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SOCIAL INSURANCE AND ABSENCE
FROM WORK IN IRELAND

GERARD HUGHES

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General Summary

The purposes of the present study are to analyse trends in sickness absence in Ireland since the introduction of the unified system of social security in 1952, to compare absence rates in Ireland with those elsewhere, to adapt the basic model of the relationship between social insurance and absence from work to take account of factors which may be important in Ireland and to estimate the model using time series data for the post-war period.

Disability benefit is payable out of the Social Insurance Fund to insured persons who are medically certified as being incapable of work due to sickness. In cases of doubt as to incapacity for work the Department of Social Welfare, which pays the benefit, can ask claimants to attend for medical examination by one of its medical referees. This power has been used extensively over the years and the outcome of cases which have been referred for second medical opinions suggests that the Department's success in detecting unjustified claims is related to the intensity with which the referral procedures are operated.

During the last twenty-five years the number of spells of illness for each insured person has doubled and the number of working days lost per person insured has increased by three-quarters. One of the consequences of these developments was that in 1978 nearly as many working days were lost because of sickness as were lost because of unemployment and the number of working days lost as a result of the two together accounted for a quarter of the total number that were available. The estimate of the number of working days lost due to sickness in 1978 is used, on the basis of certain assumptions, to get a general indication of the value of output foregone because of illness in that year; our calculations indicate that this amounted to £340 million or approximately 5.5 per cent of GDP. Another consequence of the increase in sickness absence was that public expenditure on income maintenance during sickness rose from £2.3 million in 1953 to £72.3 million in 1978 and the percentage of social security spending which was accounted for by disability benefit increased from 10.4 per cent in 1953 to 14.3 per cent in 1978.

At the beginning of the 1950s absence from work due to sickness in Ireland was not exceptional by international standards, nor was its rate of increase exceptional up to the end of the 1960s. During the 1970s, however, the rate of increase in the frequency and duration of certified incapacity was exceptional compared with Britain and Northern Ireland and at the end of

the 1970s the absence rate in the Republic was slightly higher than in Northern Ireland and nearly double the British rate. Uncertified absence, i.e., absences lasting one or two days, were lower in Ireland in 1975 than in most of the EEC countries and only 20 per cent of employees in Ireland who were absent from work in a particular week in 1975 were absent without leave compared with 43 per cent of the total who were absent in Britain.

There are three sets of variables, personal, medical, and economic, which could be expected to exert an influence on absence from work due to illness. Among the personal variables which could affect measured incapacity are the age and sex composition of the insured labour force. An analysis of the extent to which changes in these variables may have affected measured incapacity suggests that their effect has been negligible. Hence, it is permissible to use the measures which are available on the frequency and duration of incapacity without adjusting for changes in the age and sex composition of the population to which they refer. The medical, or medically related, variables which may be important determinants of certified incapacity are mortality, influenza, alcohol consumption and weather conditions which precipitate certain illnesses. The economic and institutional variables which influence the decision to take time off work or the availability of sickness benefit are the real wage rate, the ratio of benefit paid by the State insurance scheme during sickness to average income while at work (the replacement ratio), unemployment, the coverage of the social insurance scheme and the intensity with which the medical referee scheme is operated. The relationship which is expected to hold between each of the variables mentioned and the frequency and duration of incapacity is discussed and the limitations which may apply to the particular measures used in the incapacity model are pointed out. It is noted, for example, that the replacement ratio measure may understate the extent to which average earnings are replaced by income during sickness because it does not include income from occupational sick pay schemes or the tax rebates to which the sick may be entitled. The effect of tax rebates on the replacement ratio is analysed for a number of representative households and it is shown that in certain circumstances income while out of work because of illness may be greater than income while at work. It appears, however, that the proportion of claimants who could find themselves in this position at any point in time is fairly small.

A stepwise regression analysis of the incapacity model indicates that while alcohol consumption and the weather affect certified incapacity their influence is weak compared to the effect of the replacement ratio, the real wage rate, and long-term unemployment. A simulation exercise in which the replacement ratio is held at its pre-pay-related level suggests that there were nearly 65,000 or 19 per cent, more claims in 1978 than there would have

been in the absence of pay-related disability benefit. It is suggested that the main reason for this increase in the number of claims is that the pay-related supplement is an additional investment in the health of the labour force which enables workers to take time off work during illness to get the treatment which they need and which they could not afford on flat-rate benefit alone.

The influence of social insurance on certified incapacity is compared with its influence on unemployment and it is found that in both cases the effect is quite substantial. It is pointed out that further research is needed to find out if the benefits to the community from changes in the operation of the disability and unemployment benefit schemes outweigh the costs.

The regression results for the incapacity model suggest that consideration should be given to the use of economic variables to rectify some of the undesirable features of the disability benefit programme which have arisen since the introduction of pay-related benefit. It is shown that if the disability benefit received by representative households in 1979/80 had been taxed the possibility of some households being better off on benefit than on pay would not have arisen and it is recommended that disability and other short-term benefits should be taxed if administratively possible. If it is not possible to devise a workable scheme for taxing disability benefits within the existing PAYE system it may be possible to do so by making employers responsible for paying the benefit for a specified period. An additional reason for considering this possibility is that there could be considerable scope for reducing public expenditure on disability benefit because of the duplication which exists between occupational sick-pay schemes and the State scheme.

The effect of the tax and social welfare changes in the 1980 Budget on the incentive to work of representative households is investigated and it is argued that when the changes are taken together they did not increase the incentive to work in 1980. It is pointed out that the disincentive effects of sickness benefits are largely irrelevant as far as the long-term sick are concerned and some suggestions are made for improving the financial position of people who have been out of work due to illness for six months or more.

The administrative procedures which are used to govern access to disability benefit may be capable of some improvement and it is recommended that there should be an inquiry into the way in which the medical certification scheme is working and that consideration should be given to reducing the lag in examining claimants who are called in by the Department of Social Welfare for a second medical opinion on their cases. The paper concludes with some suggestions for additional information on the disability benefit scheme.

INTRODUCTION

The social security system which is financed out of the social insurance tax is used to provide income maintenance during old age, unemployment and sickness. In recent years there have been substantial improvements in social security benefits in Ireland and other countries due, for example, to the introduction of pay-related supplements or to the extension of the time during which benefits are paid. These improvements have led to renewed interest by economists in the extent to which social insurance induces an increase in the hazard which is insured against and models have been developed to analyse the effects of social insurance on early retirement and savings, unemployment, and sickness. The main objects of this paper are to analyse trends in sickness absence in Ireland since 1954, to compare absence rates in Ireland with those elsewhere, to adapt the basic model of the relationship between social insurance and absence from work to take account of factors which may be important in Ireland and to estimate the model using time series data for the post-war period.

Section 1 will outline the main features of the disability benefit scheme, the measures used to prevent abuse and the coverage of occupational sick pay schemes. The second section will discuss trends in certified incapacity during the post-war period, the growth of public expenditure on sickness benefits, and the costs which are associated with absence from work due to illness. Section 3 will provide international comparisons of sickness absence rates at the beginning of the 1950s and the end of the 1970s. In Section 4 a model of the determinants of the duration and frequency of certified incapacity will be developed and tested and the final section will consider the measures which are available for controlling sickness absence in the light of the results presented in Section 4.

Section 1

THE DISABILITY BENEFIT SCHEME¹ AND OCCUPATIONAL SICK-PAY SCHEMES

Entitlement to Benefit

When the legal basis for the unified system of social security was being laid the Social Welfare Act 1952 substituted a single benefit, disability benefit, for the sickness and disablement benefits paid under the former national health insurance schemes. The rates of payment and the contribution conditions for disability benefit are the same as for unemployment benefit. Disability benefit is payable out of the Social Insurance Fund to insured persons during periods of illness provided the person was in insured employment for at least 26 weeks since entering the labour force and at least 26 contributions were paid or credited during the contribution year preceding the benefit year in which a claim for disability benefit is made. During the period up to April 1980 payment of flat-rate disability benefit was normally made after three days of illness. However, where a claim had been made to unemployment, disability or injury benefit in the preceding thirteen weeks, payment could be made from the first day of incapacity for work. The concession whereby claimants were paid flat-rate benefit from the commencement of any spell of illness during a thirteen-week period other than the first spell was withdrawn in 1980 by the Minister for Social Welfare in an attempt to combat alleged abuses of the scheme. From April 1980 onwards each spell of sickness must last for three days before disability benefit will be paid. Flat-rate disability benefit varies according to age, marital status, sex and number of dependants. If the claimant has been in insurable employment for at least 156 weeks and has paid the appropriate contributions, payment of flat-rate benefit may continue for as long as the insured person is unfit for work. Where the claimant has between 26 and 155 paid contributions payment of benefit is limited to 52 weeks. A pay-related supplement to flat-rate benefit has been normally payable since 1974 after a fortnight's illness. Up to April 1981 claimants were allowed to link periods of incapacity occurring in a 13-week period to qualify for pay-related benefit without the necessity for PRB waiting days after the first period of incapacity. Since April 1981,

1. The general description of the scheme given in this section is based on information contained in the Department of Social Welfare's annual *Summary of Social Insurance and Social Assistance Services* and in Farley (1964).

however, pay-related benefit will not be paid to claimants for the first 12 days of each distinct period of incapacity.² This supplement is calculated on the basis of the claimant's reckonable weekly earnings over a specified income range in the tax year preceding the year in which the disability benefit claim is made. The rates for flat-rate benefit are generally announced during the Budget Speech. The maximum personal flat-rate since April 1981 is £24.55 per week plus £15.90 for a qualified adult dependant, £6.50 each for the first and second dependants and £5.40 for each additional child dependant. Pay-related supplement is payable after the first fortnight's illness for up to 381 working days at the rate of 40 per cent of reckonable earnings between £20 and £170 per week in the relevant income tax year for the first 147 days, 30 per cent for the next 78 days, 25 per cent for the next 78 days and 20 per cent for a further 78 days.

There is an earnings rule which stipulates that the combined total of flat-rate and pay-related benefit may not exceed a claimant's reckonable weekly earnings but that in no circumstances will the flat-rate benefit be reduced because of the application of the benefit limit. It will be shown in Section 4 that this rule does not ensure that a claimant cannot be financially better off in sickness than in health.

A claim for disability benefit is made by sending a claim form to the Department of Social Welfare within seven days of becoming incapable of work. The claim must be supported by a certificate from the claimant's doctor which specifies the nature of the incapacity. A claimant may be disqualified for receipt of benefit for up to 6 weeks if:

- (a) incapacity is the result of misconduct by the claimant;
- (b) the claimant fails, without good cause, to undergo medical examination or treatment when required;
- (c) the claimant fails to obey instructions from his or her doctor or to

2. It is interesting to note that the three-day waiting period was initially designed to provide a margin of safety in relation to benefit claims by women workers who were being covered by health insurance for the first time by the National Insurance Act of 1911. When the British Government's actuaries made their calculations about the sickness benefit which they expected would be paid out they had to use tables of sickness rates which applied to men only since the Friendly Society which provided the tables did not allow women workers to become members. It was expected that about one-third of the workers covered by national health insurance would be women and the actuaries assumed that sickness claims from women would be about the same as for men but they were afraid they might not be. This made it essential to provide a margin of safety in the actuaries' assessment of the expected demand for sickness benefit which was provided by not compensating claimants for the first three days of illness. This regulation had the triple advantage that it "would save money both on men's and women's illnesses, would help to prevent malingering, and would exclude the frequent short-term illnesses to which the actuaries assumed women were liable" as Gilbert (1966, p. 385) has noted in his excellent study of the origins of the welfare state in Britain. The effect of extending the three-day and twelve-day waiting period to all illnesses should be studied when sufficient information about claimants' responses has accumulated. If the benefits outweigh the costs of the extensions they should be retained. If not, some other method of dealing with the problem of abuse should be sought.

- answer any reasonable enquiries from the Department of Social Welfare about the claim;
- (d) the claimant's behaviour is such that it may retard recovery;
 - (e) the claimant leaves home without word where he or she may be found;
 - (f) the claimant unreasonably refuses to see the Department's Sickness Visitor.

Claimants in receipt of disability benefit may do no work for which they are paid or would ordinarily be paid unless it does not exceed twelve pounds a week and is undertaken as part of the claimant's treatment in a hospital or similar institution while under medical supervision.

Medical Certification

The medical certificate which must accompany each claim for sickness benefit is generally issued by a doctor who has signed an agreement with the Department of Social Welfare to participate in its Medical Certification Scheme. This scheme was established in 1916 to meet the difficulties which insured persons in Ireland had in getting medical certificates due to the exclusion of Ireland from the general scheme of medical care instituted by the 1911 National Insurance Act at the request of Irish members of the British Parliament. Each doctor who participates in the scheme enters into an agreement with the Department of Social Welfare to supply medical certificates to insured persons who are found after medical examination to be incapable of work through illness or injury. The first medical certificate indicates that in the doctor's opinion the insured person is incapable of work on the date of examination. The second certificate, normally issued one week later, establishes a period of continuing incapacity required to qualify for disability benefit. If the illness lasts less than a week the second medical certificate will also be the final certificate and it will indicate that the person is fit to resume work. If the illness lasts more than a week a medical certificate must normally be issued to the insured person each week throughout the incapacity. In cases of illness lasting six months, the insured person is informed by the Department that medical certificates at monthly intervals only are required for weekly payment of disability benefit. When the insured person is fit to resume work the doctor issues a final certificate. Medical certificates are the property of the insured person to whom they are issued by the doctor. Hence the information contained on the certificate is disclosed to the Department of Social Welfare by the insured person and not by the doctor.

If a doctor is satisfied after medical examination of an insured person that

the person is capable of work he should refuse to issue a medical certificate and notify the Department immediately. If a doctor is uncertain about a person's capacity for work he can issue a medical certificate and ask the Department's Medical Adviser to have the person called in for a second medical examination by one of the Department's medical referees. A request of this nature can be made on a special form (the MR4 form) which is supplied to the doctor by the Department of Social Welfare.

A doctor who participates in the Medical Certification Scheme is paid by the Department of Social Welfare according to the number of certificates issued.³ The Minister for Social Welfare has the power to remove a doctor from the list of medical certifiers if there is any breach in the conditions of the Agreement between the doctor and the Department of Social Welfare. In addition the Minister may report the doctor to the Medical Registration Council in a case of serious irregularity in the issuing of medical certificates.

The Medical Referee Scheme and the Control of Disability Benefit Claims

A primary objective of a good health insurance scheme is to protect incomes when absence is necessary in order to ensure that people are not forced by need to work when ill. The introduction of such a scheme or improvements in sickness benefits in an existing scheme will result in an increase in the rate of claims for sickness benefit which is entirely justified, but an unjustified increase in the rate of claims may occur because of malingering on the part of some participants. Control procedures are, therefore, necessary to prevent abuse of sickness benefit schemes.

When the National Insurance Act came into effect in Britain and Ireland in January 1913 it was hoped that the necessity for each claim to be accompanied by a medical certificate from the claimant's doctor would be sufficient to control malingering. However, within three and a half months of the commencement of sickness benefit payments the officials of some of the Approved Societies which paid the benefit became seriously concerned about malingering. The problem of the control of sickness benefit claims approached a crisis in the Summer of 1913. Gilbert (1966, p. 432) notes that one of the leaders of the Friendly Society movement argued that malingering was "endangering the very existence of the approved societies and the probability of the honest members deriving ordinary benefits in due course" and he suggested that it was, therefore, "the duty of the Government

3. The number of insured persons is multiplied by a capitation rate to get the annual sum which is available for medical certification. Different weights are attached to certificates issued by doctors in boroughs, urban and rural areas, to compensate for differences in their expenses, and the money available is distributed among the doctors according to the number of certificates each has issued. This method of payment may lead to the issue of an excessive number of certificates but there is no published data which would enable us to investigate this possibility.

... to inquire into the facts at once, and if they do so, they will no longer hesitate about providing the comparatively small sum of money necessary to provide State medical referees or judges for malingering cases". A departmental committee was set up in August 1913 to investigate the problem of excessive sickness claims. It discovered that payments of sickness benefit to women were far ahead of expectations but it found it difficult to say to what extent this was due to working women being more liable to illness than working men, to greater malingering on the part of working women, or to doctors being willing to issue medical certificates to women for conditions such as pregnancy which were not regarded as illnesses under the National Insurance Act 1911.⁴ Nevertheless, the committee recommended the establishment of a system of official medical referees to deal with the problem of excessive claims for sickness benefit.

This recommendation was acted upon in Britain but not in Ireland because of differences in the benefits which were available under the 1911 Act in the two countries and it was not until 1925 that an official Medical Referee Scheme came into operation in Ireland. The main object of the scheme "is to make available to Medical Certifiers and to Deciding Officers,⁵ the impartial advice of independent Medical Referees, who will advise both on questions of doubt as to incapacity for work and on cases in which undoubted incapacity is prolonged, but on which it is considered desirable that second medical opinions should be obtained". (See Department of Social Welfare (1973, p. 16).) There are a number of centres throughout the country at which the District Medical Referee can carry out medical examination of disability benefit claimants whose incapacity for work is in doubt. The Medical Referee may confirm that the claimant is incapable of work or he may decide that the patient is capable of work. In the latter case, disability benefit is normally discontinued immediately the Medical Referee's report is received by the Deciding Officer.

Each new claim for disability benefit which is sent to the Department of Social Welfare is examined by a Deciding Officer to determine whether there is any doubt about the claimant's incapacity for work. The nature of the incapacity, age, sex and normal occupation of the claimant are taken into account by the Deciding Officer in reaching a judgement about which claims should be referred to the Department's Medical Adviser. Claims which are usually referred are those in which the nature of the incapacity is such that

4. It is interesting to note that this committee criticised the separation of the doctors who issued the medical certificates and in effect granted sickness benefit from the Approved Societies who paid it. The committee felt that the doctor's fear of losing insurance patients was a very important factor in doubtful cases.

5. Deciding Officers are appointed by the Minister for Social Welfare from the Department's staff to decide questions arising from claims for social insurance benefits.

it should not stop the claimant from working in the normal course of events. Claimants who are in hospital are never referred and those in the higher age brackets are seldom referred unless there is a doubt about the genuineness of their incapacity. Claimants who are suspected of malingering because of a confidential notification to that effect to the Department by the employer are automatically referred to the Department's Medical Adviser.

When the Department's Medical Adviser receives the new claims which have been referred to him by the benefit section he must decide which claimants are to be called for a medical examination by the Department's medical referees. A claimant is normally asked to attend one of the Department's examination centres to be seen by a medical referee if the nature of the incapacity is rather vague or if there is any suspicion of malingering by the claimant, e.g., where an employer has been in touch with the Department about the claimant or where the claimant's doctor has sent an MR4 form to the Medical Adviser.⁶ If the Medical Adviser can form an opinion about how long the incapacity of any particular claimant can be expected to last, this is noted on the claim form and the claimant is called in for medical examination if benefit is still being claimed after this time.

New claims which are not referred to the Department's Medical Adviser are examined to see if a view can be formed of how long the illness may be expected to last and a note is made on the claim form to refer the case to the Medical Adviser if benefit is still being claimed after the date on which the claimant would have been expected to have recovered.

Since it normally takes about two weeks from the date on which incapacity first occurred to have a new disability benefit claim referred to the Medical Adviser and another two weeks to have the second medical examination carried out, it can take up to four weeks to get a second medical opinion on doubtful cases.

Within the next few years the Department of Social Welfare will have the ability through enhanced computer facilities to automatically refer claims to the Medical Adviser in cases where an insured person has made repeated short-period claims for benefit in the past.

The Department's power to have claimants examined by one of its medical referees has been used extensively and detailed information on the number of claimants summoned for medical examination in each year and the outcome of the examinations is published in the Reports of the Department of Social Welfare. The information which is available since 1955 on the operation of the medical referee scheme is summarised in Table 1 and Figure 1. It will be seen that the intensity with which the scheme has been operated has

6. If a claimant is unable to attend at the examination centre because of the nature of the incapacity, arrangements may be made to have the medical examination carried out at the claimant's home.

varied over the years. The number summoned as a percentage of those who received disability benefit during the year rose from a quarter to a third between 1955 and 1968. Between 1968 and 1971 it declined to less than an eighth and since then it has increased to around a fifth.⁷

The proportion of claimants who were found to be capable of work by the medical referees varied from 5.2 per cent in 1965 to 1.1 per cent in 1971 while the proportion summoned but not attending for examination ranged from 8.2 per cent in 1955 to 2.5 per cent in 1971. Regression analysis of the data in Table 1 indicates that there is a strong correlation between the proportion of recipients summoned and the proportion of unjustified claims ($r = .96$) and that a one per cent increase in the proportion summoned will result in a .37 per cent increase in the detection of unjustified claims. Hence, the authorities' success in detecting unjustified claims is related to the intensity with which the screening procedures are operated but their potential for reducing the proportion of unjustified claims may be limited by the cost of having to summon a large number of claimants to effect a given reduction. The data in Table 1 suggest that the overwhelming majority of claims submitted for sickness benefit come from people who are genuinely ill and that the proportion of the insured population who are abusing the system is quite small. While some of those who failed to attend at the medical examination centres may have done so because they had recovered before the date scheduled for their medical examination or because they may have objected to being examined by an unknown doctor even though they were genuinely ill, very few of those summoned are likely to have stayed away for these reasons and it is reasonable to assume that the great majority did not show up for examination because they would have been found capable of work.⁸ It would appear from the data in Table 1 that on average around 9 per cent of the total number of claims submitted in any year may be unjustified. This figure cannot be compared directly with data on abuse of sickness benefit in Northern Ireland or Britain because there are significant differences in the proportion of claimants who are called in for a second medical opinion by the authorities in the Republic, Britain and

7. The reasons for these fluctuations are not known but they may be partly due to the number of medical referees employed. The decline in the proportion summoned after 1968, for example, appears to have been connected with the number of doctors employed by the Department of Social Welfare and the introduction of the occupational injuries scheme in 1966. Under this scheme disablement benefit is payable to an insured person who, as a result of an occupational accident or disease, is suffering from loss of physical or mental faculty. The rate of disablement benefit depends on the degree of disablement and this has to be medically assessed. A backlog in the number of cases to be assessed seems to have built up in 1967 and 1968 and the distribution of the workload of the Department's medical referees had to be altered to cope with it. It appears that this was done by reducing the number of disability benefit claimants summoned for medical examination between 1968 and 1972.

