

**Feasibility Study on Estimation of Costs of Workplace
Accidents, work-related ill-health and non-injury
incidents in Ireland**

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May 2004

1. Introduction

Accidents in the workplace have always been an important part of the social agenda of health and safety agencies worldwide but increasingly the economic angle of this issue is being used as a financial persuader for these moral arguments. The exposition of the true costs of accidents pushes health and safety in the workplace up the political and business agenda.

This project has three specific research objectives

1. To examine existing methods to estimate costs of workplace accidents, work-related ill health and non-injury incidents
2. To identify available data and information for the Republic of Ireland
3. To formulate the best method to estimate costs of workplace accidents, work-related ill-health and non-injury incidents in the Republic of Ireland

2. What research has been conducted in this area?

2.1 Direct versus indirect costs

Early work in this area concentrated on the firm and attempted to analyze the costs of accidents in the workplace to this entity alone. The main message was that firms needed to include the hidden costs in order to arrive at a complete cost of workplace accidents and Heinrich (1959) developed the concept of icebergs to show the proportion of the cost which was hidden. These icebergs showed the relationship between insured and uninsured or direct and indirect costs. Initially the outcome of such research was that the

costs of accidents was being undervalued in many firms. Research then followed that created accident icebergs for various sectors. For example Head and Harcourt (1996) cite the Leathers and Williams (1984) study of 222 farmers in New Zealand, Levitt's (1981) investigation of the ratio of direct to indirect costs of 49 construction accidents in the US and Klen's (1989) survey of injured loggers in the forestry sector in Finland. More comparative studies were undertaken in the UK by the Health and Safety Executive (HSE) (1993), in the Republic of Ireland in 1995 (Jacobson and Mottiar) and in Northern Ireland in 1996 (Jacobson and Mottiar). These studies showed that the ratio could differ quite significantly depending on the sector.

From a practical point of view this type of analysis has culminated in a number of reports on how to evaluate the costs of accidents for firms (for example Mossink and Nelson, 2002) and websites (for example

www.osha.gov/SLTC/etools/safetyhealth/mod1costs.html ;

www.hse.gov.uk/costs/accidentcost_calc/accident_costs_intro.asp).

In this way the issue has been moved from a generalized issue for firms, to something which specific firms can calculate the effect of and of which they are in control. This has advantages in terms of firms taking the onus on themselves to see the value of preventing accidents, but at another level some researchers and health and safety associations began to seek a more complete estimate of the costs of accidents to the economy as a whole.

Just concentrating on the cost to firms was ignoring the very important issues of costs to the individual and costs to society of accidents in the workplace. However analyzing these issues also presents great challenges to researchers who often do not have extensive

data to work with and also have to contend with the difficult issue of how to value health and life.

2.2 Developing a national cost figure

This noted, the results of such research can have a strong influence on policy makers, businesses, the insurance industry and the general public. They provide headline cost figures, for example ‘work related injuries, ill health and non-injury accidents may be costing the Northern Ireland economy as much as £500m (€750m) a year’ (Health and Safety Review, 2002, p.22). In New Zealand ‘workplace accidents cost the country \$4.2 billion a year’ (<http://www.osh.dol.govt.nz/touch/press/1998/PR981006.shtml>). In the EU every year nearly 5 million employees suffer from work related accidents involving more than three days absence and the insurance costs borne by the industry alone amount of €20 billion (http://agency.osha.eu.int/publications/newsletter/12/en/index_10.htm). Leigh et al (1997) estimated that the costs of accidents in the workplace in the US in 1992 amounted to €171 billion, an estimate which they say is likely to be low due to under-reporting and the fact that the study ignores the cost of pain and suffering and within-home care.

