

Women's Participation in the Irish Labour Market

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NATIONAL ECONOMIC AND SOCIAL COUNCIL

Women's Participation in the Irish Labour Market

by

Tim Callan and Brian Farrell

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Preface

INTRODUCTION

1. This report has been prepared as part of the Council's programme of research on the Irish labour market. It is primarily an analytical study. It is not appropriate, in this context, to undertake an appraisal of all of the relevant policy issues affecting female labour force participation. This preface outlines the background to the study, summarises the consultants' main findings, and indicates some issues to be considered in developing policy conclusions.

BACKGROUND TO THE STUDY

2. In 1985, the Council published a report, *Manpower Policy in Ireland*,¹ the overall objective of which was to undertake a review of manpower policy. The Council suggested in that report that the concept of manpower policy should give way to the wider concept of a labour market policy. However, any attempt to be specific about labour market policies was constrained by the dearth of research material about the Irish labour market. The Council resolved to undertake a programme of research work on the Irish labour market and to provide an analytical foundation for policies affecting the labour market, employment and unemployment.
3. The first study in the Council's workprogramme was a review of the international literature which was published as NESC Report No. 86, *The Nature and Functioning of Labour Markets*.² This review identified a number of key areas for further research, including migration and labour supply. The Council has since undertaken a comprehensive review of migration, published as *The Economic and Social Implications of Emigration*.³
4. In relation to labour supply, the Council's review of the research pointed to the increased labour force participation of married women as a key issue for research:

“The fact that the labour force participation of married women in Ireland has been increasing, but that it is still appreciably lower than in many OECD countries, was noted. In Ireland, unlike many other countries, detailed study of the labour supply decisions of married women have not been undertaken since the early 1970s. The implications for the Irish labour force of the growth of the participation rate of married women to European levels are significant. If it occurs, not only will the size of the labour force be affected but also, if experience elsewhere is a guide, so will wage rates

1 NESC, Report No. 82, *Manpower Policy in Ireland*, Dublin, 1986.

2 NESC Report No. 86, *The Nature and Functioning of Labour Markets: A Survey of International and Irish Literature and a Statement of Research Priorities for Ireland*, Dublin 1988.

3 NESC Report No. 90, *The Economic and Social Implications of Emigration*, Dublin, 1991.

and the type of employment relationships in the economy. The increase in part-time employment in the UK was mentioned...in this connection. The more general social implications of this change are clearly significant. Attention was also drawn...to the implications for the incentive effects of tax reform of differences in the labour supply responses of men and women. In view of these points, research into the labour force participation and hours of work of women, especially married women, in Ireland is a priority..." (NESC, 1988).

5. The Council commissioned consultants, Dr. Tim Callan and Brian Farrell of the Economic and Social Research Institute, to undertake an analysis of female labour force participation in Ireland. The consultants were requested to examine the following issues:
 - (a) the factors giving rise to past trends in female labour force participation;
 - (b) the factors currently affecting the rate of labour force participation and hours worked of married women
 - (c) the likely future evolution of female labour force participation in Ireland given previous trends and current international experience;
 - (d) the impact of labour market, income tax and social welfare policies on married women's labour force participation.
6. A summary of the consultants' findings is given below. This is followed by a brief resume of policy proposals in the consultants' report and, finally, some issues to be considered in developing policy conclusions are discussed.

SUMMARY AND KEY FINDINGS

7. In this section, a brief summary is given of the consultants' findings. The consultants found that:
 - (a) the labour force participation rate of married women has risen from 5.7% in 1961 to 24% in 1990;
 - (b) participation rates in Ireland, although increasing, are still significantly lower than in most developed countries;
 - (c) increased participation by married women has been balanced by a decline among women in younger (under 19) and older (over 55) age groups;
 - (d) women accounted for 31% of the labour force in 1987; married women accounted for 40% of the female labour force in 1987 compared with 14% in 1971;

- (e) participation levels by married women decline with age and this is associated with withdrawal from the labour force following the birth of children;
 - (f) most employed married women are engaged in full-time employment; however, most part-time workers are married women;
 - (g) there is high, persistent occupational segregation between men and women.
8. The consultants' analysis of the factors associated with increased female labour force participation suggests that:
 - (i) at least half the growth in married women's participation rates was due to higher real wages;
 - (ii) labour force participation is strongly associated with levels of education, reflecting the higher wage rates which can be earned with higher levels of educational attainment;
 - (iii) married women's participation is highly responsive to changes in potential earnings, especially after tax;
 - (iv) mothers of young children are significantly less likely to be in the labour force;
 - (v) the pattern of labour force participation by married women suggests that there are substantial fixed costs associated with child care.
 9. According to the consultants, the participation rate for married women is likely to rise from 24% to 35% by the end of the decade because of (a) rising real wages; (b) higher levels of education attainment; and (c) a continuing decline in fertility.
 10. The consultants identify three policy areas of particular importance in relation to married women's labour force participation:
 - (i) with regard to *income taxation*, they recommend more independent tax treatment⁴ of married couples resulting in lower marginal tax rates for married women. The increased revenue (from single earner households) would be used either to reduce tax rates and/or widen bands, or to restructure and significantly increase the level of Child Benefit;
 - (ii) with regard to *social welfare*, the consultants recommend that the income

⁴ This could take the form, for example, of abolition or reduction of the double personal allowance for married couples or the double tax bands, or both.

limit governing the payment of Unemployment Assistance dependant allowances be changed to remove disincentives to work.

- (iii) with regard to *child care policy* for working parents, the consultants argue that there is an analytical case for State intervention. They favour financial support for child care services through the provision of subsidies to parents or suppliers, rather than tax allowances for working parents.

FEMALE LABOUR FORCE PARTICIPATION – POLICY ISSUES

11. The consultants' identification of rising real wages as the key influence on higher participation rates by married women highlights the range of policy areas which impinge on women's earnings potential. Occupational segregation and other barriers to full equality in the labour market tend to reduce women's earnings potential. A wide range of public policy areas – including education and training, employment protection and anti-discrimination measures – are therefore relevant, in addition to those policy areas discussed by the consultants which directly affect female labour force participation.
12. While seeking to remove obstacles to married women's labour force participation may seem inappropriate in the context of Ireland's persistently high unemployment levels, the Council makes the following points:
- labour is a productive economic resource and employment is, therefore, a measure of the success of the economy rather than a fixed asset to be redistributed as the labour force grows;
 - there is no international evidence to link increased participation with rising unemployment;
 - policy changes, such as an overall reduction in the burden of income taxation, which increase the supply of labour by married women will have an effect on the demand for labour, by narrowing the wedge between gross pay costs to the employer and net pay to the employee;
 - the Council believes that effective access to employment and economic participation should be equal for both sexes and that public policy should be neutral as between the economic incentives faced by different categories of people (for example, as between men and women);
 - higher participation rates by married women reflect long-run social, demographic and economic trends. The analysis in this report points to the need for a strategic policy *response* to those developments. Such a

policy strategy will not of itself result in a sudden or sharp increase in the supply of labour.

