 The development of improved risk assessment tools could have the effect of increasing compliance with the risk assessment obligation and/or improving the actual risk

[143] EIM (2011) "Do SMEs create more and better jobs?".
[144] EIM (2011) "Do SMEs create more and better jobs?".

assessment that micro-enterprises undertake, thereby leading to improved health and safety outcomes.

9.46 An example of this kind of tool is OiRA, the Online Interactive Risk Assessment web application developed by the European Agency for Safety and Health at Work, which provides the means by which Member States can develop online interactive risk assessment tools. Those OiRA objectives which apply at the firm level are more relevant than those which apply at other levels.[145] These are:

(a) To ensure the health and safety of workers by applying the OiRA tools.

(b) To benefit from the sector specific risk assessment tools being kept up to date, easy to apply and validated by social partners and/or national authorities.

(c) To apply the sector specific tools at company/at shop floor level (the employer assesses the risks, implements the action plan, adjusts it regularly, re-prioritises and takes action).

(d) To improve working conditions within firms by assessing occupational risks and thus improving the health and safety performance of companies.

9.47 A number of Member States make checklists or templates available to firms to help in the risk assessment process, many specifically developed with SMEs in mind.[146]

9.48 The Netherlands have created a digital Risk Inventory and Evaluation (RI&E) tool. Since the creation of the RI&E website in 2003, there have been a total of 1.6 million visits, and since the first tool was developed in 2005, on average around 5,000 copies of the sector specific RI&E tools are downloaded each month.[147]

9.49 The impact the OiRA could have on health and safety outcomes may be lower in countries where similar tools already exist at national level, such as the tools available in the Netherlands. The impact OiRA may have will be to some degree dependent on the involvement of Member States. According to the OiRA business plan document, nine Member States are currently involved in using OiRA to develop risk assessment tools,[148] four already have their own interactive tools, and five have shown interest in the tool.[149]

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145 OiRA business plan.

146 Bulgaria, Cyprus, Denmark, France, Germany, Ireland, Lithuania Poland, Spain and the UK all make guidance available that is aimed at SMEs.

147 OiRA (2009) "Facilitating Risk Assessment for Europe's micro and small organisations".

148 Belgium, Czech Republic, Greece, France, Cyprus, the Netherlands, Slovenia, and Sweden

149 Germany, Italy, Lithuania, Malta, Austria,

## Risk Assessments and Health and Safety Outcomes

9.50 Later in this section we present our detailed analysis and modelling of the potential effect of the documentation obligation on health and safety outcomes, by analysing the chain of impacts set out in our conceptual framework.

9.51 Before presenting our detailed analysis and modelling, however, we first present some high level results showing the relationship between the percentage of firms in a Member State that have carried out a risk assessment (which we interpret as an upper bound to the percentage of firms that have documented a risk assessment) and health and safety outcomes.

9.52 The presence of a statistically significant relationship is not on its own sufficient to prove a causal link between the two variables. For example, there could be a third variable (such as attitudes to health and safety in each country) which is acting as a common driver both of whether firms do risk assessments and of the incidence of health and safety outcomes. However, the existence of a relationship does suggest that a causal linkage between the two is plausible (even if not proven), thus providing a motivation for the more detailed analysis and modelling of impacts presented later in this section.

### Data

9.53 The data for the percentage of firms that have undertaken a risk assessment comes from the EU-OSHA's European survey of enterprises on new and emerging risks (ESENER) 2009. In particular, the ESENER survey asks whether the workplaces in the establishment regularly checked for safety and health as part of a risk assessment or similar measure. The survey was run on the 27 EU members plus Norway, Switzerland, Turkey and Croatia. Only data from the 27 EU Member States is used in this exercise.

9.54 The ESENER survey only covers firms with 10 employees or more, and therefore excludes those firms we are interested in for the purpose of this study. Unfortunately, a suitable pan-European dataset on the percentage of firms with less than 10 employees that have done a risk assessment is not available.

9.55 However, the purpose of this exercise is to show that, in general, there appears to be a link between whether firms do a risk assessment and health and safety outcomes. In our view, if such a link can be demonstrated for firms with more than 10 employees, then it provides a *prima facie* case for suggesting that such a link may also exist for firms with less than 10 employees.

9.56 The health and safety outcomes we focus on are accidents at work and work-related illnesses. For accidents at work the source is the European Survey for Accidents at Work (ESAW) 2008. We normalize the number of accidents by the employment level reported in the Labour Force Survey (LFS) 2008. For work-related illnesses we use the ad-hoc module of the LFS 2007. In particular, we use the percentage of persons who reported one or more work-related health problems in the past 12 months.

9.57 Because data on accidents at work and work-related problems are not available for Greece, the following exercise has a maximum of 26 observations, one for each EU Member State apart from Greece.

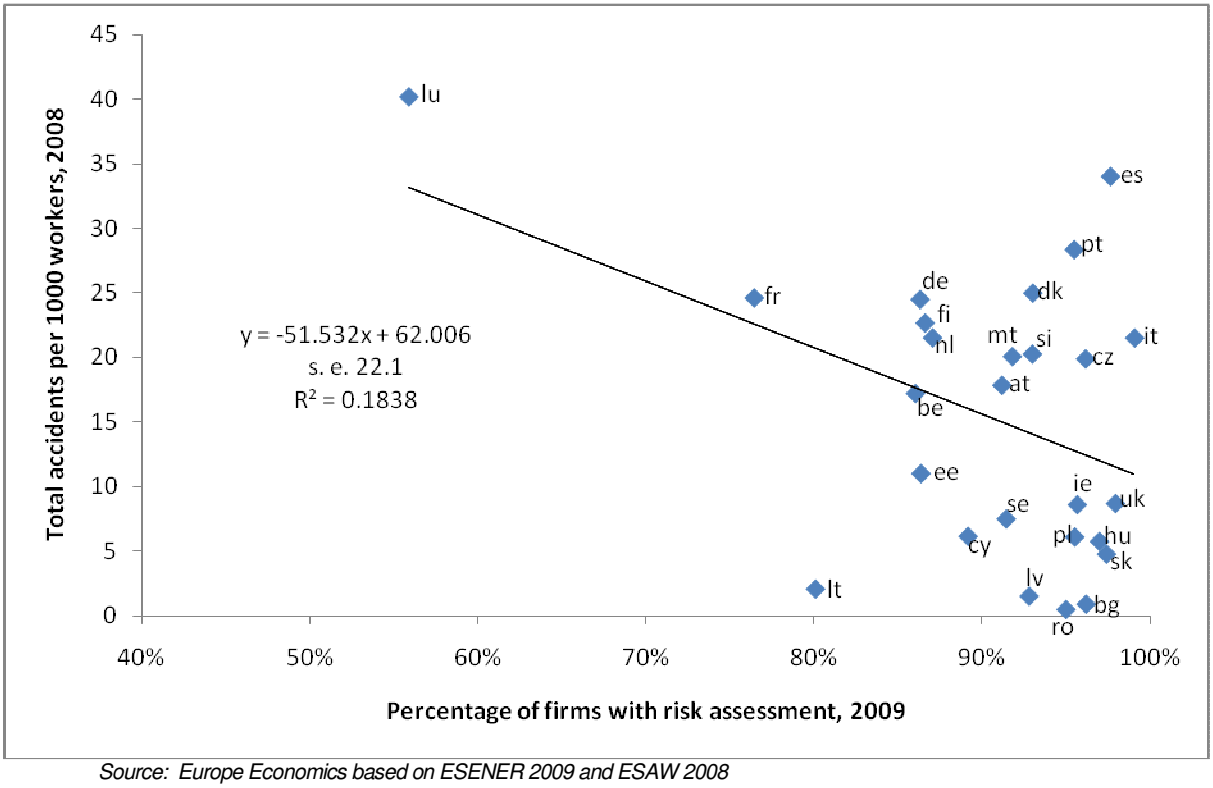
9.58 There is unfortunately a timing mismatch between the data available on the percentage of firms that have done risk assessments (from 2009) and the data available on accidents at work (from 2008) and work-related health problems (from 2007). However, we do not see any reason why there would have been a large change in compliance with the risk assessment obligation between 2007 or 2008 and 2009. Hence, we treat the 2009 data on the percentage of firms that have done risk assessments as a proxy for the percentage of firms that would have done risk assessments in earlier years.

**Results**

9.59 Figure 9.13 presents the relationship between the percentage of firms with risk assessment in 2009 and total accidents at work per 1000 employees in 2008. The relationship is statistically significant and suggests that an increase of 10 percentage points in the percentage of firms that perform risk assessment is associated with a reduction of around 5 accidents per 1000 employees. The R2 statistic from the regression is low (around 18 per cent), which means that the percentage of firms carrying out risk assessments only explains a small part of the cross-country variation observed in the accident data.

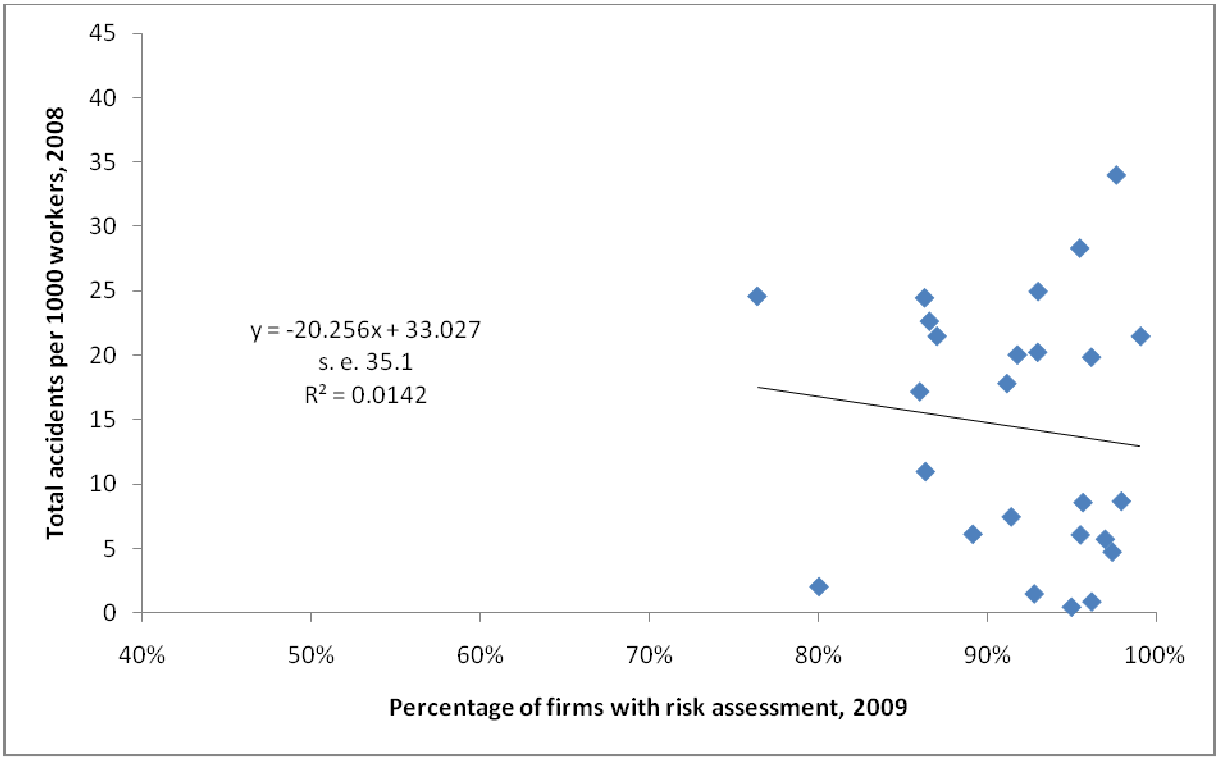
9.60 However, the above relationship is driven by the outlier Member State Luxembourg, which has a relatively low percentage of firms that do risk assessments and a relatively high accident rate. As seen in **Figure 9.14,** the exclusion of Luxembourg from the dataset leads to a weaker and statistically insignificant link between risk assessment and accident incident rates. The R2 statistic now becomes very low (1.4 per cent), suggesting that, once this outlier is removed, compliance rates with the requirement to carry out a risk assessment explain very little of the cross-country variations in accident rates.

**Figure 9.13: Risk assessment and total accidents**




*Source: Europe Economics based on ESENER 2009 and ESAW 2008*

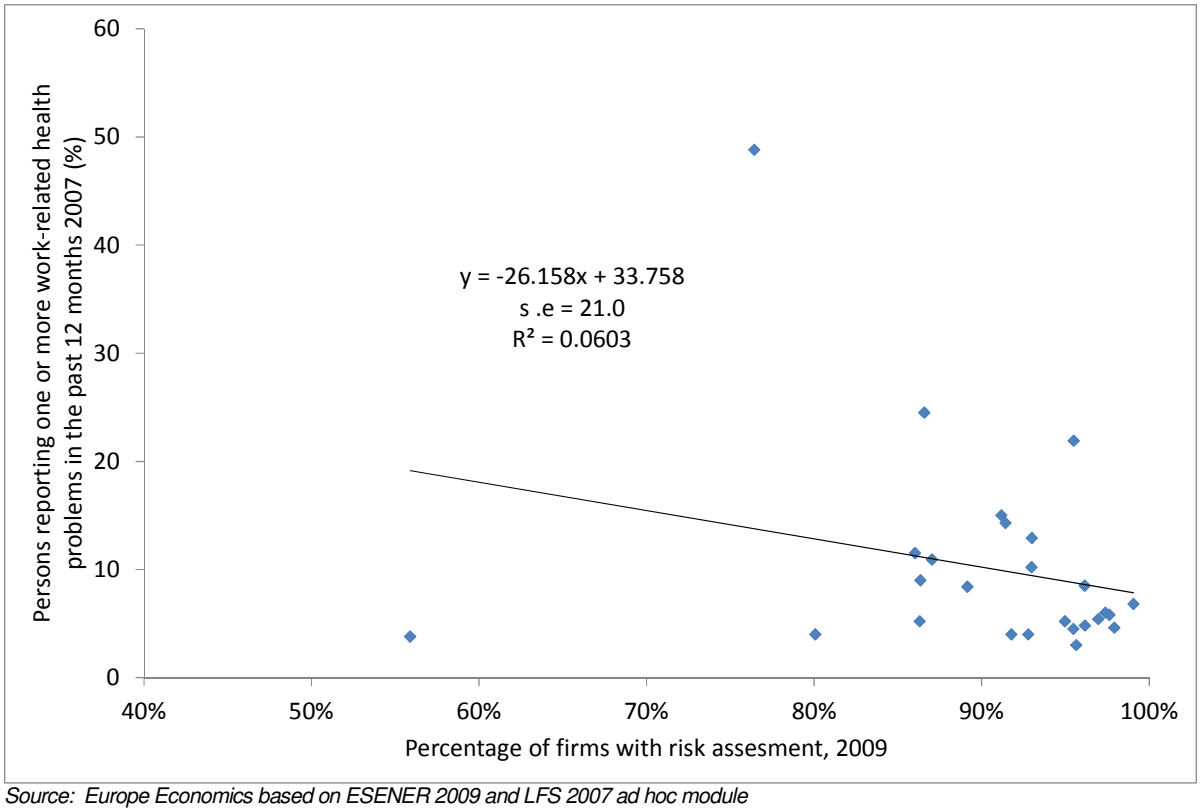
**Figure 9.14: Risk assessment and total accidents excluding Luxembourg**




*Source: Europe Economics based on ESENER 2009 and ESAW 2008*

9.61 **Figure 9.15** below presents the relationship between the percentage of firms that do risk assessments and work-related health problems. Although the relationship is negative as expected, the relationship is not statistically significant. We also tested for a relationship using only work-related health problems that led to absence from work (not reported), but again failed to find a statistically significant relationship.

**Figure 9.15: Risk assessment and work-related problems**




*Source: Europe Economics based on ESENER 2009 and LFS 2007 ad hoc module*

9.62 Hence, both for accidents at work and work-related health problems, this top-down analysis has failed to find robust evidence of a link between compliance with the requirement to carry out a risk assessment and health and safety outcomes.

9.63 However, there are substantial caveats round this result, due to the weaknesses in the data used and the fact that we have not controlled for any other factors that vary between Member States. Hence, the fact that this evidence has not identified robust evidence of a link is not sufficient to demonstrate that such a link does not exist.

## Existing Exemptions and Health and Safety Outcomes

9.64 The analysis above seeks to establish a relationship between health and safety outcomes and risk assessments (rather than documentation of risk assessments). In order to investigate the relationship between health and safety outcomes and the documentation obligation, we undertook a second piece of high-level analysis. This compares the health

and safety outcomes for countries which exempt micro-enterprises from the obligation to document their risk assessment and those which do not.

9.65 As discussed in Chapter 6, EU Member States with a full exemption for micro-enterprises are Germany, Finland, Malta and the UK. Austria, Italy, Slovenia and Spain currently permit micro-enterprises to produce simplified documentation (which could be interpreted as a "partial exemption" for the purpose of this analysis).

9.66 Our high-level analysis compares health and safety outcomes in Member States with a full or partial exemption to health and safety outcomes in Member States without any such exemption. This analysis does not allow for any statistical robustness checks to be carried out. The implication of this is that whilst a link may appear to be evident between the existence of an exemption and health and safety outcomes, we cannot conclude that there is definitely a causal link as the comparison does not take into account the many other factors besides the exemption that may affect health and safety outcomes.

**Data**

9.67 The available data allowed us to use four indicators of health and safety outcomes in our comparison:

(a) Incidence rate of non-fatal accidents per 100,000 employees

(b) Incidence rate of fatal accidents per 100,000 employees

(c) Persons reporting an accident at work in the past 12 months

(d) Persons reporting one or more work-related health problems in the past 12 months

9.68 We have constructed incidence rates for fatal and non-fatal accidents in micro-enterprises by using the total number of fatal and non-fatal (more than three days lost) accidents[150] in each Member State and standardising these numbers by the number of employees[151] in micro-enterprises in each Member State.[152]

9.69 No accident data are available for Denmark, Finland and the UK for micro-enterprises; no employment data are available for France, Greece and Malta. As a consequence, in the group of countries with a full exemption, the incidence rate could only be constructed for Germany.

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150 Eurostat (2012): Accidents at work by size of enterprise (NACE Rev. 2: A_C-N) [hsw_mi04], reference year: 2008.

151 Eurostat (2012): Annual structural business statistics, [sbs_sc_ind_r2], [sbs_sc_con_r2], [sbs_sc_dt_r2], [sbs_sc_1b_se_r2] reference year: 2008.

152 Data on the number of employees in micro-enterprises is available from the Eurostat Annual Structural Business Statistics excluding agriculture, forestry and fishing, financial and insurance activities, and other non-market related sectors such as education and health activities. Our incidence rates will therefore be inflated by the proportion of the labour force in the missing sectors: it should therefore only be used for the purpose of comparing differences, rather than absolute values. Furthermore, we have to assume that the relative importance of micro-enterprises in these missing industries is similar across Member States.

9.70 Data on persons reporting accidents and health problems is taken from the 2007 Labour Force Survey.[153] These provide a more complete set of data points; however, data are not available for Ireland.

**Results**

9.71 Table 9.3 below shows that the constructed incidence rate for non-fatal accidents in micro-enterprises is highest in the group of countries with a full exemption of micro-enterprises (although this group consists only of Germany), lower in the group of countries with a partial exemption and the lowest in the group of countries with no exemption. A reverse relationship can be seen in the incident rate for fatal accidents.

9.72 As we can see from the percentage of persons having reported an accident at work in a micro-enterprise, the values are similar in countries with some kind of exemption or simplification whereas the average of all countries with no exemption is lower, which corresponds with the above findings relating to the incident rate for non-fatal accidents. The percentage of persons having reported a health problem is similar in countries with a full exemption and no exemption but considerably lower in countries with a partial exemption.

9.73 The aggregated data seem to show that there is some *prima facie* evidence of a link between the documentation obligation and health and safety outcomes: in the columns for non-fatal accident incidence and persons reporting an accident, the safety situation deteriorates as one moves from no exemption to full exemption. There is no obvious pattern for fatalities or work-related health problems.