8. There is no published information on the number of those summoned who submitted evidence of recovery before the date scheduled for medical examination. Such information is published for the medical referee schemes in Britain and Northern Ireland (see Table 2) and the numbers involved are quite small.

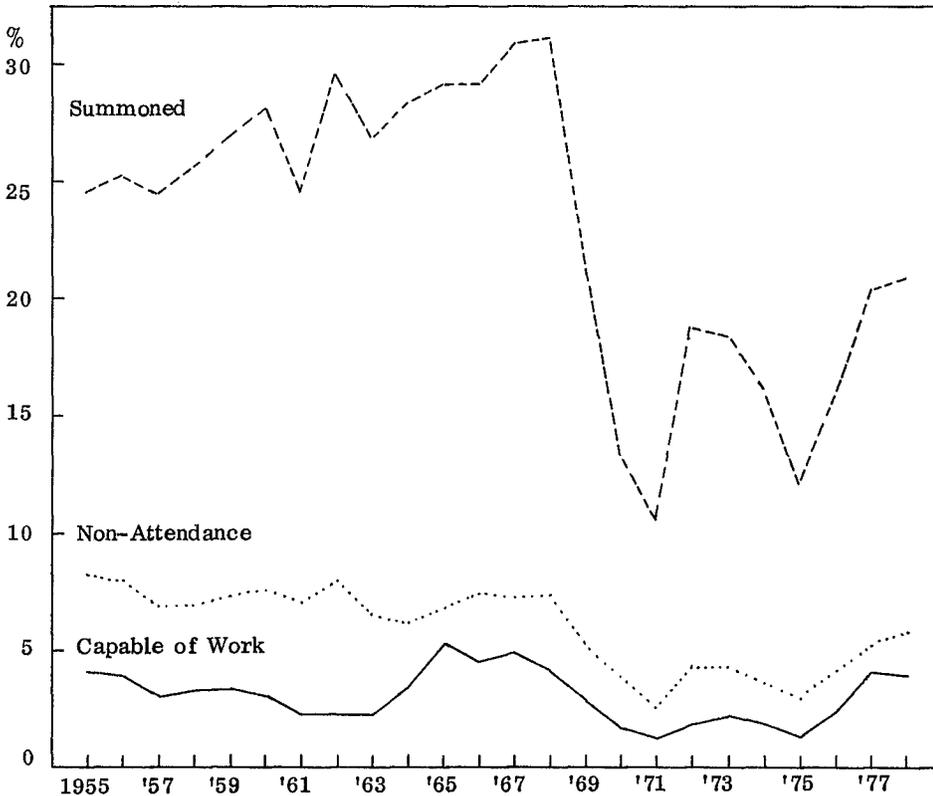
Table 1: *Outcome of disability benefit cases referred for second medical opinion, year ended March, 1955-78*

<i>Year ended 31 March</i>	<i>Number summoned as percentage of those in receipt of disability benefit</i>	<i>Number not attending, other than those unfit to do so, as percentage of those in receipt of disability benefit</i>	<i>Number examined and reported on as capable of work as percentage of those in receipt of disability benefit</i>
1955	24.5	8.2	4.0
1956	25.2	7.9	3.8
1957	24.4	6.9	3.0
1958	25.5	6.9	3.7
1959	26.8	7.2	3.8
1960	28.0	7.5	3.5
1961	24.5	7.0	2.3
1962	29.5	7.8	2.3
1963	26.7	6.5	2.3
1964	28.2	6.1	3.4
1965	29.1	6.7	5.2
1966	29.3	7.4	4.5
1967	30.9	7.3	4.9
1968	31.1	7.4	4.1
1969	21.7	5.2	2.9
1970	13.2	3.9	1.6
1971	10.6	2.5	1.1
1972	18.6	4.3	1.8
1973	18.4	4.3	2.1
1974	16.1	3.6	1.8
1975	12.0	3.0	1.3
1976	15.8	4.1	2.3
1977	20.3	5.2	4.0
1978	20.7	5.8	3.9

Sources: Reports of Department of Social Welfare, 1954-58 to 1976-78.

Northern Ireland. When the Committee on Abuse of Social Security Benefits (HMSO, 1973) in Britain looked at the number of referrals which had been

Figure 1. *Number of persons summoned for examination, number found capable of work and number who did not attend for examination as a percentage of the number who received disability benefit, 1955-78.*



made in 1971 for a second medical opinion it found that only 5.4 per cent of all sickness and invalidity claims had been referred to the medical examiner whereas in Northern Ireland and the Republic of Ireland in the same year the proportions of sickness benefit claims referred were 30 per cent and 16.6 per cent respectively. Despite the variations in the proportions referred, we can compare the results of the referral procedure in 1971 to see whether there are any significant differences in the pattern of outcomes in the Republic of Ireland and this is done in Table 2. There is very little difference in the pattern of outcomes for the Republic and Great Britain in 1971 but there

are significant differences between their outcomes and those for Northern Ireland. The reason for this appears to be that the time which it takes to get a second medical opinion on doubtful cases in Northern Ireland is much lower than in the Republic or Britain. The Northern Ireland authorities refer most of their doubtful cases to a medical referee within one week of receipt of the first medical certificate whereas in Britain it takes about two weeks and in the Republic three or four weeks. The differences in the results between the doubtful cases and all referrals in Northern Ireland are quite striking as will be seen from Table 2. The control procedures in the Republic are successful in dealing with cases of abuse where claimants draw benefit for more than three or four weeks but the time lag in having second medical examinations carried out may mean that there are a considerable number of people who draw benefit for shorter periods to which they are not entitled.

Table 2: *Percentage distribution of outcome of sickness benefit cases referred for second medical opinion in the Republic of Ireland, Great Britain, and Northern Ireland in 1971 and of doubtful cases in Northern Ireland in a week in May 1971*

<i>Outcome</i>	<i>Republic of Ireland</i>	<i>Great Britain</i>	<i>Northern Ireland</i>	
			<i>Doubtful</i>	<i>All referrals</i>
Incapable of work	66.9	64.0	17.3	44.8
Incapable of normal occupation but capable of alternative work	—	3.0	—	0.6
Capable of work	9.8	8.0	44.1	27.2
Evidence of recovery submitted or unfit to attend	—	7.0	5.0	3.3
Did not attend	23.3	18.0	33.1	24.1
<i>Total</i>	100.0	100.0	100.0	100.0

Sources: Reports of the Department of Social Welfare 1967-71 and 1972-75; Report of the Committee on Abuse of Social Security Benefits, Cmnd. 5228, London 1973, Table 22 and p. 268, and information supplied by the Northern Ireland, Department of Health and Social Services.

Occupational Sick-Pay Schemes

In addition to the disability benefit which is paid by the State Insurance scheme many employees receive sick-pay from their employers when they are ill. Unfortunately, there has never been a comprehensive survey of occupational sick-pay schemes in Ireland so we cannot say what proportion of the insured labour force is covered by private sick-pay arrangements. There is some information available on the coverage of occupational sick-

pay schemes for certain sectors of Irish industry, for male employees in the Dublin area, and for unionised workers which provides a basis on which to make an estimate of the coverage of private schemes. In his survey of absenteeism in Irish industry in 1970 Ó Muircheartaigh (1975, pp. 35-36) collected some information on sickness benefit schemes for shop-floor workers in firms in the manufacturing sector. He found that approximately three-quarters of the firms in his sample operated some kind of sickness benefit scheme. The Federated Union of Employers has carried out periodic surveys of the sick-pay schemes operated by its member companies in the manufacturing, services, and distribution sectors. In a report on the position in 1978 the FUE (1979, Section 1) noted that "approximately 65 per cent of Companies operate a formal sick-pay scheme for manual employees. 95 per cent of Companies operate informal or discretionary schemes for non-manual employees". The percentage of the sample of companies which paid sickness benefits to their employees varied from 55 per cent in the Midland region to 80 per cent in the Dublin region. In 1978 the total membership of FUE stood at 2617 companies and these employed over a quarter of a million workers. The Research Department of the Irish Transport and General Workers Union carried out a survey of sick-pay schemes covering its members in 1980 and it found (*Liberty*, August, 1980, p. 7) that "while nearly all white collar workers are covered, only 60 per cent of manual workers are, and the benefits available vary considerably from scheme to scheme". A recent survey by Whelan (1980, Table 1) of employment conditions and job satisfaction among male full-time employees in the Dublin area found that 76.6 per cent of the sample would receive full pay if absent from work due to illness; the percentage of whom this was true varied from 58.1 per cent in the case of unskilled manual workers to 100 per cent for higher, professional, administrative and managerial workers. While the information in these surveys refers in some cases to firms and in others to employees the results are similar in both cases and they suggest that approximately two-thirds of manual workers, 90 per cent of non-manual workers, and three-quarters of all workers are covered by occupational sick-pay schemes.

The most recent information about the way in which occupational sick-pay schemes operate is provided by a survey which was carried out by the FUE (1981) in the Spring of 1980. Only those firms who had indicated in previous surveys that they had a sick-pay scheme for at least one category of workers were included in the sample. Three-quarters of the schemes considered had a pay-related benefit of some kind while the remaining quarter made flat-rate payments. These payments were intended to supplement the State benefit received by an employee during illness and the great

majority of private schemes which included a pay-related component had provisions for deducting an amount equivalent to the State benefit from the employees' sick pay. In 40 per cent of the schemes covering manual employees, commencement of benefit began on the first day of illness so the objective of the three day waiting period in the State scheme may be frustrated by the way in which a significant proportion of private schemes operate. Over half of the schemes for manual workers only provided benefit for up to 13 weeks and in some cases the benefit was reduced after a limited number of weeks. Nearly three-quarters of schemes covering manual workers required a doctor's certificate to be submitted by the third day of absence or earlier.

The structure of the private sick-pay schemes which are operated by FUE member companies is quite different to the State disability benefit scheme. The reason for these differences may be that under the State scheme a substantial part of the cost of absence from work due to illness is borne by the community at large whereas under a private scheme the employer has to bear a significant proportion of the cost. The benefits offered by private schemes are likely, therefore, to be considerably more restrictive than the benefits offered by the State scheme. It should also be noted that industries with low rates of sickness absence in Ireland subsidise the benefits which are paid under the State scheme in industries with a high rate of sickness absence because there is no experience rating in the contributions which are paid by employers and employees in different industries.

Section 2

TRENDS IN CERTIFIED INCAPACITY, THE COSTS OF ABSENCE, THE GROWTH OF PUBLIC EXPENDITURE ON SICKNESS BENEFIT, AND WORKING DAYS LOST DUE TO SICKNESS ABSENCE

Trends in Certified Incapacity

Three standard measures of incapacity will be mainly used in this paper to describe trends in incapacity in the period 1954-78 for which consistent time series data are available. These are:

- (i) *Spells of incapacity*: the number of disability benefit claims paid in year ended 31 March per 1,000 persons effectively insured for all benefits on 31 March each year. This measure is sometimes referred to in the literature as the "inception rate". Persons who are incapacitated on two or more separate occasions during the year are counted two or more times for the purposes of this series.
- (ii) *Days of incapacity*: the average number of days (excluding Sundays) for which disability benefit was paid in year ended 31 March per person effectively insured for all benefits on 31 March each year.
- (iii) *Rate of incapacity*: the number of persons in receipt of disability benefit on 31 December each year as a proportion of the number of persons effectively insured for all benefits on 31 March in the following year.

All three measures are shown in Table 3 for the period 1954-78 and each of the measures is graphed in Figure 2.¹

It will be seen from the table and the chart that there has been a transformation in the pattern of illness among the insured population in the past twenty-five years or so. At the beginning of the period there were 182 spells of sickness for every thousand persons at risk and the equivalent of three working weeks were lost for each person insured. By the end of the period the number of spells of sickness had more than doubled to 406 per thousand, and the number of working weeks lost had nearly doubled to 5.6. The effect

1. A fourth measure of incapacity, the average number of days for which disability benefit is paid during each spell of incapacity, can be derived by dividing the second measure by the first. The fourth measure is not the same as the average duration of incapacity per spell because it covers all claims and not just closed claims.

of these changes was reflected in an increase in the rate of incapacity from 6.6 per cent in 1954 to 10.4 per cent in 1977. All three measures of incapacity appear to be affected by cyclical influences. There is a strong contrast in the rate of change in all series in the period before and after 1968 and there is a noticeable change in the growth rate of the three measures of incapacity in the period since 1974 which may be related to the changes in the social insurance system in that year.

A number of studies of the personal factors associated with sickness absence have shown that there is a strong tendency for the duration of absence to increase with age and for women to be absent more frequently and for longer periods than men (see Jones (1971) for a review of the evidence). Deeny's (1971, ch. 5) work on sickness and disability in the labour force in 1965/66 confirms that the duration of absence in Ireland

Figure 2. *Spells and days of incapacity per person at risk and rate of incapacity, 1954-78.*

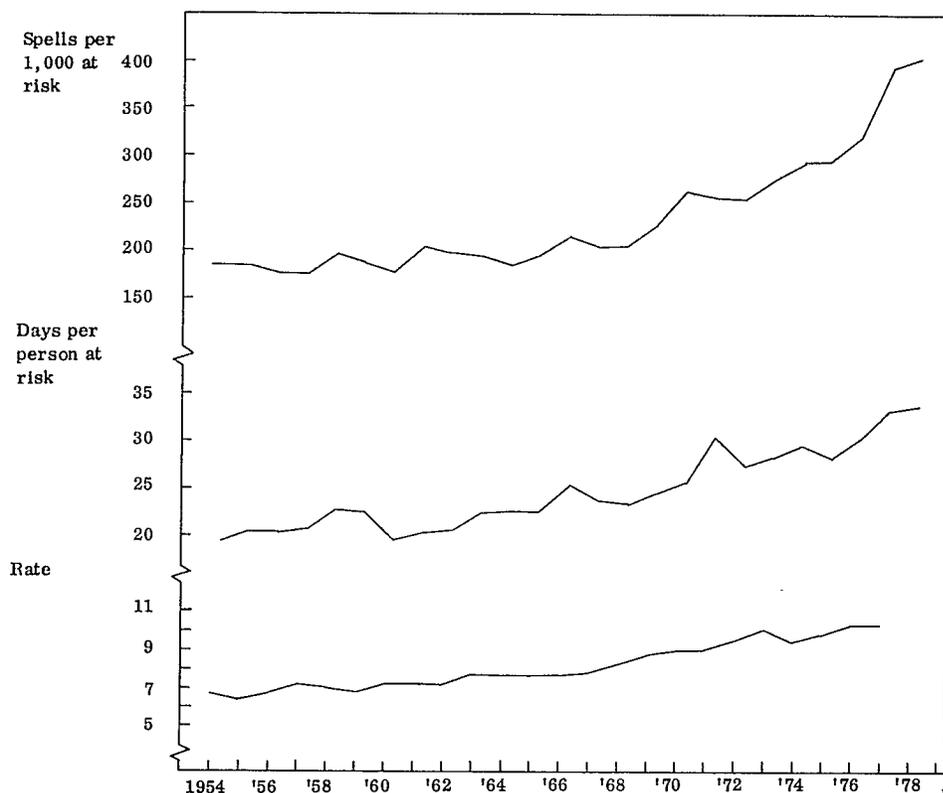


Table 3: *Frequency, duration and rate of certified incapacity per person at risk 1954-78*

<i>Year</i>	<i>Spells of incapacity per 1,000 persons at risk (Year ended 31 March)</i>	<i>Days of incapacity lost per person at risk (Year ended 31 March)</i>	<i>Rate of incapacity on Dec. 31</i>
1954	182.0	19.4	6.6
1955	182.4	20.5	6.4
1956	175.8	20.2	6.7
1957	175.8	20.8	7.2
1958	197.1	22.6	7.0
1959	185.9	22.4	6.8
1960	178.1	19.5	7.2
1961	204.8	20.2	7.3
1962	199.9	20.6	7.2
1963	192.9	22.3	7.6
1964	187.8	22.6	7.6
1965	197.2	22.6	7.6
1966	218.6	25.3	7.7
1967	203.1	23.8	7.9
1968	206.3	23.4	8.3
1969	229.3	24.7	8.9
1970	260.4	25.6	9.0
1971	257.6	30.2	9.1
1972	256.3	27.3	9.5
1973	274.9	28.1	10.1
1974	295.0	29.8	9.5
1975	298.1	28.1	9.9
1976	323.4	30.5	10.4
1977	391.7	33.1	10.4
1978	406.2	33.8	n.a.

Sources: See Appendix 1.

Notes: (i) All of the series in this table are derived from data given in Table A1 in Appendix 1. The number of spells of incapacity per 1,000 persons at risk is derived by dividing the number of disability benefit payments in the year by the number of people effectively insured for all benefits in the year. The number of days of incapacity per person at risk is derived by multiplying the number of weeks illness in respect of which disability benefit was paid during the year by 6 (i.e., the number of days used by the Department of Social Welfare to calculate the daily rate of disability benefit) and dividing the result by the number of people effectively insured for all benefits in the year. The rate of incapacity is derived by dividing the number of people in receipt of disability benefit on 31 December each year by the number of people effectively insured for all benefits on 31 March in the following year.

increases with age and that women, in general, have longer absences than men. His data are reproduced in Table 4 and graphed in Figure 3. It will be seen that there was a steady increase with age in the duration of absence due to short-term illness for both sexes and that in all but the very oldest age groups women had significantly longer absences than men. Some of the increase in the duration of incapacity per person at risk in Ireland could, therefore, be due to changes in the age and sex composition of the insured labour force. The age factor in particular has been found to be an important determinant of changes in the duration of illness in some countries. Whitehead (1971), for example, has shown in his analysis of changes in incapacity among men in the United Kingdom that one-third of the increase in days lost through illness per person at risk between 1954/55 and 1968/69 was due to an increase in the average age of the working population. In order to apply Whitehead's method to the Irish situation we would need to have age

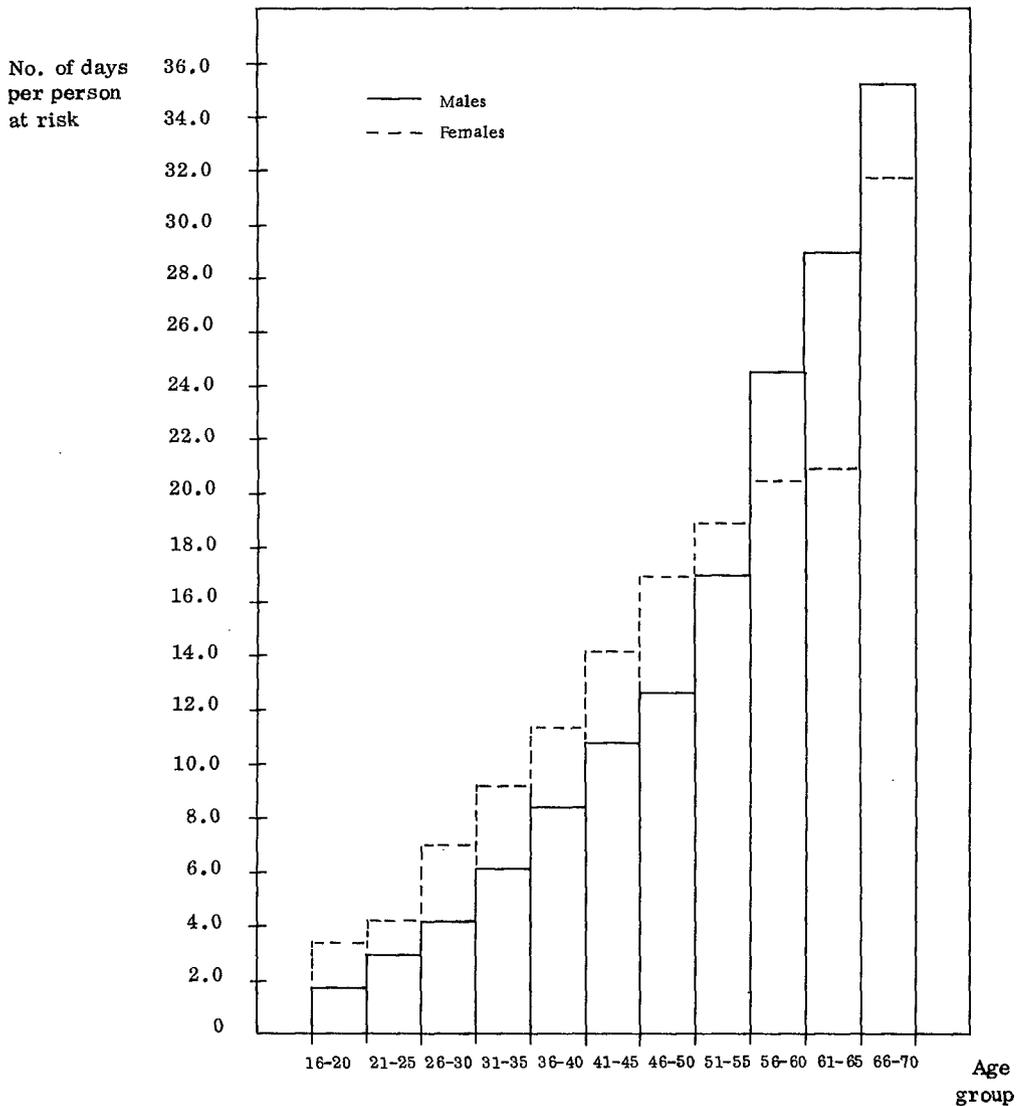
Table 4: *Duration of short-term incapacity per person at risk by age and sex, 1965/66*

<i>Age-group</i>	<i>Males 1965/66</i>		<i>Females 1965</i>	
	<i>Insured persons</i>	<i>Days per person at risk</i>	<i>Insured persons</i>	<i>Days per person at risk</i>
16 – 20	55,732	1.7	54,035	3.3
21 – 25	60,819	3.1	52,515	4.2
26 – 30	44,883	4.1	25,324	7.0
31 – 35	38,310	6.1	14,282	9.2
36 – 40	37,770	8.4	13,301	11.3
41 – 45	42,001	10.8	13,314	14.2
46 – 50	42,542	12.7	12,581	16.9
51 – 55	43,262	17.1	12,539	19.0
56 – 60	34,753	24.5	10,666	20.5
61 – 65	26,515	29.1	8,240	20.9
66 – 70	23,678	35.3	6,734	31.9
<i>All ages</i>	450,265	11.8	223,531	9.5

Source: Deeny (1971, Tables 5.4 and 5.6).