As part of this project in order to ascertain what research has been conducted in this area relevant agencies in 26 countries were contacted and while the response rate was extremely low some reports were indicated although more often the response was that no such research had been conducted. An extensive secondary literature review was also conducted. It appears that many countries have very limited or no research in this area

and the extent of research in other countries varies from academic (as in the case of New Zealand (Head and Harcourt (1996)) to industry studies which often concentrate on the costs to firms (for example the Canadian Manufacturers and Exporters and Workplace Safety and Insurance Board's guidebook entitled Business Results through Health and Safety Guidebook

<http://www.wsib.on.ca/wsibsite.nsf/Public/BusinessResultsHealthSafety>). In other countries estimates of total costs are on the basis of the known insurance cost (for example in Finland <http://www.artto.kaapeli.fi/unions/T2003/g04>).

In an EU wide study in 1998 (European Agency for Safety and Health at work, 1998) it was found that 'there have been attempts to estimate [the costs of work-related illness and occupational accidents] in many member states' (p.28). However how these costs were calculated varied quite substantially. Many rely on data from national or private health insurance organisations regarding payment of claims, and national statistics on the number of working days lost, amount of disability pensions awarded as a result of such accidents and in some cases the cost of health care. As the report (European Agency for Safety and Health at Work, 1998) outlines these statistics do not tell the full story as some accidents are never reported and some sectors are not included in published figures. Also work-related illnesses are usually not included. More in-depth research has been conducted in the UK and the Netherlands in particular where efforts have been made to include company and socio-economic costs. The conclusion is that 'the range of indications of the costs of work-related risks gives an approximation of the real costs involved' (p.30).

The HSE in the UK have commissioned and published a report on the costs of accidents to the British economy (1999). It seems clear that this country is the leading nation in terms of conducting research in this area and this report seems to present the most extensive and up to date data and techniques in this area. It also purports to be the only study which includes non-injury accidents. From an Irish point of view the obvious geographical closeness and historical connections between the countries may create similarities in terms of availability of data and costs. Thus if a study of this nature was being taken undertaken in Ireland then this model has a lot to offer.

It is also interesting to note that in 2002 the Northern Ireland Health and Safety Agency commissioned a report to calculate the cost of accidents to the economy based on the HSE study. The advantage of basing it so closely on that report is that it allows comparison but the dis-advantage is that it relied on a variety of estimates that were made in the HSE study for Britain.

The European Agency for Safety and Health at Work has also addressed this issue presenting a detailed report which grapples with the issue of which technique to use to evaluate the societal costs (European Agency for Safety and Health at Work, 1999) and this is the foundation for a report which presents an inventory of how to calculate socioeconomic costs (European Agency for Safety and Health at Work, 2002).

The literature review shows that while this may be an interesting and important topic - as the Economic Impact report (1999) states 'few countries indicate that [occupational

safety and health] is not a major or increasingly important topic' (p.14) - there are nonetheless few examples of extensive pieces of research being conducted in this area. It seems that from an Irish point of view the HSE study provides a 'natural' template for a study of the costs of workplace injury and non-injury accidents and ill-health. The next section of this report identifies the main factors which the HSE considered and where relevant incorporates comments from the EU guide to evaluating socioeconomic costs. The availability of comparable Irish data is also outlined.

3. What data is required to evaluate the costs of accidents and ill-health in the workplace

The HSE report considers three different types of accidents to be included injury and non-injury accidents and ill-health. It then evaluates the cost to the individual, the cost to the firm and finally the societal costs.

3.1 Types of accidents and illness

3.1.1 Number of injury and non-injury workplace incidents

The HSE report uses the Labour Force Survey and we could do the same to identify the number of workplace accidents. They add in a figure for under-reporting which the HSA would need to estimate for the Irish case. Also required would be the number of members of the public who were influenced by a work accident.

3.1.2 Work related ill health

This is an important part of the costs of accidents in the workplace but is more difficult to quantify as there is often no single data source. The HSE study relied quite extensively on a household survey called Self-reported Work-related Illness which was conducted in 1995. Respondents were asked if they had experienced a work-related illness in the past 12 months. People who responded positively were followed up and re-interviewed. While the report outlines the difficulties of relying on this self-reporting data nonetheless it provides a wealth of information regarding the prevalence of work-related illness among various occupations, the number of days of absence and the type of injury or illness. The data collected in the Irish Quarterly national Household survey accidents and illness module would be helpful here although it would not give the same level or depth of information.