[153] Eurostat (2012): Persons reporting one or more work-related health problems in the past 12 months, by sex, age and size of enterprise - % [hsw_pb9], reference year: 2007. And Persons reporting an accident at work in the past 12 months, by sex, age and size of enterprise - % [hsw_ac9]

**Table 9.3: Descriptive statistics of health and safety outcomes**

| | Incidence rate non-fatal accidents per 100,000 employees | Incidence rate fatal accidents per 100,000 employees | Percentage reporting an accident at work in the past 12 months | Percentage reporting one or more work-related health problems in the past 12 months |
|---|---|---|---|---|
| Finland | n.a. | n.a. | 6.4 | 22.9 |
| Germany | 30.685 | 0.033 | 2.1 | 5.6 |
| Malta | n.a. | n.a. | 2.6 | 4.5 |
| UK | n.a. | n.a. | 2.7 | 3.6 |
| **Average: Full Exemption** | **30.685** | **0.033** | **3.45** | **9.15** |
| Austria | 13.260 | 0.036 | 4.5 | 13.2 |
| Italy | 15.675 | 0.034 | 2.6 | 5.5 |
| Slovenia | 11.217 | 0.032 | 3.8 | 7.2 |
| Spain | 28.309 | 0.037 | 3.1 | 4.7 |
| **Average: Partial Exemption** | **19.829** | **0.035** | **3.49** | **7.95** |
| Belgium | 13.440 | 0.030 | 2.7 | 9.1 |
| Bulgaria | 0.195 | 0.017 | 0.4 | 2.8 |
| Cyprus | 3.715 | 0.076 | 3.2 | 6.7 |
| Czech Republic | 3.907 | 0.024 | 2.5 | 8.2 |
| Denmark | n.a. | n.a. | 4.4 | 10.9 |
| Estonia | 7.175 | 0.036 | 2.1 | 6.6 |
| France | n.a. | n.a. | 5.0 | 49.8 |
| Greece | n.a. | n.a. | 2.1 | 4.9 |
| Hungary | 0.972 | 0.043 | 0.8 | 3.9 |
| Ireland | 1.138 | 0.035 | n.a. | n.a. |
| Latvia | 0.650 | 0.045 | 1.6 | 3.2 |
| Lithuania | 0.350 | n.a. | 1.0 | 3.0 |
| Luxembourg | 16.036 | n.a. | 3.0 | 1.9 |
| Netherlands | 11.336 | n.a. | 2.4 | 8.3 |
| Poland | 1.205 | 0.032 | 0.6 | 19.3 |
| Portugal | 30.370 | 0.061 | 2.9 | 2.9 |
| Romania | 0.198 | 0.069 | 1.9 | 4.1 |
| Slovakia | 46.444 | 0.111 | 1.2 | 3.2 |
| Sweden | 4.352 | 0.022 | 4.8 | 14.4 |
| **Average: No Exemption** | **8.843** | **0.046** | **2.37** | **9.07** |
| **Average: No and Partial Exemption** | **14.336** | **0.040** | **2.93** | **8.51** |

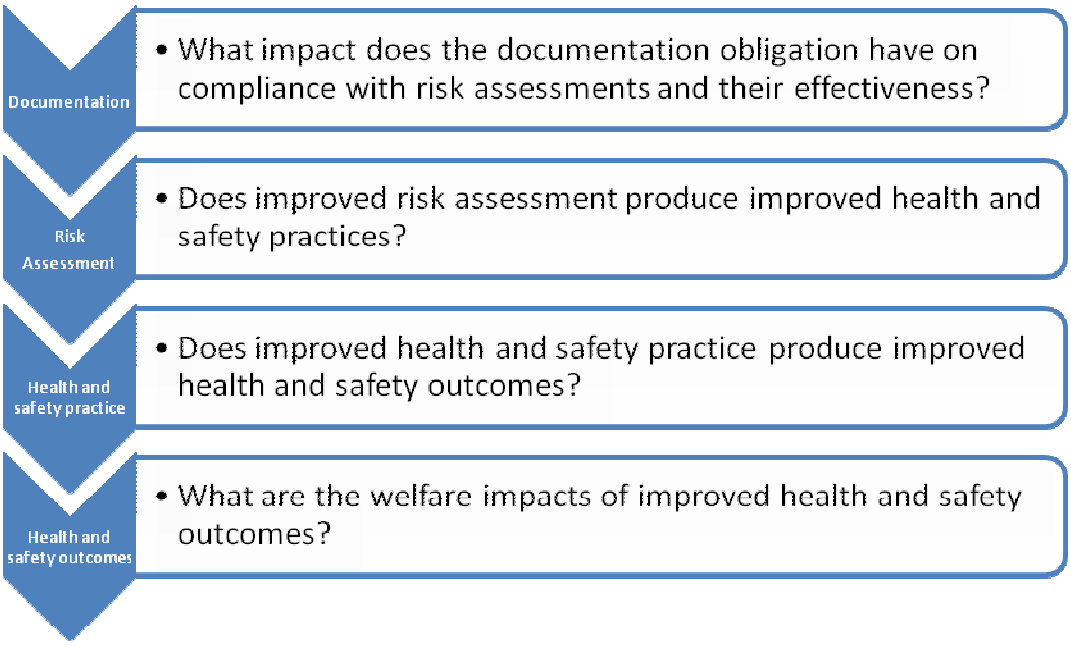
*Source: Europe Economics based on Eurostat data: [hsw_pb9, [hsw_mi04], [hsw_ac9]*

9.74 Given the data limitations, the caveats around omitted variables and the fact that we have not proved a causal link, we cannot draw firm conclusions from this comparison. However, *prima facie* the data appear to show higher accident rates in micro-enterprises in countries with some form of exemption from the documentation obligation. This warrants further investigation in the form of more detailed analysis and modelling, which we present in the rest of this section.

## Approach to Analysing Impact of Documentation Obligation

9.75 We now analyse in more detail the ways in which the obligation to document of risk assessments may affect health and safety outcomes. The different stages in this analysis frame the remaining sections of this chapter, as well as the modelling of health and safety impacts, which we conclude this chapter by presenting. These different stages are illustrated in **Figure 9.16** below.

**Figure 9.16: Approach to Analysing Impact of Documentation Obligation**




## Effect of Documentation on Risk Assessments

9.76 This section will cover the various "mechanisms" by which the documentation of risk assessment feeds through into health and safety impacts. These mechanisms will be the driver of health and safety impacts in the two alternative scenarios i.e.

(e) In the 100 per cent compliance scenario, these drivers will affect health and safety outcomes in one direction, by increasing the number of firms documenting a risk assessment;

(f) In the HLG scenario, these drivers will affect health and safety outcomes in the opposite direction, by reducing the number of firms documenting a risk assessment

(although some firms may voluntarily write down their risk assessment even under the exemption scenario).

9.77 Possible mechanisms of effect that Europe Economics have identified are:

(a) ***Compliance effect*** – firms may not comply with the underlying obligation to carry out a risk assessment if they do not have to document it, since it will be more difficult for anyone to prove they have not carried out a risk assessment.

(b) ***Quality effect*** – writing down the risk assessment may improve its quality, e.g. by making it more comprehensive and systematic.

(c) **Communication effect** – writing it down means that other workers (apart from the worker who does the risk assessment) have access to the information and may act on it.

(d) ***Action-inducing effect*** – a written risk assessment which can be presented as a document to senior management may be more likely to lead to action to improve health and safety outcomes.

(e) ***Institutional memory effect*** – if the risk assessment is written down, it is more likely to be remembered and hence to affect company policies in the future. This is especially true in a scenario in which the worker who carried out the risk assessment leaves the company.

(f) ***Role clarification effect*** – a written risk assessment may help to clarify the relative responsibilities of employers and workers, thus leading both parties to take action that improves health and safety outcomes.

(g) **Resource-diversion effect** – documenting the risk assessment could have a negative impact on health and safety outcomes by diverting resources from actions to improve health and safety onto the production of the document.

(h) **"Box ticking" effect** – another possible negative effect is that the documentation obligation may lead to a "box ticking" mentality whereby firms think that they have fulfilled their obligations and can defend themselves if challenged by inspectors or if an incident occurs because they have a document in place. The converse of this mechanism is that in the absence of the documentation obligation, firms and inspectors might focus more on whether concrete actions have been taken to improve health and safety practices.

9.78 We note that the documentation may have other kinds of impact – e.g. clarification of who is responsible after an accident has occurred – but the mechanisms above are concerned with the ways in which the document impacts upon health and safety outcomes, not other kinds of impact.

9.79 Of these possible mechanisms, the first six seem likely to be largely "positive" mechanisms (i.e. mechanisms whereby the documentation obligation improves health and safety) and the last two are "negative mechanisms" (i.e. mechanisms whereby the documentation obligation reduces health and safety.

9.80 While there are clearly interactions between these mechanisms of effect, we consider that considering each of them in turn provides a useful framework for assessing the likely impact of the documentation obligation. Hence, we consider the evidence for each of these effects below. We then conclude by discussing the likely overall impact of the documentation obligation, taking into account all of these possible mechanisms.

**Compliance effect**

9.81 In this section we consider whether the obligation to document the risk assessment has an effect on the level of compliance with the obligation to carry out a risk assessment.

9.82 Possession of the risk assessment documentation is a signal that the risk assessment has been done. In the absence of the documentation obligation, proving that the assessment has been done is likely to be more difficult. As stated in "Reduced Risk and Lowered Costs Through Proactive EH&S",[154] a document produced by a technology firm, it is considered that "documentation of compliance shows that the process is in control."

9.83 Similarly, the Environmental Protection Agency (EPA) in the US has ruled that each facility subject to certain regulations "is required to keep certain paperwork on the site to demonstrate compliance with the rule. This paperwork must be available to the permitting agency, control authorities and enforcement officials and must document the compliance options chosen by the facility."[155]

9.84 Moreover, the Food Standards Agency in the UK has claimed that documentation "helps [businesses] to meet their obligations arising under the requirements of the [enforcement bodies]" because "requires a step-by-step, systematic approach to identify the minimum acceptable standards for each stage of the business operation".[156] Although the risks in food safety are different to those in occupational safety, the procedural benefits of documentation could be similar. .

9.85 Findings from our interviews support the claim for a compliance effect. For example, one of the health and safety enforcement bodies we spoke to expressed the view that exempting small firms in low risk sectors from the documentation requirement would lead to a fall in compliance with the obligation to carry out a risk assessment and, therefore, to poorer health and safety outcomes among firms. The view was also expressed that

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154 Tech-Clarity, Inc (2004) "Reduced Risk and Lowered Costs Through Proactive EH&S"
155 EPA, 1998. Pollution prevention Guidance Manual for the PFPR industry, Chapter 7
156 Food Standards Agency, 2009 'Guide to United Kingdom Legal Compliance and Good Practice for Business Documentation, pp. 12-13).

having to fill out a document makes the employer more aware of the need for a risk assessment.

9.86 In other fields, it is at least recommended that documentation is part of the compliance process. For example, the Australian Competition & Consumer Commission (ACCC) guidance on compliance with competition law includes adequate documentation of compliance efforts to ensure that they can be substantiated in the event of a breach.[157] Documentation is also required for accountancy audits to prove that all transactions comply with regulation.

9.87 In the food industry, lack of documentation is perceived as a factor that has led to non-compliance with safety measures. Partially due to the Pennington Report into the Lanarkshire outbreak of E. coli in 1996, the European Union proposed the documentation of hazard analysis for all food businesses.[158] In particular, the Pennington Report suggested that: "licensing arrangements should include appropriate requirements for the documentation of hazard analysis, labelling and record-keeping to facilitate product recall and temperature control and monitoring".[159]

9.88 In the anti-money laundering / counterterrorism financial regulation, documentation of certain business policies and procedures is regarded as a necessary control to prevent those activities.[160]

9.89 It could be argued that documentation not only encourages compliance with the risk assessment obligation, but also that it is integral to performing a risk assessment which complies with best practice. To explore this in depth, it is necessary to examine the aspects of a risk assessment in detail. For example, the following risk assessment steps are recommended particularly for SMEs:[161]

(a) Step 1: Identifying hazards and those at risk;

(b) Step 2: Evaluating and prioritising risks;

(c) Step 3: Deciding on preventive action;

(d) Step 4: Taking action;

(e) Step 5: Monitoring and reviewing.

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157 OFT (2010) "Drivers of Compliance and Non-compliance with Competition Law".

158 Elizabeth Walker, Catherine Pritchard, Stephen Forsythe, *Hazard analysis critical control point and prerequisite programme implementation in small and medium size food businesses*, Food Control, Volume 14, Issue 3, April 2003, Pages 169-174

159 Pennington Group, 1997. Report on the circumstances leading to the 1996 outbreak of infection with E. coli O157 in central Scotland, the implications for food safety and the lessons to be learned. HMSO: Edinburgh

160 HM Revenue and Customs, 2010. Anti-money laundering guidance for trust or company services providers, p. 7

161 http://osha.europa.eu/en/topics/riskassessment/carry_out

9.90 It can be seen that fulfilling each of these steps without any documentation could be challenging, particularly the evaluation and prioritisation of a range of risks using information and data from a range of sources. Therefore, due to what is required to be compliant with the requirement for a risk assessment, the documentation not being written down could lead to superficial (or below acceptable) levels of compliance with the risk assessment.

**Quality effect**

9.91 The idea behind the quality effect is that writing down the risk assessment may improve its quality. Quality is an abstract term and because of this can be difficult to gauge. When speaking about the quality of the risk assessment, we can think of this in terms of how comprehensive and systematic it is.

9.92 The importance of the risk assessment being systematic is stressed by the European Commission:[162]

> A risk assessment is a systematic examination of all aspects of the work undertaken to consider what could cause injury or harm, whether the hazards could be eliminated, and if not what preventive or protective measures are, or should be, in place to control the risks.

9.93 A common recommendation in the literature is for employers to use some management system that includes a strong emphasis on evaluation and continual improvement, sometimes referred to as a process based on systems theory.[163] A conclusion that can be drawn from this is that adopting a system of continual improvement improves the quality of the risk assessment. Writing the risk assessment down so that aspects of it can be reviewed at a later date facilitates this process of continual improvement, and hence could be seen as likely to increase the quality of the risk assessment.

9.94 In addition, for complex tasks or highly technical tasks, written information is often needed in order for people to improve the procedure, and this is evidenced by user manuals being widely issued for things such as equipment use. A similar logic could be applied to risk assessment.

9.95 It should be noted that while writing the risk assessment could aide improved health and safety outcomes, the quality of the documentation is no guarantee of the quality of the actions taken to improve health and safety.

**Communication effect**

9.96 The communication effect of documenting the risk assessment operates through other workers apart from the worker who does the risk assessment having access to the

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[162] European Commission (1996) "Guidance on risk assessment at work, Luxembourg".
[163] WHO (2010) "Healthy Workplace Framework and Model: Background and Supporting Literature and Practice".

information and so potentially being able to act on the information, leading to improvements in health and safety outcomes.

9.97 Communication is important to improving health and safety outcomes: lack of coordination and communication within a company has been shown to be likely to undermine health and safety activities.[164]

9.98 A measure of the communication effect is the extent of worker involvement in the risk assessment process. For example, in France the extent of negotiation over working conditions between employers and employees increased from 47 per cent in 1998–1999 to 64 per cent of workplaces in 2004–2005. This may perhaps be partly attributable to the fact that the preparation of a risk assessment document became compulsory in 2004, as reported by Eurofound (2010).[165]

9.99 Other evidence points to documentation not improving communication: 94 per cent of OSH committees received the risk assessment document in a French Survey from 2004-2005, although in 18 per cent of workplaces, management did not distribute it to workers or their representatives.[166]

9.100 While communication has been shown to be important to health and safety outcomes, there can be problems involved with written communication being the default medium of communication. Written communication relies on workers having the necessary proficiency in the language to be able to read and understand the information, which may not necessarily be the case.

9.101 In addition, it has been suggested to us in an interview that risk assessment documents can be very technical, and so are of limited use to workers.

**Action-inducing effect**

9.102 The action-inducing effect is the proposition that the documentation of the risk assessment spurs action to address any concerns.

9.103 A substantial amount of research has been done into commitment devices which encourage action to be taken. In a study undertaken by Dominican University, 149 business practitioners from a range of countries were involved in a practical exercise relating to goal setting. The group that achieved the best outcome in terms of reaching their goals was the group that documented the goals, formulated action commitments and

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164 Griffin, B. L., Hall, N., & Watson, N. (2005). Health at work in small and medium sized enterprises. Issues of engagement. Health Education Journal, 105(2), 126 -141. Cited in HSE (2007) "Health and safety in the small to medium-sized enterprise, Psychosocial opportunities for intervention".

165 The French Réponse (a linked employer/employee survey combining the opinions of employers, employees and employee representatives) from 2004–2005, cited in.Eurofound (2010), "Health and safety at work in SMEs: strategies for employee information".

166 A survey from 2004–2005 by Direction de l'animation de la recherche, des études et des statistiques, reported in Eurofound (2010), "Health and safety at work in SMEs: strategies for employee information".

was accountable for these commitments to colleagues, compared to other groups that did not document their goals or their action commitments. This finding suggests that if one of the goals of an organisation is that its working environment is safe, then it is more likely to secure this outcome if it documents this as a goal. The study also suggests that the more publicly this document commits the organisation to achieving this goal and to taking the steps that are necessary to secure it, the more likely this goal is to be secured.

9.104 The health and safety risk assessment document may have an action-induced effect by committing the firm to certain actions in respect of health and safety, which it would then become embarrassing or awkward for the firm to concede to their workers that they have reneged upon.

**Institutional memory effect**

9.105 Institutional memory is a collective set of knowledge and experience that is held by a group of people, for example a group of workers in a company. It requires the on-going transmission of the knowledge and experience between members of the group.

9.106 Documenting processes and data management is an established organisation technique in order to build institutional memory, since through the documentation information can be shared amongst workers.

9.107 Hence, this effect is to limit the ability to communicate the information to people working in the company. Where only certain people hold the information in their heads, they become the "gatekeepers" of the information and people for whom the information is important may not be aware of it.

9.108 If the people with the knowledge leave the company, they will take the knowledge with them, and the company would not be able to learn from experiences.

9.109 There is also an issue of communicating the institutional knowledge to new workers if it is not written down, though whether this happens depends on the training received by the new worker.

9.110 Institutional memory can be used to preserve a way of working in a group, which is useful if the way of working does not change or does not need to change. However, it can lead to opposition to anything that is deemed to challenge the status quo. A strong institutional memory may, therefore, prevent necessary adaptation to evolving health and safety best practices.

9.111 Finally, where a documented risk assessment exists, it might create the foundation for the suggested exchange between health and safety inspectors/consultants and managers/workers. The document can be referred back to and considered alongside the circumstances of the incident under consideration. The document, in other words, creates a basis for strengthened institutional memory such that lessons can be better learnt from adverse health and safety incidents.

**Role clarification effect**

9.112 Writing down the risk assessment may help to clarify the relative responsibilities of employers and workers, which may in turn lead both parties to take action that improves health and safety outcomes. This effect is linked to the communication effect and would be driven by similar factors.

9.113 Generally, role clarification will be most necessary in an organisation with a large number of workers, where co-ordination is more challenging. The effect will be less pronounced in small firms, particularly where workers' roles do not change often, though the effect could be present in circumstances where workers are working at different locations, complicated tasks are involved or there is a great variety in the tasks performed by each worker.

9.114 It is best practice for heads of firms to understand their responsibilities and role with regard to occupational health and safety matters for their business.[167] This could be achieved by formal terms of reference in individuals' contracts, which would be a more formal and binding way to clarify roles.

9.115 A type of role clarification is to ensure that there are workers' representatives for health and safety. Worker representation, in conjunction with trade union representation, has been associated with better health and safety outcomes.[168] However, workforce involvement in health and safety is rare in small companies.[169] An Irish study found that 47.9 per cent of employees in enterprises with 5-19 employees reported that they 'hardly ever' receive information on changes in work practices, compared to 29.5 of employees in enterprises with 100 employees.[170]

9.116 Role clarification for employers and workers could lead to only certain individuals in the firm taking responsibility for health and safety, yet it has been shown that those companies with less than five workers which were characterised by a style where "everyone was responsible" indicated relatively higher levels of health and safety activity.[171]

9.117 Where role clarification has the effect of moving away from "everyone being responsible" it may, therefore, impair health and safety outcomes. It would seem important to find a balance between everyone being diligent in relation to health and safety issues and retaining the need for clear roles and responsibilities in respect of health and safety.

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167 HSE (2006) "Defining best practice in corporate occupational health and safety governance".

168 Walters, D., Nichols, T., Connor, J., Tasiran, A., & Surhan, C. (2005). The role and effectiveness of safety representatives in influencing workplace health and safety (Contract Research Report No. 363): HSE. Cited in "Health and safety in the small to medium-sized enterprise, Psychosocial opportunities for intervention".

169 HSE (2007) "Health and safety in the small to medium-sized enterprise, Psychosocial opportunities for intervention".

170 National Centre for Partnership and Performance (2003), "the Changing Workplace: A Survey of Employees' Views and Experiences"

171 Shampoux, D., & Brun, J.-P. (2003). Occupational health and safety management in small enterprises: an overview of the situation and avenues for research and intervention. Safety Science, 41, 301 -308. Cited in HSE (2007) "Health and safety in the small to medium-sized enterprise, Psychosocial opportunities for intervention".

### Resource-diversion effect

9.118 There is the theoretical possibility that documenting the risk assessment could divert resources from actions to improve health and safety, and in so doing, producing the document actually could have a negative impact on health and safety outcomes.

9.119 This effect would come into operation if a firm designated a certain amount of time to health and safety, such that there exists a trade-off to the firm between taking actions to improve health and safety and writing the document.

9.120 The amount of time that is dedicated to health and safety will be a product of several factors. How constrained the company is will be an important factor in this, since the more resource constrained the company, the less time may be dedicated to health and safety. In the event that companies maintain buffers and spare capacity,[172] capacity would not be a binding factor determining resource given to health and safety.

9.121 Many small companies hire an external consultant to undertake and document the risk assessment, due to a lack of in-house expertise and the demands of insurance companies.[173] In this case, the resource-diversion effect is not likely to take the form of internal staff time being diverted from improving health and safety practices to documentation, since production of the documentation is being contracted out along with the risk assessment itself. However, there could be a resource-diversion effect in terms of budgetary resources i.e. the money spent on the external consultant may reduce the budget available for spending that directly improves health and safety outcomes (e.g. spending on safety equipment or staff training).

9.122 For a given amount of time dedicated to health and safety, the extent of the trade-off between actions and documentation will depend upon the time and resources it takes to produce the documentation. In other words, the longer it takes to produce the document, the less time there will be to undertake actions for improvement. However, in several interviews with regulators, it has been made clear to us that although time needs to be invested in initially producing the document, the time taken to up-date the document on a year-on-year basis is minimal.[174]

9.123 The evidence above does not lend weight to the suggestion that documentation of the risk assessment diverts resources away from actions to improve health and safety. Whether actions are taken to improve health and safety does not appear to be mainly driven by resource capacity.

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[172] Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".
[173] Lord Young of Graffham (2010) "Common Sense, Common Safety".
[174] For example, Latvian regulator.

### "Box ticking" effect

9.124 "Box ticking" is a term used to refer to a bureaucratic process which has little practical value. The documentation obligation could lead firms to think of both the risk assessment and any up-dates to it in this way, such that by completing the document firms think that they have fulfilled their obligations.

9.125 Professor Ragner E Löfstedt reviewed health and safety legislation for the UK government last year and claimed:[175]

> The requirement to carry out a risk assessment has turned into a bureaucratic nightmare for some businesses. The legal requirement to carry out a risk assessment is an important part of a risk management process but instead businesses are producing or paying for lengthy documents covering every conceivable risk, sometimes at the expense of controlling the significant risks in their workplace.

9.126 This comment links documentation to a "box-ticking exercise" and seems to see this as particularly associated with external health and safety consultants. The Löfstedt report does not provide any quantification on the extent of this "box-ticking" effect, however.

9.127 Whether management come to see risk assessment as a "box-ticking" exercise due to the documentation will be down to their motivation for fulfilling the risk assessment – indeed, studies have shown that this is a fundamental factor driving health and safety outcomes.[176]

9.128 If regulators, insurers and other relevant parties give the impression that having a document is sufficient to demonstrate compliance with health and safety law, then this may encourage a "box ticking" motivation since firms may focus on simply having a document in place rather than improving health and safety practice.

### Overall impact

9.129 We note that best practice in conducting risk assessments includes such actions as documenting the findings of the risk assessment, implementing these findings, and periodically reviewing and updating these findings.[177] In various ways, these aspects of best practice support the mechanisms of effect which we have identified. That implementation follows documentation might be taken to support the communication, action-inducing, and role clarification effects. That the document should structure periodic reviews might be taken to support the institutional memory effect.