13. With regard to taxation, the Council does not offer a definitive view on the complex issues involved in the consultants' proposals. An assessment of the merits of more independent taxation would require careful consideration of the following points, in the Council's view:
- the consultants' proposal could have unknown and possibly undesirable distributional effects, with much of the benefit accruing to households at the upper end of the income distribution at the expense of one earner married couples;
 - the proposals could result in a shift of the tax burden away from the self-employed to the employee sector and produce differing tax liabilities among married couples with similar incomes depending on how incomes were divided between spouses;
 - it is unclear that the revenue gained from the increased taxation of one earner married couples would be sufficient to fund the increased expenditure required to alter radically child income support in the way proposed by the consultants;
 - the present tax arrangements, in particular the full personal allowance in respect of spouses at home, were stated to be designed to reflect the importance of the economic role of married women in the home;⁵
 - the trend towards increased labour force participation will continue even without the tax changes proposed by the consultants;
 - the Council's *overall strategy* for tax reform based on a widening of the tax base and reduction of the income tax burden would have the effect of enhancing female labour force participation while pursuing overall economic policy objectives.
 - The Council believes that insofar as the present tax arrangements may deter married women from re-entering the labour force, because of the perceived distribution of the tax burden between spouses, this effect might be mitigated if the option of separate assessment, already available, were to be brought more to the attention of married couples, since such assessment would narrow the disparity in the marginal tax rates faced by first and second earners.

⁵ The present arrangements derive from the implementation by the then Government of the 'Murphy Judgement' (Frances and Mary Murphy v. Attorney General, Supreme Court Judgement, 25 January 1980). In implementing the judgement, the Government chose to extend double tax allowances and bands to all married couples including couples where the wife worked in the home. The rationale for this was stated to be that failure to extend this tax treatment to one earner couples would discriminate against those families in which the wife chose to care for the family at home on a full time basis (Budget Speech, 1980).

14. The consultants identify aspects of the social welfare system as relevant to the issue of female labour force participation – notably the structure of child income support and unemployment assistance payments. In this regard, the Council:

- reiterates its support for the gradual restructuring and improvement of Child Income support along the lines advocated in its recent Report, *A Strategy for the Nineties*⁶;
- recognises that the means test for payment of unemployment assistance may need to be changed to remove employment disincentives facing the spouses of those who are unemployed;
- recommends that consultation on the report of the *Review Group on the Treatment of Households in the Social Welfare Code*⁷ provided for in the Programme for Economic and Social Progress should take place. This consultation should have regard to: the desirability of convergence between units of benefit for social welfare and units of taxation; the preference for a unit of payment for social welfare benefits which corresponds with generally accepted norms of mutual financial obligations; the need to ensure equity in the social welfare treatment of households in similar financial circumstances; the importance of maintaining the incentive to take up employment; the constraints on public expenditure which require that any additional costs are phased in such a way that there is no real increase in aggregate public expenditure. Additionally, the impact of proposed changes in the unit of social welfare payments on the live register measure of unemployment and on replacement ratios should be assessed

(iv) recommends a strategic perspective on equality issues in the social welfare system and a plan for their implementation on a systematic and long-term basis.

15. In relation to child care, the Council considers that there are strong arguments in favour of a national policy on child care for working parents, and suggests that:

- there is a need for further research on the detailed options for a national child care policy and in particular on the needs and wishes of working parents and on the costs of these options;
- the development of an overall national policy on child care for working

⁶ NESR, Report No. 89, *A Strategy for the Nineties: Economic Stability and Structural Change*; Dublin, 1990.

⁷ Report of the *Review Group on the Treatment of Households in the Social Welfare Code*, Department of Social Welfare, 1991.

parents, reflecting such research findings, could be the single most important policy to facilitate labour force participation by married women; such a policy could contain a mix of elements including parental leave, workplace flexibility and child income support, as well as direct provision of child care services.

16. OTHER POLICY ISSUES:

Female labour force participation raises a wide range of issues about the structure and institutions of the labour market. The improvement of the status of women in the labour force and in the economy requires, in the Council's view, a range of policies. For example, equalisation of opportunity in the educational system must be pursued, training policies must facilitate women's access to traditionally male training and occupations, and employment policies must support access by women to the higher paid sectors of the occupational structure. In addition, the scope and operation of maternity leave, maternity benefit and ancillary provisions must be reviewed. More generally, the Government's commitment to review the legislative framework governing employment equality is welcomed.

17. This report offers an analytical contribution to certain aspects of policies affecting female labour force participation. It is not appropriate to examine the complex social and institutional questions noted above within this limited context. They fall more appropriately within a wider policy discussion, such as that which may follow when the report of the Commission on the Status of Women is published and debated.

⁸ The Council notes that these issues are relevant to the work of the Commission on the Status of Women which was established by the Government in 1990 with broad terms of reference.

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Responsibility for remaining errors or obscurities rests with the authors.

INTRODUCTION

1. CONTEXT AND OBJECTIVES

One of the areas singled out for special attention in the NESC's recent overview of the Irish labour market (*Geary, 1988*) was the rapid increase in the participation of women in the Irish labour force. It was noted in particular that married women's labour force participation doubled between 1971 and 1979, but still remained low by international standards. The lack of a detailed study of the labour supply decisions of married women in Ireland since the early 1970s was contrasted with the rapid development of the international literature on this topic. Given the important implications of continued growth in Irish women's participation towards European levels, "research into the labour force participation and hours of work of women, particularly married women" was designated a priority area (*Geary, 1988, p.50*). The present study is designed to meet the need for research in this area. Its central objectives are:

- (i) to identify the factors underlying past trends in the female participation in the Irish labour market;
- (ii) to identify the factors currently influencing participation and hours of work of married women;
- (iii) to assess whether or to what extent Ireland is likely to emulate the growth in female labour force participation seen in other countries;
- (iv) to draw out the implications of the analysis for labour market, income tax and social welfare policies.

2. OUTLINE OF THE STUDY

The study begins by outlining the international experience as regards female labour force participation, while noting the Irish position within this international context; the main themes from the extensive international literature analysing changes in female labour force participation are also noted in Chapter 2. Past trends in female participation in the Irish labour market and the nature of the current level of participation are studied in greater depth in Chapter 3. Chapter 4 then estimates the relative influence of various factors determining Irish women's labour force participation decisions. It draws on the detailed income and labour market data from the ESRI Survey of Income Distribution, Poverty and Usage of State Services, which allow the first application to an Irish dataset of the estimation methods developed in the international literature on female labour supply. Chapter 5 extends

the analysis to include the influence of income taxes, social welfare schemes and to deal with decisions regarding hours of work as well as participation. Chapter 6 then examines the extent to which the cross-section analysis can explain past trends and provide a guide to the likely evolution of female participation in Ireland in future. The final chapter of this report concentrates on the policy issues arising from the analysis. Attention is given not only to policies generally thought of as specific to the labour market, but also to income tax and social welfare policies. It concludes by drawing together the main themes of the report.

INTERNATIONAL EVIDENCE ON WOMEN'S LABOUR FORCE PARTICIPATION: TRENDS AND CROSS-SECTION ANALYSES

1. INTRODUCTION

Increasing female participation in the paid labour force has been a widespread international trend. The experience of other countries may provide useful insights into the factors influencing this phenomenon, the likely evolution of female participation in the Irish labour force, and some of the associated changes in the nature of the labour market. In this chapter we review the international evidence on the changing extent and nature of female participation in order to draw out the implications for Ireland. We begin our examination of the time series evidence by briefly summarising the observed trends in participation in other countries, and comparing both the trend and the level of participation with the Irish experience. We then look at some of the comparative evidence on the nature of women's involvement in the paid labour force. Finally we turn to the international literature on cross-section studies of the determinants of female labour force participation, which provides a background for the empirical investigation of the Irish case in the later chapters.