Note: The average number of days lost per person at risk is 11.03. This figure differs from that shown in Table 3 because the data presented in Table 3 refer to long- and short-term cases.

Figure 3. *Days of incapacity per person at risk in each age group, males and females 1965/66.*



specific data on the duration of incapacity for some year in the 1970s so that we could work out what the average duration of incapacity per person at risk would have been in the 1970s if an insured labour force of the same size and age structure as in 1965/66 had experienced the same number of days of incapacity per person at risk in each age group as was experienced

during the 1970s. Unfortunately 1965/66 is the only year for which age specific data on the duration of incapacity are available. However, we can apply Whitehead's method indirectly by asking what the average duration of incapacity would have been in 1965/66 if an insured labour force of the same size and age structure as in 1971 had experienced the same number of days of incapacity per person at risk in each age group as was experienced in 1965/66? The 1966 and 1971 Census data on the age structure of employees in the labour force is used to answer this question in Table 5. In 1966 the average duration of incapacity per male employee at risk was 10.4 while that for females was 8.5.² These durations would have been 10.2 and 8.8 if employees in each age group in 1971 had the same age specific experience with respect to duration of absence as employees in 1966. As no data have been published in either the 1975 or 1977 *Labour Force Surveys* on the age structure of employees in the labour force and since no information on employment status was collected in the 1979 Census it is only possible to examine the effect of changes in age composition on the duration of incapacity over a long period by repeating the analysis discussed in the previous two sentences with the total population substituted for employees. The number of days lost per person at risk in the total population in 1966 would have been 12.2 for men and 13.2 for women. When the 1979 population and age structure is applied to the age specific duration data for 1966 it appears that 11.2 days per male at risk would have been lost and 12.4 per female at risk. These results and those for employees indicate that the observed increase in the duration of incapacity per person at risk is not due to an increase in the average age of the insured population. They suggest, on the contrary, that the average age of the insured population fell between 1966 and 1979 and that if nothing else had changed the average duration of absence from work for all age groups due to incapacity would have fallen slightly over this period for both men and women. This conclusion is supported by the fact that the average age of those who were gainfully occupied in the age group 20-64 fell from 40.1 to 38.0 years between 1966 and 1977 according to information contained in the 1966 Census and the 1977 *Labour Force Survey*.

The other factor which might account for the change in the average duration of incapacity per person at risk is the sex composition of the insured labour force. Since women have longer absences than men in nearly all age groups an increase in their representation in the labour force effectively insured for all benefits might account for part of the increase in the average duration of absence for all age groups. In 1953 women accounted for 31.1 per cent of

2. The difference between these figures and those for all ages in Table 4 arises because there is not an exact correspondence between the number of insured persons and the number of employees in each age group.

Table 5: Average duration of sickness absence and age composition of those at risk

Age	1966				1971				1979	
	Employees and apprentices		Total population		Employees and apprentices		Total population		Total population (000's)	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
15 - 19*	61,910	66,353	133,327	126,029	56,033	58,112	136,773	130,954	162.3	155.1
20 - 24	62,532	55,394	94,726	90,563	75,233	63,678	109,961	105,290	135.8	130.5
25 - 29	51,979	23,341	75,008	74,309	63,066	26,575	87,736	85,257	121.6	117.8
30 - 34	47,420	13,638	73,794	72,831	52,423	14,100	76,823	74,528	112.7	107.4
35 - 39	44,700	11,816	76,458	77,814	46,726	11,727	75,488	73,619	91.8	86.7
40 - 44	45,341	11,174	80,966	82,396	43,507	11,700	76,424	76,305	81.8	77.6
45 - 49	42,968	11,600	83,643	82,874	43,378	12,301	79,533	80,591	77.8	74.7
50 - 54	41,019	11,173	84,309	80,648	39,945	12,201	80,039	79,043	75.6	76.1
55 - 59	34,218	9,844	75,815	71,249	35,994	11,058	78,429	76,418	76.1	77.9
60 - 64	23,979	7,228	61,631	62,209	26,325	8,243	68,131	65,935	67.8	69.9
65 - 69	10,952	4,250	55,046	59,180	11,227	4,671	54,493	57,258	65.0	68.8
All ages	467,018	225,811	894,723	880,102	493,857	234,366	923,830	905,198	1,068.3	1,042.4
Days lost per person at risk	10.36	8.54	12.17	13.19	10.22	8.79	11.98	12.93	11.19	12.39

* 14 - 19 for employees and apprentices

Sources: *Census of Population, 1966, Vols. II and V* and *Census of Population 1979, Bulletin No. 1.*

those effectively insured for all benefits. In 1978 the corresponding percentage was 32.8. Hence the increase in the representation of women in the insured labour force over the period 1953-78 is too small to have had a significant effect on the average duration of incapacity per person at risk.

In the absence of age and sex specific data on the duration of incapacity for any year other than 1965/66 it is fortunate that changes in the age and sex composition of the labour force appear to be essentially neutral in their effects on the average duration of incapacity. If they had not been some of the series in Table 3 would have had to be standardised for age and sex before being used in the model in Section 4.

The Costs of Absence

Given that there has been a substantial increase in certified incapacity during the last twenty-five years it may be asked why this should be a matter of concern. The main reason is that absence from work because of illness, or indeed for other reasons, imposes costs on the persons affected, on the firms they work for, and on the Government. If some of these costs are avoidable it is worth trying to understand what lies behind the increase in certified incapacity so that appropriate policies can be designed to deal with the problem.

Ideally we would like to measure the economic cost of illness in terms of direct expenditures on prevention, detection, and treatment and the indirect cost due to loss of output as Cooper and Rice (1976) have done for the United States.³ Unfortunately the data on certified incapacity which is available is not comprehensive enough to enable us to do this. We can, however, indicate the nature of the losses which the various parties affected by illness suffer and by making some simple assumptions we can calculate the effect of certified incapacity on labour supply at the beginning and end of the period with which we are concerned.

The main cost incurred by those who become ill, apart from the pain and suffering involved, is the loss of income which results from being absent from work. While the disability benefit paid by the State to qualified insured workers and the sick-pay provided by a significant proportion of employers are designed to minimise the loss of income which occurs during illness the great majority of workers suffer a drop in income when they are sick. The size of the drop will increase as the duration of illness increases because most occupational sick-pay schemes terminate after 12 weeks (see FUE (1981, p. 15)) and the State pay-related supplement to flat-rate disability benefit which is paid after the first two weeks' illness is reduced from its maximum

3. They found that the cost of illness (including mortality) in the United States in 1972 amounted to over 16 per cent of the Gross National Product.

rate of 40 per cent of reckonable weekly earnings to zero after a year and a quarter's illness.⁴ While no research has yet been done in Ireland into changes in financial circumstances during the course of illness some indication of what may happen can be gleaned from a British study of the financial circumstances of a sample of insured workers who had been ill for one month, three months, six months and one year in 1972/73. Martin and Morgan (1975) found that the longer-term ill (i.e., those who had been sick for six months and twelve months) were worse off financially than those who had been ill for three months or one month, and that nearly two-thirds of the longer-term ill and half of the shorter-term ill had experienced difficulty in managing financially. Those respondents who had difficulty in making ends meet during illness had managed by cutting their expenditure on food, clothes, cigarettes, children's toys and other luxuries and by drawing on their savings or accepting help from relatives and friends. About half of the respondents had incurred additional expenses due to their illness and these expenses were found to increase with the duration of illness. An analysis of the attitudes of respondents to the psychic and financial losses experienced by the long-term sick indicated that approximately half of the respondents thought that people who are sick for a long period should get more benefits as time goes on because savings are eventually exhausted and household goods which need to be replaced have to be done without because of the inadequacy of flat-rate disability benefits.

While there is no published information which would enable us to quantify the effect of the increase in certified incapacity on unit costs and, hence, on the competitiveness of Irish industry, recent Press reports suggest that absenteeism, which includes certified incapacity, is becoming a serious problem for some firms. The Director of Personnel in Rowntree-Mackintosh (Ireland) Ltd., for example, is reported to have told the Employment Appeals Tribunal that the rate of absenteeism in his company is 14 to 15 per cent and that this rate is "unacceptable" (see *Irish Independent*, 4 December 1980) while the Chairman of Irish Glass Bottle Company "maintains that . . . absenteeism is having a very serious effect on costs as well as on delivery dates" according to the *Irish Times* of 17 November 1980. In a comment on the reasons for the delays in constructing NET's Marino Point plant the Joint Committee on State Sponsored Bodies (1981, p. 112) note that excessive absenteeism added three months to the scheduled construction time of 36 months and £6 million to the cost of the plant.

One of the most dramatic indications of the impact of absenteeism on

4. An invalidity pension, which is at a higher rate than disability benefit is payable to persons who have been ill for at least a year and whose incapacity is likely to be permanent. Recipients of this pension are also entitled to free travel and, in certain circumstances, a free electricity allowance and a free television (black and white) licence.

costs was given in a joint statement issued to the workers in Waterford Glass by the management of the Company and the local district officer and joint negotiating committee of the Amalgamated Transport and General Workers' Union which was reported in the *Irish Times* of 12 December 1980. The statement noted that the effect of high absenteeism in the Company was that it was now working only the equivalent of 4½ days per week and it stated that "the productivity loss caused by the abnormally high absence rate has contributed in no small measure to the recently reported decline in profits, the first in 25 years in this industry. The problem is not related to the present economic recession but arises from within the industry itself. We wish to emphasise that there is no possibility of expansion or of maintaining the current level of employment as things stand at present within the industry. If current trends continue the industry will almost certainly be faced with redundancies over the next few years and if the trend cannot be arrested the total closure of the industry is inevitable".⁵

These cases represent the tip of the iceberg. The parties to the *Second National Understanding for Economic and Social Development* (Employer-Labour Conference (1980)) have become so concerned about the problem that in Clause 3.5 of Part 2 they recognise that "in some employments, the level of absenteeism is a cause of considerable concern. In such instances the employers and trade unions involved should seek to agree on arrangements to reduce the level of unnecessary absenteeism". The Federated Union of Employers (FUE) has recently issued a handbook to help management control the problem and it has listed some of the factors (FUE (1980a, p. 12)) which should be taken into account in assessing the cost of absenteeism to the individual company. These factors are as follows:

- (i) sick pay and fringe benefits;
- (ii) overtime payments for those who fill in for those absent;
- (iii) overstaffing required to cope with problems caused by absenteeism;
- (iv) management and supervisory time used in replacing those absent;
- (v) lower product quality and/or increased supervision necessary if replacements are not of the same competence levels as those who are absent;
- (vi) disruption of flows of production and even shut downs of sections;
- (vii) deadlines not being met;
- (viii) loss of customers through failure to meet deadlines or through inferior service;
- (ix) costs of recruitment, selection and training of replacements;

5. It is reported in *Business and Finance*, 8 October 1981, that the problems of absenteeism in Waterford Glass have been eradicated as a consequence of this joint statement.

- (x) dissatisfaction of and adverse effects on the performance of employees when they see unwarranted absence;
- (xi) extra administration required in tracking absenteeism.

Public Expenditure on Disability Benefit

In addition to the costs incurred by the sick and by the firms affected by their absence the general body of employers and employees bear most of the burden of the income maintenance payments which are made to the sick out of the Social Insurance Fund.⁶ These payments have grown considerably over the last twenty-five years, as will be seen from Table 6 and Figure 4, because of the increases in the insured population, the frequency and duration of incapacity per insured person and the periodic improvements in the rate of disability benefit. Nominal expenditure on disability benefit increased by over 30 times from £2.3 million in 1953 to £72.3 million in 1978 while nominal expenditure on social security as a whole only increased around 20 times during the same period from £22.1 million at the beginning to £505.4 million at the end. One of the consequences of these different rates of increase has been that social security spending has risen from 4.2 per cent of GNP in 1953 to 8.1 per cent in 1978 while expenditure on disability benefit rose from 0.4 per cent of GNP in 1953 to 1.2 per cent in 1978. The gradual increase in the share of expenditure on disability in the social security budget is brought out in Figure 4 which has a proportionate vertical scale. A constant arithmetic difference between the disability benefit series and the social security series excluding disability benefit implies stability in the share of disability benefit expenditure. The gap between the two series narrowed in the late 1950s and early 1960s, widened a little at the end of the 'sixties and narrowed again in the 1970s probably as a consequence of disability benefit being related to pay before sickness from 1974 onwards. Expenditure in real terms on disability benefit increased by 6.5 times between 1953 and 1978 as against 4.5 times for social security spending at constant prices. The upward trend in real expenditure on disability was broken in 1956 and 1959 when total expenditure on social security in real terms was cut back and there was a reduction in real expenditure on disability in 1972 which was not associated with a decline in social security spending. Average expenditure for each disability benefit claim was ten times larger in current price terms at the end of the period than at the beginning and twice as large in constant price terms.

Other costs which sickness causes are the amounts spent on the prevention,

⁶ Approximately 80 per cent of all social insurance benefits in 1978 were financed out of social insurance contributions by employers and employees. The remaining 20 per cent was paid out of general taxation.

detection, and treatment of illness, the provision of rehabilitation and training facilities and on research and capital investment in hospitals. Most of the public expenditure in Ireland on these items is financed out of the Exchequer, according to information provided by the Department of Health (1978, p. 64). It is not possible to say how much of the £343 million spent by the Exchequer on the health services in 1978 was incurred on behalf of people in receipt of disability benefit but it must have been quite substantial because such people would account for a significant part of the illness which the country's population suffered in that year.

Working Days Lost and Value of Output Forgone

In the absence of information which would enable us to calculate the economic cost of illness we can get some indication of the loss involved by looking at the effect of certified incapacity on labour supply and comparing this with the effect of unemployment and industrial disputes. The method used is to estimate the number of potential working days lost through illness, unemployment, and industrial disputes and express the results as a percentage of the total number of days which could have been worked by the insured population during the year if there had been no sickness, unemployment or industrial action. This calculation assumes that all those who were certified as incapable of work at some time during the year were in the labour force. This assumption is correct in the case of the great majority of beneficiaries of disability benefit but is unrealistic in the case of a small number of beneficiaries whose illnesses are of long duration.

While the number of claims from persons suffering from long duration illnesses, i.e., illnesses lasting for 52 weeks or more, is a small proportion of the total number of claims made during the year, such claims account for a substantial proportion of the total number of weeks in respect of which disability benefit is paid during the year. The only information which is available for long- and short-term claims refers to the year 1965/66 and it indicates, as Geary and Dempsey (1979, p. 169) note, that "though long-term cases are far fewer than short-term they account for about half the time lost through disability".

The estimate of working days lost due to certified incapacity refers mainly to absences from work which last for four days or more.⁷ The only data available on the proportion of total working days lost due to absences lasting less than four days is given in Ó Muircheartaigh's (1975, p. 69) chart of days lost due to absences of different durations. His data indicate that

7. It will be recalled that until the legislation was changed in 1980 payment of disability benefit was normally made from the 4th day of incapacity unless there had been a claim in the preceding thirteen weeks. In that case payment could be made from the first day of incapacity for work.

Table 6: *Expenditure on disability benefit and social security and average expenditure per claim on disability benefit in current and constant (1970) prices, 1953-78 (£000's)*

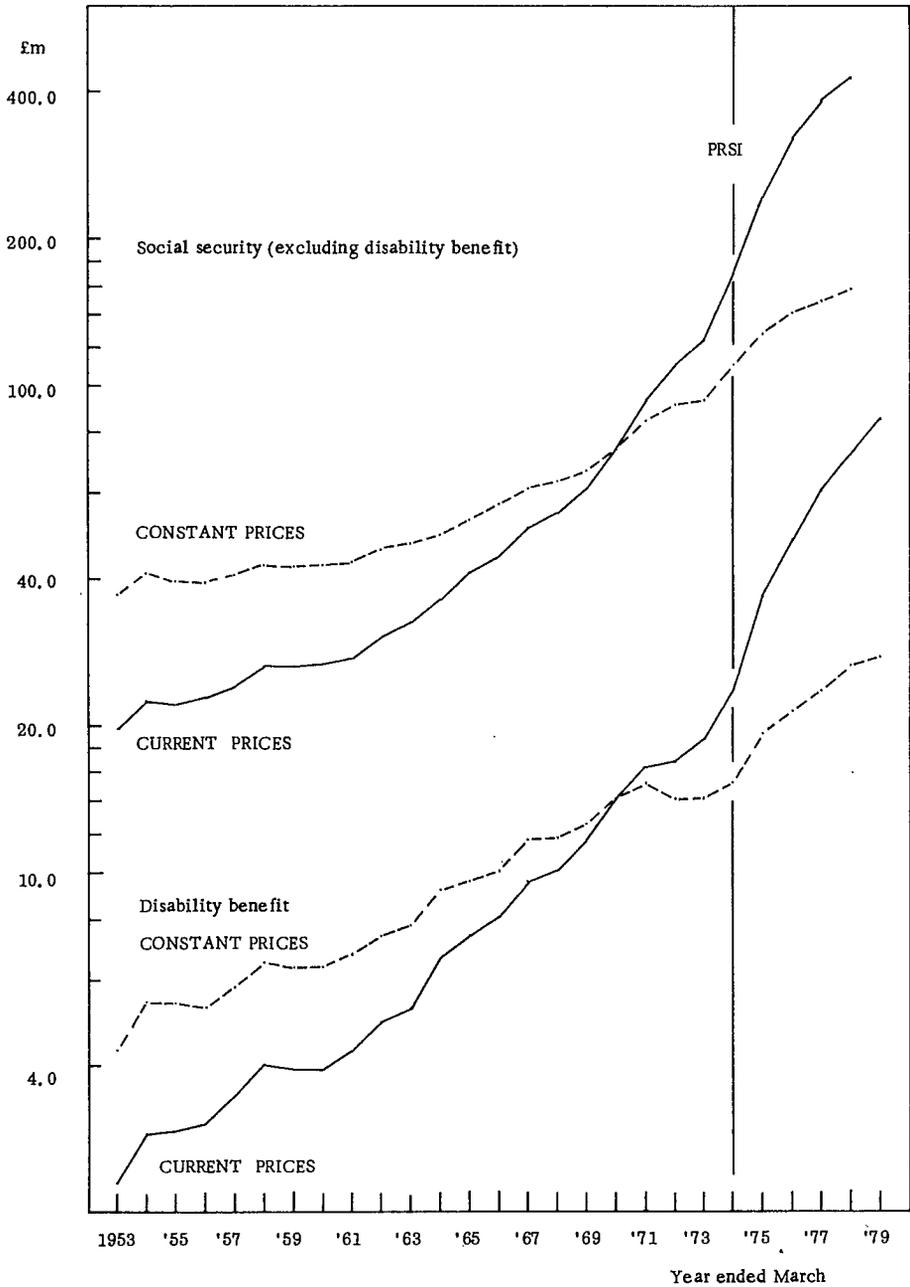
Year ended March	Disability benefit		Social security		Average expenditure per claim on DB	
	Current prices	Constant prices	Current prices	Constant prices	Current prices	Constant prices
1953	2,291	4,266	22,086	41,128	n.a.	n.a.
1954	2,931	5,428	25,347	46,939	25.21	46.70
1955	2,994	5,404	24,970	45,072	25.68	46.34
1956	3,034	5,323	25,748	45,172	26.67	46.79
1957	3,467	5,837	27,527	46,342	30.89	52.01
1958	4,042	6,551	30,451	49,353	32.91	53.34
1959	3,981	6,431	30,208	48,801	34.59	55.88
1960	3,975	6,360	30,543	48,869	35.73	57.16
1961	4,369	6,816	31,876	49,729	33.89	52.88
1962	4,965	7,444	35,627	53,414	39.19	58.75
1963	5,345	7,826	37,656	55,133	43.24	63.32
1964	6,776	9,269	43,044	58,884	55.00	75.24
1965	7,419	9,685	48,262	63,005	56.03	73.15
1966	8,052	10,107	52,659	66,321	53.33	67.17
1967	9,613	11,737	59,910	73,150	66.61	81.33
1968	10,198	11,831	64,823	75,201	69.19	80.26
1969	11,658	12,603	73,362	79,310	69.87	75.54
1970	14,353	14,353	88,447	88,447	75.55	75.55
1971	16,486	15,069	108,740	99,397	93.02	85.02
1972	16,809	14,007	126,111	105,093	94.79	78.99
1973	18,784	14,039	143,558	107,293	97.86	73.14
1974	23,697	15,298	194,927	125,841	119.01	76.83
1975	36,328	19,170	277,877	146,637	154.86	81.72
1976	48,306	21,469	369,877	164,390	190.90	84.84
1977	60,643	23,932	443,098	174,861	197.22	77.83
1978	72,251	26,592	505,395	186,012	227.49	83.73
1979	84,700 ^e	27,415	n.a.	n.a.	258.31	83.92

e = estimate. n.a. = not available.