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[175] Professor Ragner E Löfstedt, *Reclaiming Health and Safety for all: An independent review of health and safety legislation* (2011)
[176] e.g. Eurofound (2010), "Health and safety at work in SMEs: strategies for employee information".
[177] HSE, (2006), *Five steps to risk assessment*

9.130 It can be seen that some of the proposed mechanisms of effect will have a limited impact. Some could have a more significant impact on health and safety outcomes, either positive for some mechanisms or negative for others.

9.131 The mechanisms which have a positive impact on health and safety outcomes are most likely to happen in a firm in which the employer or worker already has an appropriate knowledge of health and safety. Although the documentation may increase the likelihood of health and safety actions being carried out, the documentation has no bearing on the ability of management to undertake appropriate, successful actions. Lack of management training or understanding of good management practice is not only associated with low health and safety engagement, but it can also undermine initiatives to improve health and safety engagement.[178]

9.132 Several of the mechanisms of effect only gain traction in conjunction with one or more of the other mechanisms. For example, the communication effect will only increase health and safety outcomes if it also feeds into an action-inducing effect. Notwithstanding this, it is analytically useful to assess the effects in isolation from one another.

9.133 **Table 9.4** below presents our analysis of the likely direction and strength of the mechanisms of effect. We note that only two of the mechanisms of effect unambiguously reduce the quality of risk assessments, while five effects unambiguously increase the quality of risk assessments. It also seems that the strength of those mechanisms of effect that appear likely to increase the quality of risk assessments will at least be as strong as those which may reduce the quality of risk assessments. Our overall judgement is that the overall impact of documentation on compliance with risk assessments and their effectiveness is likely to be zero to positive (rather than negative).

**Table 9.4: Assessment of mechanisms of effect of documentation on risk assessment**

| Mechanism of effect | Direction: Increase or reduce quality of risk assessment? | Likely strength of effect |
|---|---|---|
| Compliance effect | Increase | Strong |
| Quality effect | Increase | Medium |
| Communication effect | Increase | Medium |
| Action-inducing effect | Increase | Medium/strong |
| Institutional memory effect | Increase | Strong |
| Role clarification effect | Either increase or reduce | Medium |
| Resource-diversion effect | Reduce | Weak |
| "Box ticking" effect | Reduce | Medium |

[178] Walters, D. (2001). Health and safety in small enterprises -European strategies for managing improvement: P.I.E. Peter Lang. Cited in HSE (2007) "Health and safety in the small to medium-sized enterprise, Psychosocial opportunities for intervention".

### Other approaches

9.134 Although the documentation of the risk assessment could contribute to improvements in health and safety outcomes through the mechanisms described above, it is possible that the same effects could be better achieved in a different way. For example, roles and responsibilities can be more bindingly enforced in contracts. Another alternative approach can be identified if we consider that the mechanisms which have a positive impact are mechanisms which are related to organisational capital. If management sees health and safety as valuable (i.e. they do not have a "box-ticking" mentality) then this has been shown to have a positive effect on outcomes. The quality of the relationship between management and workers affects the organisational capital of the organisation and a good relationship will impact positively on communication, which also feeds into clarity of roles and responsibilities. Therefore, development of organisational capital and improved culture could be an alternative way to achieve the same goals as the documentation.[179]

## Impact of Risk Assessment upon Subsequent Health and Safety Practice

9.135 This section reviews evidence relating to the next link in our chain of impacts – the impact of risk assessments on health and safety practice.

9.136 The literature on health and safety is often sector-specific and based upon case studies. Both of these characteristics limit the extent to which general conclusions can be drawn from this literature. Many of the studies which look at the impact of risk assessments also do so in the context of wider health and safety programmes. This context makes it harder to disentangle the impact of the risk assessment itself from the impact of the wider health and safety programme of which the risk assessments forms a part. However, there is a considerable amount of evidence in this literature to support a positive correlation between these programmes and improved health and safety practice.[180] Therefore, as risk assessment forms part of these programmes, this literature tends to support a positive link between risk assessments and improved health and safety practices.

### Actions taken to improve health and safety

9.137 Most relevant to this study are the health and safety actions taken as a direct result of documentation, but the evidence is richer on the impact of the assessment itself, rather than its documentation. However, it may be possible to link the evidence that is available

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[179] These factors have been considered more generally in the literature, e.g. http://www.theworkfoundation.com/assets/docs/publications/226_good_jobs2.pdf

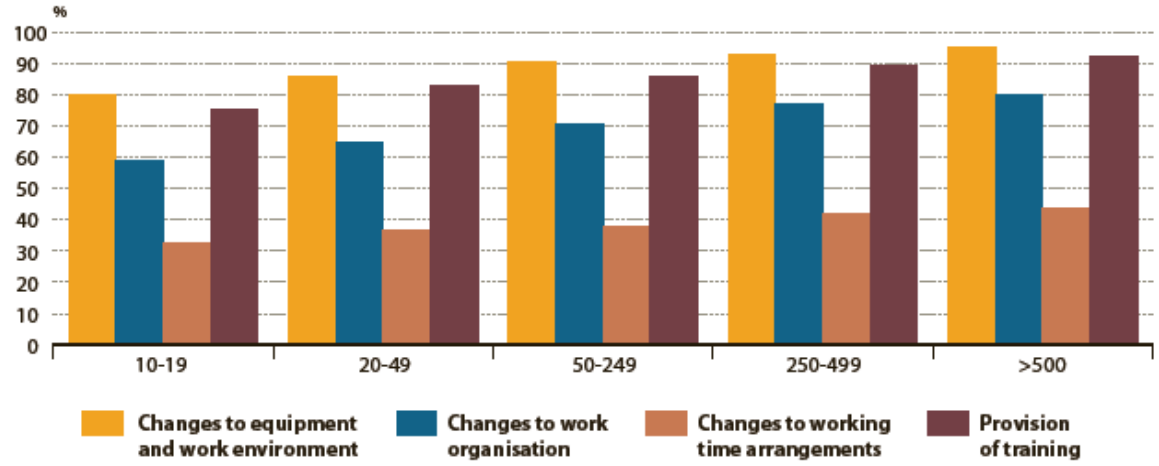
[180] Pearse W.: Club zero: Implementing OHSMS in small to medium fabricated metal product companies. Journal of Occupational Health & Safety - Australia & New Zealand. 2002;18(4):347-356. Edkins GD. The INDICATE safety program: Evaluation of a method to proactively improve airline safety performance. Safety Science. 1998; 30(3);275-295. Alsop P, LeCouteur M. Measurable success from implementing an integrated OHS management system at Manningham City Council. Journal of Occupational Health & Safety - Australia & New Zealand. 1999; 15(6);565-572. Gallagher, C. et al. (2003). Occupational safety and health management systems in Australia: Barriers to success. Policy and Practice in Health and Safety 1(2), 67-81. Liu, H. et al. (2008). The Pennsylvania Certified Safety Committee Program: An Evaluation of Participation and Effects on Work Injury Rates. RAND Working Paper WR-594-PA. Saksvik, Nytrø, K., 1996. Implementation of internal control (IC) of health, environment and safety (HES) in Norwegian enterprises. Safety Sci. 23, 55–61.

to the documentation obligation through some of the mechanisms of effect. For example, if the documentation obligation increases compliance with the risk assessment obligation, then it may precipitate further health and safety actions of the kind discussed in this section.

9.138 When it comes to actions taken as follow-up to risk assessments and similar checks, these tend to focus more on the physical environment than on psychosocial and organisational aspects. As **Figure 9.17** below shows for data across the EU27, changes to equipment and work environment are the most common type of measures across all establishment sizes included in this data.

9.139 This data shown in this chart did not include micro-enterprises. However, we consider some of patterns in the data can be extrapolated to micro-enterprises. For example, the data show that fewer actions are typically taken in smaller firms than in larger ones, and hence we would expect the number of actions taken in micro-enterprises to be lower than the number taken in firms with 10-19 workers. The data also shows a consistent pattern across firm sizes as to the types of measure which are most commonly taken, and hence we would expect a similar pattern to exist for micro-enterprises as well.

**Figure 9.17: Actions taken as follow up to risk assessments or similar checks, in percentage share of establishments, EU27 (%)**

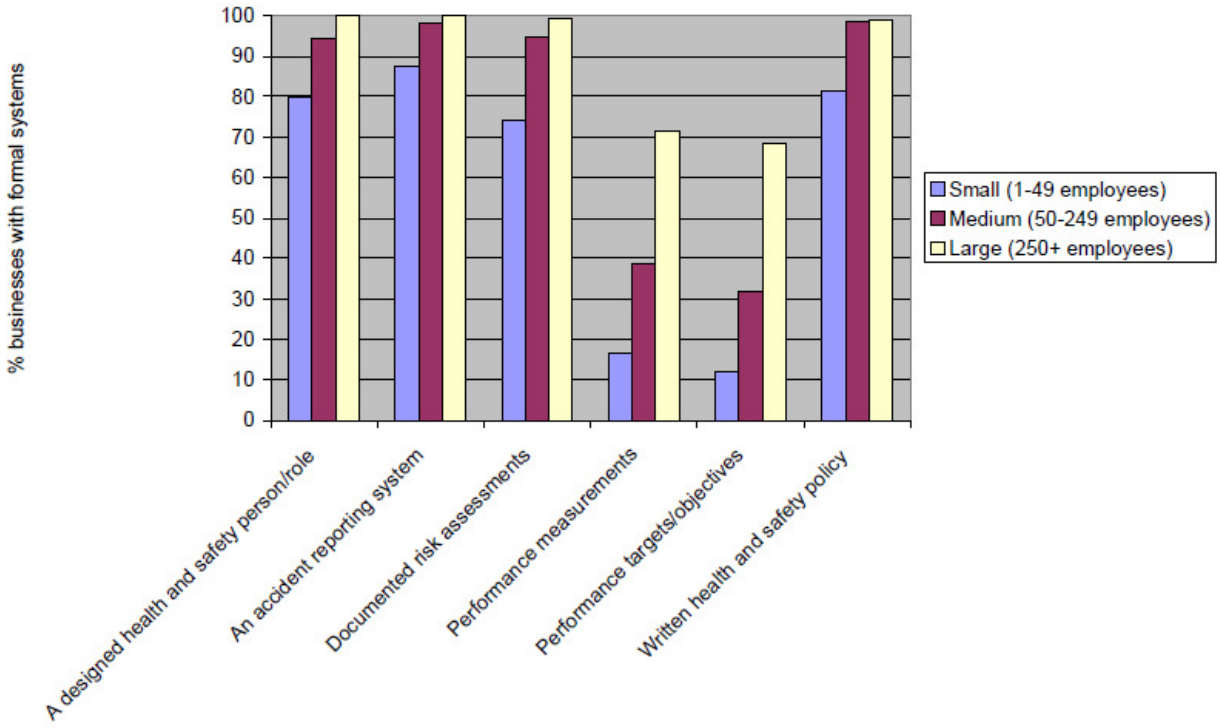



*Source: ESENER 2009 data, presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".*

9.140 A study in the UK involving a survey and inspections found that 71 per cent of small companies had had formal health and safety management systems in place as compared

to 84 per cent for large businesses.[181] The formal health and safety systems found in the companies in the study are shown in **Figure 9.18** below.

**Figure 9.18: Formal health and safety systems**




*Source: HSE (2003) "Costs of compliance with health and safety regulations in SMEs".*

9.141 Two databases were provided by the Dutch Labour Inspectorate to an academic, who performed an analysis on these data, which covered the years 2008 and 2010. This study was not published but has been shared with Europe Economics. It concluded:

(a) Among companies with no risk assessment, the percentage that has taken measures to improve health and safety is significantly lower than among companies which have undertaken a risk assessment.

(b) Where companies have introduced health and safety practices without undertaking a risk assessment, these measures are thought to be of a lower quality than measures introduced in firms that have undertaken a risk assessment.

[181] HSE (2003) "Costs of compliance with health and safety regulations in SME's".

(c) There is some evidence that when risk assessments are undertaken by experts (e.g. health and safety consultants), the health and safety practices that result are of higher quality than when risk assessments are undertaken by non-experts.

(d) Risk assessment is associated with a 15 per cent increase in the number of firms taking measures intended to improved health and safety outcomes.

9.142 Following an interview with an enforcement body, we were sent a study which it had undertaken which indicates a reduced incidence of accidents and work-related illnesses in firms with good health and safety policies in place. While the Italian enforcement body concedes that the robustness of the methodology that it employed in this study may be improved, it does illustrate the impact health and safety practices can have on health and safety outcomes.

**Table 9.5: Results of Italian study on impact of good health and safety practices**

| Sector | % impact on injuries, controlling for number of workers | % impact on number of days lost due to accidents and injuries, controlling for number of workers |
|---|---|---|
| Services | -21 | -15 |
| Chemical industry | -26 | -45 |
| Construction industry | -33 | -42 |
| Energy, petroleum and utility | -32 | -33 |
| Mechanic, metal mechanic, metallurgy industry | -34 | -73 |
| Mining industry | -6 | -18 |
| Glass industry | -43 | -51 |
| Textile industry | -64 | -40 |
| Transport industry | -13 | -32 |
| **Average** | -27 | -35 |

*Source: Internal Enforcement Body Study*

*Conclusion: relationship between health and safety practices and health and safety outcomes*

9.143 The evidence presented here supports the expected conclusion that improvements in health and safety practices result in improved health and safety outcomes. We have found no evidence to contradict this result. Thus, to the extent that the obligation to document risk assessments improves the number of risk assessments undertaken or their effectiveness, so in turn improving health and safety practices, we would expect some feed through to improved health and safety outcomes.

### Costs of actions to improve health and safety

9.144 While improved health and safety practices seem to result in improved health and safety outcomes, these improved practices are not costless. We now present evidence on the costs associated with improving health and safety practices.

9.145 In the Social Europe (2011)[182] report, preventative measures were clustered along six main categories: substitution/avoidance (I), organisational measure (II), new equipment/auxiliaries (III), workplace adjustment (IV), training (V), personal protective equipment (VI). In many cases a set of preventive measures were considered but for clustering purposes, the main measure is indicated. **Table 9.6** below contains the median values of the Net Present Value, Profitability Index and Benefit-Cost Ratio for all projects along the clusters of the six types of measures. Both the profitability index and the benefit-cost ratio depict the positive impact of the projects. The highest values can be found for measures aimed at substitution or avoidance. The lowest values can be found for measures such as training and personal protective equipment. Since the cost-benefit analyses derive from specific case studies the results have to be interpreted carefully as numerous variables influence the results.

**Table 9.6: Overview according to the type of main measure – median values**

| Measure | # | % | Scenario 1* | | | Scenario 2* | | |
|---|---|---|---|---|---|---|---|---|
| | | | Net Present Value | Profitability Index | Benefit-Cost Ratio | Net Present Value | Profitability Index | Benefit-Cost Ratio |
| substitution/avoidance | 3 | 5.4 | 2,207.52 | 2.56 | 1.6 | 13,857.89 | 4.08 | 2.25 |
| organisational measure | 6 | 10.7 | 2,310.96 | 1.74 | 1.04 | 21,829.57 | 3.18 | 1.36 |
| new equipment/auxiliaries | 20 | 35.7 | 1,713.35 | 1.41 | 1.4 | 8,983.74 | 2.76 | 2.7 |
| workplace adjustment | 6 | 10.7 | 2,389.38 | 1.37 | 1.22 | 8,984.01 | 2.15 | 1.66 |
| training | 16 | 28.6 | 605.02 | 0.95 | 1.12 | 8,092.65 | 3.39 | 2.51 |
| personal protective equipment | 5 | 8.9 | 154.38 | 1.05 | 1.18 | 11,038.12 | 1.83 | 2.1 |
| *all* | 56 | 100 | 1,434.88 | 1.29 | 1.21 | 9,218.81 | 2.89 | 2.18 |

*Note: Scenario 1 is based on a conservative assumption of the costs related to accidents at work and work-related ill-health that can be avoided; Scenario 2 takes a more optimistic assumption.*

[182] Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

9.146 The UK HSE (2003)[183] contains data on the costs of actions to improve health and safety, although not specifically for micro-enterprises. **Table 9.7** shows the average amount spent on health and safety by size and **Table 9.8** shows the average amount spent per worker for actions taken.

**Table 9.7: Average amount spent on health and safety by size (£)**

| | Average mean spend | | Minimum mean spend | | Maximum mean spend | |
|---|---|---|---|---|---|---|
| | **Mean** | **N** | **Mean** | **N** | **Mean** | **N** |
| **Small (0-49)** | 4,136 | 654 | 2,077 | 654 | 5,651 | 654 |
| **Medium (50-249)** | 27,345 | 648 | 17,288 | 648 | 33,787 | 648 |
| **Large (250-4999)** | 419,691 | 219 | 411,731 | 219 | 427,663 | 219 |
| **Very Large (5000+)** | 628,926 | 127 | 619,450 | 127 | 631,107 | 127 |
| **Not Known** | 28,784 | 128 | 23,241 | 128 | 32,359 | 128 |
| **Total** | 110,301 | 1776 | 103,620 | 1776 | 114,606 | 1776 |

*Source: HSE (2003) "Costs of compliance with health and safety regulations in SMEs".*

**Table 9.8: Average amount spent per worker for actions taken in relation to the Management of Health and Safety at Work Regulations (£)**

| | **Small (0-49)** | **Medium (50-249)** | **Large (250-4999)** | **Very large (5000+)** |
|---|---|---|---|---|
| **1. Risk Assessments** | 87.01 | 34.03 | 14.07 | 15.00 |
| **2. Health & Safety arrangements** | 98.51 | 46.63 | 14.36 | 16.91 |
| **3. Implementing control measures** | 278.31 | 133.48 | 54.79 | 41.19 |
| **4. Health surveillance** | 63.92 | 30.15 | 16.04 | 11.42 |
| **5. Health & Safety assistance** | 177.28 | 93.07 | 41.47 | 24.74 |
| **6. Serious & imminent danger procedures** | 38.75 | 27.98 | 9.71 | 6.04 |
| **7. Information & training** | 109.80 | 57.16 | 26.21 | 15.92 |
| **8. Co-operation with other employers** | 84.40 | 17.28 | 10.13 | 4.46 |
| **9. Special arrangements for temp workers** | 58.82 | 8.33 | 4.21 | 1.91 |

*Note: amounts spent are standardised per worker*
*Source: HSE (2003) "Costs of compliance with health and safety regulations in SMEs".*

9.147 The 30 organisations visited as part of the study were asked to list their three main health and safety expenditures; these are shown in **Table 9.9** below. For example, the first cell

[183] HSE (2003) "Costs of compliance with health and safety regulations in SME's".

shows that 5 of the 30 organisations visited listed 'training' as one of their three main health and safety expenditures. This indicates that the health and safety expenditure of "worker/management time" seems relatively greater in small and medium firms than in large ones.

**Table 9.9: Main aspects of Health and Safety expenditure**

| | Training | Equipment | Worker / management time | Internal H&S person's salary | H&S consultant fees | Provision of PPE | Implementing control measures | Staffing | H&S software / packages | Site upgrades |
|---|---|---|---|---|---|---|---|---|---|---|
| Small | 5 | 3 | 5 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| Medium | 13 | 7 | 6 | 5 | 3 | 3 | 0 | 1 | 0 | 1 |
| Large | 4 | 3 | 2 | 2 | 1 | 0 | 2 | 1 | 2 | 0 |

*Note: PPE = Personal Protective Equipment*
*Source: HSE (2003) "Costs of compliance with health and safety regulations in SMEs".*

## Impact on Health and Safety Outcomes

9.148 Having established that improved risk assessment should improve health and safety practices, it is important now to assess the impact of these improved practices upon health and safety outcomes.

9.149 It might be argued that improved health and safety practices are, by definition, those which result in improved health and safety outcomes. That is to say what makes practice improved is the change in outcomes: if they don't result in improved outcomes then they are not improved practices. Nonetheless, as far as possible, it is important to understand the scale and nature of this effect, i.e.

(a) To what extent are health and safety outcomes determined by health and safety practice?

(b) To the extent that health and safety practice determines health and safety outcomes, does it affect the severity or the probability of adverse health and safety outcomes?

9.150 We have considered these questions in reviewing the relevant literature and evidence.

9.151 In the Social Europe report (2011)[184] assumptions were made as to the number of cases which could be avoided through preventative measures being applied to certain cases. The assumptions regarding the expected effectiveness of health and safety measures are

[184] Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

based on discussions with companies, expert opinion, data from research and good practice. Scenarios of effectiveness were then developed. Below (**Table 9.10**) we present weighted averages across different measures calculated by Europe Economics from the data in this report, with the weights based on the popularity of different types of measures as reported earlier in this section. These measures varied across the various sectors, and included the provision of extra protective clothing, investment in lifting aids, training in manual handling techniques, awareness campaigns, and repairing and adapting workplaces.

**Table 9.10: Impact of measures on health and safety outcomes**

| Scenario | Weighted average across different measures | |
|---|---|---|
| | **Assumed % of avoided costs due to measures** | **Benefit-Cost Ratio** |
| Lower end | 30 | 1.8 |
| Upper end | 46 | 3.1 |

*Source: Europe Economics calculations, based on data from Social Europe (2011)*

9.152 The Occupational Health and Safety Agency for Healthcare in British Columbia (OHSAH) (2010)[185] undertook a review on best practices for return-to-work/stay-at-work interventions for workers with mental health conditions. They found that workplace-based interventions can improve worker productivity and worker retention. One workplace-based and symptom-focused individual-level intervention resulted in an average 3.5-hour per week increase in effective hours worked by each worker, and resulted in symptom improvement: 50 per cent of workers who participated in the intervention were clinically recovered by 12 months.[186] One Canadian study found that workplace-based collaborative mental health care was successful in helping workers return to work 16 days sooner than usual care over a 12-month period and reduced the proportion of workers who transitioned to long-term disability over the same period by over three-quarters.[187]

9.153 The WHO (2010)[188] reviewed evidence for effectiveness of occupational health and safety interventions and categorised interventions based on this evidence as effective, ineffective, or inconclusive/inconsistent.

9.154 From the firms' perspective, according to the ESENER (2010) survey of enterprises with over 10 workers, about a third of those having a documented policy in place judge that it

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185 Occupational Health and Safety Agency for Healthcare in British Columbia (2010) "Best practices for return-to-work/stay-at-work interventions for workers with mental health conditions".