3.1.3 Non-injury accidents

There is no information collected on this in the UK and the same is the case here. The HSE report uses the accident triangle to determine the ratio of injury to non-injury workplace accidents. They rely on the data from the HSE (1993) study which studied five organizations and the work of Monnery (1999) which investigated a financial services organization. The equivalent Irish study (Jacobson and Mottiar, 1995) could not determine the ratio of injury to non-injury accidents in the Irish case as no non-injury cases were reported. Thus it may be necessary to rely on the ratios used in this HSE report to make an estimate in the Irish case. The other alternative is to do another case

study approach to determine the ratio across a number of different sectors in Ireland. This would provide more accurate and representative data.

3.2 Costs to individuals

The types of individuals involved can be those who require time off due to injury or illness and then return to the same job, those who have to change job or employer due to the injury, and those who leave the workforce altogether. The HSE report did not have any estimate of those who have to change job and that would be similar to Ireland, we also wouldn't have any data regarding the numbers who have left the workforce due to injury¹. Data on number of days lost due to non fatal and work related ill health can be collected from the labour force survey.

The first cost to the individual is loss of income and this is calculated by comparing the income when at work and the income that the individual gets when they are sick. Data is limited but looking at the occupations of the individual from the labour force survey (2003) we can make a rough estimate of the average wage. The more difficult part is to work out the average amount of payment when ill. The HSE report relies on estimates made by Davies and Teasdale (1994) which are based on labour force survey results whereby people reported the level of pay that they received when away from work for a variety of lengths of time. No such research has been carried out in Ireland. The value of benefits were then ascertained from the Department of Social Security. For those whose

¹ This information is available for the labour force overall from the CSO (2003) quarterly national household survey: Accident and Illness Module but not just for those whose

injuries are fatal or so severe that they never return to work an average has to be calculated for the number of years lost, in the HSE case this is assumed to be 12 years (this is based on the average age of the sample). Average incomes for each sector are then used to calculate this cost. Any benefits in terms of for example widow/er benefits are factored back in. Then the assumption is made in the HSE report that 60 percent of wages were used to benefit the household to come to a final value of income lost. A similar exercise can be done using Irish data and similar assumptions.

Extra expenditure as a result of illness or injury include prescriptions, the cost of travel to the hospital for treatment, increased shopping bills and a reduction in the travel cost to work. They are assumed in the HSE study. It is possible to use the same assumed costs or else conduct research or guesstimates in an Irish context for each of the parts of the overall cost.

The final cost which is the most difficult to quantify is the human cost. The HSE study uses the willingness to pay approach and relies on data collected from the Department of Environment relating to road fatality accidents. A similar study in Ireland conducted by Peter Bacon & Associates (1999) makes an estimate based on the UK study of the human cost of road accidents which result in slight, serious or fatal injury. These estimates can be used to value the human cost of workplace accidents in Ireland. As these estimates are derived from the same UK study which the HSE refer to, it is reasonable for us to use the

illness or disability is as a consequence of their work. It may be possible to make an assumption as to the proportion of total cases involved.

(appropriate adjusted) monetary values for the range of accidents in terms of severity outlined in the HSE report.

It must be noted though that, as the European Agency for Safety and Health at Work (2002) outlines, factors such as grief and suffering for victims and also relatives and friends cannot be statistically measured. So while the willingness to pay approach provides us with a usable figure this does not represent the full costs and should be considered just an approximation of the human cost of a workplace accident.

3.3 Cost to employers

This cost can be divided into seven different parts:

3.3.1 Cost of absence

Based on the HSE (1993) case studies the current study assumes that the cost of maintaining output is the same as the labour cost of employing the absent worker, thus the overall costs of production are unchanged. This of course depends on the level of sick pay. If the absence is for less than a day then it is assumed that there are no extra costs (aside from administration). In light of the case studies undertaken in an Irish context (1995, 1996) this seems like a reasonable assumption.