2. TIME SERIES EVIDENCE

2.1 OVERALL TRENDS

A longer-term historical perspective serves to emphasise that sharp rises in women's participation rates are a relatively recent phenomenon. An *OECD* study (1988) using data from 1860 onwards finds no clear long-term upward trend in female participation in European countries¹ before the second half of the twentieth century. Only the US shows strong growth of female participation in the early part of the century, but even there the most rapid growth was in the latter half. For this reason, and because of improvements in available data, most analyses of female participation growth refer to the post-war period.

Table 2.1 provides a convenient summary of the experience of a wide range of countries between 1960 and 1980. The widespread rise in total female participation rates was due mainly to the growth in married women's labour force participation. *Mincer (1985)* indicates that the growth in participation rates for married women was about twice as fast as that for all women, indicating a very strong differential

¹ Britain, France, the Netherlands, Spain and Sweden were the countries for which national studies were available.

TABLE 2.1
Labour Force Participation Rates: All Women and Married Women

	All Women			Married Women		
	1960	1970	1980	1960	1970	1980
Britain	43.4	54.6	62.3	33.7	48.8	57.2
France	44.5	47.1	57.0	35.6	41.5	52.6
Germany	46.5	50.9	56.2	36.5	42.7	54.4
Italy	35.2	33.8	39.9	18.5	24.2	35.4
Netherlands	49.0	43.9	34.9	7.6	17.3	30.6
Spain	22.7	26.1	33.2	n.a.	16.3	26.0
Sweden	51.0	60.1	76.9	43.1	56.2	75.6
Israel	35.2	32.0	39.2	25.7	36.0	43.5
Australia	29.5	42.8	55.4	19.2	36.5	50.8
USA	37.8	43.4	51.3	30.5	40.8	50.1
USSR	77.4	89.4	88.2	77.4	89.4	88.2
IRELAND	29.7	28.2	29.7	5.2	7.5	16.7

Sources: *Blackwell (1989b)* for Ireland, and *Mincer (1985)* for other countries.

Notes: The Irish figures are drawn from Census of Population data for 1961, 1971 and 1981.

growth between married and non-married women. Longer periods of time spent in full-time education often led to a decline in the participation rate for single women. But even in countries where total female participation fell or did not rise sharply (the Netherlands, Italy and, indeed Ireland) there was a strong increase in married women's labour force participation. The typical increase in the participation rate was between 20 and 30 percentage points over the two decades.² Thus, while the increase in the Irish rate is quite high in proportionate terms (more than trebling), the gap between it and participation rates in other countries widened over the period.

A comparison of the levels of participation rates reached by 1980 confirms that there is considerable scope for continued growth for increased participation of married women in the Irish labour force. By that stage, married women's participation rates in most industrialized countries were at or above 50 per cent, with higher rates in the Scandinavian countries (as indicated by the figure of 76 per cent in Sweden). Married women's participation in the UK was closer to 50 per cent. Even in Spain, which might be regarded as a country at a more similar level of economic development, and in the Netherlands, which had a particularly low participation rate, there was significantly greater participation of married women in the paid labour force than in Ireland.

Trends in the 1980s have not greatly altered this basic picture. There have been particularly sharp increases in female participation in North America and the Scandinavian countries, to levels ranging from 66 per cent to 80 per cent. Other European countries, including Ireland, have typically seen a more moderate, continuing growth in female participation rates.

² A notable exception was the USSR, where participation rates stabilised at around 88 per cent, a level very similar to the male rate.

What have been the main factors leading to the increases in participation observed in Table 2.1? *Mincer (1985)* draws together the results of a number of country studies in order to answer this question.³ He shows that rising real wages and a rise in the ratio of female to male wages rise were major factors. A fall in fertility was also an important contributory factor: this can be seen as partly due to independent influences, but also partly reflecting the increased incentive to work in the paid labour market.

Detailed discussion of the effects of real wage increases is deferred until Chapter 6. It is worth noting at this point, however, that the particularly rapid rise in married women's participation in Sweden was found to have been significantly influenced by a change in the income tax treatment of married couples. *Gustafsson and Jacobsson (1985)* found that the switch towards treating spouses' labour incomes independently had a strong effect on women's real wages relative to men's after-tax earnings, and boosted married women's participation. There are considerable difficulties in disentangling economic influences on participation from longer-term shifts in tastes and social attitudes, and responsiveness to economic influences varies across countries. However, it is quite clear from the international literature that economic factors play a major role in explaining the observed trends in overall participation.

Since changes in fertility patterns have also been found to play a role in explaining the international rise in women's participation, it is also of interest to compare Irish

Table 2.2
Total Fertility for EC Member States, 1960-87
(average number of children per 1000 women)

Member State	1960	1970	1987
Belgium	2,575	2,200	1,591[1]
Denmark	2,543	1,950	1,496
West Germany	2,366	2,016	1,345[2]
Greece	2,277	2,337	1,615[2]
Spain	2,862	2,836	1,720[1]
France	2,727	2,484	1,816
Ireland	3,760	3,867	2,337
Italy	2,406	2,425	1,413[3]
Luxembourg	2,284	1,970	1,410
Netherlands	3,106	2,584	1,558
Portugal	3,006	2,759	1,565
United Kingdom	2,692	2,437	1,820
European Community	—	—	1,613[4]

Notes: [1] 1984; [2] 1986; [3] 1985; [4] Estimated

Source: EUROSTAT, Demographic Statistics, 1989, pp 68-69.

³ More detailed consideration is given to Mincer's work in Chapter 6. Chapter 6 reviews international studies on this issue, and analyses the Irish experience.

fertility trends and levels with those of other countries. Table 2.2 shows that fertility levels have fallen sharply in all EC member states over the past 30 years. The Irish rate was initially the highest in these countries, by a considerable margin. It began to fall rather later than in other countries. Thus, it remains markedly higher than in other EC countries and helps to explain why Irish women's labour market participation is relatively low. It should also be noted, however, that participation rates for women with children are particularly low in Ireland. *OECD (1988)* shows that while participation rates for women without children are around 50 per cent for most EC countries⁴, including Ireland, rates for women with children are lower in Ireland than elsewhere.

2.2 PATTERNS OF FEMALE PARTICIPATION OVER THE LIFE CYCLE

Further insights can be gained by comparative analysis of the age profile of female participation rates. Three broad patterns of evolution of participation rates by age (illustrated in Figure 2.1 below) were identified by the *OECD's (1988)* analysis.⁵ The first pattern "may be generated in societies where the majority of women withdraw permanently from paid employment after marriage or after child-bearing, or confine subsequent paid employment to intermittent episodes" (*OECD, 1988, p. 134*). The result is a single peak in the age profile of participation rates, with high participation rates of unmarried women in their early twenties, followed by a decline at higher ages. This is the pattern into which current Irish experience would fit.

By contrast the second pattern has two peaks with a valley centred approximately around age 30, corresponding to the age band for mothers with young children. In this case it is the presence of young dependants rather than marriage or the presence of older children which deters participation. As children grow up, women return to employment thereby generating a second peak in the age profile of participation rates. The UK experience illustrates this pattern.