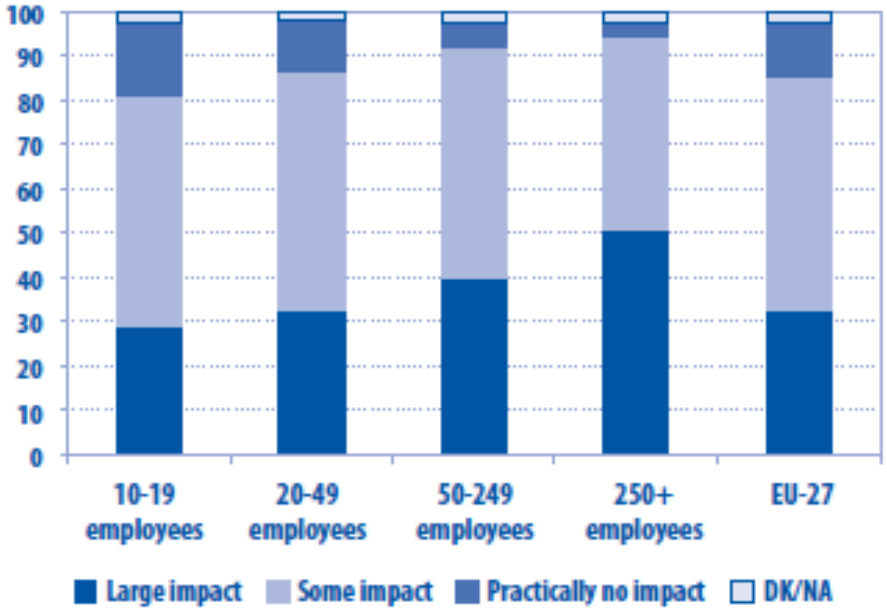
186 Corbière, M., & Shen, J. (2006). A systematic review of psychological return-to-work interventions for people with mental health problems and/or physical injuries. Canadian Journal of Community Mental Health, 25(2), 261-288. Cited in Occupational Health and Safety Agency for Healthcare in British Columbia (2010) "Best practices for return-to-work/stay-at-work interventions for workers with mental health conditions".

187 Saint-Arnaud, L., Saint-Jean, M., & Damasse, J. (2006). Towards an enhanced understanding of factors involved in the return-to-work process of employees absent due to mental health problems. Canadian Journal of Community Mental Health, 25(2), 303-315. Cited in Occupational Health and Safety Agency for Healthcare in British Columbia (2010) "Best practices for return-to-work/stay-at-work interventions for workers with mental health conditions".

188 WHO (2010) "Healthy Workplace Framework and Model: Background and Supporting Literature and Practice".

has a large impact on health and safety in their establishment; about half that it has some impact; and one in eight that it has practically no impact. The larger an establishment, the more likely it is to judge the documented policy as having an impact: 16 per cent of establishments with 10 to 19 workers responded that the document had practically no impact compared with 3 per cent of establishments with 250 or more workers (see **Figure 9.19** below). The same was found to be broadly the case for all sectors of activity.

**Figure 9.19: Impact of the policy, management system or action plan on health and safety, by establishment size (per cent all establishments)**




*Source: ESENER (2010) "European Survey of Enterprises and New and Emerging risk, Managing safety and health at work".*
*Note: respondents are only those establishments with a documented policy, established management system or action plan on health and safety.*

## Valuation of Health and Safety Outcomes

9.155 This section reviews the evidence in the literature on the value of health and safety outcomes achieved by the documentation to firms, workers and governments.

### Benefits to firms

9.156 This section presents estimates of benefits to firms of improved health and safety outcomes. It should be noted that generally most of the financial benefits to firms take the form of cost savings rather than increased income or revenue flows.[189]

[189] PriceWaterhouse Coopers (2008) "Building the case for wellness".

9.157 Research in Australia undertaken by corporate governance watchdog Regnan and Goldman Sachs JBWere found companies with workplace health and safety systems outperformed the benchmark S&P/ASX 200 by 38.4 per cent.[190]

9.158 Verbeek et al. (2009)[191] reviewed 26 studies on occupational safety and health interventions to assess if health and productivity arguments make a good business case. Most of the studies were ex-post cases. In seven studies the profitability of the intervention was negative but for the other studies the payback period of the intervention was less than half a year.

9.159 Research has shown that 60 per cent of UK companies that have a disruption lasting more than 9 days go out of business (HSE, 2005).[192] This suggests that disruptions to productivity caused by health and safety incidents can have significant impacts.

9.160 One Finnish study (Ahonen, 1998) estimated the economic benefits of achieving good OSH among SMEs through surveying 340 companies across different sectors and found specific benefits, including reduced sickness absence, which could be achieved over the course of a year. The benefit from reduced sickness absence was thought to range from €286 to €942 per firm.

9.161 There is evidence that OSH is linked to insurance premiums. The ILO (2003) stated that poor safety and health within a company may trigger higher insurance premiums.

9.162 However, BERR (2008)[193] note that insurers do not always match premiums precisely to risk, which weakens the financial incentive for good practice. This occurs among small low risk firms, where the cost of accurately estimating risk generally outweighs the benefit to the insurer. For a premium of less than £10,000, insurers are highly unlikely to visit a firm as part of their assessment of its risk.

**Benefits to workers**

9.163 This section presents estimates of the health and safety benefits to workers of improved health and safety outcomes.

9.164 Benefits to workers are chiefly in the form of an improved health and safety status, i.e. fewer and less severe injuries and ill health. The valuation of these is discussed in the later section of this chapter on the modelling of health and safety impacts.

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190 http://www.theage.com.au/news/business/safer-companies-outperform-the-market-research-says/2007/10/30/1193618885091.html

191 Verbeek, J., Pulliainen, M., Kankaanpää, E., A systematic review of occupational safety and health business cases, Scandinavian Journal of Work, Environment and Health, 2009, vol. 35 (6), pp. 403-412.

192 Referenced at: http://www.sbdc.org.au/Text/1258508967062-6545/uploadedFiles/1258508173921-2370.pdf

193 BERR (2008) "Improving outcomes from Health and Safety, A Report to Government by the Better Regulation Executive".

9.165 Studies have also shown that workers benefit from improved satisfaction. For example, one organisation saw a dramatic and positive increase in workers' opinion of the organisation from -0.08 in 2003 to +0.53 in 2006 (range is -2 to +2).[194]

9.166 A reduction in staff turnover can also be seen as indicating that workers have become more satisfied. PwC (2008) reported studies showing reductions in staff turnover rates from about 10 per cent to 25 per cent, with an average reduction in staff turnover of around 20-25 per cent.[195]

9.167 Morse et al. (1998)[196] used US data to compare social and economic outcomes between workers who had and hadn't reported work-related musculoskeletal disorders (WRMSDs). The results are striking, indicating an increased probability of divorce, lost car, lost home and lost health insurance, following WRMSD.

9.168 Some factors have no price in the market place, though they represent economic costs. For example, in a US study by Weill (1999)[197] is was found that one sixth of injured workers needed some other family member to take care of them, and almost two fifths required other family members to perform some or all of their household tasks.

**Benefits to governments**

9.169 Costs to government of workplace injury and work-related ill health include:

(a) Costs arising from loss of earnings to the individual: benefits payments, reduction in tax and national insurance receipts;

(b) Medical treatment and rehabilitation costs;

(c) Administration and legal costs.

9.170 Evidence from the following studies shows that society bears the largest cost of accidents, though the estimates of the cost apportionment vary and indicate that the more severe the accident the greater the burden on society:

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194 PriceWaterhouse Coopers (2008) "Building the case for wellness".

195 PriceWaterhouse Coopers (2008) "Building the case for wellness".

196 Morse, Timothy F., Charles Dillon, Nicholas Warren, Charles Levenstein, and Andrew Warren.1998. The Economic and Social Consequences of Work-Related Musculoskeletal Disorders: The Connecticut Upper-Extremity Surveillance Project (CUSP). International Journal of Occupational and Environmental Health. 4(4): 209-16.

197 Weil, David. 1999. The Economic Consequences of Work Injury and Illness: What We Know and What We Must Learn. Invited conference paper for Functional, Economic, and Social Outcomes of Occupational Injuries and Illnesses: Integrating Social, Economic and health Services Research, National Occupational Research Agenda, National Institute for Occupational Safety and Health, June 13-15, 1999, Denver.

(a) CIOP estimate that 76 per cent of the average cost of an accident at work is incurred by society, 13 per cent by the victim and his or her family and 11 per cent by the employer;[198]

(b) The Australian Industry Commission estimate 30 per cent of the costs are paid by society (mostly in social security benefits and health subsidies), 30 per cent borne by injured workers and their families, and employers have to bear about 40 per cent in workers' compensation costs. Most costs of minor accidents are borne by the company.[199]

(c) Larsson and Betts (1996) estimate that for severe accidents, the compensation system pays 70 per cent of the costs and the victim and the company pay an equal portion of 15 per cent.[200] They conclude that for severe cases more costs are picked up by social security.

9.171 The social security system will have an impact on the distribution of costs from accidents at work and work-related ill-health between individuals, firms and society. The social security systems in Europe are either predominantly Beveridgean[201] (11 countries, including the UK, Spain, Italy and Greece: mainly tax-based contributions) or Bismarckian[202] (16 countries, including Germany, France, Austria and most of the former Eastern bloc countries: mainly insurance-based contributions).[203]

9.172 For an idea of the scale of the costs of benefit payments, Quinlan and Mayhew (1999)[204] cite two studies, one for Australia, the other for British Columbia, that show nearly a quarter of all recipients of workers compensation ultimately are on welfare, whilst the OECD countries spend on average 2.4 per cent of GDP on incapacity related benefits and 18 per cent of the causes of long-standing health problems or disabilities are work-related.[205]

9.173 Health and Safety Executive (UK) estimates of the distribution of costs are in the table below (**Table 9.11**).

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198 Cited in Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

199 Industry Commission, Work, health and safety, an inquiry into occupational health and safety, Melbourne, 1994. cited in Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

200 Larsson, T., Betts, N. (1996) "The variation of occupational injury cost in Australia; estimates based on a small empirical study", Safety Science, vol. 24 pp. 143-155 cited in Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

201 The Beveridge model is tax financed.

202 The Bismarckian model is funded by social insurance (contributions).

203 European Agency for Safety and Health at Work (2009) "Economic incentives to improve occupational safety and health: a review from the European perspective".

204 Quinlan, Michael (1999) "The Implications of Labour Market Restructuring in Industrialised Societies for Occupational Health and Safety", Economic and Industrial Democracy. 20(3): 427-60.

205 Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

**Table 9.11: Estimated costs to Britain of work related injuries and ill health by cost bearer (2006/07 and 2009/10)**

| Cost bearer | Period | Estimated Cost (£billions, 2009 prices) | | | % of total cost |
|---|---|---|---|---|---|
| | | Central | Lower* | Upper* | Central |
| **Individuals** | **2006/07** | 9.4 | 8.5 | 10.2 | 58% |
| | **2009/10** | 7.6 | 6.8 | 8.4 | 55% |
| **Employers** | **2006/07** | 3.4 | 3.3 | 3.5 | 21% |
| | **2009/10** | 3.1 | 3 | 3.1 | 22% |
| **Government** | **2006/07** | 3.5 | 3.1 | 3.9 | 21% |
| | **2009/10** | 3.3 | 2.9 | 3.7 | 24% |
| **Total cost to society** | **2006/07** | 16.3 | 15 | 17.5 | 100% |
| | **2009/10** | 13.9 | 12.7 | 15.1 | 100% |

*Source: HSE UK (2010) "Costs to Britain of workplace injuries and work-related ill health: 2009/10 update".*
**95 per cent confidence interval.*

## Modelling of Impacts

9.174 We extended the model discussed in Chapter 8 to enable us to estimate the possible impacts on health and safety outcomes of two scenarios:

(a) A scenario where micro-enterprises in low risk sectors are exempt from the obligation to document their risk assessments.

(b) A scenario of 100 per cent compliance with the documentation obligation among micro-enterprises.

9.175 The model also considers the impacts of the two scenarios on the costs to firms of actions to improve their health and safety situation that are carried out as a direct result of risk assessments.

9.176 This addition of this health and safety outcome modelling capacity to the model enables us to provide comprehensive assessment of the net impact of both achieving 100 per cent compliance with the risk assessment documentation obligation, and of exempting micro-enterprises in low risk sectors. The model and data used are discussed in more detail in Appendix 5.

### Data used in modelling

9.177 The purpose of the model is to make use of available data and information to provide an estimate of the possible impacts on health and safety outcomes that may arise under the two scenarios. The data available for a number of the steps in the model are subject to various weaknesses, and in some cases information about the direction and magnitude of impacts is missing altogether. However, despite these limitations it is still valuable to develop a model to produce ballpark estimates (subject to various caveats) of the impacts of the scenarios, rather than not attempting to quantify the impacts at all.

9.178 Our model follows the four links between the documentation of the risk assessment and final health and safety outcomes that are described earlier in this chapter. We do not capture all possible impacts of documentation and are limited to those that are most feasible to model. For example, we focus on the compliance mechanism of effect between documenting a risk assessment and undertaking one, rather than the quality effect, as it is more feasible to model a change in the *number* of risk assessments than a change in the *quality* of risk assessments.

**Other simplifying assumptions**

9.179 The impacts of the two scenarios were modelled in the following way:

(a) First, the value of current work-place accidents and illness, including fatalities and permanent incapacity, was estimated. This represents the counterfactual or current situation. All impacts arising from the two scenarios were then measured in relation to this baseline. The costs of accidents and illness were measured in terms of lost output (represented by forgone labour costs); healthcare system costs; other financial costs (e.g. administrative costs following an incident); and non-financial costs such as suffering (represented by individuals' willingness to pay for the reduction in accidents and illness).

(b) Second, the links in the chain of impact between the documentation of the risk assessment, carrying out the risk assessment, undertaking actions to address health and safety issues, and the value of these actions in terms of reduced costs of accidents and illnesses, were quantified.

(c) For the scenario of 100 per cent compliance with the documentation obligation, the model then estimated how an increase in compliance from existing levels to 100 per cent would reduce the costs of health and safety incidents, using the two main inputs described above.

(d) For the scenario of exemption from the documentation obligation, the model estimated how a reduction in compliance to zero per cent in the relevant low-risk sectors would increase the costs of health and safety incidents.

9.180 Table 9.12 below presents a summary of the data used in the modelling steps described above. When deciding on what data to use, consideration had to be given to both the quality of the data and to their consistency between the links in the chain of impact. Further details of our evaluation of data sources are provided in an appendix to this report.

**Table 9.12: Data used in modelling**

| Link in chain of impacts | Summary of data used |
|---|---|
| Impact of documentation on the number of risk assessments undertaken, through compliance effect | No data available, so used sensitivity scenarios* to investigate potential impact. Scenarios range from zero (whereby documentation has no impact on risk assessment) to 50 per cent (whereby half of the enterprises that cease documenting a risk assessment also cease to undertake a risk assessment). |
| Impact of risk assessments on number of measures undertaken | Study of data from the Dutch Labour Inspectorate on the impact of risk assessments in the number of measures undertaken to improve health and safety. On average 15 per cent more firms undertook measures after conducting a risk assessment compared with firms that did not conduct a risk assessment. |
| Impact of measures on the costs of health and safety incidents | Data from the 2011 Social Europe study on the proportion of the costs of accidents and illnesses avoided through health and safety measures. Averages across all case studies range from 30 per cent to 46 per cent. |
| The cost of workplace accidents and illnesses | Adapted methodology from the UK HSE study on costs to Britain of accidents and injuries in 2009/10.[206] |
| Costs of measures undertaken as a result of risk assessments | Benefit-cost ratio from 2011 Social Europe study of measures undertaken to improve health and safety was used to estimate the costs given our benefit estimates. Ratio ranges from 1.8 to 3.1 |

**Note: a fuller description of these 'sensitivity scenarios' can be found in the Analysis of uncertainty section in Chapter 8 on page 119.*

## Model results

9.181 We present the model results for the impacts of the two scenarios: 100 per cent compliance with the documentation obligation among micro-enterprises, and an exemption from the obligation for low-risk micro-enterprises. Impacts are presented both in terms of health and safety outcomes and in terms of the costs to firms of undertaking measures to achieve these outcomes.

9.182 The model results should be viewed in light of the following considerations:

(a) The estimation of the current costs of accidents and illness considers the lost output arising from the loss of working days, measured as the total number of lost working days multiplied by average daily labour costs. It also considers other financial costs such as healthcare costs and administration costs incurred by society and employers.

[206] Health and Safety Executive (2011) 'Costs to Britain of workplace injuries and work-related ill health: 2009/10 update.'

(b) Additional non-financial costs are estimated at 1.68 times the lost output. These non-financial costs represent the suffering of individuals, and are a monetary value of their willingness to pay to avoid the risk a death or ill health or injury.[207] We note that this does not fully include the harm suffered by the victims' families, since it only captures that proportion of the harm to relatives which individuals incorporate into their own willingness to pay.

(c) The link between undertaking health and safety measures and reductions in the costs of health and safety incidents assumes that during a risk assessment firms identify all possible risks and undertake measures that address all these risks (which on average achieve the same percentage reduction in incidents).

*100 per cent compliance*

9.183 The tables below show the reduction in the costs related to health and safety incidents that could be realised if 100 per cent compliance with the risk assessment documentation obligation was achieved. The estimates are presented as present values over ten years. In order to account for uncertainty around some input values, three sensitivity scenarios were used to estimate the benefit from 100 per cent compliance: a high scenario, using input values that give a high benefit of 100 per cent compliance; a medium scenario, using input values that give the most likely benefit of 100 per cent compliance; and a low scenario, using input values that give the lowest benefit of 100 per cent compliance. These sensitivity scenarios are discussed in more detail in the Analysis of uncertainty section in Chapter 8 on page 119.

9.184 Our modelling takes into consideration two different types of enforcement action by labour inspectorates. The first, Full Inspection scenario, is our preferred enforcement approach and consists of a full inspection of each firm. This scenario assumes that all firms comply with both the documentation obligation and undertake genuine risk assessments to improve their health and safety practices.

9.185 The second, Document Only Inspection scenario, consists of an inspection in which just the documentation is checked, with no checks on whether a risk assessment has indeed been carried out or any follow-up actions have been taken. Although less resource intensive for the enforcement body, this inspection model results in fewer genuine health and safety improvements as firms do not necessarily comply with the risk assessment obligation to the same extent as they comply with the documentation obligation.[208] Thus the cost savings from improved health and safety actions will be lower.

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[207] This ratio is derived from the 2011 UK HSE study: 'Costs to Britain of workplace injuries and work-related ill health: 2009/10 update.'

[208] We explore three values for this follow-on compliance between documentation and risk assessments: 50 per cent (whereby 50 per cent of firms that begin to comply with the documentation obligation for the first time also undertake a genuine risk assessment and take follow-up actions); 25 per cent and zero per cent.

9.186 The tables only present the additional reductions in the costs of health and safety incidents resulting from *additional* levels of compliance compared with the counterfactual. In other words, the table does not reflect the costs of *all* micro-enterprises complying with the documentation obligation – only the costs of those enterprises that do not currently comply.

**Table 9.13: Reductions in the costs of health and safety incidents arising from a move to 100 per cent compliance with risk assessment documentation – Full inspection scenario (€ millions)**

| | NPV over ten years | | |
|---|---|---|---|
| **Reduction in the total costs of health and safety incidents** | **Low** | **Medium** | **High** |
| Reduction in lost output from health and safety incidents | 4,224 | 8,069 | 13,115 |
| Reduction in healthcare system costs from health and safety incidents | 845 | 1,614 | 2,623 |
| Reduction in other costs of health and safety incidents | 296 | 565 | 918 |
| Reduction in non-financial costs of health and safety incidents | 7,097 | 13,556 | 22,033 |
| *Total* | *12,462* | *23,804* | *38,689* |
| **Increase in the cost of corresponding measures** | 2,347 | 3,294 | 4,231 |

**Table 9.14: Reductions in the total costs of health and safety incidents arising from a move to 100 per cent compliance with risk assessment documentation – Documentation only inspection scenario (€ millions)**

| | NPV over ten years | | |
|---|---|---|---|
| **Reduction in the total costs of health and safety incidents** | **Low** | **Medium** | **High** |
| Reduction in lost output from health and safety incidents | - | 2,017 | 6,557 |
| Reduction in healthcare system costs from health and safety incidents | - | 403 | 1,311 |
| Reduction in other costs of health and safety incidents | - | 141 | 459 |
| Reduction in non-financial costs of health and safety incidents | - | 3,389 | 11,016 |
| *Total* | - | *5,951* | *19,344* |
| **Increase in the cost of corresponding measures** | - | 823 | 2,115 |

9.187 As can be seen, under the full inspection scenario, the total savings over ten years from a reduction in health and safety incidents arising from 100 per cent compliance could range from approximately €20 billion in the low scenario to nearly €66 billion in the high scenario. This includes savings across all elements of health and safety costs. Savings are significantly lower under the documentation only inspection scenario, ranging from zero additional savings to just over €11 billion.

9.188 The tables also present the costs to firms associated with undertaking the additional health and safety measures that bring about the improvements in health and safety outcomes. These costs are additional to the costs of undertaking or documenting risk assessments, and relate to the measures that firms implement as a *result* of their risk assessments (e.g. provision of additional training, purchase of safety equipment). The costs are estimated as a ratio of the benefits achieved by the measures in terms of lost output — the size of the ratio is greatest under the 'low benefit' scenario. The present value of the costs over ten years ranges from approximately zero to €7 billion across both inspection scenarios.

*Exemption of low risk sectors*

9.189 The exemption of micro-enterprises in low risk sectors from the obligation to document a risk assessment will reduce the proportion of firms that document their risk assessment. This proportion will reduce to zero among firms that document their risk assessment only because of the regulation. Firms that document their risk assessment for reasons other than a regulatory obligation will continue to do so (we refer this as the 'business as usual' effect).

9.190 Of those firms that cease to document their risk assessment, a further proportion may also cease to conduct the risk assessment. This is as a result of the compliance effect described earlier in the chapter. The size of the compliance effect (which we model under three scenarios due to uncertainty of the actual impact) is a key variable in the estimation of the impacts of the exemption on health and safety outcomes. A compliance effect of zero under our 'high benefit' sensitivity scenario means that the documentation obligation has no bearing on whether a firm undertakes a risk assessment or not, and an exemption from the documentation obligation would have no negative impact on risk assessments or health and safety outcomes. On the other hand, a compliance effect of 50 per cent (our 'low benefit' sensitivity scenario) means that of the firms that cease to document their risk assessments, half would also cease to undertake the risk assessment, leading to a reduction in health and safety measures and an increase in health and safety incidents and the associated costs.