Sick pay for the company involves the wages paid plus the non-wage labour costs that the employer has to pay. For Ireland this is available from the CSO (2000) Labour costs survey. As in the UK, it must be noted that the Occupational Injury Benefit provides a

payment for people off work for more than three days up to 26 weeks so this has to be factored into the calculations of the cost of sick pay for the employer.

3.3.2 Administration

The HSE report assume that this takes 30 minutes per day of absence for a wages clerk or accountant to deal with this issue and average wages for this occupation plus non-labour costs can be used to cost this use of time. Multiplying it by the number of days lost due to illness and injury results in an administration cost. This time allocation seems reasonable as in the Irish 1995 study the time spent investigating the accident, visiting the injured person, processing insurance claims etc. came to 40 minutes on average in the first instance.

3.3.3 Recruitment

To calculate this the report uses national estimates of turnover costs by occupation and then weights these values according to the number of people in each occupation who have had to leave their job due to work related injury or ill health. It is noted that this overvalues the recruitment cost as the individual may leave anyway at some point. The HSE study assumes that recruitment is brought forward by three years and allows for the growth in real earnings to calculate future recruitment costs. In addition a recruitment chain can be created and it is assumed that this is between one and four people. Using similar assumptions, and data from the Chartered Institute of Personnel and Development (CIPD) (2003) report which estimates labour turnover costs by occupation, a recruitment cost for Ireland can be calculated.

3.3.4 Damage

This report assumes an average cost per incident of between £1.20 and £3.60 at 1995/1996 prices taken from the HSE (1993) studies. The average direct costs in the case of the 1995 Republic of Ireland study were much more significant at £21.67 per accident although it must be noted that this included costs such as taxi fare to the hospital and repair work to ensure the accident doesn't recur. The choice thus is to use the appropriately adapted UK figure or else find out this information from more detailed Irish case studies.

3.3.5 Non-injury accidents

The proportion of injury to non-injury accidents is assumed from the HSE (1993) study for the sectors that they investigated. A range is assumed for other sectors. The report notes the limitations of this as the proportions are based on just one firm in each sector, and it is assumed that these are representative of the whole sector. The average cost of a non-injury accident in the study is then used to calculate a total cost. A similar exercise can be done in the Irish case although it would suffer the same limitations and furthermore would be relying on proportions identified in the equivalent UK sector rather than the Irish.

3.3.6 Compensation and insurance

The insurance costs which include compensation and legal costs of workplace accidents are often cited as one of the most easily identifiable costs involved. The HSE report uses data from the Association of British Insurers and makes an assumption that ill-health accounts for a third of all claims. Similar data can be found from the Irish Insurance Federation which shows the value of employer liability claims to be €90.3 million in 2002 (Irish Insurance Federation Factfile 2002). An IBEC (1999) study finds the average personal injury claim was £38,431 in 1999

(<http://www.ibec.ie/ibec/press/presspublicationsdoclib3.nsf/wvPCICCC/789B3D8DE0C9F07280256A2A0062E8AF?OpenDocument>) . At a later date when the Personal Injury Assessment Board is fully operational relevant data may also be available from this source.

Also included in this category of costs are the insurance company administration costs which are assumed to amount to 15% of gross claims. They also include other non-injury accidents such as fire damage and estimate that 50% of this is caused by accidental damage. The calculation of the insurance cost allows comparison of the insured and uninsured costs.

3.3.7 Costs of preventive activities

This factor is not included in the HSE study but the European Agency for Safety and Health at Work (2002) includes it in their 'Inventory of socioeconomic costs of work accidents'. Some indications of this cost can be ascertained from the Jacobson and Mottiar (1995) study where such costs were included in the direct cost category. The two

firms with the largest direct costs spent £600 and £200 respectively to ensure that the accidents did not recur. However this study did not calculate any costs relating to activities such as training or purchase of equipment to prevent accidents occurring in the first place. Estimates could be made about this cost category on the basis of the data that exists, or more case study research could be conducted to provide a fuller picture. It must be noted that the benefits of this expenditure is spread over a number of years and this must be taken into account when making the final computation.