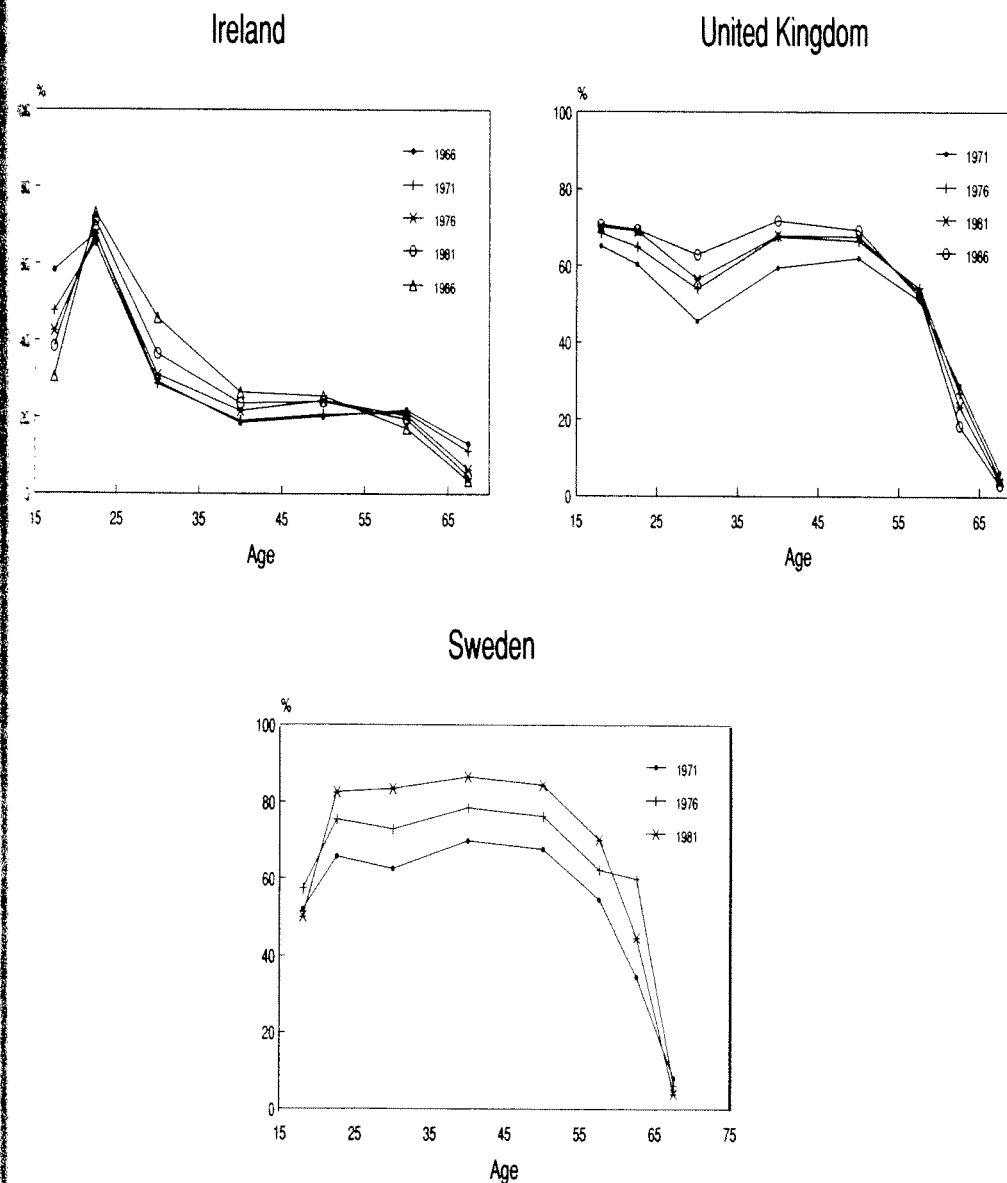
The third pattern occurs with a shortening of breaks in employment associated with child-rearing; this may be associated with an increase in part-time employment. There is no major distinction between the participation rates of women at different stages of family-building: the "valley" is flattened out and becomes a plateau. The Swedish experience illustrates a move from the second to the third pattern.

The United States and Sweden have experienced each of the three profiles (*OECD, 1988, pp. 135-136*). Cohorts born in the nineteenth century mostly left employment

⁴ Higher figures are recorded by Denmark, Germany and the UK.

⁵ The graphs in Figure 2.1 are cross-sectional profiles of the age pattern of participation. As the *OECD (1988)* note, true life-cycle profiles for any given cohort of women will generally differ from the cross-sectional profile. But the overall conclusions reported in the text are based also on the *OECD'S* analysis of synthetic cohorts, and are not likely to be significantly affected by this qualification. Where the difference becomes important in the interpretation of the figures, it is noted in the text.

FIGURE 2.1
Age Profile of Participation Rates: Examples of Contrasting Patterns



Source: *OECD Labour Force Statistics, 1957-1968, 1964-1984 and 1967-1987.*

after marriage, whereas cohorts born in the early 20th century followed the two-peak pattern. The most recent cohorts appear to confirm the beginning of a plateau. However, not all countries with high current female participation, and a plateau-like age-participation profile have reached it by this route. Denmark, Germany, Italy and Portugal appear instead to have moved from a single left-hand peak in the age-participation profile towards a plateau. In these countries, the rise in participation for younger women has been so strong that life-cycle influences tend to be obscured in cross-sectional data. Where longitudinal data are available, a life-cycle effect corresponding to the twin-peak profile is observable.

The future development of the age-participation profile in Ireland may be more likely to follow the latter pattern, without a sharp second peak emerging in the cross-section data. Some countries where the age-participation profile has followed this path are illustrated in Figure 2.2. The current Irish rates can be most closely compared with Danish rates in 1950. The overall level of participation is similar to the Dutch rate of 10 years ago, while the current age-participation profile in Ireland is close to the Dutch profile of 5 to 10 years ago.

2.3 NATURE AND IMPLICATIONS OF INCREASED FEMALE PARTICIPATION

Increasing female participation has been associated with an increase in part-time employment in a number of countries. In the UK part-time employment accounted for all of the increase in female participation between 1951 and 1981 (Table 2.3).

The UK experience represents something of a polar case. There is considerable variation across countries in the extent to which increases in female participation are associated with increases in part-time working. Table 2.4 shows that although the female share of part-time employment tends to be high, in most countries a large majority of employed women work full-time. The exact proportion of female employment which is accounted for by part-time employment varies considerably, and there is no strong relationship between high overall participation and a high