Sources: *Reports of the Department of Social Welfare, 1954-58 to 1976-78; National Income and Expenditure, 1969, 1971, and 1978; Dáil Éireann, Parliamentary Debates, 11 March, 1980, col. 1757, and 27 November, 1980, col. 1478.*

- Notes: (i) The price index which is used to derive the constant price series for the period 1953-78 is the implicit price deflator for the National Income and Expenditure category "personal expenditure on consumers' goods and services". The percentage change in the Consumer Price Index was used to derive the price deflator for 1979.
- (ii) The central government accounts were changed from a fiscal year to a calendar year basis in 1974. The calendar year figures from 1974 onwards have been adjusted by linear interpolation to a fiscal year basis.
- (iii) The figures for average expenditure per claim on disability benefit have been derived by dividing the figures for total expenditure on disability benefit by the number of disability benefit payments in each year. The latter series is given in Table A1.

Figure 4. *Expenditure on disability benefit and social security (excluding DB) in year ended March, 1953-79 (semi-log scale).*



approximately 37.5 per cent of all days lost in a sample of firms in manufacturing industry in 1970 were due to absences lasting three days or less. While this figure demonstrates that our estimate of working days lost due to certified incapacity will be an underestimate it cannot be used to gross up our estimate to get the correct figure. The reasons are that (i) the certified incapacity figures do include some absences lasting less than four days for reasons pointed out in footnote 7 and (ii) absences lasting less than four days are likely to account for a much larger proportion of all days lost in manufacturing than in other industries.⁸

It will be seen from Table 7 that the number of potential working days lost through illness in 1978 was 23.1 million or nearly 12 per cent of the total number of days which could have been worked if there had been no unemployment, sickness, or strikes.⁹ This is equivalent to over five and a half weeks lost time per person per year or to withdrawing nearly 100,000 persons from the insured labour force for the year. The effect of absence from work due to certified incapacity in 1978 on the amount of labour which could have been supplied in that year was, therefore, similar to the impact of unemployment on potential labour supply. Both unemployment and certified incapacity have grown over the years but the latter has increased to such an extent that the significant gap which existed in 1954 in the number of working days lost due to the two causes has now been virtually closed. Industrial disputes, as will be seen from Table 7, account for an insignificant proportion of potential working days lost. In 1978 over 52 times as many working days were lost due to certified incapacity as were lost due to strikes or lock-outs.

Our estimate of the number of working days lost due to illness can be used to give a general indication of the order of magnitude of the value of output forgone due to certified incapacity in 1978 provided the following assumptions, which are discussed by Jones (1971, pp. 11-12), are valid:

- (a) that employers do not adjust their production arrangements to take absence due to certified incapacity into account;
- (b) that the absent workers would have produced at the normal rate if they had been working;

8. This is an inference based on the pronounced differences in absence rates for different occupations, socio-economic groups and firms in different industries. These differences are discussed in Townsend (1974) and Jones (1971).

9. Thomas (1977, p. 9) estimates that in 1974 in the UK about 5 per cent of all working days were lost through sickness. In Ireland in 1974 we have estimated that 9.9 per cent of all working days were lost through sickness. Thomas points out that his figure seriously underestimates sickness absence for women because about three-quarters of women workers in the UK are not registered for sickness benefits.

Table 7: *Potential working days lost due to certified incapacity, unemployment, and industrial disputes in 1954 and 1978*

<i>Days worked and days lost</i>	<i>1954</i>	<i>1978</i>
Days in year	365	365
Saturdays (½ in 1954) and Sundays	78	104
Annual leave	11	15
Public holidays	<u>7</u>	<u>9</u>
Number of non-working days	<u>96</u>	<u>128</u>
Number of working days	<u>269</u>	<u>237</u>
Insured population on 31 March	638,733	820,136
Potential working days in year ended 31 March	171,819,177	194,372,230
Potential working days lost through certified incapacity in year ended 31 March	11,385,000	23,085,855
Potential working days lost through certified incapacity as a percentage of total potential working days	6.63%	11.88%
Average number on live Register during year ended 31 March	67,260	109,749
Potential working days lost due to unemployment in year ended 31 March	16,747,740	26,010,513
Potential working days lost through unemployment as a percentage of total potential working days	9.75%	13.38%
Potential working days lost due to industrial disputes in year ended 31 March	82,631	446,430
Potential working days lost due to industrial disputes as a percentage of total potential working days	0.05%	0.23%

Sources: certified incapacity, Table A1; unemployment, *The Trend of Employment and Unemployment 1956 to 1978*; industrial disputes, *Statistical Abstract 1956 and 1977*, Irish Statistical Bulletin, September, 1980.

- (c) that the output which could have been produced by the absent workers would have been sold at prevailing prices;
- (d) that the absent workers would have been as productive as other workers;
- (e) that a weighted average of the earnings of male and female workers in transportable goods industries is a good proxy for the value of output which each absent worker could have produced.

These assumptions combined with our estimate of working days lost suggest that the value of output forgone in 1978 due to certified incapacity was about £340 million or approximately 5.5 per cent of Gross Domestic Product.

Section 3

SOME INTERNATIONAL COMPARISONS OF SICKNESS ABSENCE

Sickness Absence in Some Western Countries in 1956

International comparisons of sickness absence are difficult because the coverage of sickness benefit schemes differs between countries, eligibility rules are not the same, and some countries have separate schemes for long-term illnesses. Nevertheless, some attempts have been made to get around the difficulties by focusing on a particular measure of sickness absence or by examining trends in various measures over time.

The only international data on absence rates which appear to be available for the beginning of the period with which we are concerned is given in Enterline's (1964, p.740) comparison of the percentage of employed persons absent from work on an average day in 1956 due to illness in a number of European and North American countries. His data are reproduced in Table 8 together with an absence rate for Ireland in 1956 which was derived by taking the number of working days lost due to certified incapacity and dividing it by the number of days which would have been worked by the employed labour force if there had been no illness or industrial disputes during that year. The Irish figure may understate the position to some extent because

Table 8: *A comparison of the percentage of employed persons absent from work on an average day due to illness in some western countries in 1956*

<i>Country</i>	<i>Absence rate</i>	<i>Country</i>	<i>Absence rate</i>
FR Germany	5.7	Netherlands	4.0
Sweden	5.6	Spain	3.8
Czechoslovakia	5.5	Austria	3.7
France	4.6	Belgium	3.2
Norway	4.6	Italy	2.6
Ireland	4.6	United States	1.9
United Kingdom	4.3	Canada	1.1
Yugoslavia	4.1		

Source: Enterline (1964, p. 740)

absences due to non-medical reasons are excluded. It will be seen that the absence rate in Ireland in 1956 was about the same as that in France or Britain and that it was closer to the higher than to the lower end of the range.

Trends in the Frequency and Duration of Incapacity in Various Countries

The only recent attempt to make an international comparison of sickness absence appears to be Salowsky's (1980) study of the data for seven western industrial countries. Unfortunately, his data refer mainly to manufacturing industry so it cannot be compared with Enterline's to indicate trends in sickness absence in the last 25 years. One way around the difficulty of differences in the coverage of the data is to compare trends in different measures of absence in different countries. Taylor (1969) has done this for a number of countries over the period 1950-67 and it is possible to compare his data with Irish data for the same period. His method is to relate some measure of sickness absence at the beginning and end of his period to the mean rate for 1955-56 and to compare the trends in these measures for different countries. Annual data on the frequency of incapacity were available to Taylor since 1950 for Britain, West Germany, Italy and Czechoslovakia. The mean ratio for these countries in 1950/51 was .88 and this had increased by 34 per cent to 1.18 in 1966/67. Annual data on the duration of incapacity were available for West Germany, Italy the USA and Yugoslavia. The mean ratio for duration of illness increased by 19 per cent for these countries between 1950/51 and 1966/67. The only Irish data on incapacity which are available for 1960 relate to the number of spells or frequency of absence from work. The Irish ratio for frequency of incapacity increased by 50 per cent from .75 in 1950 to 1.13 in 1967. Most of the increase took place during the early 1950s and it may have been caused by the changes which were made in the disability benefit scheme when the unified system of social security was introduced in 1952. The increase in the ratio of frequency of illness in Ireland between 1955/56 and 1967 was 13 per cent versus 18 per cent for the countries referred to in Taylor's paper. Taylor concluded on the basis of the difference in the growth of the frequency and duration of incapacity in the countries for which he had data that the pattern of sickness absence in the '50s and '60s changed mainly because of an increase in the frequency of absence from work. The reverse seems to have been true of Ireland during these two decades as the increase in sickness absence appears to have been mainly caused by a rise in the duration of absence rather than an increase in the frequency of absence. On balance the increases which took place in the frequency and duration of incapacity in Ireland during the period 1955-67 were more or less in line with the

increases which took place in other countries.

The Frequency and Duration of Sickness Absence in the Republic of Ireland, Northern Ireland and Great Britain

The social security systems in the Republic of Ireland, Northern Ireland and Great Britain are similar as they all evolved out of a common framework, i.e., the Old Age Pensions Act 1908 and the National Insurance Act 1911, and the principles on which they are based have remained more or less unchanged over the years. Hence, it is possible to make a comparison of the frequency, duration and rate of sickness absence in the Republic, Northern Ireland, and Britain which is not subject to the reservations which must be attached to the international comparisons which have been made up to this point.

It will be seen from Table 9 that the number of spells of incapacity per person at risk in the Republic has always been much less than the number of spells in Northern Ireland and Britain but that the gap is closing because the frequency of incapacity nearly doubled in the Republic between 1965/66 and 1976/77 while it remained virtually unchanged in Northern Ireland and Britain. The number of working days lost per person at risk has always been greater in the Republic than in Britain and probably also greater than in Northern Ireland and the number lost in the Republic has increased considerably more since 1965/66 than it has in Britain or Northern Ireland. The Republic has, therefore, experienced a marked increase in the frequency and duration of sickness absence in the late-'60s and early and mid-'70s relative to Britain and Northern Ireland. Consequently, as will be seen from Table 10, the rate of absence in the Republic has moved from virtual equality with that in Northern Ireland in 1954 to nearly 10 per cent higher in 1978 and from around one and a half times the rate in Britain in 1954 to nearly one and three quarters the British rate in 1978.

One of the results of the higher absence rates in the Republic in the 1970s may be that the share of social protection expenditure on sickness is higher than in other EEC countries. The social protection accounts of the EEC for 1972 (see Broderick (1974-75) and 1975 (see Eurostat (1977)) show that in both years Ireland allocated a larger proportion of its social expenditure to the provision of income maintenance payments and health services to the sick than any other EEC country. In 1975, for example, expenditure on the sick accounted for 31.8 per cent of total social expenditure as against 25.8 per cent in the United Kingdom and 22.9 per cent in Luxembourg which had the lowest share of social expenditure on the sick. The Irish figures for 1972 and 1975 are remarkable in view of the exclusion from the social accounts for Ireland of "wages and salaries paid by employers when persons

Table 9: *Frequency and duration of certified incapacity and invalidity in the Republic of Ireland, Northern Ireland and Britain; selected dates 1954/55 to 1976/77*

Year	Republic of Ireland				Northern Ireland				Britain			
	Spells of incapacity per 1,000 persons at risk		Days of incapacity per person at risk		Spells of incapacity per 1,000 persons at risk		Days of incapacity per person at risk		Spells of incapacity per 1,000 persons at risk		Days of incapacity per person at risk	
	Actual	Index	Actual	Index	Actual	Index	Actual	Index	Actual	Index	Actual	Index
1954/55	182.4	1.00	20.5	1.00	271.4	1.00	n.a.	n.a.	284.1	1.00	12.2	1.00
1965/66	218.6	1.20	25.3	1.23	529.1	1.95	23.35	n.a.	470.6	1.66	15.4	1.26
1976/77	391.7	2.15	33.1	1.61	536.1	1.98	26.02	n.a.	482.9	1.69	16.9	1.38

Source: Republic of Ireland, *Reports of the Department of Social Welfare 1954-58, 1967-71, 1976-78*; Northern Ireland, data supplied by Dept. of Health and Social Services; Britain, Department of Health and Social Security, *Social Security Statistics, 1975, 1976, 1977*.

Note: The last row of figures for Northern Ireland is for the year 1977/78. The data for the Republic and Britain and NI refer to persons in receipt of sickness benefit and invalidity pension.

are absent from work due to sickness and the benefits provided by private pension and sickness schemes which are part of the normal contract of employment" as Broderick (1974-75, pp. 157-158) notes. These items are excluded from the Irish accounts because of lack of data but they are included in the accounts for the United Kingdom and some other countries.

Table 10: *Sickness rates in the Republic of Ireland, Northern Ireland and Britain in December on selected dates 1954 to 1978*

<i>Year</i>	<i>Republic of Ireland</i>	<i>Northern Ireland</i>	<i>Britain</i>
1954	6.6	6.8*	4.5*
1966	7.9	8.1	4.8
1976	10.3	8.5	5.6†
1978	10.5	9.6	6.1†

Sources: RI, Appendix 1; NI *Digest of Statistics*, September 1964, March 1967, March 1977, March 1979; GB, *Annual Abstract of Statistics*, 1960, *Social Security Statistics*, 1976 and 1980.

*Average for the year.

†Denominator used to derive these rates is the population at risk in 1973/74, the last year for which figures are available.

In addition to claiming a larger share of social expenditure in Ireland than in the United Kingdom in 1975, expenditure on sickness (including expenditure on health services) cost significantly more in Ireland than in the UK; the average cost per employee being £307 here and £253 per employee in the United Kingdom (these figures are derived from Eurostat (1976) and Eurostat (1977)).

Non-Certified Absence in EEC Countries in 1975

The data which we have discussed so far on absence from work in various countries refer mainly to "absence with leave". The Statistical Office of the European Communities has collected data in its *Labour Force Surveys* on what could be described as "absence without leave" by asking employees who had worked during the reference week whether they had worked less than 40 hours due to sickness, accident or some other reason. Since there is a three-day waiting period in most of the EEC countries before sickness benefits are paid the data collected in the *Labour Force Surveys* exclude nearly all of those who were absent from work due to certified incapacity. The EEC data are essentially a measure of the number of employees who took

one or two days off work in the reference week. The data fill a major gap in our knowledge of absenteeism in Ireland because they are the only data which are available on very short-term absences among employees in all sectors of the economy.¹ The 1973 *Labour Force Surveys* collected information on absence among employees for all EEC countries except Ireland and Denmark and the 1975 and 1977 surveys collected the information for all the EEC countries. The absence data which are available for 1975 are presented in Table 11 where a distinction is made between absence due to sickness or accident and other reasons. On average 4.3 per cent of employees in the nine EEC countries did not work normal hours during the reference week in 1975 because they took time off due to sickness, accident or some other reason. There was a range of approximately 3 to 1 in the percentage taking time off in the nine countries with Luxembourg having the lowest rate at 2.6 per cent and France the highest at 7.0 per cent. Ireland's absence rate was 2.9 per cent and it ranked fourth in the EEC absence league. This ranking, however, is a little misleading as there is very little difference between the absence rates in the four countries with the lowest rates and the Irish rate is, therefore, very much closer to the lower than the higher end of the scale. The very short-term absence rate due to sickness or accident was lower in Ireland in 1975 than in any of the other EEC countries while the rate for other causes was close to the European average. The absence rate for female employees in Ireland was higher than that for males as in the case of all other EEC countries. This was almost entirely due to a larger percentage of women workers having to take time off due to other causes than sickness or accident. In the case of most of the EEC countries the female short-term absence rate was only about 30 per cent greater than the male rate with the exception of Belgium where the discrepancy between the two was over 6 to 1. It can be concluded from the data in Table 11 that the absence rate in Ireland due to one or two day spells off work was not exceptional by European standards in 1975.

An interesting question which the *Labour Force Survey* data can shed some light on is: how many people were absent with leave and without leave during the reference week for the survey? Britain is the only EEC country for which we have been able to get data on the number of persons in receipt of sickness and invalidity benefit in the period during which the EEC *Labour Force Survey* was carried out in 1975. At that time there were about 960,500 persons in receipt of sickness and invalidity benefit. According to the EEC *Labour Force Survey* there were 724,000 employees

1. It will be recalled from Section 2 that Ó Muirheartaigh (1975) has data on very short-term absences in 1970. His study, however, was confined to the manufacturing sector.

Table 11: *Percentage of employees who have not worked normal hours during the reference week in 1975 by reason of sickness or accident or other reasons*

Country	Sickness or accident			Other reasons			All reasons		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Germany	1.82	1.78	1.81	0.66	1.38	0.91	2.48	3.16	2.72
France	3.48	5.15	4.10	3.68	3.92	3.77	7.16	9.07	7.87
Italy	1.88	3.83	2.39	0.19	1.25	0.47	2.07	5.08	2.86
Holland	4.04	4.13	4.06	0.72	1.24	0.85	4.76	5.37	4.91
Belgium	1.51	2.37	1.74	0.65	11.72	4.07	2.16	14.09	5.81
Luxembourg	2.33	—	1.71	—	(3.23)	(0.85)	2.33	3.23	2.56
United Kingdom	2.47	2.07	2.32	0.92	1.74	1.25	3.39	3.81	3.57
Ireland	1.64	(1.32)	1.54	1.02	2.20	1.40	2.66	3.52	2.94
Denmark	2.17	3.79	2.79	0.89	2.17	1.42	3.06	5.96	4.21
Europe 9	2.43	3.02	2.64	1.26	2.38	1.65	3.69	5.40	4.29

-nil () unreliable data because of small size of the sample

Source: Eurostat, *Labour Force Sample Survey 1975*, Table iv/4.

in Britain in the late spring in 1975 who did not work their normal hours due to sickness accident or other reasons. Employees taking a few days off work in Britain in 1975 would, therefore, have accounted for approximately 43 per cent of the total number of employees who were off work due to sickness or some other reason during the *Labour Force Survey's* reference week. The corresponding figures for Ireland were 76,521 persons in receipt of disability benefit or invalidity pension in May 1975 and 21,000 employees who did not work their normal hours at that time due to sickness, accident or some other reason. Short-term absences as a per cent of the total, therefore, amounted to about 22 per cent in Ireland in May 1975.

The picture which emerges from the various comparisons which we have made is that absence from work in Ireland in the early 1950s was not exceptional by international standards nor was its rate of increase exceptional up to the end of the 1960s. During the 1970s, however, the rate of increase in the frequency and duration of absence was exceptional compared with Britain and Northern Ireland and at the end of the 1970s the absence rate in the Republic was slightly higher than in Northern Ireland and nearly double the British rate. Absence without leave in Ireland in 1975 was among the lowest of the EEC countries and it accounted for only a fifth of the total number of employees who missed work at some time during the reference week compared with 43 per cent for Britain.

Section 4

THE DETERMINANTS OF CERTIFIED INCAPACITY

Measures to be Explained

Ideally we would like to have measures of absence from work which encompass the labour force as a whole and which cover voluntary absence and sickness absence. Unfortunately the only time series data which are available refer to the insured labour force and certified incapacity. The nature of the relationship between voluntary (uncertified) absence and sickness (certified) absence is an important one because if they are substitutes for each other and we only have data relating to certified incapacity it may be difficult to interpret the results of models designed to explain absence from work due to illness. There are no Irish data on voluntary and sickness absence which would enable us to say if the two kinds of absence are substitutes or complements. However, Thomas (1977) has data for Britain which indicate that the two move together. Our inability to specify models of total absence due to lack of data should not, therefore, affect the interpretation of models which explain only part, albeit the major part, of total absence.

In Section 2 of this paper three measures of incapacity were used to describe trends in absence from work over the period 1954-78. One of them, the rate of absence, is strongly influenced by the number of persons who are out of work for relatively long periods because of serious illness and it is not, therefore, very sensitive to changes in economic factors. In view of these considerations the measures which we will focus on in our analysis of the determinants of certified incapacity are the frequency and the duration of incapacity per person at risk per year.

There are three sets of variables which we would expect to exert an influence on incapacity at the aggregate level. The first set contains the personal and organisational factors which various micro-studies of absence behaviour have found to be important influences on attendance at work. Some of the personal factors which have been identified are the age and sex structure of the labour force, the length of the journey to work, marital status, size of family, and seniority. The organisational factors which have been found to be important in some studies are the degree of heaviness of work, shift working, method of payment for work, overtime arrangements, and degree of supervision. Some of these factors are not measurable

at the aggregate level because suitable indexes have not yet been developed, e.g., degree of supervision, some cannot be incorporated in our models because there are no aggregate data available, and the remainder of them need not be included because we have already shown that they do not exert any influence on the measures of incapacity which we are focusing on, e.g., the age and sex structure of the insured labour force.