Mossink (1997, p.4) notes that ‘the benefits [of preventative policies] can be monetary (reduction of costs) but can also consist of benefits that are harder to express in money (such as morale, productivity or quality gain). Better occupational safety and health can improve organisational performance’. Such benefits will counterbalance the cost of preventative action but it is extremely difficult to isolate or cost such benefits. Thus the cost of such preventative action may be overvalued.

3.4 Costs to Society

These costs are broken into three parts:

3.4.1 Loss of output

To calculate the loss of output from a societal point of view is easier than in the case of the individual or the employer where the cost is reduced by state benefits. From society’s point of view the cost is simply the average pay. This can be used to calculate a cost of the loss of output from the number of days absence and the loss of those who have to leave the labour force completely. It is noted that this doesn’t include the losses of those

who have to give up work to care for the person who has suffered as a result of a work accident, or the reduction in productivity from the injured or ill employee who continues to work. It is notable that the CSO quarterly national household survey on disability in the labour force (2002) finds that 10 percent of adults of working age have a longstanding health problem or disability and 40 percent of these people aged between 15 and 64 are in employment. While only a proportion of these health problems and disabilities were induced by a workplace incident, it indicates that in a reasonably high proportion of cases people probably continue to work and this has to influence productivity. Yet this is not included in the costs.

3.4.2 Damage

The cost to society is the same as the cost to the employers.

3.4.3 Administration

This cost includes the cost to the employer plus insurance administration costs. Then the lower future cost of recruiting must be subtracted. Also included must be the cost to the relevant Government department for processing the claims. The HSE study assumes an annual cost of administration of benefits would be £6.5 per week or £1.3 per day. This is then calculated for the short-term i.e. that year and then to a net present value over 12 years for those on long-term benefit. All of these costs added together provide the administration cost for the society. Using the same assumptions, and an appropriate exchange rate, equivalent figures could be calculated for Ireland.

3.4.4 Medical Treatment

The data used to value the medical treatment is based upon Department of Health statistics regarding the average cost of GP consultation and hospital treatment.

Assumptions are then made regarding the number of visits and prescriptions required for those who are long-term sick. The total cost is then worked out on the basis of the number of people who were absent for each specified period of time. This is also done for those who leave the workforce completely (on the basis of the assumed 12 years remaining in their working life). This can be done using cost figures for Irish GP visits which are estimated to be on average €33 per visit (Indecon, 2002) and the set outpatient charge for hospital visits. However without a detailed survey of those suffering from workplace injury, assumptions regarding the utilization of GP and hospital facilities will have to be taken as the same as those in the UK. It is notable that this cost will be greater than the cost to the individual in cases where the affected person is on a medical card (30 percent of people are entitled to free GP services (Indecon 2002) as although the individual is not paying the charge it is a cost to the state and society.

3.4.5 Cost of investigating injury and non-injury accidents

In the UK this cost represents the cost of the resources that the HSE and local authorities commit to investigating these accidents. We would need an estimate of this cost from the HSA for the Irish case.

3.4.6 Total costs to society

The last factor to be included in the ‘human cost’ outlined above.

4. Where to from here?

The table below shows the data required to conduct such a study, the sources that the HSE used and then the comparable data sources for Ireland. It also indicates where further research would be useful to create additional data sources.