TABLE 2.3

Female Participation in the UK: Full- and Part-time Work

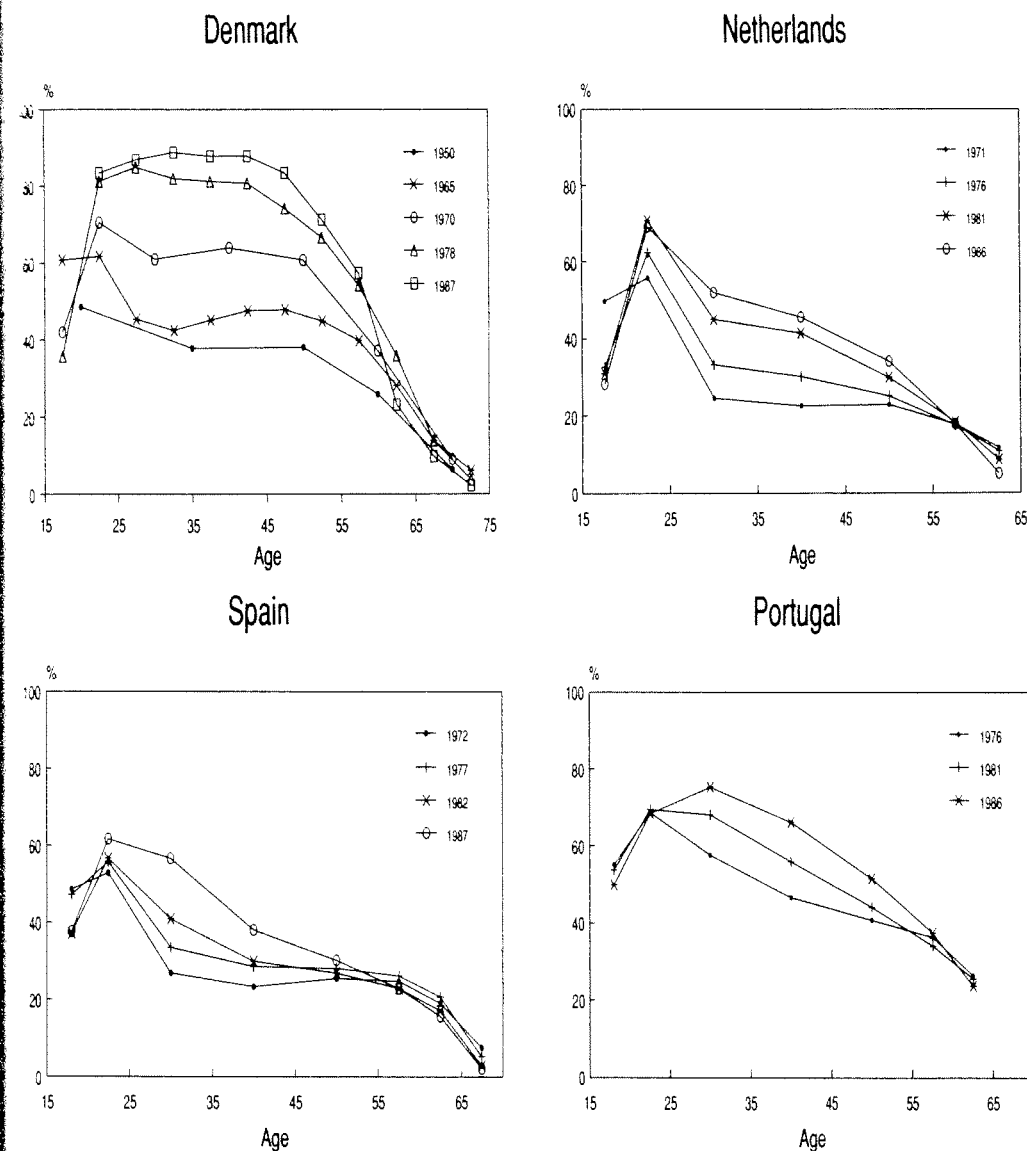
Year	Percentage of women aged 20-64 engaged in:	
	Full-time employment	Part-time employment
1951	30.3	5.2
1961	29.8	10.2
1966	31.7	15.2
1971	29.0	20.2
1981	31.6	22.4

Source: Joshi et al. (1985)

Note: Full-time work is defined as more than 30 hours in a normal week, or 24 hours for teachers.

FIGURE 2.2

Age Profile of Participation Rates: Selected Countries



Source: OECD Labour Force Statistics, 1957-1968, 1964-1984 and 1967-1987.

proportion of women working part-time. Furthermore, the final column of the table shows that widely varying proportions of the total increase in female employment were due to increases in part-time employment. Thus, a trend towards increasing female participation does not necessarily imply a shift towards part-time working. For example, Finland and the US have had sharp increases in female participation to rather high levels, but part-time employment has played a much more limited role in these countries than in the UK; the same could be said of Italy, where the increase in participation is from a lower level. Further investigation of the demand- and supply-side factors involved will be required to assess whether Ireland is likely to move towards a UK-Swedish style balance between full- and part-time employment at one extreme, a USA-Finnish style balance at the other extreme, or an intermediate position.

We now turn to the implications of increased female participation for the

TABLE 2.4

Incidence of part-time employment among women and its contribution to employment growth

	Part-time employment in 1986/7 as a percentage of:		Female share of part-time employment in 1986/7 %	Proportion of total female employment growth which is part-time ^a (1979-1986)
	Total employment	Female employment		
Australia	20.0	39.2	78.2	55
Belgium	9.4	22.6	93.3	117
Canada	15.2	25.3	71.9	33
Denmark	23.7	41.9	80.1	10
Finland	8.3	11.5	68.5	20
France	9.7	23.2	82.2	158
Germany	12.6	29.8	90.3	126
Greece	5.8	10.4	61.0	n.a.
Italy	5.0	9.5	64.2	-2
Japan	16.6	30.5	73.3	54
Netherlands	25.3	55.2	75.3	151
Norway	23.1	43.0	81.5	41
Portugal	4.1	6.6	64.0	n.a.
Sweden	25.2	45.1	85.9	37
UK	21.6	45.0	88.7	251
USA	17.3	26.1	67.6	23
IRELAND	6.2	14.2	72.6	33

Source: OECD (1988)

Note 1: Over 100% indicates fall in full-time.

occupational and industrial structure of employment. The *OECD's (1988)* analysis found that "Despite the rapid increase in female labour force participation, on average women do very different jobs from men". The difference may be measured, for instance, by indices of the dissimilarity of the occupational and industrial distributions of male and female employment. The OECD study found that in most countries, such indices showed only a slight fall, if any, between 1960 and the 1980s. Ireland was no exception to this finding. Thus, rising participation has not led to convergence in the distribution of male and female employment over industries and occupations. This does not mean that legislative provisions regarding equality of employment opportunity and equal pay have been ineffective; but it does have implications for the persistence of a gap between male and female wages at an aggregate level.

3. CROSS-SECTION EVIDENCE

3.1 METHODOLOGICAL DEVELOPMENTS

The striking increases in women's labour force participation rates in many countries stimulated much research on women's participation decisions. *Killingsworth's (1983)* survey of the area indicates that studies in the 1960s and early 1970s gradually revealed the need for improved theoretical and statistical techniques in order to cope with the fact that the outcomes of participation decisions directly influenced the data available.

For example, data on wage rates were rarely if ever available for those not engaged in employment. One early response to this problem was to estimate the relationship between personal characteristics (level of education, age etc.) and wages for those currently employed; and then to predict potential earnings for others, on the basis of this estimated relationship. But later work has emphasised that such procedures may be inherently biased. Those persons for whom wages are higher than would be expected on the basis of the true relationship between personal characteristics and wages are more likely to decide to work; this selection bias may distort the estimated relationship between wages and personal characteristics. The bias thus introduced then contaminates the predictions of potential earnings, and thereby the relationship between potential earnings and the participation decision.

Considerations of this type led to a growing body of what is often termed "second-generation" research on labour supply decisions. This research developed models and estimation methods specifically designed to analyse the participation decision. They recognised the implicit biases in restricting analysis of influences on wages or hours of work to working women, and developed statistical methods to eliminate them. They also recognised that small changes in wage rates or non-employment income would not lead to any observable effect for large numbers of women: only those actually participating, or the smaller number of non-participants for whom a small change would be sufficient to tilt the balance towards participation, would be affected.