The second set of variables which we would expect to influence certified incapacity contain the medical or medically related factors which affect the health of the insured population. The variables which we will consider are mortality, influenza, alcohol consumption, and the weather.

The third set of variables which could affect absence from work are the economic factors which influence the labour supply decision and the institutional factors which govern access to disability benefit. The economic factors which are thought to be important are the real wage rate, unemployment, and the ratio of benefit paid by the state insurance scheme during sickness to average income while at work. The institutional factors which may exert an influence on incapacity for work are the income ceiling governing eligibility for social insurance cover, the percentage of disability benefit claimants summoned for a second medical opinion on their case, and the relationship between the disability and unemployment benefit schemes.

It will be noticed that nearly all of the second and third sets of variables refer to the supply-side and that the remainder are exogenous variables which are controlled by the government. This does not mean that we consider demand factors to have no influence on absence from work. There are two reasons why we do not take account of demand factors in our analysis of the determinants of certified incapacity. The first is that while both demand-side models (Ehrenberg (1970) and Reza (1975)) and supply-side models (Doherty (1979) and Thomas (1980)) have been developed, no work appears to have been done on models which take account of both supply and demand considerations. The second is that there are no Irish data which would enable us to assess the demand-side models which have been developed.

Morbidity and Certified Incapacity

The state of health of the insured labour force would be expected to have some influence on the number of workers who become ill during each year and on the length of time they remain out of work. Ideally we would like to have a health status index which would reflect changes in the health of the working population. Unfortunately attempts to combine objective indicators of health into a single index have not been successful and the efforts which are currently being made to develop a general index of well-being from subjective indicators have not yet resulted in a truly compre-

hensive health index as Wan and Livieratos (1978) have noted. Since we do not have a general health index we will use proxy variables to represent the health factor in our models of certified incapacity. The proxy variable which is most often used to indicate the improvements which have been made in the health of the people over a long period of years is life expectancy at birth. While this variable is an excellent indicator of the advances which have been made in dealing with the epidemic diseases which used to be the major causes of mortality it does not give an accurate reflection of the incidence of sickness in a country because advances in medical technology and living standards have made it possible for the amount of sickness to increase at the same time as life-expectancy increases. A working party on the health service in England (Department of Health and Social Security, 1976) has suggested that there is a positive association between morbidity and mortality on the basis of regional differences in mortality and sickness benefit statistics. Doherty (1979) accepted this argument in his study of sickness absence in Britain and used the mortality rate in his model although he noted that there may be reasons why the relationship would not hold in time series studies. In a detailed analysis of mortality and sickness in Britain, Daw (1971) notes the existence of a positive relationship between mortality and morbidity at the regional level but goes on to note that it is only in certain cases that there is a positive association between sickness and mortality by cause at national level. The use of the general mortality rate as a proxy variable is, therefore, subject to the same criticism as the use of life-expectancy. While we cannot use the general mortality rate as a proxy for the health of the working population we can use a specific mortality rate if it can be shown that there is a direct connection between cause of sickness and cause of death. There appear to be no Irish studies of this relationship so we have to rely on Daw's results for Britain to make our choice of a suitable mortality rate. He found that there were only two main groups which showed both appreciable mortality and sickness. These were (i) arteriosclerotic and degenerative heart disease and (ii) bronchitis. This finding is based on British data for the period 1961-62 and there are no time series data which would enable us to choose one of these mortality rates in preference to the other. We shall, therefore, try both mortality rates for those aged 15-64 in our models and make our selection on the basis of performance in the models.¹

It has been demonstrated by Whitehead (1971) that the underlying trend of incapacity series can be obscured by the occurrence of influenza epidemics of differing severity from year to year and that a better under-

1. The denominator used to calculate this rate is the total population rather than the population aged 15-64 since there are no time series available on the population by age cohort.

standing of the trend can be obtained if the influence of these epidemics can be removed from the series. While the Department of Health monitors all outbreaks of influenza there is no time series information available for Ireland on absence from work due to this illness. Since this information is not available, one possibility which might be tried is to derive an index for the severity of influenza in Ireland in each year from the United Kingdom data on absence due to 'flu. This would be reasonable if the severity of the annual occurrences of influenza in Ireland and the United Kingdom were similar. While there are similarities in the patterns of influenza in the two countries, there are decided and important differences which would make it unwise to use the UK as a proxy for the Irish pattern.² The most severe outbreaks of influenza in Ireland in the post-war period occurred during the first six months of 1957 (Asian 'flu) and 1968 (Hong Kong 'flu). A dummy variable will be used to see if either outbreak influenced the incapacity data in those years.

In addition to the effect which changes in the general state of health or the severity of influenza may have had on claims for sickness benefit, some of the increase in the frequency and duration of sickness could have been caused by changes in the contribution which certain illnesses made to total illness during the period with which we are concerned. Geary and Dempsey (1979) have shown that diseases of the respiratory system and diseases of bones and organs of movement accounted for a large proportion of claims for disability benefit in 1936 and that this proportion increased between 1936 and 1965-66. Information on the distribution of benefit claims by type of illness is available only for 1936 and 1965-72 so we cannot adjust the certified incapacity data for changes in the composition of illness. However, the diseases to which Geary and Dempsey draw attention are both influenced by weather conditions so we shall use an indicator of weather conditions as a proxy for the effects of the respiratory and rheumatic diseases for which we have no data. In his analysis of factors influencing sickness in Britain, Daw (1971, Table 14) found that there was a significant correlation between the duration of sickness and average rainfall in each region and Bailey, Kevany and Walsh (1981) found that air temperature and sickness benefit claims in the Dublin area were inversely related to each other. Hence we shall include average rainfall and temperature in the first quarter of the year in our analysis of the determinants of certified incapacity to see if changes in the composition of illness may have had some influence on absence from work during the period 1954-78. First quarter rather than annual data are used because the peak in the number of claims for

2. I am indebted for this information to Dr James Walsh, Assistant Chief Medical Officer, Department of Health.

disability benefit occurs in the first quarter of the year.

Per capita consumption of alcohol by the adult population has more than doubled in Ireland in the post-war period as Walsh (1980) has shown and some indices of alcohol abuse have also increased during this period although by not as much as *per capita* consumption of alcohol. It is generally believed that the proportion of absences from work attributable to alcohol in Ireland, as in other countries, is large and there is a case, therefore, for including alcohol consumption per head of population aged 15 and over in the set of morbidity factors which are believed to exert an influence on certified incapacity.

Social Insurance Benefits, Taxation and Certified Incapacity

There are a number of economic factors which should influence the frequency and duration of sickness absence according to the standard neo-classical theory of labour supply. Thomas (1980) has shown that where the worker's objective is to minimise the number of hours worked subject to the attainment of an income target an increase in the basic wage rate and in the premium paid for overtime hours will increase absence from work. He has also demonstrated that the introduction of a sickness benefit scheme should lead to more absence from work, other things being equal, and that an increase in the ratio of sickness benefit to earned income will also do so provided leisure is not an inferior good.³ We would, therefore, expect to find a positive association between the real wage rate, the benefit/income ratio and our measures of certified incapacity.

The extent to which disability benefits replace average earnings when workers become ill, commonly referred to as "the replacement ratio", increased significantly in 1974 when a pay-related supplement to flat-rate benefit was introduced. This change in the benefit structure was accompanied by a change in the method by which social insurance benefits generally were financed as the employer and employee flat-rate contributions, which had been used since the state insurance scheme began, were supplemented by a proportionate contribution on earnings up to a specified income ceiling.⁴ Pay-related benefit commences after the first two weeks of illness and this lag is designed to ensure that only those whose standard of living would be seriously affected by illness will qualify for this benefit. It will be seen from Table 12 and Figure 5 that the addition of pay-related benefit to the flat-rate benefit has led to a significant increase in the replacement ratio since 1974.

3. These predictions are similar to those derived by Grubel and Maki (1978) from their analysis of the effects of unemployment benefit on the unemployment rate.

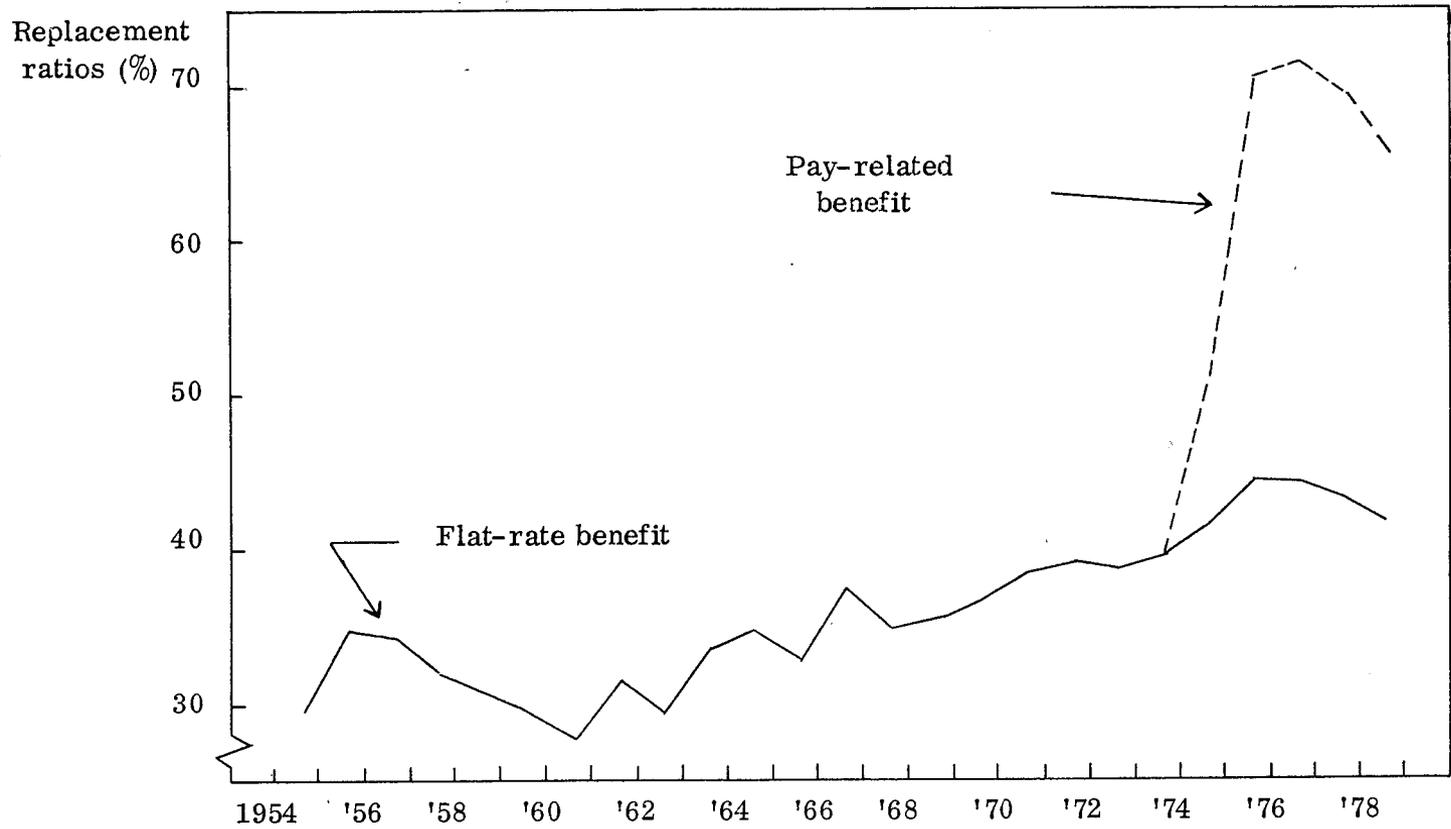
4. Since April 1979 the social insurance contribution has been calculated as a percentage of earnings up to a specified ceiling. Approximately two-thirds of the cost of the contribution is paid by the employer and the remainder by the employee.

Table 12: *Replacement ratios, average tax rate, and percentage of labour force effectively insured for all benefits, 1954-78*

Year	Replacement ratios as of Sept. or Oct.		Average rate of income tax in year ended 5th April	Percentage of labour force effectively insured for all benefits in March
	Flat-rate benefit	Flat-rate + pay-related benefit		
1954	29.5	—	13.0	52.0
1955	34.8	—	14.4	52.9
1956	33.2	—	14.7	54.5
1957	32.0	—	13.7	54.9
1958	30.8	—	13.8	54.6
1959	29.4	—	12.9	54.8
1960	27.7	—	12.4	55.9
1961	31.4	—	12.5	56.8
1962	29.1	—	13.3	56.9
1963	33.3	—	13.4	57.1
1964	34.7	—	13.6	58.4
1965	32.8	—	13.0	59.9
1966	37.1	—	13.2	61.6
1967	34.8	—	14.0	63.7
1968	35.3	—	13.5	63.6
1969	36.5	—	13.6	64.9
1970	38.2	—	14.3	65.2
1971	39.0	—	15.0	65.3
1972	38.6	—	15.9	65.6
1973	39.4	—	15.4	65.6
1974	41.6	51.4	17.0	63.1
1975	44.2	70.4	17.9	72.9
1976	44.1	71.5	19.9	71.4
1977	43.0	68.8	21.5	70.1
1978	41.6	65.6	22.4	68.6

Sources: Replacement ratios; the figures for 1954-75 are weighted averages derived from Walsh (1978, Table A2) while those for subsequent years have been calculated from the earnings data and tax rates in force from 1976 to 1978. Average rate of income tax; *Annual Reports of the Revenue Commissioners* 1954 to 1978. Percentage of labour force covered for all benefits; *Reports of the Department of Social Welfare* 1954-58 to 1972-75 and *Economic Statistics*, Budget 1964, *Review and Outlook* for 1970, 1972 and 1980 and "Estimate of the Labour Force for April 1980 with Revised Estimates for the years 1975, 1977 and 1979", CSO, 19 December, 1980.

Note: The replacement ratios are weighted averages of the figures for single men and women and for a married man with four children. These figures have been combined into a single measure on the basis of weights derived for the composition of the labour force from the Census of Population 1971. The weights used were .29 for a single man, .31 for a single woman and .40 for a married man with four children.

Figure 5. *Replacement ratios 1954-78.*

Before the introduction of pay-related benefit in 1974 any insured person who became ill would have suffered a severe drop in income. At the beginning of the 1960s, for example, disability benefit would have replaced about a third of the average net earnings of a representative group of workers. Increases in flat-rate benefits during the 1960s pushed the replacement ratio up to around 40 per cent where it remained until 1974 when the introduction of pay-related benefit boosted it to over 50 per cent and then to over 70 per cent in 1976. Since 1976 the replacement ratio has declined from its peak to around two-thirds of average earnings in 1978. These figures do not, of course, include payments to the sick by their employers. It was shown in our discussion of occupational sick-pay schemes in Section 2 that approximately three-quarters of those in the non-agricultural sector are covered by private schemes. The replacement ratios in Table 12, therefore, understate the extent to which earned income is replaced on average by sickness benefits.

The replacement ratios are also understated because they do not include the average value of the tax refund to which PAYE taxpayers are entitled when they become ill. Under the cumulative PAYE system an employee is entitled to a refund of tax paid on previous earnings in the tax year whenever the weekly tax-free allowance exceeds weekly pay.⁵ Since disability benefit is a short-term social welfare benefit it is not regarded as part of taxable income by the Revenue Commissioners.⁶ Consequently it is possible at some time in the tax year for some employees to receive more in state benefits and tax rebates while ill than their net income while at work. Walsh (1974) first drew attention to this possibility when he demonstrated how a married man with two children could increase his take-home pay by becoming voluntarily unemployed towards the end of the tax year. The public concern which was expressed about the effect of high replacement ratios on the incentive to work led the government to set up an interdepartmental committee to consider the matter. In 1976 the government introduced a regulation that the sum of flat-rate and pay-related benefit and the tax rebate should not amount to more than 85 per cent of the average net weekly earnings of recipients of unemployment benefit. This rule was not applied

5. An example showing how an employee can become entitled to a tax refund when out of work due to illness is given in Appendix 2. It is interesting to note that the cumulative PAYE system was originally developed in Britain and that Ireland is the only country in the world which has copied it (see Barr, James and Prest (1977, p. 147)).

6. Short-term social welfare benefits include unemployment benefit and assistance, disability benefit, maternity allowances, supplementary welfare allowances and pay-related benefit. Long-term benefits include contributory and non-contributory old-age pensions, widow's pensions, invalidity pensions, orphan's allowance and orphan's pensions, deserted wife's benefit and allowance, and health allowance. Income from most of the long-term benefit schemes is taxable (e.g., widow's, orphan's and retirement pensions).

to disability benefit but when the pay-related scheme was introduced it had been stipulated that the combined total of flat-rate and pay-related disability benefit should not exceed a person's reckonable weekly earnings. It will be noted that this rule does not refer to the tax rebate to which a taxpayer may become entitled when absent from work due to illness. Hence, when the tax rebate is added to the combined total of both benefits there may be circumstances in which weekly income during sickness can be greater than weekly net income from work. Table 13 compares the income position of representative households during sickness and health in the tax year 1979-80.⁷ It will be seen that the tax rebate amounted to a significant proportion of net income while ill in all cases and that it ensured that the replacement ratio for married men in income classes which ranged from half to nine-tenths of the average male industrial wage in the tax year 1979-80 would be equal to or greater than 100 per cent in nearly all cases.⁸ One way in which the problem posed by replacement ratios in excess of 100 per cent could be dealt with is by taxing short-term social welfare benefits. This proposal will be discussed in the next section.

There are many ways in which the income tax system can affect decisions about the amount of labour which will be supplied in any tax year. Thus, workers who receive an increase in earnings during the tax year which moves them into a higher tax bracket than that envisaged by the Revenue Commissioners when their tax free certificates were being issued, may be induced to take time off work towards the end of the tax year in order to avoid a reduction in take-home pay due to the extra tax to which they would become liable. Only a small number of workers would be affected in any tax year by this phenomenon. However, the great bulk of PAYE taxpayers were affected by a change in the tax system in 1974 which may have had a significant effect on decisions to work or to take time off work. Up to April 1974 there was a two-tier system of Income Tax and Surtax. Surtax was paid on incomes in excess of a specified limit and this limit was always greater than the income ceiling below which manual workers qualified for social

7. A detailed description of how this table is derived is given in Appendix 5.

8. It may be thought that replacement ratios in excess of 100 per cent could not arise if the pay-related component of income received while ill, which is included in line (c) of Table 13, had been based on earnings in the last complete tax year preceding the benefit year in which the claim is lodged as this is the basis on which the Department of Social Welfare calculates pay-related benefit. Earnings in the tax year 1979-80 were used in our discussion of Table 13 because we intend to use it in the next section in our assessment of the effect of the 1980 Budget on work incentives. We have, however, calculated replacement ratios for the three households which earned £4,000 in the tax year 1979-80 using earnings in the tax year 1978-79 to derive the pay-related component of the disability benefit. Average industrial earnings increased by 15 per cent between 1978 and 1979 so our representative households would have had an annual income of £3,478 in the tax year 1978-79. Basing pay-related benefit on this income figure gives replacement ratios in 1979-80 of 76 per cent for the single person, 94 per cent for the married man without children and 105 per cent for the married man with four children.

Table 13: Effect of tax rebate on income of representative households while absent from work in tax year 1979/80

Source of income and labour force status	Single person	Married man, no children	Married man, 4 children	Single person	Married man, no children	Married man, 4 children	Single person	Married man, no children	Married man, 4 children
	Gross earnings = £57.69 per week (£3,000 p.a.)			Gross earnings = £76.92 per week (£4,000 p.a.)			Gross earnings = £96.15 per week (£5,000 p.a.)		
(a) Number of weeks employed in year before incurring tax liability (= x)	19	39	TE	14	29	41	12	23	32
(b) Average tax refund per week if incapacitated for remaining (52-x) weeks (£)	6.08*	10.72		6.37*	12.35*	14.91	7.21*	13.10*	20.44*
(c) Average net income per week if incapacitated for (52-x) weeks (£)	39.25	53.31		46.21	63.94	80.61	53.77	72.00	96.44
(d) Net income per week if employed for 52 weeks of year (£)	44.58	51.45		56.24	63.74	73.84	67.89	75.40	85.88
(e) Average net income per week if incapacitated during last (52-x) weeks of year as percentage of net income if employed = (c/d) x 100	88	104		82	100	109	79	95	112
(f) Loss (-) or gain (+) in net income per week as a result of incapacity in last (52-x) weeks of year = (c) - (d)	-5.33	+1.86		-10.03	+0.19	+6.77	-14.12	-3.40	+10.56
(g) Number of weeks during which gain or loss is made	33	13		38	23	11	40	29	20

TE: (Tax exempt) example not calculated because tax free allowances exceed annual income.