9.191 A reduction in the risk assessments undertaken as a result of this effect would, however, lead to a corresponding reduction in the costs of the associated health and safety measures.

9.192 The tables below (**Table 9.15** and **Table 9.16**) present both the costs of an exemption in terms of an increase in health and safety incidents, and the savings in terms of the foregone health and safety actions. Results are presented across our three low risk scenarios and our three sensitivity scenarios.

9.193 The costs and benefits associated with the 'high benefit' sensitivity scenario are zero due to the zero compliance effect that forms the basis of this scenario. In this scenario, an exemption from the documentation obligation does not affect firms' propensity to undertake a risk assessment, so there is no change to the number of measures undertaken and no corresponding change to health and safety outcomes.

**Table 9.15: Increase in total costs of health and safety incidents arising from an exemption from the documentation obligation among low-risk micro-enterprises (€ millions)**

| | Present value over 10 years | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Low risk scenario 1** | | | **Low risk scenario 2** | | | **Low risk scenario 3** | | |
| | Low | Medium | High | Low | Medium | High | Low | Medium | High |
| Increase in lost output from health and safety incidents | 40.2 | 12.4 | - | 44.2 | 13.6 | - | 59.2 | 18.2 | - |
| Increase in healthcare system costs from health and safety incidents | 8.0 | 2.5 | - | 8.8 | 2.7 | - | 11.8 | 3.6 | - |
| Increase in other financial costs of health and safety incidents | 2.8 | 0.9 | - | 3.1 | 1.0 | - | 4.1 | 1.3 | - |
| Increase in non-financial costs of health and safety incidents | 67.5 | 20.8 | - | 74.2 | 22.8 | - | 99.4 | 30.6 | - |
| **Total cost** | **118.6** | **36.5** | **-** | **130.3** | **40.1** | **-** | **174.6** | **53.7** | **-** |

**Table 9.16: Reduction in costs of health and safety measures due to exemption from the documentation obligation among low-risk micro-enterprises (€ millions)**

| Present value over 10 years | Low risk scenario 1 | Low risk scenario 2 | Low risk scenario 3 |
|---|---|---|---|
| Low benefit scenario | 13.0 | 14.2 | 19.1 |
| Medium benefit scenario | 5.0 | 5.5 | 7.4 |
| High benefit scenario | 0 | 0 | 0 |

### Net impact of scenarios

9.194 The net impact of the two scenarios (100 per cent compliance and an exemption for micro-enterprises in low risk sectors) will combine the health and safety impacts presented in this section with:

(a) The estimates of administrative burdens and the costs of risk assessments presented in section 8; and

(b) In the case of 100 per cent compliance, the estimated enforcement costs presented in section 7.

9.195 Overall results combining all these impacts are discussed in our conclusions chapter.

# 10 OTHER IMPACTS

10.1 In this section we discuss other impacts that may arise from the proposed exemption for low risk micro-enterprises from the obligation to document risk assessments. These are in addition to any direct and indirect health and safety impacts, which have been covered in the previous chapter.

## Role of Document after Health and Safety Incident has occurred

10.2 The documentation of risk assessments can play an important role following a health and safety incident. Documented evidence that risks were properly assessed and addressed can help firms defend themselves against claims of negligence, and reduce the size of claims paid to workers either by them, their private insurers, or state-based compensation schemes, or even enable firms to avoid paying any compensation at all. The documentation of risk assessments can also reduce the total costs of claims by reducing legal fees, which in turn can reduce insurance premiums and state-controlled compensation scheme contributions paid by firms.

### Compensation and insurance

10.3 After a health and safety incident has taken place, the affected worker may receive compensation under two main systems in Europe.[209]

(a) Workers' compensation systems. Compensation is provided on a no-fault basis; the claimant is not required to prove negligence or breach of a legal duty on the part of the employer, and fault on his or her own part is usually irrelevant. However, in some Member States the state is able to reclaim some of the compensation from the employer or worker if liability, such as negligence, can be proven.

(b) Employers' liability (or tort-based) systems. The claimant must establish legal responsibility on the part of the employer (often in the form of negligence or fault) if he or she is to secure compensation. The obligation to pay compensation then falls on the employer, although the risk is often transferred to a liability insurer. In Member States where this is the main system of compensation firms are able to take out separate employers' liability insurance policies (indeed, in some countries like the UK and Cyprus employers' liability insurance is compulsory).

10.4 Across Europe the most common regime is one which combines employers' liability and workers' compensation (for example, an injured worker will receive compensation for financial losses from a state fund but will also be able to sue the employer in tort to obtain additional compensation, for example for non-financial losses). In most Member States

[209] Note that these systems vary widely across Member States, but have the same key characteristics described in our text. See Parsons, C (2002) 'Liability rules, compensation systems and safety at work in Europe' The Geneva Papers on Risk and Insurance Vol 27, No 3 for a more detailed discussion.

workers' compensation is the more important source of compensation, although the ratio of importance varies widely across Member States. In some countries such as Germany, Austria and France workers' compensation is almost the exclusive remedy for workplace injury. In the UK and Ireland employers' liability is the most important system; and employers' liability is thought to be becoming more important in the Netherlands, Spain and Italy.[210]

10.5 Arrangements for workers compensation insurance systems vary widely across Europe. Insurance can be voluntary or compulsory (although it is usually compulsory in some form). Insurance can be provided by the state as part of a fully integrated social insurance scheme; by recognised private insurers; or by a combination of public and semi-public risk carriers. In most cases contributions from firms are obtained through automatic taxes or compulsory levies. For example, in Italy each company pays a premium to INAIL (the statutory public agency) that is related to the number of health and safety incidents in the last three years, and firms can apply for a discount on this amount if they adopt specific health and safety management systems. In Latvia, contributions to the state accident fund are more general, taken as a proportion of overall business tax.

**Role of documented risk assessments**

10.6 Where compensation is linked to employers' liability, a written risk assessment will help firms to defend themselves more easily in court or other legal settings in the event of a health and safety-related claim from a worker. If the employer is able to prove that all possible risks were noted and addressed,[211] then the extent of employers' liability can be more easily minimised or eliminated and the size of the compensation reduced or avoided altogether. Feedback from interviews with employment liability insurers suggested that the clear written evidence provided by a documented risk assessment could lead to decision of contributory (or joint) negligence between employer and worker, which could reduce the size of the claim by up to 50 per cent.

10.7 The role of the risk assessment document is highlighted by the importance that some insurers attach to it. Given the risk of incurring high compensation claims in the absence of such documentation, an insurance firm we have interviewed obliges firms to provide documented evidence of risk assessments as part of the insurance application process. In addition, a study on employers' liability insurance for the UK identified a number of measures that could help reduce the cost of insurance claims and thus premiums, which included demonstrating good risk management through clearly defined and documented health and safety documentation.[212]

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[210] The UK, Ireland and Cyprus are the only Member States where separate employers' liability insurance policies can be found.
[211] For example, that the employee was provided with all necessary safety equipment
[212] Department of Work and Pensions (2003) 'Review of Employers' Liability Compulsory Insurance'

10.8 A reduction in compensation paid to affected workers in this case only represents a transfer payment with no net gain or loss for society as a whole (whereby the worker now bears a greater proportion of the total costs of the accident instead of the employer).

10.9 The existence of good risk assessment documentation could also reduce legal fees by making the claims process simpler and less open to extended court cases or negotiations between parties in order to prove liability. Given that legal fees can form a significant proportion of overall payments made, this could represent a significant net saving to society.[213]

**Impact of increased claims**

10.10 An increase in the value of claims could have a further negative effect on firms, as a rise of this sort would be likely to lead to increased premiums or contributions over time as private insurers or state funds attempt to fund higher pay-outs. This could be the case both in systems where insurance is provided by private insurers, and state-funded schemes that incorporate some degree of liability assessment. Insurance premiums for small firms are generally developed according to aggregate claims ratios and risk assessments for sectors as a whole, and thus increases in premiums are likely to be applied across the board, regardless of the health and safety record of individual firms.[214]

10.11 A report on the employers' liability insurance market in the UK provides a good example of rising premiums that were caused in part by steady increases in the (legal) costs of resolving claims, including costs associated with establishing negligence. The increasing premiums had negative effects on businesses at the time, such as a rise in overhead costs and a reduction in profit margins. These in turn were thought to depress business investment and impair future business profitability. Particularly hard hit were SMEs, for which insurance premiums represented a greater proportion of overall costs than for larger firms, as they were unable to benefit from size discounts or influence premiums away from aggregate 'book' rates.[215] Smaller firms also found it harder to pass costs on to customers. Therefore, there is a possibility that an exemption from documenting risk assessments could have negative unintended consequences for small firms through rising insurance premiums that would affect all firms, even those that do not have any claims against them.

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213 The Association of British Insurers (ABI) have suggested that on average 40 per cent of claims expenditure goes to legal fees; a leading employers' liability insurer suggests from their data that legal fees are as much as 51 per cent of claims below £10,000 (likely to be most relevant for small employers). See Department of Work and Pensions (2003) 'Review of Employers' Liability Compulsory Insurance'

214 In many cases, insurance premiums do reflect to a certain degree the individual risk profile of a firm (e.g. discounts for no claims or clear evidence of good health and safety management systems), but aggregate claims are generally the most significant driver. This is different to larger firms, where it is more economically feasible for insurers to undertake more detailed assessment of individual firms' risk profiles (e.g. through health and safety assessments) and thus tailor premiums to individual risk profiles.

215 OFT survey of businesses in the context of employers' liability insurance, cited in Department of Work and Pensions (2003) 'Review of Employers' Liability Compulsory Insurance'

10.12 Whilst the value of documented risk assessments in proving liability and reducing the value of claims is of highest importance in relation to employers' liability compensation regimes, most Member States have some element of employers' liability compensation even if the main form of compensation is no-fault workers' compensation. Therefore, to the extent that exemption from the obligation to document a risk assessment drives up insurance premiums, this effect would be experienced across a number of Member States.

10.13 The previous chapter analysed the connection between exemption from the obligation to document risk assessments and poorer health and safety practices and outcomes. As discussed there, to the extent that an exemption from the obligation to document risk assessments leads to poorer health and safety outcomes, even workers' compensation systems that do not rely on proving liability will be faced with higher pay-outs and may increase the contribution firms are obliged to make to cover these, with similar effects on costs and profitability.

## Impacts on Related Obligations and Worker Rights

10.14 A possible amendment of the Directive at Article 9(1)(a) and (2) may impact the fulfilment of several other provisions of the Directive.

10.15 For instance, Article 10 on "Worker Information" requires the employer to take appropriate measures so that workers, their representatives and employers of workers from outside undertakings engaged in work on the premises, have access to all the necessary information concerning the safety and health risks and preventative measures. "Appropriate measures" are not defined, but it could be argued that this requires a written risk assessment.

10.16 However, Article 10 does caveat this obligation by stating that this should be done in accordance with national law which may take account, inter alia, of the size of the undertaking.

10.17 Article 11 also consists of obligations on "Consultation and participation of workers", which states that workers and/or their representatives should be consulted in the development of risk prevention measures and the risk assessment (Article 9 (1)).

10.18 In addition , the Charter of Fundamental Rights of the European Union (2000/C 364/01), Title IV on "Solidarity", Article 27, "Workers' right to information and consultation within the undertaking", states the following:[216]

[216] http://www.europarl.europa.eu/charter/pdf/text_en.pdf

> Workers or their representatives must, at the appropriate levels, be guaranteed information and consultation in good time in the cases and under the conditions provided for by Community law and national laws and practices.

10.19 An exemption from documenting a risk assessment may undermine the fulfilment of these obligations and worker rights. The absence of a written document may make it difficult for information on the risk assessment to be shared among workers, particularly over time (for example, in cases where the person responsible for the assessment leaves the company, or the workers forget what was orally communicated to them). The absence of a written document may also remove a valuable means of involving workers or their representatives in the risk assessment process, and ensuring worker participation through contributions to the development of the document.

10.20 The participation of workers may contribute to improved risk assessments and health and safety outcomes, and thus the documentation would not only help uphold worker rights but also have an indirect effect on health and safety outcomes. Recent research conducted in the Netherlands found that worker participation was associated with better health and safety performance (although only marginally), and is correlated with better quality risk assessments and more preventive measures, although again the effect is not strong.[217]

10.21 Feedback from interviews we conducted about the value of the documentation obligation on other obligations in the Directive is mixed. On the one hand it is argued that a risk assessment document would help provide concrete information to workers as well as act as a reference during employer/worker meetings about health and safety issues. A document would also help to ensure that the risk assessment process was transparent, as well as ensure that workers could check whether all relevant risks had been noted and addressed and make recommendations for amendments if necessary. The absence of a documented risk assessment may not be welcomed by workers and could potentially cause tensions between workers and employers.

10.22 On the other hand, some interviewees suggested that the actual risk assessment document would be of limited informational value to workers, as the content of a risk assessment document may be quite technical or not in a readily understandable form. Other ways of sharing important information among staff are usually undertaken, such as presentations and training seminars for staff. That said, a documented risk assessment would help in the development of such communication procedures.

10.23 Equally, however, this needs to be placed in the context of enterprises employing less than 10 people. In such working environments, other means of sharing information and consulting workers may be more feasible than in larger enterprises. Whether this

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[217] Popma, J 'Does worker participation improve health and safety? Findings from the Netherlands , *Policy and Practice in Health and Safety*, 2009/1, pp. 33-51

dissemination and consultation takes the form of presentations and seminars or more informal means, it could be argued that so long as it occurs then the workers have not suffered a breach of their rights.

## Impacts upon Enforcement Bodies[218]

10.24 The impact on enforcement bodies of exempting very small enterprises from the documentation obligation will depend on the way in which such bodies currently undertake their enforcement duties.

10.25 According to information gathered from our interviews, enforcement bodies can either undertake reactive or proactive monitoring of health and safety compliance:

(a) Reactive monitoring – prompted by a health and safety incident at a firm, the enforcement body may visit the firm to check that correct health and safety practices are in place. In this case, more importance is generally placed on inspecting the actual health and safety practices of the firm rather than checking documentation (although the documentation may still play a role). The emphasis on checking actual health and safety practices in these cases reflects the fact that a document is not sufficient on its own to demonstrate that the firm was not at fault.

(b) Proactive monitoring – such monitoring tends to be programme- or risk-based and does not need to be prompted by a health and safety problem. In this case, enforcement bodies may place relatively more importance on the documentation as a signal of the firm's compliance with health and safety regulation, rather than obtaining practical evidence of the firm's compliance through a full inspection. For such proactive monitoring, enforcement bodies can either visit the firms to check the documentation, or request that the firms submit the documentation directly to them – an investigation might then take place only if the documentation suggests poor compliance with the regulation. Practices vary across Member States, however, with some enforcement bodies (including both specialised and generalist enforcement bodies) undertaking proactive monitoring and still placing as much weight on the actual practices of the firms as on the documentation. The rationale given is that documentation is only useful insofar as it signifies actual compliance with health and safety law, and this can only be confirmed through full inspections.

10.26 In addition, some generalist labour inspectorates (i.e. those whose remit covers not only occupational health and safety issues but also labour relations or social security) may ask to see risk assessment documentation as part of a wider inspection relating to other labour issues. If there is a problem with the documentation then the inspection can be extended into the occupational health and safety field.

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[218] By enforcement bodies, we are referring to the bodies responsible for monitoring and enforcing compliance by firms with the provisions of the relevant Member State legislation.

*Impact of exemption on reactive monitoring*

10.27 It is likely that an exemption from the risk assessment documentation obligation will have a lesser impact on enforcement bodies when undertaking reactive monitoring, given the greater importance placed on the actual health and safety practices of the firm. Such inspections would continue, and are more likely have a similar effect as at present, even if firms do not possess a written document. Information from our interviews suggests that the majority of enforcement actions undertaken by bodies are reactive; one interviewee from a generalist labour inspectorate estimated that approximately 75 per cent of their inspection activity was reactive.

*Proactive monitoring*

10.28 To the extent that enforcement bodies rely on the risk assessment document to monitor the health and safety compliance of firms, an exemption from the documentation obligation for low risk micro-enterprises could have an impact on the ability of these bodies to adequately control health and safety risks. In the absence of documentation the only way for these bodies to ensure compliance with OSH regulation would be to inspect the firms' health and safety practices, which would entail higher costs. Alternatively, exempt firms would seldom be monitored at all by enforcement bodies, with a corresponding negative impact on health and safety outcomes. This in turn may increase the number of reactive inspections that need to take place in response to health and safety incidents.

10.29 The magnitude of these effects will depend on the extent to which firms are currently proactively monitored, either through inspections or through requests for submission of information. As mentioned earlier, in many Member States the majority of labour inspectorate activity is likely to be reactive. Furthermore, where enforcement bodies do undertake proactive monitoring this is most often done on a risk-based approach, and hence micro-enterprises in low-risk sectors are unlikely to be proactively monitored. This is confirmed by feedback from a number of enforcement body interviewees to the effect that very small, low-risk firms are seldom monitored. For these enforcement bodies, the impact of an exemption for low risk micro-enterprises is thus likely to be minimal.

10.30 A relatively higher proportion of low-risk micro-enterprises are likely to be monitored by generalist labour inspectorates (as opposed to specialist ones) that monitor firms for a range of issues and check risk assessment documentation as part of this wider remit. The additional impact of an exemption is thus likely to be higher on these enforcement bodies, although this would still be limited by the proportion of proactive monitoring that the enforcement body undertakes.

*Summary*

10.31 Given that a high proportion of monitoring is reactive and that such monitoring typically places less reliance on documentation alone, and given that the risk-based approach used for much proactive monitoring typically leads to few proactive inspections of low risk

micro-enterprises it is unlikely that an exemption from the documentation obligation for these firms would have a significant *direct* impact on most enforcement bodies.

10.32 This conclusion may not, however, apply to all Member States. For example, if a Member State with a generalist labour inspectorates currently undertakes a large amount of proactive monitoring that includes low risk micro-enterprises and relies heavily on the documentation, then the exemption from this documentation obligation would either reduce its ability to enforce health and safety compliance effectively, or increase its costs of doing so.

10.33 Enforcement bodies could be affected *indirectly* by an exemption for low-risk micro-enterprises if the exemption increases the number of health and safety incidents (as suggested by the modelling results in Chapter 9) and thus increases the number of reactive inspections which need to be carried out.

## Market Impacts

10.34 We have considered whether an exemption from the risk assessment documentation requirement could have wider impacts on the markets in which affected firms operate, such as labour and product markets.

### Product market impacts

10.35 The competitiveness of firms may be affected if the costs associated with documenting risk assessments form a large enough proportion of their cost base. Under the current situation, with a relatively high level of non-compliance, compliant firms may be at a disadvantage if they incur relatively high costs from documenting risk assessments compared with non-compliant firms. The removal of this obligation may level the playing field and remove any competitive disadvantage experienced by compliant firms.

10.36 However, we have not seen compelling evidence that the costs of documenting risk assessments form a significant proportion of small firms' cost bases, and therefore such an impact seems unlikely to be material.

### Labour market impacts

10.37 It could be argued that a documented risk assessment might affect the ability of firms to attract and retain workers. Any such impacts would be over and above positive impacts of good health and safety outcomes that may be linked to well-documented risk assessments, and which have been discussed in the previous chapter.

10.38 The existence of a risk assessment document that is available to workers may send good signals about the employer's attitude towards the health and safety of workers. As discussed earlier in relation to workers' rights and other obligations of the Directive, a document can also be a useful way of engaging worker participation in risk assessments and maintaining good employer/worker relations. These could contribute to workers' job

satisfaction and retention rates. If this is the case, it may be that documentation of risk assessments would still occur in the event of exemption.

10.39 It could also be argued that a risk assessment document may affect firms' ability to attract workers. The argument would be that micro-enterprises that are exempt from documenting risk assessments and thus do not have concrete evidence of health and safety assessments may be perceived in aggregate as less desirable employers by potential workers (both in terms of health and safety and in terms of general care and consideration of their workers).

10.40 It was also claimed in one interview that this may have a gender dimension, i.e. sectors deemed low risk may have a higher proportion of women and the declaration of these sectors as low risk may discourage men from working in them.

10.41 However, it is not clear from available evidence how much, if any, importance prospective workers place on risk assessments in low-risk sectors. If workers do not factor this in to their decision to join a firm then the lack of documentation would not have a significant impact in this regard.

10.42 Further, under the proposed policy, the exemption from the documentation obligation would only apply to micro-enterprises engaged in low risk activities. Hence, the fact that a firm was exempt would arguably send a signal to potential workers that the firm was a low risk employer (to the extent that workers looking for a job paid any attention to the existence or otherwise of a documented assessment).

10.43 A possible distortionary impact on the labour market may arise from the definition of low-risk. Currently, many Member States stipulate that risk assessments must include a specific assessment of risks facing vulnerable groups such as young, disabled or pregnant workers. If an exemption from the documentation obligation is not applicable if a micro-enterprise employs workers from vulnerable groups, then there is a possibility that this could lead to discrimination in employment (i.e. employers might attempt to avoid having to document a risk assessment by not employing workers with certain characteristics).

10.44 However, as discussed earlier in this section, the additional costs of documentation do not appear to be so large as to affect a firm's cost base and alter the way in which it conducts its business.

# 11 CONCLUSIONS

11.1 This report compares the following three situations:

(a) the actual situation: the present-day transposition and application by very small companies (i.e. with fewer than 10 workers) of the existing obligation in the Directive to document the risk assessment;

(b) the situation of 100 per cent compliance by very small enterprises with the existing obligation in the Directive to document the risk assessment; and

(c) the alternative situation as proposed in the HLG recommendation: the exemption of very small firms undertaking certain low risk activities from the obligation to document the risk assessment.

11.2 There are various kinds of costs and benefits that are experienced under each of these situations. This report has analysed these qualitatively and has produced quantified estimates of these impacts where practicable to do so.

## Current Situation

11.3 The current situation is of interest in its own right, and also provides the benchmark (or counterfactual) against which to measure the additional impacts of either an exemption from the documentation obligation, or a move to 100 per cent compliance with the obligation.

11.4 Data on compliance with the documentation obligation itself is limited but data on compliance with the underlying obligation to conduct a risk assessment suggest that compliance rates vary both by Member State and by size of firm.

11.5 Our model estimates that the current administrative burden to micro-enterprises in the EU of the documentation obligation is approximately €170 million per year with a net present value of €1.28 billion over ten years. This takes into account the current low levels of compliance with the obligation.