More recently, increasing attention has been given to the role of demand side constraints on labour supply decisions e.g., *Blundell, Ham and Meghir (1988)*, *van Soest, Woittiez and Kapteyn (1990)* and *Ransom (1989)*. Involuntary unemployment is perhaps the most important of these from the point of view of analysing the participation decision. But restrictions on the choice of hours of work are also important when the intensity of participation is being analysed. Thus, while the participation decision can be seen as flowing directly from the determination of desired hours of work, the correspondence between desired and actual observed hours of work is broken by demand-side constraints.

3.2 EMPIRICAL RESULTS

The basic intuition underlying economic modelling of participation decisions is well expressed by *Blundell and Walker (1988)*:

“[I]ndividuals decide on how long they are going to work on the basis of their after-tax wage rate and the household’s other after-tax income...The argument is that an individual will want to work up to the point where the value of extra income from further work is just offset by the value of the ... time sacrificed to earn it. The greater is a household’s need for income [i.e., the lower is other after-tax income, including husband’s earnings] the more valuable extra earnings will be, and hence the more likely it is that the wife will be prepared to forego that ... time. For a given level of household net income, a wife will be more induced to give up an hour of ... time to work the higher is the return to that hour i.e., the higher the after-tax wage.” (*Blundell and Walker, 1988, p.8*)

Summary measures of these economic influences on participation are provided by the relevant elasticities. The wage elasticity of female labour supply measures the percentage increase in desired hours (or the percentage increase in probability of participation) corresponding to a one per cent increase in the wage, other influences being held constant. The elasticity with respect to what is often termed property income (which may include the husband’s after-tax earnings, as well as other income which does not arise from employment of the wife) measures the percentage increase in desired hours in response to a one per cent increase in property income.

Killingsworth and Heckman’s (1986) overview of the empirical results on these key elasticities is summarised in Table 2.5.

The most striking feature of the table is the very wide range of estimated wage elasticities in the US, the country for which most empirical work has been done. While the move to “second-generation” methods tended to increase the mean estimate of wage elasticity across all studies, it has also increased the variance. All but a few studies, however, have wage elasticities in a narrower range from around 0.2 to 5. Estimates which are based on the assumption that annual hours of work can

TABLE 2.5
Summary of Labour Supply Estimates for Married Women in Selected Countries

	Wage elasticity (compensated)		Total-income Elasticity	
	Minimum	Maximum	Minimum	Maximum
USA	-1.06	15.35	-0.89	0.48
Britain	-0.23	1.82	-0.48	0.02
Canada	-0.16	1.52	-0.50	0.00
Germany	1.28	1.66	-0.20	-0.29
Netherlands	1.83	1.99(a)	-0.04	-0.02(a)

Source: *Killingsworth and Heckman (1986)*, Table 2.26, except for (a) which refers to the participation elasticities estimated by *Haartog and Theeuwes (1985)*.

- Notes: 1. The compensated wage elasticity takes account of the fact that a wage increase involves an increase in income, as well as altering the relative prices of work-time and other time.
2. The total-income elasticity is the difference between the compensated and uncompensated wage elasticities. It represents the elasticity with respect to the income effect of the wage increase.

be freely adjusted tend to fall at the higher end of this range, between 2 and 5; methods which allow for possible discontinuities tend to produce lower figures (*Killingsworth, 1983*). The range of estimates for total income elasticities is much narrower; most studies show values of between 0 and -0.20. Results for the other countries in the table are broadly in line with these narrower ranges containing most US studies.

The overall conclusion has been that the wage elasticity of married women’s labour supply is significantly positive, and much larger than the corresponding elasticity for men. The total income elasticity of married women’s labour supply tends to be negative, but much smaller in absolute magnitude than the wage elasticity.

The most serious challenge to the view that married women’s hours of work are much more responsive to wage rates than that of men has come from *Mroz (1987)*. Mroz’s work has tested methods of analysis which assumes hours worked can be freely varied, and are influenced by the same factors and in the same way as the participation/non-participation decision against a more general method. The former are often referred to as Tobit models. The more general approach allows for the possibility that fixed costs and other factors may lead to discontinuities, so that participation and hours of work decisions do not reflect exactly the same influences: these are sometimes called generalized Tobit or Heckit models. His conclusion is that the latter is preferable on statistical grounds. If this conclusion is correct, it would cast doubt on the higher elasticities for hours of work typically found using the former methods. Mroz also finds arguments in favour certain other methodological choices which lead to very low estimated elasticities, such as those of *Nakamura and Nakamura (1981)*, which suggest that married women’s hours of work are not much more responsive to wages than men’s. As noted by *Geary (1988)*, the outcome of this challenge to the established view is still in doubt. Its

FEMALE PARTICIPATION IN THE IRISH LABOUR MARKET: TRENDS AND CURRENT SITUATION

greatest importance in the present context is in directing attention to the possibility that participation and hours decisions, while reflecting the same underlying labour supply preferences, may need to be analysed separately. It is possible, for instance, that women's participation decisions may be more sensitive than men's to wages and other influences; but hours of work for both groups may tend to be much less sensitive.

4. CONCLUSIONS

Increased female participation in the labour market has been a widespread international trend. While Irish experience has reflected that trend, participation levels in Ireland are still much lower than in most other European countries. Higher fertility levels go some way towards explaining this. But participation rates for women with children are also particularly low in Ireland. Age-participation profiles showed that in many countries women past the child-bearing years tended to return to the labour market; while in some countries, women had a strong attachment to the labour market throughout the life-cycle. Future growth in participation might be likely to come from the increased attachment to the labour force of younger women, or those who had recently completed family formation; large-scale returns to work by older age groups seemed less likely.

There was considerable variation in the extent to which increases in female participation were associated with increases in part-time working. The UK was at one extreme, where the proportion of women in full-time jobs actually fell, and was more than counterbalanced by an increase in part-time employment. In many other countries, including some with the highest rates of participation, part-time employment played a much more limited role. A more general finding was that increases in female participation had not greatly reduced the differences in the occupational and industrial structure of male and female employment.

Time-series and cross section evidence from the international literature has firmly established the importance of economic influences on women's labour force participation. But the results of the huge volume of international research on female participation also serve to caution against expectations of simple answers in this area. The range of variation in numerical estimates of key parameters is very large. The fundamental finding that married women's labour supply is more responsive to wage rates than that of men has been re-interpreted in the light of recent research. The most recent work suggests that married women's hours of work may not be more responsive than men's to wage rates, but their participation decisions do seem to be more responsive than those of men.

1. INTRODUCTION

This chapter gives an overview of the evolution of female participation in the Irish labour force. It draws extensively on the digest of relevant statistics produced by *Blackwell (1986)* and updated by *Blackwell (1989b)*. These statistics are primarily drawn from the Census of Population and, in more recent years, from the Labour Force Surveys. There are some differences in concepts and coverage between these independent data sources. These differences, together with restrictions on the length of the time for which data is available, suggest that time series analysis of the type performed on consistent long runs of data in the international literature would not be possible. However, the data can be used to build up a broad picture of the evolution of female participation over time. Section 2 begins by setting out the major trends in female participation in the Irish labour force. Section 3 provides greater detail on the current situation, drawing also on the ESRI Survey of Income Distribution, Poverty and Usage of State Services. The final section draws together the main findings.