* Tax deducted under Table B

Note: In the case of married taxpayers it is assumed that the taxpayer's wife is not working. Where the married taxpayer has children his net income includes the weekly value of children's allowance payments by the State. The special deduction of £175 in 1979/80 has not been included in the calculations for that year as taxpayers did not know that it would be allowed until late in 1979. The regulations regarding commencement of payment of flat-rate and pay-related benefit have been taken into account in deriving line (c).

insurance benefits. In April 1974 the two-tier system was replaced by a unified system of personal taxation which taxed different bands of income at different rates. In addition, tax thresholds in relation to average industrial wages have fallen substantially over the years as Dowling (1977, Table 2.1) and others have noted. The result of these changes has been a barely perceptible increase in the burden of income tax over the years 1954-73 and a very noticeable increase thereafter as will be evident from the data on the average income tax rate in Table 12. Some trade union leaders have argued (see *Business and Finance*, 28 February, 1980, p. 45) that the income tax system induces some workers to go sick at certain times during the tax year. If this argument is correct it should strengthen the effect which the replacement ratio variable has on certified incapacity because the denominator used to calculate this ratio is net income and this will be affected by changes in average tax rates which have taken place over the period with which we are concerned.

The Structure of the Disability Benefit Scheme and Certified Incapacity

Changes in the set of rules governing the operation of the disability benefit scheme, the intensity with which the rules are administered, and the interaction of the disability benefit scheme with the unemployment benefit scheme can affect the frequency and duration of claims for sickness benefit. Each of these factors may have had some influence on certified incapacity during the period 1954-78 and we must, therefore, include some variables in our analysis of certified incapacity which will reflect that influence.

At the commencement of the unified social security system in the early 1950s it was specified in the regulations governing access to the various benefits which were being offered that only persons earning less than £500 per year would be eligible for social insurance cover. This income limit was increased over the years to keep pace with changes in living standards and inflation and it was eventually abolished in 1974 when social insurance was made compulsory for nearly all employees. The consequence was that the percentage of the labour force covered by the social security system gradually rose from 52.0 per cent in 1954 to 68.6 per cent in 1978 as will be seen from Table 12. If those who were gradually brought into the social security net had a greater propensity to remain off work due to illness than those who were already in the net, the frequency and duration of incapacity per person at risk would increase. Hence, if there is any relationship between certified incapacity and coverage of the social security system it should be positive.

It has been shown in Section 2 that the intensity with which claims for disability benefit are controlled appears to influence the number of claims which are submitted in any year. Changes in control policy should, therefore,

be inversely related to the frequency and duration of claims. The percentage of disability benefit claimants summoned for a second medical examination will be used to test this hypothesis.

A number of researchers have observed that there appears to be an inverse relationship between the sickness rate and the unemployment rate. Thus, Enterline (1964, Table IV) presented data for some western countries at the end of the 1950s which tended "to support the idea that unemployment levels affect sick absence rates" and which indicated that "despite a wide variation in unemployment levels, the percentage of the employable population that was either absent from work because of sickness or unemployment fluctuates only between 6 and 8 per cent" (Enterline, 1964, pp. 740-741), and Maddison (1980, p. 186) has recently noted that there appears to be a negative association between sickness absence and unemployment in Germany and France. It has been argued that the reason for this association is that job security varies with the state of the labour market and hence workers will cut down on sickness absence during a recession to reduce the risk of dismissal because of frequent absenteeism. This hypothesis has been tested by Doherty (1979) and Thomas (1980) in their analyses of sickness absence in the United Kingdom but neither of them found a significant regression coefficient for the unemployment rate variable.

In contrast to these results a number of studies of the disability insurance programme in the United States, which only provides benefits after six months' disability, have found a significant positive relationship between applications for disability benefit and the unemployment rate. Lando (1974), for example, found that the number of disability applications per quarter was positively related to the male unemployment rate while Hambor (1975) also established a similar relationship in the American data. In an update of the earlier research done by Lando it was demonstrated by Lando, Coate and Kraus (1979, p. 10) that "if both the unemployment rate and the replacement rate had remained fixed the average number of applications per year would have been reduced by . . . about 19 per cent".

The work which has been done in the United States has established a positive relationship between unemployment and applications for disability benefit and research which has been undertaken in Britain indicates that there is a causal relationship between long-term unemployment and sickness (see *New Society*, 27 August 1981). It is possible, therefore, that part of the increase in certified incapacity which has occurred in Ireland during the post-war period is due to the threefold increase in long-term unemployment which occurred between 1954 and 1978 (see Table A2 in Appendix 3). In addition to the effect which long-term unemployment may have on sickness, the unemployment and disability benefit schemes themselves may contribute to

an increase in certified incapacity when the long-term unemployment rate rises. The reason is that these schemes are identical in all respects except the periods for which benefits are paid. Disability benefit can be paid indefinitely whereas unemployment benefit ceases after a year and a quarter.⁹ Hence some workers whose entitlement to unemployment benefit is nearly exhausted may try to claim disability benefit. The incentive to switch from one scheme to the other was stronger for women than for men up to 1978 because the regulations under which women could qualify for unemployment assistance upon exhaustion of entitlement to unemployment benefit were more restrictive than the regulations applying to men. Thus, a married woman applying for unemployment assistance must not have been dependent on her husband and must have had at least one dependant and up to October 1978 a widow or single woman must have had at least one dependant or a minimum number of employment contributions in order to qualify for unemployment assistance. If some employees switch between the two benefit schemes there could be an increase in certified incapacity when the long-term unemployment rate increases.

It will be evident from the preceding arguments that there are two hypotheses concerning the connection between sickness and unemployment which we wish to test. The first is that sickness absence is partly determined by the state of the labour market so there should be a negative relationship between certified incapacity and the unemployment rate. The second is that long-term unemployment induces sickness so there should be a positive relationship between certified incapacity and long-term unemployment. The long-term unemployment rate is defined as the percentage of workers who have had no employment experience in the twelve months prior to October each year. This information is only available for males residing in towns for the period 1954-78.

The Certified Incapacity Model and Regression Results

The variables which we have now discussed will be used to carry out a regression analysis of the frequency and duration of incapacity per person at risk over the period 1954-78. The model may be written as follows:

$$CI = f(M, RWAGE, RRPR, COV, SUM, UR, LTU)$$

where CI = certified incapacity
 M = morbidity
 RWAGE = real wage rate

9. Unemployment benefit was paid for up to six months until 1968. In 1968 payment of benefit was extended to a year and a further extension was made in 1976 when the period during which benefit could be paid was lengthened to a year and a quarter.

RRPR	=	pay-related replacement ratio
COV	=	percentage of the labour force covered by social insurance
SUM	=	percentage of disability benefit claimants summoned for a second medical examination
UR	=	total unemployment rate
LTU	=	long-term unemployed males living in towns as a percentage of total unemployed males in towns

It will be recalled that the influence of morbidity on certified incapacity will be represented by the mortality rates for arteriosclerotic and degenerative heart disease, or bronchitis, a dummy variable for influenza epidemics in 1957 and 1968, a weather variable which will be either average rainfall or temperature in the first quarter of the year and finally alcohol consumption per head of population aged 15 and over in litres of 100 per cent alcohol. We will regress the frequency and duration of incapacity on the morbidity variables first to see to what extent these measures of incapacity can be explained on medical grounds alone and we will then add in the economic and institutional variables and assess their contribution to the observed pattern of certified incapacity in Ireland. The series for those variables which have not been included in the tables and charts of this and previous sections are given in Appendix 3.

Stepwise regression analysis of the morbidity model indicated that neither of the mortality variables or the dummy variable for influenza exerted any influence on either the frequency or duration of certified incapacity per person at risk, that a statistically significant influence on both measures of incapacity was exerted by alcohol consumption and also by rainfall in the case of the number of spells of incapacity.¹⁰ The elasticities of the number of spells of incapacity with respect to alcohol consumption measured at the means is greater than the elasticity for the duration of absence. Thus, an increase in *per capita* consumption of alcohol will have a greater effect on the number of spells of absence than on the duration of absence.

The alcohol consumption and rainfall variables were included with the economic and institutional variables in a stepwise regression analysis of a combined medical and economic model of certified incapacity. Separate regression equations were estimated to test the alternative hypotheses which have been discussed above in connection with the interaction between sickness absence and unemployment in Ireland. The stepwise regression procedure for the frequency of incapacity model selected three variables for inclusion in the regression equation when the long-term unemployment rate was included in the data set and only two variables when the total unemployment

10. The probability level used for entering or deleting variables is .05 for the F-value associated with each regression coefficient.

rate was included. In the former case the variables selected were the real wage, the pay-related replacement ratio and the long-term unemployment ratio. In the latter the real wage and the total unemployment rate were the only variables selected. It will be seen from Table 14, in which these and other regression results are presented, that the sign of the total unemployment rate variable is wrong and that all of the statistics relating to goodness of fit are higher and the Durbin-Watson statistic is more or less unchanged or higher when the long-term unemployment variable is selected rather than the total unemployment rate. In the case of the number of spells of incapacity per person at risk, therefore, the stepwise regression procedure indicates that the most important influences are the level of the weighted real wage in transportable goods industries, the pay-related replacement ratio and the percentage of unemployed males in urban areas who have been out of work for a year or more.

The stepwise regression procedure selected only two variables for inclusion in the regression equation when the dependent variable is the duration of incapacity per person at risk. These variables were the real wage and long-term unemployment. When the total unemployment rate was included in the data set rather than the long-term unemployment variable only the real wage was selected for inclusion in the regression equation. A specification of the model which includes the long-term unemployment variable is, therefore, preferred to one which includes the total unemployment rate. The stepwise regression results for the model in which the long-term unemployment variable is selected indicate that two other variables, the pay-related replacement ratio and the percentage of disability benefit recipients summoned for a second medical examination, would have made a slight contribution to the explained sum of squares if the probability level for entering or deleting variables in the stepwise procedure had been somewhat lower. A regression analysis was carried out which assessed the effect of including each variable separately with the real wage and long-term unemployment. The results are shown in Table 14 and it will be seen that the replacement ratio variable adds more to the explained sum of squares than the variable for the percentage of recipients summoned. It will also be seen from the results in Table 14 that the coefficient of the replacement ratio variable in the regression equation for the duration of incapacity has an insignificant t-value. This may indicate that multicollinearity is a problem. The correlation matrix for the three explanatory variables is as follows:

	RWAGE	RRPR	LTU
RWAGE	1.0000	—	—
RRPR	.8273	1.0000	—
LTU	.8934	.7469	1.0000

Table 14: Regression results for the frequency and duration of incapacity

Variable	Frequency					Duration		
	1	2	3	4	5 (logs)	6	7	8
Constant	26.86 (3.37)	-23.03 (1.62)	8.83 (1.10)	—	2.62 (17.83)	10.66 (11.43)	10.59 (11.59)	11.09 (4.79)
RWAGE	5.32 (2.45)	20.31 (14.72)	10.28 (5.75)	11.24 (7.17)	0.35 (4.61)	1.17 (5.43)	0.98 (3.93)	1.16 (5.13)
RRPR	2.10 (7.12)						0.05 (1.42)	
RRPR _{t-1}			2.32 (7.38)	2.41 (7.90)	0.36 (5.53)			
UR		9.51 (5.24)						
SUM								-0.01 (0.20)
LTU	3.35 (5.93)		1.96 (3.44)	1.80 (3.24)	0.25 (3.85)	0.15 (2.19)	0.14 (2.20)	0.14 (2.07)
R ⁻²	.9743	.9432	.9779	.9985	.9681	.9193	.9229	.9157
S _{y.x} / \bar{y}	.0444	.0659	.0411	.0413	.0081	.0496	.0485	.0506
F	304.83	200.44	340.03	320.13	233.30	137.77	96.79	87.86
DW	2.09	1.71	1.68	1.68	1.73	1.67	1.77	1.66
N	25	25	24	24	24	25	25	25

Note: Figures in parentheses are t-values. In the proportional regression the calculations for the coefficient of determination and the Durbin-Watson statistic have taken account of the adjustments needed when there is no constant in the regression.

and it is evident that the sampling variances of some of the regression coefficients may be affected by multicollinearity. One method which has been suggested for dealing with this problem is to include time as an independent variable in the regression equation to cater for the common upward trend in the explanatory variables. This was done for both the frequency and duration equations. The result was that the regression coefficient of the real wage variable in both equations was adversely affected, while those for the replacement ratio and long-term unemployment were not, and in neither case was the coefficient of the time trend significantly different from zero. In view of this and of the fact that the inclusion of a time trend did not improve the goodness of fit of either regression equation, it appears that only three variables are needed to explain the behaviour of the frequency and duration of incapacity series during the period 1954-78, i.e., the real wage rate, the replacement ratio and long-term unemployment as a percentage of total unemployment amongst males in urban areas.

It may take some time for changes in the replacement ratio and long-term unemployment to affect the frequency and duration of incapacity because of the learning process which is involved in finding out about the social welfare system and changes in its administration. Each regression equation was therefore re-estimated using lagged values of both variables and logarithmic versions of both equations were also tried to see if there was any improvement in the goodness of fit of the model. None of these specifications led to any improvement in the regression estimates for the duration of incapacity but some of them did so in the case of the frequency of incapacity. When the replacement ratio is lagged by one period there is a slight improvement in the fit of the equation for the frequency of incapacity and the fit is further improved if the constant term is suppressed as will be seen from the results for regression Equations 3 and 4 in Table 14. The best fit for the logarithmic version of the frequency equation was given when the replacement ratio was lagged by one period and the constant term was not suppressed. Equation 5 in Table 14 gives the estimates which are obtained when natural logs are used. While there is very little to choose between Equations 4 and 5 the results for the linear equation are preferred because of the lack of a constant term. In the case of the results for the duration of incapacity, Equation 7 is chosen in preference to Equations 6 or 8 because it gives the best fit to the data. Equations 4 and 7 were used to derive the elasticity of the number of spells and duration of incapacity with respect to each explanatory variable at the point of means and the results are as follows:

	Frequency	Duration
RWAGE	0.42	0.36
RRPR	0.39	0.08
LTU	0.19	0.14

It will be seen that the response of the frequency of incapacity with respect to a change in each of the explanatory variables is greater than the response of the duration of incapacity although the differences in the elasticity measures are not very large except in the case of the replacement ratio. Since the coefficient of the replacement ratio in the regression equation for the duration of incapacity is unreliable for reasons which have already been discussed, the elasticity of the duration of incapacity with respect to the replacement ratio is also unreliable.¹¹

We can use Equation 4 to estimate how many spells of sickness absence there would have been in each of the years since 1974 if the replacement ratio had remained at its pre-pay-related level. A comparison of the results with the number of spells estimated for each year on the basis of Equation 4 will indicate the effect which the introduction of pay-related benefit had on the number of spells of sickness absence. This comparison is made in Table 15.

Table 15: *Number of spells of sickness absence per 1,000 persons at risk estimated on basis of pre- and post-pay-related replacement ratios*

Year	Estimated from Equation 4	Estimated on basis of 1973 value of RRPR	"Induced" sickness absence	"Induced" sickness absence as a percentage of Column (2)
1975	288.05	285.57	2.48	0.9
1976	315.38	283.46	31.92	10.1
1977	389.80	312.83	76.97	19.7
1978	415.86	336.19	79.67	19.2

It will be seen that 19.2 per cent of the number of spells of certified incapacity per 1,000 persons at risk in the year ended March 1978, which can be accounted for by Equation 4, resulted from changes in the economic

11. A simultaneous model of the form

$$DUR = \alpha_0 + \alpha_1 RRPR + \alpha_2 RWAGE + \alpha_3 LTU + U_1$$

$$RRPR = \beta_0 + \beta_1 DUR + \beta_2 RWAGE + \beta_3 DPRS + \beta_4 UR + U_2$$

was estimated using two-stage least squares in an attempt to deal with the multicollinearity problem but there was no significant change in the coefficients of the variables used in the duration equation. The coefficients of the real wage, unemployment rate and dummy variable for pay-related supplement (DPRS = 0 from 1954 to 1973 and 1 thereafter) were all positive as expected indicating that rising living standards are accompanied by a willingness to increase social welfare payments and that there is a desire to increase social welfare payments at times of high unemployment.

choices facing the sick as a consequence of the introduction of pay-related sickness benefit. Hence, there were over 65,000 more claims for sickness benefit in 1978 than there would have been in the absence of pay-related disability benefit and just over half of the increase in the number of spells of incapacity between 1974 and 1978 can be attributed to the introduction of this benefit.

There are three reasons why the improvement in the replacement ratio consequent on the introduction of pay-related benefit may have led to these additional claims:

- (a) It may have enabled workers who were previously unable to afford proper treatment because of the inadequacy of sickness benefit to comply with their doctors' instructions to take time off work when they are ill.
- (b) It may have caused workers to take less care of their health by lowering the potential cost of being absent from work through illness relative to the cost of measures to prevent the occurrence of illness (this phenomenon is referred to as "moral hazard" in the insurance literature. It should be noted that the term does not imply a judgement about the behaviour which it describes).
- (c) It may have led to an increase in malingering by reducing the loss in income during absence from work.

Ideally we would like to be able to say how much of the increase in the frequency of incapacity since the introduction of pay-related disability benefit is due to each of these reasons. Unfortunately this is not possible but there are some points relating to each of the three components which suggest that most of the increase in the number of disability claims since 1974 is due to the success of the pay-related scheme in ensuring that workers are no longer forced by need to work when ill.

The first point relates to the adequacy of sickness benefit before the pay-related supplement was introduced. Hardly any research has been done on the adequacy of sickness or unemployment benefits in Ireland but the little that has been suggests (see Hughes (1980)) that sickness benefit in common with other flat-rate benefits, was designed to provide an income which would be adequate for subsistence only. In an assessment of benefit levels and subsistence standards in 1963, when the replacement ratio was 33.3 per cent, Kaim-Caudle (1964, p. 24) concluded that:

... people receiving social insurance benefits and pensions may possibly exist without help from other sources. Still the difficulties

would be enormous. Disability Benefit for a married man with three children is 96/6d. per week plus 8/8d. in Children's Allowances. If he lives in a Dublin Corporation House his rent may be as little as 6/- per week, under the rent rebate scheme, leaving him with 99/4d. for all expenses except rent. It would require a woman well above average intelligence, virtue and industry to make ends meet on such an income. There would be no margin for luxuries such as cigarettes, beer, holidays, entertainment; all clothing purchased would have to be second-hand and household goods could not be replaced. If the parents were more ordinary average kind of people, the family would get into debt, live in squalor and suffer from malnutrition.

A few years later he compared social insurance benefits in Ireland in 1966 with those in Britain, when the replacement ratio in Ireland was 37.1 per cent, and he concluded (1967, p. 48) that:

Irish benefits appear inadequate to maintain even a subsistence standard — from a British point of view.

While the replacement-ratio in Ireland had risen slightly by 1973 to 39.4 per cent there is little doubt that sickness benefit at that time was at a subsistence level for most workers and there is, therefore, a strong case for the argument that the introduction of pay-related benefit led to an increase in the frequency of incapacity because it enabled many workers to take the time off work during illness which they needed and which they could not have afforded on flat-rate benefit alone.

The second point relates to the behaviour of persons who take less care of their health because of a change in the relative cost of preventive measures. If a person has a choice of two legal methods of achieving a certain objective and there is a difference in the cost of each, it is rational for the person to choose the method which costs least. If enough people are affected by changes in the relative price of preventive measures, there will be a noticeable increase in the frequency of incapacity which is attributable to genuine illness and not to wrongdoing on the part of those affected.

The third point relates to malingering. While it is true that some workers feign sickness and apply for disability benefit, it is difficult to accept that most of those who were responsible for the increase in the number of claims from 204,000 in 1973 to 333,000 in 1978 were malingering. If the malingering argument is to be taken seriously, it would have to be shown that the medical certification and medical referee schemes are ineffective in

filtering out disability benefit claimants who are fit for work. While some claimants undoubtedly slip through the net, the evidence which is available on the operation of these schemes indicates that the great majority of claimants are genuinely ill and that malingerers can be identified and prevented from getting benefits to which they are not entitled. There may, of course, be some room for improvement in both schemes as we will see in the next section.

Comparison of Insurance Induced Incapacity and Unemployment

The effect of the replacement ratio on the number of spells of incapacity can be compared with Walsh's (1978, p. 185) finding that the increase in the replacement ratio between 1967 and 1975 and the introduction of the Redundancy Payments Scheme in 1968, had direct and indirect effects via the net emigration rate which may have accounted for 38.8 per cent of the unemployment rate in 1975.¹² We re-estimated Equation 4 for the period 1954-75, the period to which Walsh's data refer, and calculated the number of spells of incapacity which would have been expected in 1976 on the basis of this equation. This estimate was then compared with the number of spells which would have been expected in 1976 if there had been no change in the replacement ratio between 1967 and 1976. The results indicated that 16 per cent of the total number of spells of incapacity in 1976, which could have been expected on the basis of the re-estimated version of Equation 4, may have been due to the increase in the replacement ratio between 1967 and 1976.¹³ Clearly the impact of changes in the replacement ratio on the number of spells of certified incapacity and on the unemployment rate is quite significant. Given the very large number of insured workers who are not employed (13.6 per cent of the total at the end of December 1977) or who are out sick (10.4 per cent of the total at the end of December 1977) it is important to establish whether the welfare gains accruing to the community from changes in the operation of the sickness and unemployment benefit schemes outweigh the costs. Further research will be needed to do so and the results presented in this paper and in Walsh's (1978) demonstrate the necessity for such research. Apart from the issue of the value which the community gets from changes in the sickness benefit scheme there are some aspects of the present scheme which may need to be reconsidered and it is to these that we now turn.

12. Walsh (1978, p. 183) notes that his estimates "must be treated with great circumspection due to the large standard errors associated with the underlying coefficients".