Table 1: Calculating the cost of accidents: data sources

| | Data sources in HSE study | Irish equivalent sources² |
|--|--|---|
| No. injury and non-injury accidents | <ul style="list-style-type: none"> • Labour force survey • Estimate for underreporting • Members of public affected | <ul style="list-style-type: none"> • Labour force survey • HSA would need to do • HSA annual report |
| Work related ill-health | <ul style="list-style-type: none"> • Household survey with follow up interviews | <ul style="list-style-type: none"> • We have the survey but no detailed information as no interviews are conducted |
| Non-injury accidents | <ul style="list-style-type: none"> • Accident triangle (HSE, 1993) | <ul style="list-style-type: none"> • None for Ireland. Either do more case study research to identify a triangle for Ireland or use UK accident triangles. |
| Cost to individual | | |
| No. days | <ul style="list-style-type: none"> • Labour force survey | <ul style="list-style-type: none"> • Labour force survey |

² The State Claims Agency and the newly established Personal Injuries Assessment Board do not currently release any information which would be useful for these calculations, but at a later date more data may become available especially when the Personal Injuries Assessment Board begins operating.

| | | |
|-------------------------|--|---|
| absence | | |
| Loss of Income | <ul style="list-style-type: none"> • Knowing occupation of injured allows estimate of average income • Need to know level of sick pay – (Davies 1994) • Makes assumption about the no. of working years lost • Pension benefits • Assumes 60% wages go to the family • Extra expenditure assumptions • Human cost valued by willingness to pay which is established in road accident report | <ul style="list-style-type: none"> • Labour force data • Could assume the same proportions as the British study or else do a survey or add on questions in household survey • Could make same assumption of 12 years lost income • Data identified in Department of Social and Family Affairs • Could make same assumption • Could adapt to Irish situation (again would be helped with survey of those suffering workplace injury) • Use figures from the equivalent Irish report (Bacon, 1999) |
| Cost to the firm | | |
| Cost of absence | <ul style="list-style-type: none"> • How costs of production are effected – used HSE (1993) case studies | <ul style="list-style-type: none"> • Make same assumption |
| Sick Pay | <ul style="list-style-type: none"> • Non- labour costs - Labour Costs survey • Government sick pay – Statutory | <ul style="list-style-type: none"> • CSO (2000) Labour costs survey • Department of Social and |

| | Sick Pay scheme benefits | Family Affairs – Occupational Injury benefits |
|---------------------------------------|---|---|
| Administration | <ul style="list-style-type: none"> Assume 30 minutes per day per absence and then use average income at this grade to calculate cost | <ul style="list-style-type: none"> Make same assumption |
| Recruitment | <ul style="list-style-type: none"> Estimates of turnover by occupation from Institute of Personnel Development | <ul style="list-style-type: none"> Use Estimates from CIPD report for Ireland |
| Damage | <ul style="list-style-type: none"> Assume average costs based on HSE (1993) case studies | <ul style="list-style-type: none"> Adapted British figure or find this information from new case studies. |
| Non-injury accidents | <ul style="list-style-type: none"> Again this is based on the accident triangle proportions and then costed. | <ul style="list-style-type: none"> The same could be done for Ireland using the British accident triangle or a newly created Irish triangle from case studies. |
| Compensation & Insurance | <ul style="list-style-type: none"> Association of British Insurers | <ul style="list-style-type: none"> Irish Insurance Federation IBEC (1999) study |
| Costs of preventive activities | <ul style="list-style-type: none"> Not included in this study | <ul style="list-style-type: none"> Estimates on basis of Jacobson & Mottiar (1995) study and HAS estimates or find out from new case study research. |
| | | |
| Costs to Society | | |
| Loss of output | <ul style="list-style-type: none"> Average wages | <ul style="list-style-type: none"> Average wages (CSO) |
| Administration | <ul style="list-style-type: none"> Assumed administrative costs per case | <ul style="list-style-type: none"> Make the same assumption |
| Medical | <ul style="list-style-type: none"> Assume number of visits to doctor | <ul style="list-style-type: none"> Indecon (2002) Report on the |

| | | |
|------------------------------|--|---|
| treatment | and use of prescriptions and applies to costs data from Department of Health. | professions for the Competition Authority shows an average GP fee of €33. |
| Cost of investigation | <ul style="list-style-type: none"> • Costs to HSE in terms of resources – HSE estimates | <ul style="list-style-type: none"> • HSA estimates |

It seems clear that some required data is readily available to conduct this analysis.