2. TRENDS IN FEMALE PARTICIPATION

The measure of female participation used in this chapter is the standard one, usually called the labour force participation rate¹, which includes as "economically active" those engaged in paid work, or unemployed but available for work; unpaid work in the home is not included. Part-time work is not distinguished from full-time work by this measure.² *Fahey (1990)* emphasises the limitations of statistics based on this approach in measuring women's total productive activity, and in identifying work for pay or profit which was conducted in the home.³ But, as he indicates, by 1961 "measured and unmeasured female work became more distinguishable as the market economy developed", while by 1981 the statistics "by and large...measure[d] the extent to which women regularly left their homes to go to an outside job". Thus, over the period of interest within the present study's frame of reference, the limitations which *Fahey* notes are less severe.

¹ It is may also be termed the "activity rate".

² It is possible that the extent of part-time working is measured more fully in the *Labour Force Surveys (1977 and 1987 in Table 3.1)* than in the *Censuses of Population (1961, 1971 and 1981)*. This does not, however, have a major impact on the broad trends outlined above.

³ He also points to historical data showing high participation rates for women in household based occupations (including full-time domestic service, shopkeeping, and farming); this lends support to the idea that women's labour supply to the market may first decline, and then increase, with economic development. From the point of view of the present study, however, the important point is that from the 1960s on, the statistics do reflect an increase in women's participation in the labour market.

Long-run data on participation rates are only available on the basis of the "Principal Economic Status" method i.e., a classification based on respondents' own assessments of their usual principal economic status. *Garvey (1988)* contrasts this method with an alternative, finer classification based on more direct information about actual work undertaken, availability for work and job-search activity, known as the ILO classification. The major difference between these classifications for present purposes are that women who regard their main economic status as being within the home are classified as "inactive" under the PES definition; but if they are engaged in work outside the home, or available for or seeking such work, they are classified as "active" under the ILO definition.

Significant numbers of women are classified differently under the two approaches. For example, in 1988 the total participation rate for women was 31.3 per cent under the PES definition, but was 3 percentage points higher under the ILO classification: the total increase comprised a 2.1 percentage point increase in those unemployed and a 0.9 percentage point rise in those "at work". Thus, the main impact is on the measurement of female unemployment.⁴ For married women, the total impact is somewhat greater: an increase of 5.6 percentage points in the total participation rate. But once again the main impact is on the proportion of women unemployed (a rise of 3.9 percentage points) with an increase of 1.7 percentage points in the proportion at work.

The absence of long-run trend information on the ILO basis is regrettable, but given the size of the differences observed in a single cross-section, it does not seem likely that trends in employment rates would be much different from those observed on a PES basis; levels of female unemployment would be higher on an ILO basis and might be more sensitive to macroeconomic circumstances.

Trends in female participation rates on a PES basis, classified by marital status, are set out in Table 3.1. It is clear that approximate stability in the aggregate

TABLE 3.1
Female Participation Rates in the Irish Labour Force, 1961-1989

Marital Status	1961	1971	1977	1981	1987	1989
Married	5.2	7.5	14.4	16.7	23.4	23.7
Single	59.2	60.2	56.1	56.4	53.4	50.5
Widowed	26.2	19.3	13.2	11.4	7.7	7.0
ALL WOMEN	29.7	28.2	28.2	29.7	31.9	30.9
Men	85.0	82.0	76.8	76.4	72.9	71.4

Sources: *Blackwell (1986)*, Tables 3.4 and 3.5 and *Labour Force Surveys 1987, 1989*.

Note: In order to ensure comparability over time, separated and divorced women are included in the married category.

⁴ *Fahey (1990)* suggests that the ILO based classification may underestimate the extent of hidden employment among those who classify themselves as having a principal status of "home duties".

TABLE 3.2
Female Participation Rates by Age Group, 1961-1989

Age Group	1961	1971	1977	1981	1987	1989
15-19	59.6	47.6	41.3	38.4	27.8	23.4
20-24	68.2	65.5	66.4	70.9	74.9	73.7
25-34	31.1	28.5	31.4	36.4	49.5	52.1
35-44	19.1	19.1	21.2	23.5	28.5	29.4
45-54	21.0	20.8	23.7	24.0	27.1	25.4
55-59	23.0	21.8	22.6	21.5	21.4	19.8
60-64	22.1	20.7	17.3	17.3	15.2	13.3
65 or over	15.0	11.3	5.6	4.8	2.1	3.1
ALL WOMEN	29.7	28.2	28.2	29.7	31.9	30.9

Source: *Blackwell (1986)* Table 3.4 and *Labour Force Surveys 1987, 1989*.

participation rate conceals major shifts in the composition of female participation. There was a significant decline in the participation of single women, and a sharper decline in the proportion of widows participating. The most significant feature, however, has been the increased participation rate of married women. The vast bulk of this change occurred after 1971, with the rate more than trebling from 7.5 per cent to 23.7 per cent.

Analysis of participation rates classified by age group helps to clarify the nature of the changes which took place. The major declines in participation were confined to the youngest age group (15-19) and those aged 55 or over. The decline in labour force activity rates in the youngest age group was due to increased participation in education, mainly by single women. The decline in economic activity rates in the older age groups was particularly marked in the case of widows, and was partly associated with falling numbers in agriculture (*Walsh, 1971*). Reductions in the age

TABLE 3.3
Married Women's Participation Rates by Age Group, 1961-1989

Age Group	1961	1971	1977	1981	1987	1989
15-19	9.0	11.9	(a)	26.1	32.0	28.6
20-24	7.7	15.2	28.4	35.2	45.7	41.3
25-34	4.8	8.8	16.7	21.6	35.9	39.0
35-44	4.7	6.7	14.3	16.2	22.6	23.5
45-54	6.1	7.3	14.4	15.3	20.8	20.6
55-59	5.8(b)	7.1	11.4	11.3	14.0	13.5
60-64	5.8(b)	5.9	7.8	7.9	9.1	7.5
65 or over	3.1	2.9	2.9	2.3	2.3	2.3
ALL AGES	5.2	7.5	14.4	16.7	23.4	23.7

Source: *Blackwell (1986)* Table 3.5 and *Labour Force Surveys 1987, 1989*.

Notes: (a) Numbers too small for a reliable proportion to be calculated

(b) Figure refers to aggregated 55-64 age group.

at which old age pensions were payable, increased coverage by pensions schemes, and real increases in pension payments are also stressed by *Blackwell (1986)* as major causes of this trend.

The distinctive shifts in the age pattern of married women's participation are shown in Table 3.3. From 1961 to 1987, participation rates rose sharply in all age groups below 65. The increases in participation in the 20-34 age groups were particularly striking, though dramatic increases were also recorded in the 35-54 age groups. The overall rate increased very slightly between 1987 and 1989, with declines in some age groups being offset by increases in others.

The growth in women's participation combined with stable or falling rates for men led to a rise in the proportion of the total labour force accounted for by women, as shown in Table 3.4. Female employment and unemployment both grew more rapidly than male employment and unemployment over the full 1971 to 1989 period. The predominance of married women in this growth led to a much sharper rise in the proportion of the female labour force accounted for by married women.

The rise in the participation rates of women aged 20 to 54 can be seen as flowing from a number of economic and non-economic factors. The general rise in real wages over the period may have had a strong influence: the cross-section evidence in Chapter 4 sheds further light on this issue. Changes in fertility patterns, partly for economic reasons, and partly reflecting independent influences, also played a part. *Blackwell (1986)* documents a decline in average family size and a tendency towards earlier completion of families, which would have facilitated greater attachment to the labour force.