11.6 The total costs in terms of lost output arising from current health and safety incidents in micro-enterprises (comprising non-fatal accidents, permanent incapacity and fatalities from accidents, and work-related ill-heath) is estimated at €21.6 billion for 2012. The model may underestimate this value as it does not include fatalities from work-related ill-heath.

11.7 The incremental impact of continuing current policies is by definition zero, as we are assessing the impacts of the scenarios relative to this benchmark.

## 100 Per Cent Compliance

11.8 We have modelled the costs and benefits of 100 per cent compliance among micro-enterprises with the obligation to document risk assessments.

11.9 The costs accrue to firms in the form of increased administrative burdens, increased costs of undertaking risk assessments (assuming compliance with documentation implies compliance with risk assessments), and increased costs of health and safety measures. Costs accrue to enforcement bodies from ensuring this 100 per cent compliance.

11.10 The benefits of 100 per cent compliance arise from improved health and safety outcomes. These benefits arise as cost savings from reduced lost output, reduced healthcare system costs, reductions in other financial costs, and reduced non-financial costs associated with individual harm and suffering.

11.11 We have modelled the impacts of 100 per cent compliance according to two different types of enforcement action by labour inspectorates. The first, Full Inspection scenario is our preferred enforcement approach and consists of a full inspection of each firm. This scenario assumes that all firms comply with both the documentation obligation and undertake genuine risk assessments to improve their health and safety practices.

11.12 The second, Document Only Inspection scenario, consists of an inspection in which just the documentation is checked, with no checks on whether a risk assessment has indeed been carried out or follow-up measures have been implemented. Although less resource intensive, this inspection model results in fewer genuine health and safety improvements as firms do not necessarily comply with the risk assessment obligation to the same extent as they comply with the documentation obligation.

11.13 **Table 11.1** and **Table 11.2** below present the results of our modelling of the situation of 100 per cent compliance by very small enterprises with the existing obligation in the Directive to document the risk assessment.

**Table 11.1: Benefits and costs under 100 per cent compliance – full inspection scenario (€millions)**

| | Net present value over 10 years | | |
|---|---|---|---|
| | **Low** | **Medium** | **High** |
| ***Benefits*** | | | |
| Reduction in lost output from health and safety incidents | 4,224 | 8,069 | 13,115 |
| Reduction in healthcare system costs from health and safety incidents | 845 | 1,614 | 2,623 |
| Reduction in other costs of health and safety incidents | 296 | 565 | 918 |
| Reduction in non-financial costs of health and safety incidents | 7,097 | 13,556 | 22,033 |
| ***Costs*** | | | |
| Increase in administrative burdens | 18,222 | 8,896 | 2,823 |
| Increase in risk assessment costs | 9,057 | 7,246 | 5,434 |
| Cost of additional measures taken | 2,347 | 3,294 | 4,231 |
| Additional regulator costs | 35,631 | 19,369 | 10,204 |
| ***Overall net benefit*** | **- 52,795** | **- 15,001** | **15,997** |

**Table 11.2: Benefits and costs under 100 per cent compliance – document only inspection scenario (€ millions)**

| | Net present value over 10 years | | |
|---|---|---|---|
| | **Low** | **Medium** | **High** |
| ***Benefits*** | | | |
| Reduction in lost output from health and safety incidents | - | 2,017 | 6,557 |
| Reduction in healthcare system costs from health and safety incidents | - | 403 | 1,311 |
| Reduction in other costs of health and safety incidents | - | 141 | 459 |
| Reduction in non-financial costs of health and safety incidents | - | 3,389 | 11,016 |
| ***Costs*** | | | |
| Increase in administrative burdens | 18,222 | 8,896 | 2,823 |
| Increase in risk assessment costs | - | 1,811 | 2,717 |
| Cost of additional measures taken | - | 823 | 2,115 |
| Additional regulator costs | 26,723 | 14,527 | 7,653 |
| ***Overall net benefit*** | **- 44,945** | **- 20,107** | **4,036** |

*Note: to recap, under this inspection scenario we assume three different values for compliance between the documentation and the actual risk assessment. In the Low scenario, there is zero compliance effect – enforced compliance with the documentation obligation does not result in any additional firms undertaking a genuine risk assessment.*

11.14 The low, medium and high sensitivity scenarios in **Table 11.1** and **Table 11.2** above reflect uncertainty in our analysis as to the extent of benefits and costs. Our medium scenario indicates that this policy is likely to have a large net negative impact (of at least €15 billion), regardless of the inspection type undertaken. It is only under the high net

benefit scenario comprising our lowest estimate of additional costs and our highest estimate of health and safety improvements that this scenario has a net positive impact. On balance, however, the expected benefits do not seem to justify the increase in enforcement body costs that seem necessary.

## Exemption from Documentation Obligation

### Feasibility of low risk definition

11.15 Exempting low risk micro-enterprises from the obligation to document a risk assessment requires that such firms can be defined.

11.16 Following a review of previous approaches to the definition of low risk and an analysis of the different dimensions of the definition of low risk, this report identifies a number of possible options. In particular, our analysis concludes that the following are plausible ways in which an exemption for low risk micro-enterprises might be implemented:

**Table 11.3: Range of Low Risk Definitions**

| Regulatory definition of low risk | Possible derivation of list by policy-makers (although policy-makers could also derive a list in other ways) |
|---|---|
| All firms in the following sectors:<br>[list of sectors] | Sectors in the bottom [x] per cent in terms of number of days lost per employee due to accidents at work and work-related health problems, excluding any sectors with a high incidence of fatalities and permanent incapacity |
| All firms only employing workers in the following occupations:<br>[list of occupations] | Occupations that fall into the bottom [x] per cent in terms of number of days lost per employee due to accidents at work and work-related health problems, excluding any sectors with a high incidence of fatalities and permanent incapacity |
| All firms where employees are not exposed to any of the following hazards:<br>[list of hazards] | List derived on basis of expert health and safety analysis |

11.17 We have analysed data to identify the kinds of sectors, occupations or hazards that might be captured within a low risk definition. However, for the purpose of our cost-benefit modelling, we needed to identify the number of micro-enterprises captured by our low risk definition, and the data were only available to do this for sector-based definitions.

11.18 In some cases, richer data are likely to be available at Member State level, which may enable more robust low risk definitions to be derived at this level. For example, in the UK data are available by occupation and are considered by the HSE to be preferable to the use of sector-based data in determining risk levels. This provides some support for the HLG recommendation that the exemption decision be made at this level.

11.19 For our modelling we derived three scenarios for the sectors that might be included within a sectorial-based definition of low risk by applying different thresholds for days lost due to

accidents and work-related health problems, permanent incapacity due to accidents and work-related health problems, and fatalities due to accidents at work.

11.20 The percentage of micro-enterprises captured by our sector-based definition of low risk is 1.4 per cent in our first low risk scenario, 4.7 per cent in our second low risk scenario, and 13.2 per cent in our third low risk scenario.

**Impact of exemption**

11.21 We have modelled a policy scenario in which very small firms undertaking certain low risk activities are exempted from the obligation to document the risk assessment.

11.22 Health and safety impacts in our model are driven by plausible assumptions on the strength of the compliance effect (that is to say, compliance with the underlying obligation to conduct a risk assessment brought about by the obligation to document the risk assessment). However, we have identified a number of other mechanisms of effect between documentation and improved risk assessment, which we have not been able to quantify, and this should be borne in mind in interpreting results.

11.23 As shown in the **Table 11.4**, under our medium scenario our modelling suggests there would be a small net benefit from exempting micro-enterprises from the documentation obligation only (between €5 million and €60 million) in two of the three scenarios of the definition of low risk. However, in Low Risk Scenario 1 there would be a small net cost of €6 million.

11.24 However, our analysis of uncertainty (shown by the low and high sensitivity scenarios) suggests that there is a risk that the policy might lead to a negative outcome in all three Low Risk definition scenarios, as they all give rise to a negative net benefit in our low sensitivity scenario.

**Table 11.4: Model Results for Exemption of Low Risk Micro-enterprises – Medium Sensitivity Scenario (€ million)**

| | Net present value over 10 years | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Low risk scenario 1** | | | **Low risk scenario 2** | | | **Low risk scenario 3** | | |
| | Low | Medium | High | Low | Medium | High | Low | Medium | High |
| ***Benefits*** | | | | | | | | | |
| Reduction in administrative burdens | 7.0 | 21.7 | 47.8 | 10.3 | 31.6 | 69.0 | 29.6 | 88.4 | 188.1 |
| Reduction in risk assessment costs | 5.2 | 3.5 | - | 11.5 | 7.7 | - | 27.3 | 18.2 | - |
| Savings from fewer measures | 13.0 | 5.0 | - | 14.2 | 5.5 | - | 19.1 | 7.4 | - |
| ***Costs*** | | | | | | | | | |
| Increase in lost output from health and safety incidents | 40.2 | 12.4 | - | 44.2 | 13.6 | - | 59.2 | 18.2 | - |
| Increase in healthcare system costs from health and safety incidents | 8.0 | 2.5 | - | 8.8 | 2.7 | - | 11.8 | 3.6 | - |
| Increase in other financial costs of health and safety incidents | 2.8 | 0.9 | - | 3.1 | 1.0 | - | 4.1 | 1.3 | - |
| Increase in non-financial costs of health and safety incidents | 67.5 | 20.8 | - | 74.2 | 22.8 | - | 99.4 | 30.6 | - |
| ***Overall net benefit*** | **-93** | **-6** | **48** | **-94** | **5** | **69** | **-99** | **60** | **188** |

11.25 Comparison of the results across our low risk scenarios suggests that it does not necessarily follow that the lowest risk sectors are those in which net benefits of exemption would be greatest. For example, in Low Risk Scenarios 1 there is a negative net benefit in the medium sensitivity scenario, but this becomes positive for Low Risk Scenario 2 and 3 despite the fact that the additional sectors included in the low risk definition have somewhat higher health and safety risks.

11.26 The reason for this is that the net benefit from an exemption depends upon the cost of compliance as well as health and safety benefits. The cost of compliance will be determined by factors such as:

(a) The number of micro-enterprises within the sector, which in turn will be affected by the average size of micro-enterprises in the sector (e.g. some sectors will have lots of 1 or 2-person firms, whereas micro-enterprises may typically be larger in other sectors).

(b) The geographical pattern of activity within that sector across the EU (since this will affect average wage rates in the sector).

11.27 In addition, the relative weight placed on fatalities, permanent incapacity and lost working days by our methodology for selecting low risk sectors will not necessarily be the same as the relative weight placed on these impacts by the approach we have taken to monetising them in the cost-benefit modelling.

11.28 The wide ranges shown by our results provide some support for the HLG recommendation that decisions on exemptions be made at Member State level. This is because knowledge on compliance costs and likely health and safety impacts may be more robust at this level.

11.29 Further, Member States may be better placed to construct a definition of 'low risk' micro-enterprises. Our modelling uses a sector-based definition given data availability, but it is possible that Member States may wish to use definitions based on occupation or hazardous activities. The choice of definition may affect the overall impacts of the exemption.

## Summary

11.30 While our modelling results should be treated with caution given the uncertainties involved, they suggest that an exemption from the documentation obligation for micro-enterprises in low risk sectors would lead to a small net benefit under our medium scenario for two of the three Low Risk definition scenarios. However, our uncertainty analysis suggests that the possibility that an exemption might lead to a negative net impact in all three Low Risk definition scenarios cannot be ruled out, as they all give rise to a net cost in our low sensitivity scenario.

11.31 Our analysis suggests that it would not be worthwhile to attempt to increase compliance with the documentation obligation to 100 per cent, since the costs of doing this (including enforcement costs) are likely to outweigh the benefits. This does not exclude the possibility that increasing compliance to a level less than 100 per cent may be beneficial, but assessment of such a scenario is outside our terms of reference.

11.32 Alongside the quantitative modelling results, there are qualitative findings that should also be born in mind. In particular:

(a) The only effect of documentation included in our modelling was the impact that it has on compliance with the obligation to carry out a risk assessment (the "compliance effect"). However, our analysis also identified a range of other potential effects that documentation may have. Positively, documentation may increase the quality of risk assessments, help to communicate the results, induce firms to take more follow-up actions, and enable the results to be acted on further into the future. Negatively, we considered the possibility that documentation might divert resources from implementation of health and safety measures or lead to a box-ticking mentality.

(b) An exemption may lead to a number of other impacts. In particular, documentation can sometimes play a role after an accident has occurred. There may also be some Member States (depending on the approach taken by labour inspectorates) in which the absence of documentation may make inspection activity more difficult.

# APPENDIX 1: GLOSSARY AND ADDITIONAL INFORMATION

A1.1 We note that the following definitions are provided in the Directive:

(a) Worker: any person employed by an employer, including trainees and apprentices but excluding domestic servants;

(b) Employer: any natural or legal person who has an employment relationship with the worker and has responsibility for the undertaking and/or establishment;

(c) Workers' representative with specific responsibility for the safety and health of workers: any person elected, chosen or designated in accordance with national laws and/or practices to represent workers where problems arise relating to the safety and health protection of workers at work;

(d) Prevention: all the steps or measures taken or planned at all stages of work in the undertaking to prevent or reduce occupational risks.

A1.2 It has become apparent, however, in working on this project that it would be helpful to define terms additional to these. We, consequently, provide the following definitions:

(a) Hazard: something which can cause accidents or health problems, e.g. electricity, working up a ladder, exposure to certain chemicals.

(b) Risk: the probability that the hazard will lead to an accident or health problem, and the seriousness of harm caused.

(c) Transposition: the incorporation of a European Directive into Member State law through domestic legislation.

(d) Compliance: These are the steps which the employer must undertake to operate in a manner consistent with the piece of domestic legislation that contains the obligation for employers to document their risk assessment.

(e) Regulators / enforcement bodies: those bodies whose responsibility it is to enforce the law, with the relevant legislation here being that which creates the obligation upon employers to document a health and safety risk assessment.

## Health and Safety Outcomes by Sector

A1.3 In Chapter 4 we present health and safety outcomes by sector for the 20 lowest-affected sectors. Full charts showing the results for all sectors are included here.

A1.4 The source for all these charts is Eurostat 2008, based on ESAW data:

(a) Days lost from accidents at work by economic activity **[hsw_n2_04];**

(b) Number of accidents leading to fatality or permanent incapacity **[hsw_n2_02]**

**Figure 20: Fatalities incidence per sector (full version of Figure 4.1)**

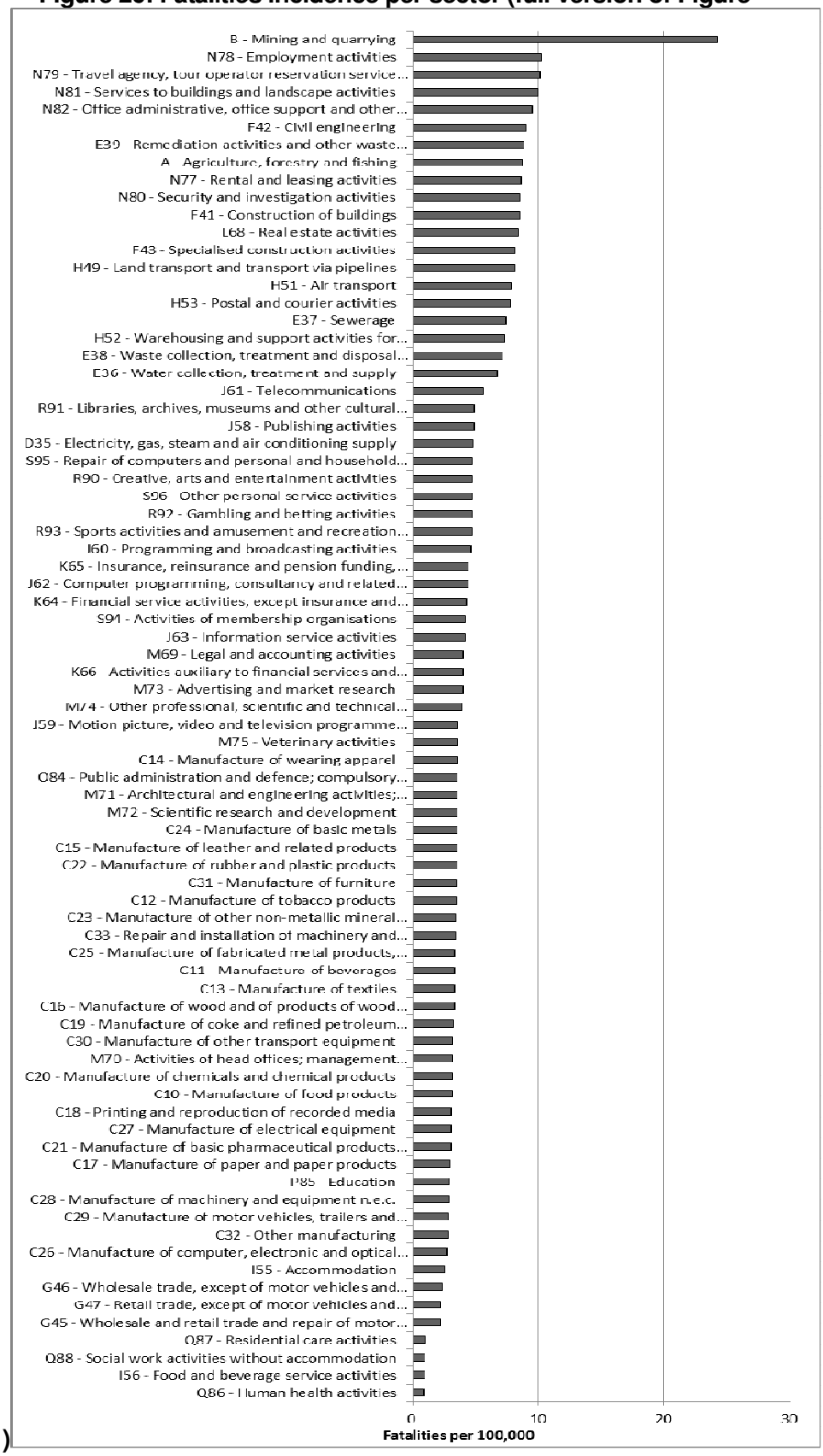
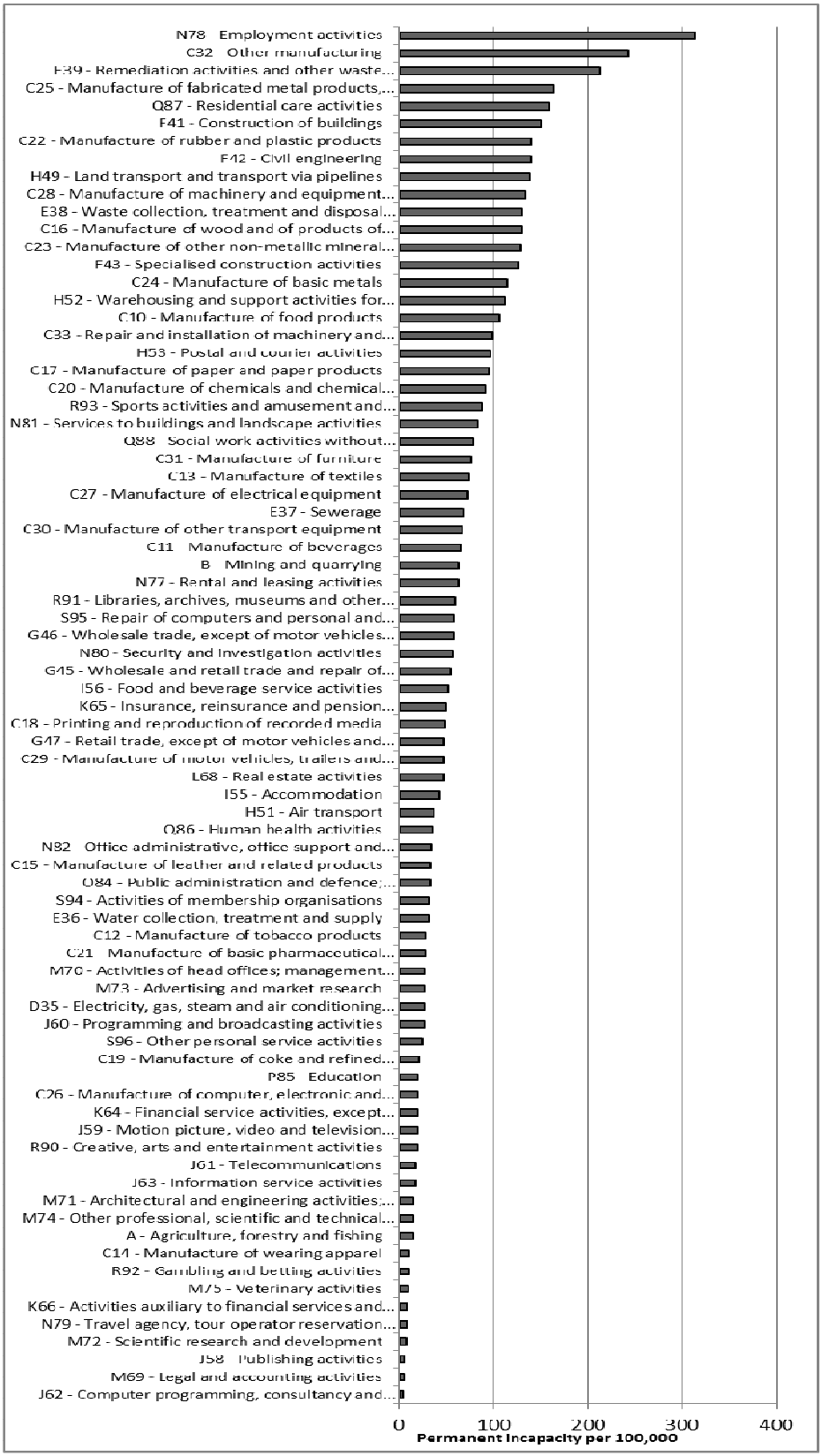
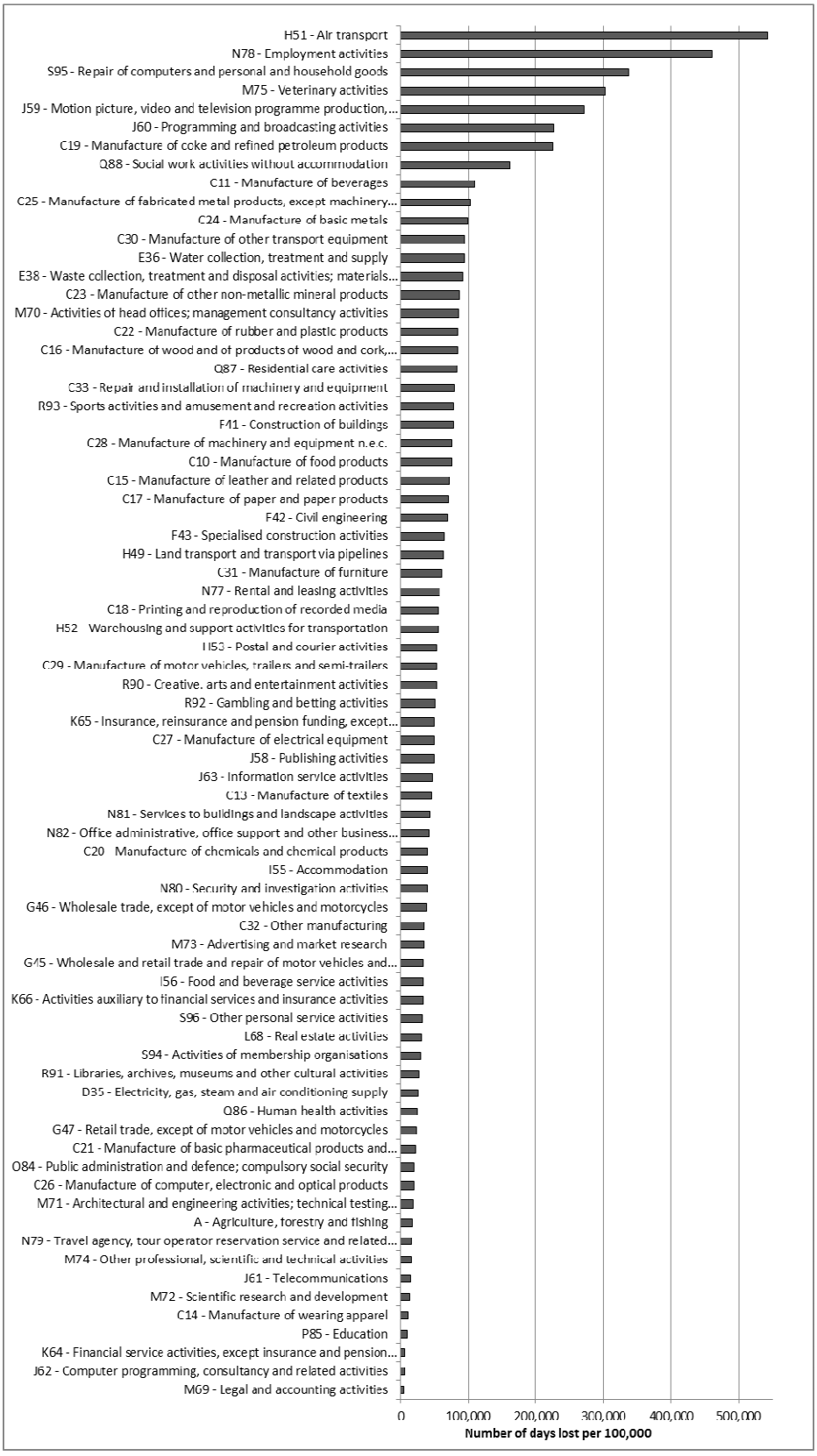