13. We have used 1976 rather than 1975 because of the one period lag in the replacement ratio variable in Equation 4.

Section 5

MEASURES FOR CONTROLLING SICKNESS ABSENCE

Administrative and Economic Controls

Recent efforts to control access to disability benefit have been mainly of an administrative nature, e.g., the extension of waiting days to all spells of illness. The results in the preceding section suggest that consideration should also be given to the use of economic variables to regulate the cost of sickness absence to the insured labour force. Our object in this section is to explore the possibilities which exist for using such variables to rectify some of the undesirable features of the disability benefit programme which have arisen since the introduction of the pay-related supplement, and to comment on changes which have been made since 1978 which might have reduced the influence of some of the variables which have been found to exercise a strong influence on certified incapacity. In addition we will comment on the possibilities which may exist for improvement in the administrative controls applied to the disability benefit scheme.

The Replacement Ratio and the Taxation of Sickness Benefit

The regulations governing the payment of pay-related benefit stipulate that the sum of pay-related and flat-rate sickness benefit should not exceed the earnings on which pay-related benefit is calculated. Despite this rule some sickness benefit claimants may find themselves better off when they are ill than when they are working because sickness benefit along with other short-term benefits is exempt from income tax.¹ If short-term benefits were taxed there would be a significant reduction in the replacement ratios facing different income groups and the incentive to take time off work would be reduced. In all of the cases examined in Table 13, for example, the taxation of disability benefit in 1979/80 would have reduced the replacement ratio below 100 per cent. Thus, the replacement ratios for the three households in Table 13 with an income of £5,000 per annum would have been reduced

1. The number of claimants who could find themselves in this position appears to be quite small. According to data in Tables 5 and 7 of the *Report of the Department of Social Welfare 1976-78* and monthly data on disability benefit claimants in 1978 supplied by the Department only 27.5 per cent of the average number of disability claimants in each month in 1978 were receiving pay-related benefit. However, these figures may give a misleading impression of the proportion of disability benefit claimants who receive pay-related benefit during the year because the Department's figures refer to the position at a point in time. Claimants who have exhausted their entitlement to pay-related benefit would not show up in the Department's figures.

from 79, 95 and 112 to 59, 73 and 90 if sickness benefit had been taxed in 1979/80. The taxation of sickness and other short-term benefits would eliminate the problem of replacement ratios in excess of 100 per cent and it would also ensure that the principle of horizontal equity for people in the same circumstances is observed. Why then are sickness and other short-term social welfare benefits not taxed? There are two reasons. First, it would be difficult to tax short-term benefits under the current cumulative system of PAYE. If tax were to be deducted from sickness or unemployment benefits at the time that they are paid the Department of Social Welfare would have to have a P.45 form and a certificate of tax-free allowances for each employee in order to work out how much tax, if any, should be paid on these benefits and when beneficiaries return to work it would have to provide employers with details of benefit paid and tax deducted by the Department. No assessment has yet been published of what the administrative costs of taxing short-term benefits in Ireland would be, but Kay, Morris and Warren (1980) note that an Inland Revenue document estimates that 11,000 more staff would have been needed in 1979 to bring these benefits within the tax net in the United Kingdom. If we express the UK figure in *per capita* terms and assume that a similar marginal staffing ratio would be required in Ireland to tax short-term benefits it appears that about 650 more civil servants would be needed. Hence, the staff of the Department of Social Welfare, which would be most affected by the changeover, would need to increase by approximately 20 per cent.²

The second reason for not taxing short-term benefits may be that the net yield from the tax might be rather small. To understand why, we have to consider the response of the Government to the demand for taxation of short-term benefits in recent years. In its Green Paper *Development for Full Employment* (1978) the Government recognised that replacement ratios in excess of 100 per cent could occur and announced that it was considering "treating income from short-term social welfare benefits as taxable income in order to reduce the possibility of this happening" (par. 7.21). Having considered the matter it announced in its White Paper on national development (1979) that short-term social welfare benefits "should be taken into account from the earliest practicable date in assessing tax liability" (par. 6.23) and provision was made in the Finance Act 1979 to tax short-term benefits from 6 April 1980. However, it was announced by the Minister for Finance during his 1980 Budget speech that the Government had reconsidered the matter and decided that the proposal to tax these benefits should not be implemented. The reasons given were that the introduction of tax exemption limits for

2. Present staff of the Department is \approx 3,480. See *Parliamentary Debates, Dáil Éireann*, 5 May 1981, Vol. 328, No. 9, col. 2182.

persons with low incomes in the 1980 Budget would reduce the revenue gained from implementing the proposal and that the widening of the tax bands had improved the incentive to work.³ The introduction of revenue considerations into the debate on taxation of short-term benefits is interesting as it raises the possibility that the idea was abandoned, among other reasons, because the net yield might have been negligible in the long run. It has been estimated by the Minister for Finance that the taxation of short-term benefits would have yielded £13 million in the tax year 1980/81. This is not an insignificant sum to forgo, amounting, as it would have, to the expected yield from capital taxes in 1980/81. However, one of the reasons the Government may have been willing to forgo it is that once the benefits were taxed a demand might have been made for exemption from tax of that part of the social insurance contribution which goes to finance the short-term benefits. Such a demand would be difficult to resist since tax relief was given until April 1979 on that part of the social insurance contribution which financed taxable long-term insurance benefits. When the Pay Related Social Insurance (PRSI) system was introduced in April 1979 it became impracticable for administrative reasons to continue the tax relief but the principle that relief should be given was recognised when the employee's percentage contribution to the PRSI scheme was calculated. This was reduced by a half per cent in lieu of the tax relief to which the employee would have been entitled for the part of the contribution which financed long-term taxable insurance benefits.⁴ In the income tax year 1977/78 the average tax rate on PAYE incomes was 18p. If we assume that half of the £86 million worth of social insurance contributions by employees in the year to December 1978 went to finance short-term benefits and that this would have been exempted from tax if these benefits had been taxed in 1977/78, the loss in revenue would have been around £7.5 million. Allowing for the increases in social insurance contributions and average tax rates which have occurred since 1978 it is evident that the net yield from the tax in 1980/81 would have been small. Despite the fact that the net yield from taxing short-term benefits might be low the principle that people in similar financial and family circumstances should pay the same tax provides a compelling reason for taxing short-term benefits: if an efficient method for taxing these benefits can be found it should be adopted. The question of what method should be used to tax short-term benefits is one which might be considered by the Commission on Taxation since a workable method may involve moving from a cumulative

3. Single and widowed persons with incomes of £1,700 or less and married couples with an income of £3,400 or less were exempted from paying tax in the 1980 Budget. Before these exemptions were introduced it had been estimated (*Parliamentary Debates*, Dáil Éireann, 23 May 1979, col. 1306) that the taxation of short-term benefits would yield £13.0 million in 1980/81.

4. See *Parliamentary Debates*, Dáil Éireann, 16 May 1979, col. 850.

to a non-cumulative system of taxation.⁵

One way in which sickness benefits could be brought within the tax net without having to change the tax system would be to make the employer responsible for paying the benefit for a specified period. Disability benefit would then be regarded as part of the employee's earnings and taxed in the normal way by the sick person's employer. A number of European countries operate sick pay schemes along these lines; in Germany, for example, employers are obliged to maintain their employees' incomes during the first six weeks' illness and in Denmark employers are obliged to pay 90 per cent of previous income, subject to an income ceiling, for the first three weeks' illness.

It is also of interest to note that the British Government has recently proposed in a Green Paper (Department of Health and Social Security, 1980, p. 2) that "employers would be responsible for sick-pay for up to eight weeks in a tax-year for, . . . , anyone on their payroll who would at present be entitled to national insurance benefits" and that one of the reasons given for this proposal was that it would achieve the objective of taxing sickness benefits. An important consideration underlying the British Government's proposal is that there is considerable duplication in the administrative arrangements for providing sick-pay since approximately 80 per cent of full-time employees in Britain are covered by occupational schemes according to an official survey. The proportion of the insured labour force in Ireland which is covered by occupational schemes is not known precisely because a comprehensive survey of such schemes has not been carried out but the data which are available suggest, as will be recalled from Section 1, that about 75 per cent of employees are covered by occupational schemes. The possibility of making the employer responsible for sick-pay for a specified period in Ireland is, therefore, worth further investigation because of the potential which exists for reducing public expenditure on disability benefit. A comprehensive survey of existing occupational sick-pay schemes would, of course, be essential before detailed proposals could be made.

Possible Changes in the Benefit Structure, the 1980 Budget and the Incentive to Work

It has been shown in Section 4 that high replacement ratios induce workers to make more claims for sickness benefit and to prolong the time they take off work when they are ill. It might be thought that the changes which were

5. The Meade Committee (1978, p. 476) considered this question in connection with the UK tax system and concluded that "the only way in which national insurance benefits could easily be brought within the tax system would be to change the PAYE system to a non-cumulative one".

made in the tax and social welfare systems in the 1980 budget (see footnote 3 on p. 65) would have weakened this inducement since the Minister for Finance indicated in his Budget speech (*Budget 1980*, p. 22) that "the new tax structure will improve the incentive to work". It would require detailed information on the labour supply response of different groups of workers to changes in the tax and social welfare systems to enable one to predict what the aggregate effect of the changes in the 1980 Budget might be. Unfortunately, such information is not yet available for the Irish labour force. In its absence all that we can do is to examine the effect of the tax and social welfare changes on the replacement ratios of representative groups of workers earning different incomes and infer from these what may have happened to the incentive to work. In the case where pay-related benefits form part of the income maintenance package the recent tax and social welfare changes led to an increase in the replacement ratio in all cases where the tax table under which tax is deducted is the same before and after the Budget (compare Table 13 with Table A4). Similarly, in the case where workers only qualify for flat-rate benefits the replacement ratios after the Budget are higher than before in all cases where the tax table under which tax is deducted is the same before and after the Budget, as will be seen from Table A5.⁶ The tax and social welfare changes which were made in the 1980 Budget therefore reduced the incentive to work in 1980 for workers with the income and personal characteristics described in Tables 13, A4 and A5.⁷ It will, of course, be noted from Tables 13 and A4 that the number of weeks which would have to be worked in order to maximise the replacement ratio increased as a consequence of the 1980 Budget. In the absence of data on hours of work classified by income and family size in 1979 and 1980 we cannot say whether the number of working hours actually supplied to the labour market increased or decreased as a consequence of the 1980 Budget.

It is not the object of this paper to make specific recommendations about the level of disability benefit payments but there are two points about the present benefit structure which are worth making. The first is that when the pay-related supplement to flat-rate benefit was introduced it was intended to enable the sick and the unemployed to maintain a standard of living reasonably close to that which they enjoyed when working. The standard which was chosen was that half of the net pay of single workers at all pay levels should be replaced by disability and unemployment benefit. The existence of

6. The method by which the data in Tables 13, A4 and A5 is derived is described in Appendix 5. It was originally used by Walsh (1974) in his analysis of the relationship between unemployment benefit and earnings.

7. It is worth noting that the tax changes alone would have increased the incentive to work but the changes in social welfare payments more than offset the effects of the tax changes on the replacement ratios.

dependants' allowances in the flat-rate scheme ensured that the ratio would be higher than 50 per cent for married workers and that it would increase with family size. The single worker standard determined the lower limit of reckonable weekly earnings, £14, and the rate at which benefit would be related to earnings, 40 per cent. While the upper income limit has been increased over the years from £50 to its present level of £170 per week, the lower limit was only increased this year from £14 to £20. If the lower limit had been increased to maintain a constant relationship with basic flat-rate benefit it would now stand at £61 per week instead of £20. The failure to increase the lower limit of reckonable weekly earnings in line with increases in flat-rate benefit has meant that the replacement ratios for different categories of workers are all higher than they would be if the adjustment had been made. The second relates to the fact that income maintenance payments to the sick are at a maximum in the first six months of illness and decline thereafter until entitlement to pay-related benefit is exhausted. Research in Britain into attitudes to the loss experienced by the long-term sick by Martin and Morgan (1975, Ch. 9) shows that those who have experienced illness themselves feel strongly that payments to the sick should be increased as the duration of illness increases. Since the disincentive effects of sickness benefits are largely irrelevant as far as the long-term sick are concerned and assuming that sick people in Ireland have the same attitude to the benefit structure as sick people in Britain, the possibility of paying higher benefits to people who have been sick for six months or more should be considered. One way of achieving this might be to make invalidity pension payable after six months rather than a year and to finance the additional cost out of the revenue received from taxing short-term benefits. Alternatively, the pay-related benefit structure might be altered by reducing the proportion of reckonable weekly earnings payable during the first six months' illness and increasing the proportions payable thereafter. Our finding that there is a positive relationship between the real wage rate and certified incapacity indicates that there is scope for asking the insured population to bear more of the small losses suffered during short-term illness while improving their protection against the financially disastrous losses which are incurred during a long spell of illness.

Long-Term Unemployment and Certified Incapacity

It will be recalled from Section 4 that there is a positive relationship between long-term unemployment and the frequency and duration of incapacity and it was argued that the reasons for this were that people who are out of work for a long time are more prone to illness than people who do not lose their jobs and that some unemployment benefit claimants, mainly

women, may switch over to disability benefit towards the end of their period of eligibility for unemployment benefit because unemployment assistance requires a means test and the assistance payments are less than disability payments. The first reason provides an additional justification, if one were needed, for lowering the long-term unemployment rate and the second suggests that the regulations governing payment of unemployment assistance to single women without dependants should be the same as for single men. The regulations were amended in October 1978 to eliminate the discrimination against single women so there should be some weakening in the relationship in the future although the incentive to switch still remains because the unemployment assistance scheme is less attractive for all workers than the disability benefit scheme.⁸

Medical Certification, Medical Refereeing and the Control of Sickness Absence

Apart from the economic variables which were found to exercise a significant influence on certified incapacity in the last section, there is one other variable which influences the number and duration of claims for disability benefit although its effect was swamped in the regression analysis because of the strength of the real wage rate, the replacement ratio and long-term unemployment. This is the percentage of claimants who are called for a medical examination by the Department of Social Welfare's medical referees. It is clear from the relationship between this variable and certified incapacity that the medical referee scheme is effective in controlling abuse of disability benefits but there are a few points in relation to this scheme and to medical certification in general which suggest that there may be some scope for improvement.

It must be stressed that the discussion which follows is not based on a detailed knowledge of how these schemes operate since there appears to be no published research dealing with this question. It relies on discussions with some of those involved in operating the medical certification and medical referee procedures, reports in the Press and on the operation of similar schemes in Britain and Northern Ireland.

Medical Certification

There have been allegations recently that there are pressures from patients on doctors to issue medical certificates for non-existent illnesses and that a small number of doctors succumb to these pressures. Thus, the President of University College, Galway, Dr Colm Ó hEocha, has urged medical graduates

8. It is important to note that the Department of Social Welfare tries to prevent unjustified transfers from unemployment benefit to disability benefit by referring selected cases of this nature for examination by a medical referee.

“to resist pressures from patients for dubious certificates of illness, the consequence of which can be high levels of absenteeism by workers” (*Irish Independent*, 20 June 1980) and Dr Brendan Deasy, an occupational health consultant, has argued during a recent conference on absenteeism (FUE, 1980b, p. 7) that there is a *small* but definite number (of doctors) who issue medical certificates (indiscriminately) and who appear to have no care for the importance of the document to which they sign their names”. These allegations have been rejected by the Irish Medical Association and the Medical Union. The results of the medical examinations carried out by the Department of Social Welfare’s medical referees, however, suggest that there is some substance to the allegations which have been made and neither of the doctors’ unions have attempted to explain why such a high proportion of those who are called for examination by the medical referees either do not show up or are found capable of work.⁹ It is important that public confidence in medical certification should not be undermined and there would appear, on the face of it, to be a case for holding an inquiry into the way in which the medical certification scheme is working with a view to establishing the extent to which doctors issue medical certificates for non-existent illnesses and to making recommendations for dealing with the problem.

Medical Refereeing

It will be recalled from the discussion of the medical referee scheme in Section 1 that it normally takes about four weeks from the date of issue of the first medical certificate before an insured person whose claim for disability benefit is doubtful can be seen by one of the Department of Social Welfare’s medical referees. This time lag may leave the disability benefit scheme open to abuse by persons taking less than four weeks off work. The Committee on Abuse of Social Security Benefits in the United Kingdom (HMSO, 1973) found, for example, that abuse of sickness benefit was mainly associated with short-term claims and this is likely to be true of Ireland also since nearly three-quarters of all claims for sickness benefit last for six weeks or less. The only consistent data on the duration of disability benefit claims refer to the period 1975-79 and this is presented in Table 16.¹⁰

9. As this paper was being prepared for printing it was reported (*Evening Press*, 16 October 1981) that the Vice-President of the Medical Union, Dr Cormac McNamara, told the union’s annual conference that “there was ‘a good deal of abuse’ in the sick certificate area”.

10. Data on the duration of disability benefit claims for 1972/73 is given by FitzGerald (1977, Table 8.6). Unfortunately the 1972/73 table is not comparable with the duration tables for 1975-79 because:

1. The 1972/73 analysis is based on benefit years and includes concurrent data for males and females for only six months – December to May. The 1975-79 tables relate to claims for both men and women for the whole of the respective calendar years.
2. The 1972/73 analysis covers not alone claims which were closed (terminated) during the relevant benefit years but also claims in payment. The 1975-79 tables are based solely on claims which terminated during the calendar year.

Table 16: *Percentage distribution of disability benefit claims by duration, 1975-79*

<i>Duration</i>	<i>1975</i>	<i>1976</i>	<i>1977</i>	<i>1978</i>	<i>1979</i>
Less than 1 week	8.4	8.4	9.2	9.3	9.2
1 week and less than 2 weeks	30.0	29.3	30.1	31.0	29.4
2 weeks and less than 3 weeks	16.0	15.0	15.7	15.8	15.9
3 weeks and less than 4 weeks	8.9	8.7	8.5	8.4	8.8
4 weeks and less than 5 weeks	5.7	5.5	5.6	5.4	5.7
5 weeks and less than 6 weeks	4.1	4.3	4.0	3.8	4.1
6 weeks and less than 7 weeks	3.2	3.4	3.1	3.0	3.0
7 weeks and less than 8 weeks	2.6	2.8	2.5	2.4	2.4
8 weeks and less than 9 weeks	2.0	2.0	2.0	1.9	2.0
9 weeks and less than 10 weeks	1.7	1.9	1.8	1.6	1.7
10 weeks and less than 20 weeks	8.1	8.4	7.9	7.3	8.1
20 weeks and less than 30 weeks	3.0	3.0	2.9	2.8	3.0
30 weeks and less than 40 weeks	1.4	1.9	1.3	1.3	1.5
40 weeks and less than 50 weeks	0.9	1.0	0.9	0.8	0.9
50 weeks and over*	0.2	0.2	0.2	0.3	0.2
52 weeks**	3.8	3.3	4.3	4.9	4.2
<i>Total</i>	100.0	100.0	100.0	100.0	100.0
Number of closed claims	198,603	225,506	235,121	278,312	238,285

*Special chronic cases

**Long duration cases

Source: Data supplied by Department of Social Welfare

It will be seen that the percentage distribution of claims by weeks' duration was remarkably stable during each of the years shown and that approximately 60 per cent of all claims lasted for four weeks or less. Some guidance on how the time lag could be reduced might be obtained from consultations with the Department of Health and Social Services in Northern Ireland about the way in which their medical referee scheme operates. In the early 1970s in Northern Ireland approximately 5,000 new claims for sickness benefit were received each week, on average. Of these 16 per cent were referred to the medical referee within one week of receipt of the first medical certificate. Between 1967 (when this approach was adopted) and 1971 "almost 80 per cent of those called for immediate examination were either found fit for work or submitted a final certificate" according to the Report of the Committee on Abuse of Social Security Benefits (HMSO 1973, p. 268).

In addition to investigating ways in which the time needed to carry out second medical examinations might be reduced the Department of Social Welfare might also consider how repeated claims for disability benefit by the same person should be dealt with. While there is no published information

which would enable us to specify what kind of people are likely to make repeated claims for sickness benefit it appears from data which the Department of Finance has that married women must make frequent claims for disability benefit. The Department supplied FitzGerald (1978, p. 111) with "figures which could be used to defend the reduced rate of disability benefit payable to married women, showing that while one in eleven insured married men is drawing disability benefit at any stage, one in two married women at work is drawing disability benefit". The Department of Social Welfare has supplied us with data on the number of disability payments made to men and women around the beginning or end of the year in the period 1957-78. This information is given in Appendix 4. It will be seen that the rate of incapacity for women has grown by more, 44.6 per cent, than that for men, 36.1 per cent, between the beginning and end of this period. This increase may be due to the increased participation of married women in the labour force. In the United Kingdom after a specified number of sickness benefit claims have been paid to a particular person a note is made that all subsequent claims should be automatically referred to the medical referee. The claimant is not left in the automatic referral category indefinitely, of course, as a satisfactory reduction in the number of claims over a stated period will lead to restoration of normal status. It may be possible for the Department of Social Welfare to adopt similar procedures for dealing with persons who make repeated claims when its computer facilities develop within the next few years to a stage where such persons can be identified. The difficulty of automatic referral and of other control procedures is that they may cause genuine claimants, who are in the great majority, to feel that they are being harassed because of the excesses of a few. Every effort should be made to avoid this by establishing objective criteria for dealing with each claim and explaining to the insured population what these are and why they are necessary.