However there are other important weak data sources, or cases where the data does not appear to exist. The primary shortcoming that the Irish data has is in terms of detailed information about those who experience work-related injury or ill-health. The CSO Household survey provides some basic information regarding the type of injury or illness and the number of days lost. However in Britain they have the added wealth of data acquired from engaging in follow up interviews to ascertain information regarding for example the level of sick pay injured or ill persons attain. This facilitates a more accurate calculation of the amount of individual income lost due to injury or ill-health. Conducting such a study in Ireland would also facilitate a much more valid figure for the number and price of prescriptions and doctor's visits per illness. In the HSE study it is estimated that a long-term illness will incur an annual cost of two visits to a GP per year and one outpatient visit and 2.5 prescriptions. But the Indecon (2003) study shows that the largest proportion of Irish consumer attend a doctor between one and five times annually so on that basis it is unclear whether two visits per year is a fair estimate for a person with a specific long-term illness.

The second difficulty, which is one that the HSE study suffers from too, is the dependence upon the 1993 case studies in order to account for non-injury accidents. Five

firms, each from different sectors, were investigated to evaluate the incidence of injury and non-injury accidents and their related costs. The findings clearly showed the importance of indirect and uninsured costs. This current HSE costs of accidents study utilizes these findings to determine the ratio of injury to non-injury accidents and thus estimate the number of non-injury accidents and the effect on costs of production for the firm. Thus research conducted on one firm in a sector is being taken as representative of all the firms in the sector. Work similar to the case studies was conducted in an Irish context (Jacobson and Mottiar, 1995) but it suffers the same difficulties regarding how representative the study actually is. There is the added issue that in that study no non-injury accidents were reported so it is not possible to determine an accident triangle ratio specific to the Irish case. Conducting more in-depth case study work on a bigger number of firms representing a larger number of sectors would provide a stronger research foundation for making cost estimates.

In order for an estimate of the cost of workplace injury and non-injury accidents and ill health to be calculated for Ireland there are two possible approaches. One is to conduct a study much like the Northern Ireland (2002) study which mirrors the HSE (1999) study by applying that model directly to the Irish case. This report has outlined comparable figures that could be used in order to do this. This would give a 'headline' figure but it must be noted that there are caveats in taking this route. Some of the assumptions may be very particular to Britain, for example the number of doctor's visits and prescriptions per illness, the level of sick pay and the ratio of injury to non-injury incidents. On the positive side it would result in a figure which would be broadly comparable to Britain

and Northern Ireland and would facilitate future calculations in years to come which would allow longitudinal comparisons.

The other choice is to conduct a study similar to the HSE study, thus maintaining the advantage of being able to compare across neighbouring country's, but engage in some research which will strengthen the basic assumptions and facilitate research which is totally representative of the Irish situation. This will involve commissioning research to ascertain the injury/non-injury accident ratio among firms. This research would not need to be extensive but study a broader range of sectors than the Jacobson and Mottiar (1995) study and include more firms in each sector. A second piece of research that would be extremely valuable would be a study like the British in-depth interviews with those who have experience injury or ill-health as a result of their work. This would provide valuable information for this study, but more broad issues could also be researched as well which would make the results relevant for other issues that the HSA is concerned with. The results of these two pieces of research would form a much stronger basis upon which to conduct a study similar to the HSE one discussed above.

The choice here revolves around issues like depth of study, reliability and representativeness of results, speed with which results are required and the obvious cost implications. Whichever route is chosen this report has taken the first steps by discussing the research that has been conducted in this area to date and concluding that the HSE model seems to be the most appropriate to follow, as it includes non-injury and illness incidents. Furthermore table 1 shows the data that is currently available in Ireland in

order to conduct such a study and also the ways in which more representative data could be collected. Thus the basis upon which the cost for workplace accidents, non-injury and ill-health for Ireland can be calculated has been established and possible paths for future research signposted.

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