**Figure 21: Permanent incapacity incidence per sector (full version of Figure 4.2)**



## Figure 22: Working days lost due to accidents incidence (full version of Figure 4.3)



# APPENDIX 2: INTERVIEW PROGRAMME

A2.1 As set out in the specifications, the Commission expected the focus of the study to be on the analysis of available data. Nonetheless, the Commission suggested that the contractor might make its own limited investigations by undertaking qualitative interviews either by telephone or face-to-face.

A2.2 Therefore, we built into our methodology a programme of up to 20 qualitative interviews to supplement the review of existing data sources and literature discussed above.

A2.3 To maximise the value of the interview programme, we particularly focused interview discussion on those areas where our review of the data and literature suggested there are gaps in the existing evidence base.

A2.4 Where appropriate, we asked interviewees whether they could suggest any studies or data sources which they considered to be relevant to our work. If they suggested data sources or literature which we had not already considered, then we reviewed whether to include these additional items in our review of data and literature.

A2.5 As set out in the specifications, the interviews were mainly qualitative in nature, although if interviewees were able to provide useful quantitative data then this was incorporated into our analysis as well.

A2.6 We completed 19 interviews with the following organisations (which we have anonymised where appropriate):

(a) 7 enforcement bodies/labour inspectorates: Danish Working Environment Authority; State Labour Inspectorate of the Republic of Latvia; Health and Safety Authority (Ireland); National Institute for insurance against work place accidents (Italy); OHSA (Malta); Work Environment Authority (Sweden); HSE (UK).

(b) 4 businesses (Portugal, UK, and two from Spain). The relatively low number of businesses interviewed reflects the widespread lack of willingness among small firms to participate in the study. This was despite extensive effort on our part to contact firms. The businesses that we did interview were from a range of sectors (estate agent, legal firm, design studio and pharmacy) and ranged in size from three to ten employees.

(c) 3 academics working on health and safety issues: Prof Kaj Frick (Sweden), Prof Katherine Lippel (Canada), Dr Jan Popma (the Netherlands).

(d) 2 health and safety consultants (one trading in Belgium and the Netherlands and another trading in the UK).

(e) 2 workers representatives (European Trade Union Confederation, the Danish Confederation of Trade Unions).

(f) 1 insurance company (UK).

A2.7 We have drawn upon insights from the interviews throughout the report and detail below the kinds of issue discussed with each kind of interviewee.

*Enforcement Bodies/Labour Inspectorates*

A2.8 The issues discussed with these kinds of interviewees included:

(a) Our classification of Member States by the way in which they have transposed and implemented the Directive (as presented in our chapter on "Implementation by Member States"),

(b) Attempts to define low risk workplaces and their robustness,

(c) The awareness and compliance of micro-enterprises with their obligation to document a risk assessment and possible empirical evidence relating to this,

(d) The amount of resources spent on ensuring compliance with the documentation obligation and an estimate of the increase necessary to ensure 100 per cent compliance,

(e) The role of the documentation obligation in bringing about compliance with the risk assessment obligation,

(f) Evidence on the administrative burden generated by documentation with respect to firm size and risk level,

(g) The likely direction and strength of the compliance effect, the quality effect, the communication effect, the action-inducing effect, the institutional memory effect, the role-clarification effect, resource-diversion effect and the "box ticking" effect (which are the mechanisms of effect for documentation set out in our chapter on "Health and Safety Impacts"),

(h) Possible evidence on the impact of the documentation of risk assessments on health and safety outcomes,

(i) Their views on possible impacts of an exemption to documentation.

*Businesses*

A2.9 The issues discussed with business interviewees were:

(a) Appraisal of risk in their firm and their awareness of the documentation obligation,

(b) The extent to which enforcement bodies check compliance,

(c) Their estimate of the administrative burden of documentation,

(d) Their views on the mechanisms of effect by which the document may give rise to impacts on health and safety outcomes,

(e) The incidence of health and safety outcomes in their firm and the impact of documentation on this.

(f) Their views on possible impacts of an exemption to documentation.

*Academics*

A2.10 The issues discussed with academics were:

(a) Attempts of definitions of low risk workplaces and their success,

(b) The awareness and compliance of micro-enterprises to their obligation to document a risk assessment and possible empirical evidence thereof,

(c) An estimate of the increase in spending on enforcement necessary to ensure 100 per cent compliance,

(d) Their estimation of the administrative burden of documentation and possible empirical evidence relating to this,

(e) Their views on the mechanisms of effect by which the document may give rise to impacts on health and safety outcomes,

(f) Possible evidence of the impact of the documentation of risk assessments on health and safety outcomes,

(g) Their views on possible impacts of an exemption to documentation.

*Health and Safety Consultants*

A2.11 The issues discussed with health and safety consultants were:

(a) Possible studies attempting to define low risk workplaces and the success or otherwise of these attempts,

(b) Methodologies for undertaking and documenting risk assessments and whether these methodologies allow for a classification into low and high risk firms or workplaces,

(c) The awareness and compliance of micro-enterprises with their obligation to document a risk assessment and possible empirical evidence relating to this,

(d) The savings to firms from appointing a health and safety consultant,

(e) Their views on the mechanisms of effect by which the document may give rise to impacts on health and safety outcomes,

(f) Possible evidence of the impact of the documentation of risk assessments on health and safety outcomes,

(g) Their views on possible impacts of an exemption to documentation.

*Workers Representatives*

A2.12 The issues discussed with interviewees from trade unions were:

(a) Their views on whether their members are working in a low risk setting and extent to which the respective employers comply with the documentation obligation as well as the role of enforcement,

(b) The estimated administrative burden of documentation,

(c) Their views on the mechanisms of effect by which the document may give rise to impacts on health and safety outcomes,

(d) The relationship between the documentation and health and safety outcomes,

(e) Their views on possible impacts of an exemption to documentation.

*Insurance Company*

A2.13 The issues discussed with the insurance company were:

(a) Possible studies attempting to define low risk workplaces and the success or otherwise of these attempts,

(b) The influence of risk of workplace accidents and work related health problems on insurance premiums,

(c) The methodologies used to classify exposure to risks and whether these can be used to classify firms as low or high risk.

# APPENDIX 3: STANDARD COST MODEL

A3.1 The Standard Cost Model (SCM) is designed to calculate administrative burdens in a consistent way across different areas of policy. This model would be used to measure the potential impact of the different scenarios on administrative burdens, adapted where appropriate for use in this specific context.

A3.2 The model requires the costing of the actions taken by individual businesses in meeting information obligations. Once actions have been costed, the total administrative burdens can be calculated by multiplying each cost by the number of times the action is performed.

A3.3 At its simplest the SCM is expressed as:

**Administrative burden = P * Q**

Where P is the cost per action and Q is the number of times the action is performed

A3.4 This can be further broken down into:

**P = tariff * time taken**

**Q = number of businesses * frequency/year**

A3.5 The tariff is made up of the firms' in-house costs of meeting the information obligation — wage costs, materials and overheads — and external costs, e.g. an outside consultant, charged to the business at an hourly rate. Time taken is the time in hours taken in complying with the obligation.

A3.6 To calculate Q it is necessary to identify the number of businesses affected by the regulation (this would vary according to the assumed level of compliance) and the frequency of returns.

A3.7 It will be necessary to adapt the Standard Cost Model to account for the fact that actual compliance by businesses is likely to be less than 100 per cent. This is because the level of compliance is a key factor which varies between the scenarios beings considered (particularly between the actual situation and the situation of 100 per cent compliance), and hence this adaptation is necessary to explore cost differences between the scenarios. The parameters of the SCM in the context of this study would therefore be affected by the three compliance scenarios to be modelled. The number of firms, for example, will be greater under the 100 per cent compliance scenario than under the actual compliance scenario.

A3.8 Estimating the administrative burden of the 100 per cent compliance scenario would enable the like-for-like comparison of the administrative burden of the documentation obligation on very small, low-risk enterprises with administrative burdens in other areas of policy.

A3.9 The SCM will also need to be adapted for other considerations relevant to this study — such as differences in transposition of the Directive across Member States — so that the estimates reflect the actual situation as far as possible. These issues are discussed in more detail later in the section.

# APPENDIX 4: REVIEW OF EVIDENCE FOR HEALTH AND SAFETY IMPACTS

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| Between documentation and undertaking of risk assessment | WHO (2010) "Healthy Workplace Framework and Model: Background and Supporting Literature and Practice". | All | 2010 | Supports communication effect | No basis for quantification | No quantifiable evidence - use plausible scenarios for the link between the mechanisms of effect and the undertaking of the risk assessment |
| | Dominican University, "Study Backs up Strategies for Achieving Goals" | None | Not known | Supports action-inducing effect | No basis for quantification | |
| Between undertaking risk assessments and health and safety practices | ESENER 2009 data, presented in Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait". | All | 2009 | Quantified link between risk assessment and certain health and safety practices | Very broad categories of health and safety practice and the study not covering micro-enterprises | Use research conducted on the Dutch Labour Inspectorate to quantify direct link from undertaking of risk assessments to health and safety practices. |
| | Research conducted on the Dutch Labour Inspectorate (2008 and 2010). Source: Jan Popma (Dutch academic interviewed) | Netherlands | 2008 and 2010 | Provides evidence on relationship between risk assessment and number and quality of health and safety practices | The study incorporated health and safety risk for both low and high risk sectors | |

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| | Pearse W.: Club zero: Implementing OHSMS in small to medium fabricated metal product companies. Journal of Occupational Health & Safety - Australia & New Zealand. 2002;18(4):347-356. | None (Australian study) | 2002 | Provides quantification on SME metal fabrication companies in a program involving development and dissemination of OHSMS guidelines | Refers to particular sector of economy | |
| | Edkins GD. The INDICATE safety program: Evaluation of a method to proactively improve airline safety performance. Safety Science. 1998; 30(3);275-295. | None (Australian study) | 1998 | Higher scores for "safety culture index" are recorded for the firm that took part in the health and safety programme | Refers to a particular sector | |

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| | Alsop P, LeCouteur M. Measurable success from implementing an integrated OHS management system at Manningham City Council. Journal of Occupational Health & Safety - Australia & New Zealand. 1999; 15(6);565-572. | None (Australian study) | 1999 | Assesses the different impacts upon firms of following various health and safety practices, including documentation of a risk assessment | Main findings relate to insurance premiums | |
| | Study conducted by Italian enforcement body shared with Europe Economics | Italy | | Looks at difference in accidents in firms that do a proper risk assessment and those that do not | The causal link is contested and jumps a link in our chain of analysis, i.e. it links risk assessment to health and safety outcomes, not risk assessment to health and safety practices | |
| | Gallagher, C. et al. (2003). Occupational safety and health management systems in Australia: Barriers to success. Policy and Practice in Health and Safety 1(2), 67-81. | None (Australian study) | 2003 | Identifies some differences in health and safety practice between firms following "traditional" and "innovative" approaches to health and safety | Not clear to what extent the differences between the firms can be attributed to documentation | |

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| | Liu, H. et al. (2008). The Pennsylvania Certified Safety Committee Program: An Evaluation of Participation and Effects on Work Injury Rates. RAND Working Paper WR-594-PA. | None (USA) | 2008 | Strong association between improved injury and illness experience and the level of compliance with the program requirements of joint labor-management safety committees | Not clear to what extent the differences between the firms can be attributed to documentation | |
| | Saksvik, Nytrø, K., 1996. Implementation of internal control (IC) of health, environment and safety (HES) in Norwegian enterprises. Safety Sci. 23, 55–61. | None (Norway) | 1996 | Quantification of various kinds of impact following participation in a health and safety programme are established | Not clear what proportion of these effects can be attributed to documentation and the effects do not map directly on to our chain of links | |
| Between health and safety practices and health and safety outcomes | Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health". | All | 2011 | Scenarios of the effectiveness of health and safety practice upon health and safety outcomes have been developed | Caution is warned in interpreting the results since the cost-benefit analyses derive from specific case studies | Use the values from the Social Europe study but take the average impact across all sectors and types of health and safety practice. |

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| | WHO (2010) "Healthy Workplace Framework and Model: Background and Supporting Literature and Practice" | All WHO states | 2010 | Assesses strength of evidence linking various health and safety practices with outcomes | No basis for quantification of strength of effect | |
| | ESENER (2010) "European Survey of Enterprises and New and Emerging risk, Managing safety and health at work" | All | 2010 | Provides quantification on the perceived impact of the policy, management system or action plan on health and safety, by establishment size | Does not isolate the impact of particular health and safety practices on health and safety outcomes | |
| | PriceWaterhouse Coopers (2008) "Building the case for wellness". | UK | 2008 | Gives some scale to the benefits associated with health and safety programmes | The study is concerned with wellness programmes, which is somewhat broader than health and safety programmes, and only assesses the prevalence of the outcomes in terms of the case studies reviewed. Particular outcomes may score highly because of the case studies, not because these outcomes tend to follow from following health and safety practices. | |

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| | Ahonen, G., 'The nation-wide programme for health and safety in SMEs in Finland: economic evaluation and incentives for the company management', From Protection to Promotion: Occupational Health and Safety in Small-Scale Enterprises, Proceedings of the International Symposium, 4-6 May 1998, Helsinki, Finland, Finnish Institute of Occupational Health, pp. 151-157. | Finland | 1998 | Provides quantification of some economic benefits of health and safety practices | Gaps in the data and seems less robust and up-to-date than the HSE dataset | |
| Between health and safety outcomes and costs and benefits experienced | HSE data on total cost of workplace fatalities, injuries and ill health in Great Britain, 2006/07-2009/10 (2009 prices) - breaks each category of cost down into its component parts | UK | 2009 | Provides robust quantification of the costs of health and safety incidents, broken down by the stakeholders upon whom these costs | Only covers the UK, not other Member States | Use the values from the Social Europe study but take the average impact across all sectors and types of health and |

| Link in chain | **Title of study** | **Member State** | **Year** | **Strengths** | **Weaknesses** | **Conclusion** |
|---|---|---|---|---|---|---|
| by stakeholders (workers, firms, governments) | | | | fall | Data are incomplete and dated | safety practice. These values link health and safety practices directly to reductions in the costs of health and safety incidents. |
| | Morse, Timothy F., Charles Dillon, Nicholas Warren, Charles Levenstein, and Andrew Warren.1998. The Economic and Social Consequences of Work-Related Musculoskeletal Disorders: The Connecticut Upper-Extremity Surveillance Project (CUSP). International Journal of Occupational and Environmental Health. 4(4): 209-16. | None | 1998 | Provides quantification of some economic disbenefits for workers who experience health and safety incidents | | |

# APPENDIX 5: DETAILED EXPLANATION OF MODELLING

A5.1 This Appendix provides a description of the modelling exercises undertaken for the report. This description is provided alongside the spreadsheet models, but is designed for readers to understand the modelling process in the absence of the Excel spreadsheets.

A5.2 There is uncertainty surrounding many of the inputs into our modelling, and hence quantification was a challenging task. We faced the choice between either not quantifying the costs and benefits of the policy due to these uncertainties, or else producing ballpark estimates using plausible assumptions, even if the resulting estimates are subject to caveats. We opted for the latter approach, as we believe that indicative estimates are likely to be useful to the Commission and the working group, even if the estimates need to be interpreted with caution.

A5.3 The following Appendix presents a summary of all the inputs used in the modelling and brings together some of the sources discussed in this Appendix.

A5.4 There are two separate Excel models:

(a) *The low risk model*: This applies a statistical approach to develop scenarios for the sectors that might be considered low risk.

(b) *Cost benefit model*: For each of the scenarios of low risk sectors, this model estimates the costs and benefits of exempting firms in these sectors from the obligation to document a risk assessment.

A5.5 We discuss these two models in turn below. Where helpful, we repeat certain paragraphs from the main report which describe how the model works.

## Low Risk Model

A5.6 Using the sector-based definition of low risk, we have undertaken statistical analysis with the aim of selecting sectors which are low risk. This involved analysing data on the incidence of fatalities and permanent incapacity and on days lost for both accidents and work-related health problems. The data were standardised to take account of differing employment levels across sectors, and different thresholds were applied to select "low risk sectors" for three scenarios.

A5.7 The following datasets have been used from Eurostat:

(a) Days lost from accidents at work by economic activity **[hsw_n2_04];**

(b) Number of accidents leading to fatality or permanent incapacity **[hsw_n2_02]**;

(c) Standardised prevalence rate of work-related health problems by economic activity at EU level **[hsw_hp_dinag];**

(d) Number of work-related health problems by severity at EU level **[hsw_hp_svdwa]**;

(e) Number of persons employed by NACE code and size of enterprise **[lfsa_eisn2]** and **[sbs_sc_indic] and [sbs_sc_ind_r2]**; and

(f) Number of enterprises by NACE code **[sbs_na_sca_r2]** and by enterprise size **[sbs_sc_indic]** (see link for agricultural holdings: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tag00001); and

(g) Enterprise births and deaths **[bd_9b_sz_cl_r2].**

A5.8 We now summarise each page in the Excel file to explain the uses that have been made of these data. This summary follows the logical structure of the modelling, rather than the order in which the pages appear in the Excel file.

*Days lost due to accidents*

A5.9 This page presents Eurostat data on the number of incidents of accidents at work resulting in differing lengths of absence from work at NACE 1 and NACE 2 level by Member State. Where there were data gaps, values were imputed by using the EU average incidence rate for the sector adjusted by the average difference of the Member State's values from the EU average across the economy as a whole.

A5.10 The dataset from Eurostat was grouped, such that the data gave the number of accidents which led to 4–6 days lost, the number of accidents that led to 7–13 days lost, and so on. This meant that we had to make an assumption about what point within these ranges represented the average number of days lost due to accidents in that group. This point was chosen on the basis of where the median seemed mostly likely to lie given the shape of the data.

*Work-related health problems*

A5.11 The dataset on work-related health problems is older than would be preferred (i.e. from 1999) and is not as detailed as the dataset on accidents. We therefore made a number of assumptions about this dataset in order to incorporate it within the analysis.

A5.12 We used correspondence tables to map the data onto NACE Revision 2 codes. We also adjusted the data using the average change in the number of persons reporting work-related health problems between 1999 and 2007 in order to bring the data closer to the time period that the accident data relates to, so that the two datasets are more consistent.[219]

A5.13 The data on prevalence of work-related health problems is only available at NACE 1 level. Since prevalence data is adjusted for the number of employees in the sector, we assumed that the prevalence rate that was available for a NACE 1 sector was the same across the NACE 2 subsectors of that sector.

A5.14 Data on the severity of work-related health problems (i.e. how many days lost) are available only at an aggregate EU level, not by NACE code. We therefore assumed that the distribution of severity of work-related health problems is the same across all NACE codes.

A5.15 Similarly to the data on days lost due to accidents, the severity data on work-related health problems was grouped, such that the data gave the number of work-related health problems which led to 4–6 days lost, the number that led to 7–13 days lost, and so on. Hence, we again had to make an assumption about what point within these ranges represented the average number of days lost due to work-related health problems in that group.

*Permanent incapacity*

A5.16 This page presents Eurostat data on permanent incapacity due to accidents or work-related health problems by sector and Member State. It also presents these data as incidence rates per 100,000 workers.

*Fatality incidence*

A5.17 This page presents Eurostat data on fatalities due to accidents by sector and Member State. This dataset was incomplete, so we constructed a full dataset by assuming that missing data are correlated with both completed entries for that Member State in other sectors and completed entries for that sector in other Member States. It also presents these data as incidence rates per 100,000 workers.