Suggestions for Additional Disability Data

The difficulty of pursuing certain lines of inquiry due to lack of published data on the disability benefit scheme has been mentioned at various points in this paper. Detailed proposals about the kinds of statistics which should be included in an annual report on sickness were made a few years ago by Geary and Dempsey (1979) and we strongly support these proposals with the qualification that a distinction by conjugal condition is needed in any series which are published and that quarterly data on the duration of continuous registration for disability benefit should also be produced.¹¹ In addition to

11. The quarterly duration data would be similar to that which used to be compiled in connection with the Live Register.

the suggestions made by Geary and Dempsey, there is an urgent need for comprehensive information on public expenditure on the disability benefit schemes. *The Estimates for Public Services for the year ending 31 December 1981* indicate that around £120 million is earmarked for flat-rate and pay-related disability benefit in 1981. It is important to know on whom this money is spent and the basic tables pertaining to illness should, therefore, be supplemented by expenditure data for each category of claimant. Data should also be given on pay-related benefit payments classified by claimant's income and family size.

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Appendix 1

DERIVATION OF ADJUSTED SERIES ON CERTIFIED INCAPACITY

The series shown in Table 3 relating to the rate, frequency, and duration of incapacity are derived from data on the numbers in receipt of disability benefit at the end of each year, the number who received disability benefit during the year, and the number of weeks' illness in respect of which benefit was paid during the year. The introduction of invalidity pensions in 1970 for those who are permanently incapable of work affected all of the incapacity series from 1970 onwards because an insured person who qualifies for the pension would normally have been in receipt of disability benefit for at least twelve months. The transfer of 4,029 invalidity pensioners to retirement pension in 1973 affected the invalidity pension series and hence the adjustment which has to be made to all three incapacity series from 1973 onwards. The series relating to the numbers in receipt of disability benefit on 31 December each year and the number who received disability benefit in the year ended 31 March each year have been adjusted by adding back the number of invalidity pensions in each year since 1970 including the 4,029 persons transferred to retirement pensions in 1973. The series relating to the number of weeks' illness in respect of which benefit was paid during the year has been adjusted by multiplying the number of invalidity pensions paid since 1970 (including the 4,029 persons transferred to retirement pension in 1973) by the number of weeks for which each invalidity pensioner would normally have received disability benefit during the year, i.e., 52 weeks.

In 1975 the figures for the number who received disability benefit and for the number of weeks for which benefit was paid during the year were given for the calendar year rather than for the year ended in March as had previously been the case. The figures for 1975 and subsequent years for these two series have been adjusted by linear interpolation to ensure that they refer to the year ending in March.

The comparability of the figures may also be affected by the reduction of the pensionable age from 70 to 69 in 1973 and eventually to 66 in 1977. However, no attempt has been made to adjust the figures to take account of this.

The specific adjustments which have been made to the published data on incapacity in order to derive the series given in Table 3 are shown in Table A1.

Table A1: Recipients of disability benefit (DB) at end of year, number of payments of disability benefit in each year, number of weeks for which disability benefit was paid and number effectively insured for all benefits

Year	Recipients of DB on 31 Dec.	No. of invalidity pensions on:		Recipients of DB on 31 Dec. (adjusted)	No. of DB payments in year ended 31 Mar.	No. of DB payments in year ended 31 Mar. (adjusted)	No. of weeks illness in respect of which DB was paid in year ended 31 Mar.	No. of weeks illness in respect of which DB was paid in year ended 31 Mar. (adjusted)	No. effectively insured for all benefits on 31 March
1954	41,892	-	-	41,892	116,250	116,250	2,070,000	2,070,000	638,733
1955	41,101	-	-	41,101	116,610	116,610	2,184,220	2,184,220	639,184
1956	43,065	-	-	43,065	113,750	113,750	2,182,000	2,182,000	647,177
1957	44,989	-	-	44,989	112,220	112,220	2,217,285	2,217,285	638,349
1958	43,233	-	-	43,233	122,820	122,820	2,346,600	2,346,600	623,238
1959	42,604	-	-	42,604	115,080	115,080	2,310,500	2,310,500	619,008
1960	45,307	-	-	45,307	111,260	111,260	2,032,000	2,032,000	624,784
1961	46,019	-	-	46,019	128,900	128,900	2,115,220	2,115,220	629,316
1962	46,091	-	-	46,091	126,700	126,700	2,173,600	2,173,600	633,699
1963	50,104	-	-	50,104	123,600	123,600	2,380,000	2,380,000	640,689
1964	51,058	-	-	51,058	123,200	123,200	2,470,000	2,470,000	655,977
1965	52,595	-	-	52,595	132,400	132,400	2,523,500	2,523,500	671,233
1966	54,691	-	-	54,691	150,480	150,480	2,907,000	2,907,000	688,410
1967	56,789	-	-	56,789	144,320	144,320	2,820,197	2,820,197	710,699
1968	60,174	-	-	60,174	147,400	147,400	2,788,796	2,788,796	714,536
1969	64,783	-	-	64,783	166,848	166,848	2,997,091	2,997,091	727,756
1970	54,372	-	11,462*	65,834	189,992	189,992	3,114,325	3,114,325	729,731
1971	55,345	11,619	12,091*	67,436	177,240	188,859	3,089,492	3,693,680	732,943
1972	58,252	12,249	12,249*	70,501	177,324	189,573	2,733,704	3,370,652	739,590
1973	60,018	8,220	8,266*	72,313	191,940	204,189	2,840,997	3,477,945	742,879
1974	65,732	8,281	9,181	78,942	199,117	211,427	2,925,349	3,565,469	716,787
1975	67,818	9,383*	9,990	81,837	234,587*	247,999	3,197,766*	3,893,190	832,042
1976	70,810	10,049*	10,225	85,064	253,042*	267,120	3,470,184*	4,202,240	825,973
1977	70,835	10,316*	10,591	85,455	307,491*	321,836	3,781,456*	4,527,396	821,645
1978	67,831	11,471*	14,113	85,973	317,605*	333,105	3,811,171*	4,617,171	820,136
1979	71,000	-	n.a.	n.a.	327,898*	n.a.	n.a.	n.a.	n.a.

*Derived by linear interpolation.

Sources: Reports of the Department of Social Welfare 1954-58 to 1976-78; Statistical Abstract 1956 to 1977; Parliamentary Debates, Dáil Éireann, 11 March 1980, col. 1757.

Note: The Reports of the Department of Social Welfare refer to the series entitled "number of payments of DB in year ended 31 March" as "number who received disability benefit in year ended 31 March". The Department's description, however, is not quite accurate as someone who had two or more spells of certified incapacity would be counted two or more times for the purposes of this series.

Appendix 2

REFUND OF TAX WHERE EMPLOYEE IS ABSENT DUE TO ILLNESS

The Revenue Commissioners (1980, p. 42) in their discussion of cases in which employees may be entitled to refunds of tax provide the following example for an employee who is absent due to illness:

“An employee’s pay is IR £70 per week. Tax-free allowances are IR £50 per week applied cumulatively. The rate of tax deduction is 25 per cent. The employee is absent due to illness in week 13, receives no pay for that week and applies for and makes arrangements to collect the refund.

Position at	Cumulative pay IR £	Cumulative tax-free allowances IR £	Cumulative taxable pay IR £	Cumulative tax IR £
Week 12	840	600	240	60.00
Week 13	840	650	190	<u>47.50</u>
				Refund 12.50”

Appendix 3

DATA SERIES FOR REGRESSION ANALYSIS OTHER THAN THOSE PRESENTED IN TEXT

Table A2: Data on mortality, weather conditions, alcohol consumption, real wages and unemployment, 1953-78

Year	Death rate per 1,000 aged 15-64		Weather conditions		Alcohol consumption per person aged 15 and over	Weighted Real Wage in TGI	Per cent of insured LF unemployed	Long-term unemployed as per cent of total
	Heart Disease	Bronchitis	Temp. in first Qtr. (C°)	Rainfall in first Qtr. (mm)				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1953	0.543	0.068	n.a.	n.a.	4.40	5.90	—	—
1954	0.610	0.064	5.7	84.2	4.49	6.16	8.1	16.8
1955	0.594	0.075	4.0	73.1	4.62	6.25	6.8	16.8
1956	0.559	0.060	5.5	72.5	4.68	6.30	7.7	14.5
1957	0.573	0.080	7.4	106.9	4.54	6.27	9.2	19.5
1958	0.625	0.086	5.8	94.9	4.49	6.58	8.6	20.0
1959	0.601	0.092	6.3	61.8	4.67	6.91	8.0	20.0
1960	0.594	0.090	5.8	81.0	4.80	7.20	6.7	19.3
1961	0.640	0.119	7.5	82.9	5.30	7.49	5.7	10.3
1962	0.644	0.119	5.4	76.8	5.24	7.81	5.7	17.6
1963	0.628	0.128	3.7	66.5	5.44	7.87	6.1	17.7
1964	0.661	0.141	6.4	62.6	5.71	8.01	5.7	15.3
1965	0.678	0.125	5.2	72.7	5.83	8.35	5.6	18.5
1966	0.666	0.149	6.8	93.0	5.80	8.69	6.1	19.6
1967	0.623	0.122	6.4	75.7	5.91	8.95	6.7	19.8
1968	0.683	0.142	5.7	75.2	6.27	9.57	6.7	20.8
1969	0.719	0.141	4.7	82.8	6.80	10.10	6.4	29.1
1970	0.687	0.142	5.3	85.8	7.13	10.73	7.2	31.8
1971	0.670	0.106	6.5	65.3	7.57	11.29	7.2	26.5
1972	0.728	0.119	5.8	92.3	8.09	11.91	8.1	29.0
1973	0.716	0.104	6.7	63.5	8.80	12.06	7.2	37.8
1974	0.741	0.084	6.7	106.3	9.44	12.38	7.9	30.0
1975	0.692	0.061	6.7	76.7	9.15	12.86	12.2	26.1
1976	0.667	0.075	6.8	77.1	8.85	13.28	12.3	39.4
1977	0.680	0.072	5.7	107.1	9.09	14.34	11.8	45.8
1978	n.a.	n.a.	5.6	98.5	9.64	n.a.	10.7	48.0

Sources: Columns (2) and (3) were derived from the *Reports on Vital Statistics 1953-76* and the *Quarterly Report on Births Deaths and Marriages, December 1977*. Columns (4) and (5) were derived from meteorology data in the *Statistical Abstracts, 1955-77* and from information supplied by the Climatological Division of the Meteorological Service. Column (6) was taken from Walsh (1980, Table 1 and it refers to litres of 100% alcohol). Column (7) was derived from information in the *Irish Statistical Bulletins, 1954-80* on average earnings per week for males and females in Transportable Goods Industries and on the Consumer Price Index. Columns (8) and (9) were derived from data in *The Trend of Employment and Unemployment 1954-78*.

Note: The real wage variable is a weighted average of adult male and female earnings in Transportable Goods Industries. The weights used are .69 for males and .31 for females. These weights are derived from information in the *Census of Population 1971* on the structure of the labour force.

Appendix 4

THE RATE OF INCAPACITY, MALES AND FEMALES, 1957-78

Table A3: Number of disability benefit claimants and rate of incapacity by sex, 1957-78

Date	No. in receipt of disability benefit	Male		Total no. in receipt of disability benefit	Female		Rate of incapacity		Total
		No. of invalidity pensions at 31 Dec.	Total no. in receipt of disability benefit		No. of invalidity pensions at 31 Dec.	Total no. in receipt of disability benefit	Male	Female	
7.1.57	29,197	—	29,197	15,906	—	15,906	6.3	9.0	7.1
7.1.58	30,846	—	30,846	15,905	—	15,905	6.9	8.9	7.5
6.1.59	30,044	—	30,044	14,916	—	14,916	6.8	8.4	7.3
5.1.60	29,908	—	29,908	14,424	—	14,424	6.7	7.9	7.1
10.1.61	32,166	—	32,166	15,040	—	15,040	7.3	8.0	7.5
3.1.62	32,331	—	32,331	15,344	—	15,344	7.4	7.9	7.5
7.1.63	32,510	—	32,510	14,962	—	14,962	7.3	7.6	7.4
7.1.64	35,184	—	35,184	16,209	—	16,209	7.9	7.7	7.8
5.1.65	36,096	—	36,096	15,976	—	15,976	7.9	7.4	7.8
5.7.66	37,850	—	37,850	19,738	—	19,738	8.1	9.0	8.4
3.1.67	38,501	—	38,501	17,750	—	17,750	8.2	7.3	7.9
1.1.68	38,974	—	38,974	18,935	—	18,935	8.3	7.7	8.1
7.1.69	40,909	—	40,909	20,407	—	20,407	8.7	7.9	8.4
6.1.70	43,400	—	43,400	22,262	—	22,262	9.2	8.6	9.0
12.1.71	33,375	10,480 ^{e2}	43,855	21,173	1,139 ^{e2}	22,312	9.3	8.5	9.0
4.1.72	32,776	11,049 ^{e2}	43,825	23,611	1,200 ^{e2}	24,811	9.2	9.4	9.3
2.1.73	34,418	11,049 ^{e2}	45,467	25,430	1,200 ^{e2}	26,630	9.5	10.1	9.7
2.1.74	33,583	11,104 ^{e2}	44,687	27,743	1,206 ^{e2}	28,949	9.1	10.8	9.7
31.12.75 ^{e1}	37,054	12,645 ^{e2}	49,699	30,763	1,374 ^{e2}	32,137	8.9	12.2	9.9
31.12.76	36,951	12,857 ^{e2}	49,808	33,859	1,397 ^{e2}	35,256	9.0	13.2	10.4
31.12.77	38,241	13,187 ^{e2}	51,428	32,594	1,433 ^{e2}	34,027	9.3	12.6	10.4
31.12.78	37,543	16,364 ^{e2}	53,907	30,288	1,778 ^{e2}	32,066			

Sources: Data supplied by Department of Social Welfare; *Reports of Department of Social Welfare 1967-71 to 1976-78*

^{e1}Total for 1975 was distributed by linear interpolation of the percentage share of males and females for 1974 and 1976. The percentage used for males was .5347

^{e2}Figures for 1971 indicate that 90.2 per cent of the decline of 11,114 between 1970 and 1971 were male. This percentage was, therefore, used to distribute the total number of invalidity pensioners into males and females. From 1972, 4,029 invalidity pensioners who were transferred to retirement pensions are included in the figures for recipients of invalidity pensions.

Appendix 5

DERIVATION OF TABLES 13, A4, AND A5

The procedures used to work out the average net income of pay-related beneficiaries in each of the household categories included in Tables 13 and A4 are described below. The procedures are similar in all respects for the flat-rate beneficiaries shown in Table A5 except that the number of weeks absent from work cannot be more than two for each spell of absence.

(1) The allowance to which each worker is entitled by virtue of family circumstances were calculated. The value of the allowances was deducted from gross annual earnings to get taxable earnings. The level of taxable earnings determines which tax table, A, B, or C, will be used by the employer to deduct tax throughout the year. The object of the tax tables is to ensure that tax is deducted at a uniform weekly or monthly rate from the employee. Thus, a PAYE taxpayer who is expected to have taxable earnings in excess of the Table A threshold (i.e., £1,500 in 1979/80) but less than the Table C threshold (£4,100 in 1979/80) would pay tax under Table B at a basic rate of 35 pence in the £. Since the first band of taxable earnings for a Table B taxpayer (£1,100 in 1979/80) should be taxed at a lower rate than the basic Table B rate the tax-free allowances are increased by an amount which compensates for the higher rate of tax on the first band of taxable earnings (the Table B allowance in 1979/80 was £315).

(2) Having discovered which tax table will be used to deduct tax and adjusted the personal allowances to reflect this, the number of weeks the taxpayer has to work in the year before earning an amount equal in value to his or her tax-free allowances (and so incurring a tax liability) is worked out by dividing the tax-free allowances by the taxpayer's weekly gross earnings. Subtracting this figure from the number of weeks in the tax year gives the maximum number of weeks for which a taxpayer would qualify for a tax refund if he or she absented themselves from work. It should be noted that if a taxpayer does not work during this part of the year all the tax paid up to the time of absence from work will be refunded during the remainder of the year. Where tax is deducted under Table A the tax refund per week is equal to the value of the annual tax free allowance multiplied by the basic rate of tax divided by 52. Where tax is deducted under Table B

the average tax refund per week is equal to the total tax paid up to the week in which liability to tax is incurred divided by the number of weeks remaining in the tax year.

(3) Given the maximum number of weeks for which the taxpayer would qualify for a tax rebate if absent from work, the total value of the flat-rate and pay-related benefit while absent from work is calculated, divided by the number of weeks absent from work, and added to the value of the weekly tax rebate to get average weekly income while absent from work. This figure is then compared with net income per week if employed for the whole of the tax year to get the rate at which social welfare benefits and tax rebates replace net income from employment.

(4) The taxpayer's total income from social welfare benefits is added to his or her total earnings and the total amount of tax which would be paid if social welfare benefits were taxed is worked out. The net income accruing to the taxpayer while absent from work is then calculated and divided by the number of weeks absent from work to get net weekly income when absent from work when social welfare benefits are treated as part of taxable income .

Table A4: Effect of tax and social welfare changes in 1980 Budget on replacement ratios when pay-related benefit is received

Source of income and labour force status	Single person	Married man, no children	Married man, 4 children	Single person	Married man, no children	Married man, 4 children	Single person	Married man, no children	Married man, 4 children
	Gross earnings = £57,69 per week (£3,000 p.a.)			Gross earnings = £76,92 per week (£4,000 p.a.)			Gross earnings = £96,15 per week (£5,000 p.a.)		
(a) Number of weeks employed in year before incurring tax liability (=x)	26	TE	TE	20	34	45	16	27	35
(b) Average tax refund per week if incapacitated for remaining (52-x) weeks (£)	8.07*			9.25*	12.64	16.39	9.57*	13.07*	16.39
(c) Average net income per week if incapacitated for (52-x) weeks (£)	45.11			53.00	68.87	86.69	59.96	77.74*	100.51
(d) Net income per week if employed for 52 weeks of year (£)	47.03			58.66	66.88	76.51	70.30	79.72	90.07
(e) Average net income per week if incapacitated during last (52-x) weeks of year as percentage of net income if employed = (c/d) x 100	96			90	103	113	85	98	112
(f) Loss (-) or gain (+) in net income per week as a result of incapacity in last (52-x) weeks of year = (c) - (d)	-1.92			-5.66	+1.99	+10.18	-10.34	-1.98	+10.44
(g) Number of weeks during which gain or loss is made	26			32	18	7	36	25	17

TE: Example not calculated because income qualified for low income tax exemption

* Tax deducted under Table B

Note: In the case of married taxpayers it is assumed that the taxpayer's wife is not working. Where the married taxpayer has children his net income includes the weekly value of children's allowance payments by the State. The special deduction of £175 in 1979/80 has not been included in the calculations for that year as taxpayers did not know that it would be allowed until late in 1979. The regulations regarding commencement of payment of flat-rate and pay-related benefit have been taken into account in deriving line (c).

Table A5: Effect of tax and social welfare changes in 1980 Budget on replacement ratios when flat-rate benefit is received

Source of income and labour force status	Single person	Married man, no children	Married man, 4 children	Single person	Married man, no children	Married man, 4 children	Single person	Married man, no children	Married man, 4 children
	Gross earnings = £57.69 per week (£3,000 p.a.)			Gross earnings = £76.92 per week (£4,000 p.a.)			Gross earnings = £96.15 per week (£5,000 p.a.)		
	<i>Pre-Budget</i>								
(a) Number of weeks employed in year	50	50	TE	50	50	50	50	50	50
(b) Tax refund per week if unemployed for two weeks (£)	9.63*	10.72		9.63*	17.13*	14.91	9.63*	17.13*	23.00*
(c) Net income per week if incapacitated for two weeks (£)	22.42	31.80		22.42	38.20	49.56	22.42	38.20	57.65
(d) Net income per week if employed for 52 weeks of year (£)	44.58	51.45		56.24	63.75	73.84	67.89	75.40	85.88
(e) Net income per week if incapacitated during last two weeks as percentage of net income if employed = (c/d) x 100	50	62		40	60	67	33	51	67
(f) Loss (-) or Gain (+) in net income per week as a result of unemployment in last two weeks of year = (c) - (d)	-22.16	-19.65		-29.56	-25.55	-24.28	-45.47	-37.20	-28.23
	<i>Post-Budget</i>								
(a) Number of weeks employed in year	50	TE	TE	50	50	50	50	50	50
(b) Tax refund per week if incapacitated for remaining two weeks (£)	12.12*			12.12*	12.64	16.39	12.12*	21.54*	16.39
(c) Net income per week if unemployed for two weeks (£)	27.46			27.46	37.92	57.94	27.46	46.82	57.94
(d) Net income per week if employed for 52 weeks of year (£)	46.97			58.58	66.80	76.43	70.20	79.62	89.97
(e) Net income per week if unemployed during last two weeks of year as percentage of net income if employed = (c/d) x 100	59			47	57	76	39	59	64
(f) Loss (-) or Gain (+) in net income per week as a result of unemployment in last two weeks of year = (c) - (d)	-19.51			-31.12	-28.88	-18.49	-42.74	-32.80	-32.03

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TE: Example not included because tax free allowances exceeded annual income in 1979/80 or income qualified for low income tax exemption in 1980/81

* Tax deducted under Table B

Note: In the case of married taxpayers it is assumed that the taxpayer's wife is not working. Where the married taxpayer has children his net income includes the weekly value of children's allowance payments by the State. The special deduction of £175 in 1979/80 has not been included in the calculations for that year as taxpayers did not know that it would be allowed until late in 1979. The regulations regarding commencement of payment of flat-rate and pay-related benefit have been taken into account in deriving line (c).

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