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[219] The proportion of people reporting work-related health problems increased from 4.7 per cent in 1999 to 7.1 per cent in 2007, according to the LFH ad hoc modules: Eurostat (2010) "Health and safety at work in Europe (1999 – 2007), a statistical portrait".

*Employment numbers*

A5.18 This page presents Eurostat data on non-fatal accidents at work by economic activity and incidence rates of non-fatal accidents at work, which we have used to calculate employment in microenterprises at NACE 2 level by Member State.

*Inputs*

A5.19 This page sets out some inputs that are used in other pages. These include the thresholds for different scenarios:

(a) Scenario 1: The sector is considered low risk if the rate of fatalities per 100,000 workers is below the EU average and the sector is in the bottom 10 per cent of sectors both by incidence of permanent incapacity per 100,000 workers and number of days lost due to accidents and work-related health problems per 100,000 workers.

(b) Scenario 2: The sector is considered low risk if the rate of fatalities per 100,000 workers is below the EU average and the sector is in the bottom 20 per cent of sectors both by incidence of permanent incapacity per 100,000 workers and number of days lost due to accidents and work-related health problems per 100,000 workers.

(c) Scenario 3: The sector is considered low risk if the rate of fatalities per 100,000 workers is less than twice the EU average and the sector is in the bottom 30 per cent of sectors both by incidence of permanent incapacity per 100,000 workers and number of days lost due to accidents and work-related health problems per 100,000 workers.

A5.20 In addition, this page contains inputs for the point within the ranges for the number of days lost due to accidents or work-related health problems that is assumed to represent the average number of days lost in that group. It also contains the adjustment factor that is applied to the 1999 data on work-related health problems to bring it in line with the 2008 accident data being used in the model.

*Scenarios*

A5.21 This page presents data by sector on employment, days lost per 100,000 workers due to accidents and work-related health problems, fatalities due to accidents per 100,000 workers, and permanent incapacity due to accidents and work-related health problem per 100,000 workers. It then ranks the sectors in terms of their performance. These rankings then enable us to apply the thresholds used to derive the scenarios for which sectors are

low risk, as presented on the inputs page. Finally, we present figures for employment in those sectors defined as low risk under these scenarios.

*Number of enterprises ("Number Ent")*

A5.22 This page presents Eurostat datasets on the number of enterprises and microenterprises at NACE 2 level by Member State. These datasets was used to calculate the number of enterprises and microenterprises within the low risk sectors identified in each of the scenarios.

A5.23 These datasets were incomplete for some NACE 2 level sectors and for some Member States, and hence the complete datasets were constructed. This was done by filling gaps in the Eurostat data by assuming that missing data are correlated with either completed entries for that Member State in other sectors or completed entries for that sector in other Member States. Where data were only available at NACE 1 level for a specific Member State, we applied the average distribution of firms across the relevant NACE 2 sub-sectors in the rest of the EU to that Member State. The page derives the percentage and number of enterprises by sector covered by each of our low risk scenarios.

A5.24 Additional data on the number of agricultural enterprises were sourced for the cost benefit modelling from an alternative source (the 2010 Agricultural Census), and an assumption made about the proportion of these enterprises that employ fewer than 10 workers, using information on the number of employees in the sector and persons per holding.

## Cost Benefit Model

A5.25 We developed a model to illustrate the possible costs and benefits of two scenarios:

(a) A scenario where microenterprises in low risk sectors are exempt from the obligation to document their risk assessments.

(b) A scenario of 100 per cent compliance with the documentation obligation among microenterprises.

A5.26 The model seeks to quantify the possible effect of these scenarios on health and safety outcomes. The model also considers the costs to firms of actions to improve their health and safety situation that are carried out as a result of the obligation to document risk assessments.

A5.27 Additionally, the model assesses the costs of the documentation obligation on microenterprises. The model investigates three different cost scenarios:

(a) The costs of the documentation obligation to all microenterprises under the current situation (the counterfactual).

(b) The costs of the obligation to all microenterprises in a situation of 100 per cent compliance with the obligation.

(c) The cost savings to microenterprises in low risk sectors if they were exempt from the obligation.

A5.28 The cost savings of the exemption scenario and the costs of the 100 per cent compliance scenario are calculated relative to the current situation (the counterfactual) and represent only additional costs or cost savings. For example, under the 100 per cent compliance scenario we do not estimate the costs of *all* firms complying with the documentation requirement, but only the additional costs incurred by those firms that do not currently do so.

A5.29 Given that we model both benefits and costs under the different scenarios, we are able to present estimated net benefits (i.e. the benefits less the costs) for these different scenarios.

*Administrative costs*

A5.30 The impacts of the exemption scenario and the 100 per cent scenario on the administrative costs were modelled in the following way:

(a) For both scenarios, we estimate the one-off and on-going administrative costs of documenting a risk assessment. This is based on the assumption — drawn from insights from interviews — that a firm will undertake a full risk assessment and documentation once and then periodically update the document in subsequent years (with the frequency of the update depending on what is required by national law). The time taken to update a risk assessment document is considerably less than the time required for the original document. Firms incurring full, one-off documentation costs are those that are new to the sector, or those that were previously not compliant but that become compliant in the 100 per cent compliance scenario. All other firms are assumed to have already incurred this one-off cost and therefore only incur on-going costs.

(b) For the exemption scenario, the total one-off and on-going costs of documenting a risk assessment were estimated for all microenterprises in the three different low-risk scenario sectors. These costs represent the savings that would be incurred if these firms no longer had to document the risk assessment. Our calculations for the

exemption scenario net off 'business as usual costs' — the costs of documentation incurred by firms that would undertake documentation even in the absence of a legal obligation to do so (e.g. because they regard it as best practice). Hence, the estimated costs only include those firms currently complying with the documentation obligation that would experience a saving under an exemption.

(c) Under the exemption scenario, the model also estimates the cost savings that firms would experience if an exemption from the documentation obligation meant that they also no longer carried out a risk assessment. The costs of the foregone risk assessment vary according to our assumptions regarding the compliance effect of documentation — a strong compliance effect means that more firms would cease their risk assessments under a documentation exemption.

(d) The costs under the 100 per cent compliance scenario include the total one-off and on-going costs of documenting a risk assessment for all firms in all sectors, excluding the costs incurred by firms currently complying. The model also estimates the costs of additional risk assessments that would need to be carried out in order to achieve 100 per cent compliance with the documentation obligation (here we assume that if a firm documents a risk assessment they will have to carry out one; therefore the number of new documented risk assessments is equal to the number of new risk assessments).

(e) The model also estimates the costs to regulators of enforcing 100 per cent compliance with the documentation obligation through inspections.

*Health and safety impacts*

A5.31 We do not capture all possible impacts of the documentation obligation on health and safety outcomes, instead focusing on those that are most feasible to model. In particular, we focus on the compliance mechanism of effect between documenting a risk assessment and undertaking one, rather than quality effects, as it is more feasible to model a change in the *number* of risk assessments than a change in the *quality* of risk assessments.

A5.32 The impacts on health and safety outcomes of the exemption scenario and the 100 per cent compliance scenario were modelled in the following way:

(a) First, the value of current work-place accidents and illness, including fatalities and permanent incapacity, was estimated. This represents the counterfactual or current situation. All impacts arising from the two scenarios were then measured in relation to this baseline. The costs of accidents and illness were measured in terms of lost output (calculated by placing a monetary value on days lost using labour costs) and

non-financial costs such as suffering (represented by individuals' willingness to pay to avoid accidents and illness).

(b) Second, the links in the chain of impact between the documentation of the risk assessment, carrying out the risk assessment, undertaking actions to address health and safety issues, and the value of these actions in terms of reduced costs of accidents and illnesses, were quantified.

(c) For the scenario of 100 per cent compliance with the documentation obligation, the model then estimated how an increase in compliance from existing levels to 100 per cent would reduce the costs of health and safety incidents, using the two main inputs described above.

(d) For the scenario of exemption from the documentation obligation, the model estimated how a reduction in the number of firms documenting a risk assessment in the relevant low-risk sectors would increase the costs of health and safety incidents. It is assumed that some firms would continue to document a risk assessment because they saw it as best practice ("business as usual"). For those firms that currently produce a document but that cease to do so, it is assumed that a proportion of these also cease to carry out a risk assessment due to the compliance effect, with consequent impacts on health and safety.

## Data Used in the Modelling

A5.33 The data available for the modelling exercise are subject to various weaknesses, and in some cases information about the direction and magnitude of impacts is missing altogether. However, despite these limitations we consider that it is still valuable to develop a model to produce estimates (subject to various caveats) of the impacts of the scenarios, rather than not attempting to quantify the impacts at all.

A5.34 The table below presents a summary of the key inputs used in the modelling. When deciding on what data to use, consideration had to be given to both the quality of the data and to their consistency between the links in the chain of impact. For each input we present the source, a description of any adjustments made, and the ranges of the values. Where inputs vary across Member State or sector we include the tables of the values if feasible.[220]

[220] Some input variables vary by Member State and by NACE 2 sector and thus are too large to include

**Table 5: Input Table**

| Input | Description | Data Sources and adjustments | Low, Medium, High sensitivity values |
|---|---|---|---|
| Number of micro-enterprises across NACE 2 sectors | | Eurostat structural business statistics [sbs_na_sca_r2] and [sbs_sc_indic]. (for agricultural holdings: http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tag00001) Micro-enterprises not available for NACE 2 so we applied the ratios for all enterprises. | |
| Micro-enterprise growth rate across NACE 2 sectors | Annual growth rate to uplift 2008 enterprise data | Estimates based on growth in employment numbers in micro-enterprises from EIM (2011)[221] | Ranges from 0.943 – 1.013. |
| Proportion of new firms each year across NACE 2 sectors | To measure proportion of firms undertaking a full risk assessment | Eurostat births and deaths [bd_9b_sz_cl_r2]. | Ranges from 3% to 50%. |
| Admin burden tariff | Wage rate for middle-management | Eurostat 2010 mean hourly earnings by sex, size classes of the enterprise and occupation [earn_ses10_18] plus 25% overheads; updated to 2012 | See Table 6 below |
| Firms' compliance with documentation obligation | Proportion of firms currently documenting their risk assessments | Largely based on interviews with enforcement bodies as literature all from surveys with employers and thus could be biased. We take into account MS with an exemption by adjusting the compliance figures. | See Table 7 below for average compliance per Member State (the input used in the modelling covered all NACE 2 sectors, not shown here). |

[221] Source: EIM (2011) "Do SMEs create more and better jobs?".

| Input | Description | Data Sources and adjustments | Low, Medium, High sensitivity values |
|---|---|---|---|
| | | This varies across NACE 2 as some sectors are exempt and others not. | |
| Business as usual factor | Proportion of firms that would document their risk assessment even in the absence of regulation | EPS Consulting study (2009)[222] estimate of 25% which we use as our central estimate | 10%; 25%; 30% |
| Time taken for risk assessment | | Combination of sources from HLG study; EPS Consulting study and interviews with businesses, enforcement bodies and health and safety consultants | See Table 7 below for average time taken per Member State (the input used in the modelling covered all NACE 2 sectors, not shown here). |
| Full documentation time as proportion of risk assessment time | Time taken to undertake a risk assessment from scratch (i.e. for new firms) | Combination of sources from HLG study; EPS Consulting study and interviews with businesses, enforcement bodies and health and safety consultants | 25%; 50%; 75% |
| Update documentation time as proportion of risk assessment time | Time taken to update the risk assessment documentation in response to changes | Combination of sources from HLG study; EPS Consulting study and interviews with businesses, enforcement bodies and health and safety consultants | 13%; 25%; 38% (half the time of a full documentation) |
| Frequency of update of documentation | How often firms need to update their documentation | Member State responses to EC questionnaire. Where no information given assume every 3 years | Ranges from 1 – 5 years across Member States and sensitivity scenarios. See Table 9 below |
| Proportion of micro-enterprises currently inspected | | Information from interviews with regulators | 5%; 7%; 9% |

[222] EPS Consulting (2009) 'Measuring the administrative burden in Irish businesses arising from information obligations under company law, employment law and health and safety legislation', Irish Department of Trade and Industry

| Input | Description | Data Sources and adjustments | Low, Medium, High sensitivity values |
|---|---|---|---|
| Ratio of inspectors per inspection (full inspection) | The number of firms an inspector can inspect in a year | Information from interviews with enforcement bodies | 0.5%; 0.7%; 1.1% |
| Document only inspection costs as proportion of full inspection costs | The percentage increase in the number of firms an inspector can inspect in a year, given the reduced time for inspection (but still considering travel time etc) | Information from interviews with enforcement bodies | 25% |
| Annual inspector salary plus overhead | | Eurostat 2010 mean hourly earnings by sex, size classes of the enterprise and occupation [earn_ses10_18] plus 25% overheads; updated to 2012 | See Table 10 below |
| Number of days lost – non-fatal accidents across NACE 2 | Number of days lost for all accidents, excluding those resulting in permanent incapacity and fatalities | Eurostat: days lost from accidents at work by economic activity [hsw_n2_04] | |
| Number of permanent incapacity – accidents across NACE 2 | | Eurostat: Number of accidents leading to fatality or permanent incapacity [hsw_n2_02] | |
| Number of fatalities –accidents across NACE 2 | | Eurostat: Number of accidents leading to fatality or permanent incapacity [hsw_n2_02] | |
| Number of days lost – ill health across NACE 2 | | Eurostat: Standardised prevalence rate of work-related health problems by economic activity [hsw_hp_dinag]; andn umber of work-related health problems by severity [hsw_hp_svdwa]; | |
| Daily labour costs across NACE 2 | Measure of lost output arising from accidents/illness | Eurostat (2008) [lc_n08cost_r2] updated to 2012 | See Table 11 below for average labour costs per Member State (the input used in the modelling covered all NACE 2 sectors, not shown |

| Input | Description | Data Sources and adjustments | Low, Medium, High sensitivity values |
|---|---|---|---|
| | | | here). |
| Compliance effect of documentation on risk assessments | Proportion of firms that cease to undertake a risk assessment if they are not required to produce documentation (the reverse is used in 100% compliance scenario – the proportion of firms that undertake a genuine risk assessment if they now comply with the documentation obligation) | No data available, so used plausible scenarios as part of sensitivity analysis | Scenarios range from zero (whereby documentation has no impact on risk assessment) to 25 per cent (whereby a quarter of the enterprises that cease documenting a risk assessment also cease to undertake a risk assessment), to 50 per cent. |
| Risk assessment effect on health and safety measures | Proportion of firms that undertake health and safety measures as a result of risk assessments | Study of data from the Dutch Labour Inspectorate | 10%; 15%; 20% |
| Impact of measures on the costs of health and safety incidents | Percentage reduction in the costs of health and safety incidents due to from measures taken by firms | Data from the 2011 Social Europe study on the proportion of the costs of accidents and illnesses avoided through health and safety measures. Averages across all case studies range from 30 per cent to 46 per cent.[223] | 30%; 38%; 46% |
| Costs of measures undertaken as a result of risk assessments | Ratio of benefits (reduction in lost output) to costs of measures | Benefit-cost ratio from 2011 Social Europe study. | 1.8; 2.45; 3.1 |

[223] Social Europe (2011) "Socio-economic costs of accidents at work and work-related ill health".

| Input | Description | Data Sources and adjustments | Low, Medium, High sensitivity values |
|---|---|---|---|
| Healthcare costs as a % of lost output | | UK HSE report | 20% |
| Other costs (admin) as a % of lost output (HSE report) | | UK HSE report | 7% |
| Ratio of non-financial costs to lost output | | UK HSE report | 1.68 |

**Table 6: Documentation tariff**

| Member State | € per hour |
|---|---|
| AT | 35 |
| BE | 36 |
| BG | 3 |
| CY | 20 |
| CZ | 8 |
| DE | 38 |
| DK | 48 |
| EE | 7 |
| ES | 24 |
| FI | 36 |
| FR | 38 |
| GR | 20 |
| HU | 8 |
| IE | 41 |
| IT | 38 |
| LT | 6 |
| LU | 41 |
| LV | 6 |
| MT | 14 |
| NL | 35 |
| PL | 8 |
| PT | 17 |
| RO | 6 |
| SE | 41 |
| SK | 6 |
| SL | 15 |
| UK | 42 |

*Wage rate for middle-management.*

*Source: Eurostat 2010 mean hourly earnings by sex, size classes of the enterprise and occupation [earn_ses10_18] plus 25% overheads*

**Table 7: Proportion of firms assumed to be currently complying with documentation obligation**

| Member State | Low | Medium | High |
|---|---|---|---|
| AT | 20% | 26% | 47% |
| BE | 19% | 25% | 45% |
| BG | 21% | 27% | 49% |
| CY | 20% | 26% | 47% |
| CZ | 21% | 28% | 37% |
| DE | 9% | 12% | 16% |
| DK | 49% | 65% | 75% |
| EE | 18% | 24% | 43% |
| ES | 12% | 16% | 51% |
| FI | 10% | 13% | 23% |
| FR | 15% | 19% | 60% |
| GR | 20% | 27% | 48% |
| HU | 21% | 28% | 51% |
| IE | 21% | 27% | 50% |
| IT | 12% | 16% | 28% |
| LT | 18% | 24% | 42% |
| LU | 12% | 15% | 28% |
| LV | 23% | 30% | 40% |
| MT | 20% | 26% | 60% |
| NL | 23% | 30% | 40% |
| PL | 21% | 27% | 49% |
| PT | 21% | 28% | 50% |
| RO | 21% | 27% | 49% |
| SE | 19% | 25% | 45% |
| SK | 21% | 28% | 51% |
| SL | 20% | 27% | 48% |
| UK | 11% | 15% | 31% |

*Source: ESENER data, adjusted for micro-enterprises using information from interviews with enforcement bodies*

**Table 48: Time taken for risk assessments (hours)**

| Member State | Low | Medium | High |
|---|---|---|---|
| AT | 1.2 | 1.5 | 1.9 |
| BE | 9.8 | 13.0 | 16.3 |
| BG | 15.3 | 20.4 | 25.5 |
| CY | 9.8 | 13.0 | 16.3 |
| CZ | 1.2 | 1.5 | 1.9 |
| DE | 1.2 | 1.5 | 1.9 |
| DK | 15.3 | 20.4 | 25.5 |
| EE | 8.8 | 11.7 | 14.7 |
| ES | 1.2 | 1.5 | 1.9 |
| FI | 15.3 | 20.4 | 25.5 |
| FR | 9.8 | 13.0 | 16.3 |
| GR | 15.3 | 20.4 | 25.5 |
| HU | 15.3 | 20.4 | 25.5 |
| IE | 11.7 | 15.6 | 19.5 |
| IT | 15.3 | 20.4 | 25.5 |
| LT | 15.3 | 20.4 | 25.5 |
| LU | 9.8 | 13.0 | 16.3 |
| LV | 15.3 | 20.4 | 25.5 |
| MT | 8.9 | 11.8 | 14.8 |
| NL | 9.5 | 12.7 | 15.9 |
| PL | 9.8 | 13.0 | 16.3 |
| PT | 15.4 | 20.6 | 25.7 |
| RO | 11.5 | 15.3 | 19.2 |
| SE | 0.3 | 0.3 | 0.4 |
| SK | 9.8 | 13.0 | 16.3 |
| SL | 9.8 | 13.0 | 16.3 |
| UK | 10.2 | 13.6 | 17.0 |

*Source: HLG study; EPS Consulting study and interviews with businesses, enforcement bodies and health and safety consultants*

**Table 9: Interval between required update of documentation (years)**

| Member State | Low | Med | High |
|---|---|---|---|
| AT | 5 | 3 | 2 |
| BE | 1 | 1 | 1 |
| BG | 5 | 3 | 2 |
| CY | 5 | 3 | 2 |
| CZ | 5 | 3 | 2 |
| DE | 5 | 3 | 2 |
| DK | 5 | 3 | 2 |
| EE | 5 | 3 | 2 |
| ES | 5 | 3 | 2 |
| FI | 5 | 3 | 2 |
| FR | 1 | 1 | 1 |
| GR | 5 | 3 | 2 |
| HU | 1 | 1 | 1 |
| IE | 5 | 3 | 2 |
| IT | 5 | 3 | 2 |
| LT | 5 | 3 | 2 |
| LU | 5 | 3 | 2 |
| LV | 5 | 3 | 2 |
| MT | 5 | 3 | 2 |
| NL | 5 | 3 | 2 |
| PL | 5 | 3 | 2 |
| PT | 1 | 1 | 1 |
| RO | 5 | 3 | 2 |
| SE | 5 | 3 | 2 |
| SK | 5 | 3 | 2 |
| SL | 5 | 3 | 2 |
| UK | 5 | 3 | 2 |

*Source: Member State responses to EC questionnaire; Europe Economics assumptions.*

**Table 10: Annual inspector salaries, including overheads**

| Member State | Salary (€) |
|---|---|
| AT | 55,541 |
| BE | 58,066 |
| BG | 2,525 |
| CY | 25,246 |
| CZ | 12,623 |
| DE | 63,115 |
| DK | 70,689 |
| EE | 10,098 |
| ES | 32,820 |
| FI | 53,016 |
| FR | 53,016 |
| GR | 30,295 |
| HU | 12,623 |
| IE | 63,115 |
| IT | 50,492 |
| LT | 7,574 |
| LU | 70,689 |
| LV | 10,098 |
| MT | 22,721 |
| NL | 55,541 |
| PL | 12,623 |
| PT | 25,246 |
| RO | 10,098 |
| SE | 58,066 |
| SK | 7,574 |
| SL | 25,246 |
| UK | 60,590 |

*Source: Eurostat (2010) Mean hourly earnings by sex, size classes of the enterprise and occupation [earn_ses10_18] plus 25% overheads; updated to 2012*

**Table 11: Daily labour costs (average)**

| Member State | Labour cost (€) |
|---|---|
| AT | 110 |
| BE | 118 |
| BG | 8 |
| CY | 56 |
| CZ | 27 |
| DE | 106 |
| DK | 127 |
| EE | 32 |
| ES | 65 |
| FI | 100 |
| FR | 114 |
| GR | 68 |
| HU | 46 |
| IE | 115 |
| IT | 92 |
| LT | 21 |
| LU | 118 |
| LV | 19 |
| MT | 48 |
| NL | 129 |
| PL | 30 |
| PT | 44 |
| RO | 13 |
| SE | 125 |
| SK | 29 |
| SL | 53 |
| UK | 104 |

*Source: Eurostat (2008) [lc_n08cost_r2] updated to 2012*