More favourable social attitudes towards women's participation, and the removal of the public service marriage bar (in 1973) also helped to boost participation. Similarly, the impact of equal pay and anti-discrimination legislation since the mid-1970s was also likely to have played a role in increasing women's labour force participation.

An assessment of the impact of the main economic factors (and, by implication, the net role for other factors) on the growth in married women's participation is undertaken in Chapter 6, following the detailed analysis of how these factors affect current participation decisions in Chapters 4 and 5.

TABLE 3.4
Women in the Labour Force, 1971-1989

	1971	1981	1987	1989
Women as % of total labour force	25.7	29.1	30.9	30.7
Married women as % of female labour force	13.6	30.2	39.6	41.5
Women as % of employed labour force	26.3	29.4	32.4	32.3
Women as % of unemployed	18.2	25.2	23.8	22.2

Source: *Blackwell (1989b) Table 3.1*

3. CURRENT SITUATION

The preceding section outlined the broad trends in the extent and pattern of female participation in the Irish labour force. We now turn to a more detailed examination of the current nature of this participation.

Women's participation in the labour force is overwhelmingly as employees. Women are much less likely than men to participate as employers or self-employed, as shown by Table 3.5.

TABLE 3.5
Numbers of Men and Women by Employment Status, 1987

Employment Status	(Thousands)	
	Women	Men
Employers	7.5	45.0
Self-employed	16.7	165.1
Assisting Relatives	8.7	15.8
Employees	319.6	509.2
TOTAL	352.5	735.1

Source: *Blackwell (1989b) Table 4.2.*

Regular data distinguishing part-time from full-time working was severely restricted until the inception of the Labour Force Surveys in the late 1970s. Even since then, published data on part-time working has been quite limited. Furthermore the Labour Force Survey in Ireland, as in other EC countries, classifies as part-time workers only those who consider themselves as such: it does not correspond to a distinct "hours per week" cut-off. *Blackwell (1989a)* found using Labour Force Survey data that the proportion of all employment accounted for by regular part-time work rose from 3.6 per cent in 1977 to 6.0 per cent in 1987, with most of the increase taking place between 1979 and 1983. A comparative analysis by the *OECD (1988)*, apparently using a somewhat different classification, suggests a more modest increase from 5.1 per cent to 6.2 per cent over the 1979 to 1983 period. There is

TABLE 3.6
Part-time versus Full-time Regular Employment, 1987

Type of regular job (a)	(Thousands)			
	Married	Women Others	All	Men
Full-time	113.2	196.5	309.7	717.7
Part-time	33.2	14.0	47.2	18.4
ALL	146.4	210.5	356.9	736.1

Source: *Blackwell (1989b) Table 4.1.*

Note: (a) Self-defined.

TABLE 3.7
Participation Rates of Married Women Classified by Number of Dependent Children, 1987

No. of dependent children	Age group			
	20-24	25-34	35-44	45-49
none	79.0	81.8	49.6	31.1
1	38.8	47.6	31.4	21.9
2	19.4	28.5	25.5	20.6
3 or more	5.3	13.2	16.9	18.7
All cases	45.5	35.9	22.6	21.8

Source: Blackwell (1989b) Table 3.6.

agreement, however, on two main points. First, that part-time working is predominantly undertaken by women; and second, that most women workers are working full-time (Table 3.6). Furthermore, a substantial majority of women working part-time are married, whereas the majority of women working full-time are not married; but most married women workers are working full-time.

Women's participation is still heavily influenced by the number and age of dependent children. Table 3.7 shows clearly the tendency for participation to diminish as the number of children rises. The effect is particularly strong for younger married women, whose participation rates in the absence of children are quite high. Since their children would also tend to be younger this suggests that the presence of younger children would have strong effects on participation.

Participation rates of married women cross-classified by their own age and age of the woman's youngest child are shown in Table 3.8. Even this simple analysis suggests that women with children under five have the lowest participation rates within each age group. More sophisticated econometric analysis in Chapters 5 and 6

TABLE 3.8
Participation Rates of Married Women Classified by Age of Youngest Child, 1987

Age of youngest child	Age group		
	25-34	35-44	45-49
none	89.5	38.6	34.9
13+	31.1	34.2	24.0
5-12	29.4	31.3	20.8
0-4	26.9	23.6	19.8

Source: ESRI Survey of Income Distribution, Poverty and Usage of State Services.

Note: Participation rates for corresponding groups in Tables 3.7 and 3.8 may not agree, because of the use of different data sources. Where possible, data from the Labour Force Survey have been used because of its much larger sample size; but where this is not possible data from the ESRI Survey of Income Distribution, Poverty and Usage of State Services can give a useful indication of national patterns. The nature of this survey is described in Chapter 4.

Table 3.9
Distribution of activity rates by highest educational level

Highest educational qualification	Usual hourly wage	Paid work %	Unemployed %	Other %
None above primary	3.04	17.4	1.4	81.3
Group Cert.	3.53	18.0	2.0	80.1
Inter. Cert.	4.00	30.4	1.8	67.8
Leaving Cert.	4.31	34.1	3.4	62.5
Diploma	9.02	36.4	8.7	54.9
University	8.89	74.4	0.0	25.6
All educational levels	5.04	26.8	2.3	70.9

Source: ESRI Survey of Income Distribution, Poverty and Usage of State Services.

Note: Women aged 60 or over, along with those in full-time education, were excluded from the above analysis.

finds an even stronger effect from the presence of young children than this table would suggest.

The distribution of activity rates by educational level (Table 3.9) shows a strong association between level of education and participation in the paid labour force. The rate of employment rises with the educational level, and the total participation rate (including those unemployed) increases even more strongly. The participation rate of over 70 per cent for married women with a university degree is particularly striking, when compared to an average rate of just under 20 per cent. There is also a strong association between educational levels and hourly wage rates for those in employment. Women with a Leaving Certificate qualification have an average wage rate over 40 per cent higher than those with no educational qualification above primary level; while those with higher educational qualifications have average wage rates which are more than double those of women with Leaving Certificates. Thus, much of the association between higher educational qualifications and labour force participation may be explained by the higher wages which more qualified workers can command.

The distributions of male and female employment across industries and occupations remain quite different. Table 3.10 shows that female employment is more concentrated in services than male employment. There are also major differences in the distribution of male and female employment within these sectors, which are reflected in the occupational distributions. For example, 27 per cent of women workers are classified as clerical workers, as against 5 per cent of men, in 1987. Similarly, 15 per cent of women are service workers, as against 6 per cent of men. Overall, five occupational groups (clerical, professional and technical, service, shop assistants, and leather, textiles and clothing) accounted for over 80 per cent of female employment but less than 28 per cent of male employment.

TABLE 3.10
Male and Female Employment by Sector, 1987

Sector	(Thousands)	
	Women	Men
Agriculture, forestry and fishing	12.3	151.8
Manufacturing	63.0	144.9
Other Industry	4.8	87.4
Services	272.3	351.0
TOTAL	352.5	735.1

Source: Blackwell (1989b) Table 4.3.

Blackwell (1986) reports the trend in the degree of occupational segregation by sex, using a summary index. This shows no significant change between 1961 and 1977, a sharp rise in 1979, followed by a fall to 1984. The level of the index then stabilised at 53 per cent, somewhat below the figure of around 58 per cent which obtained for most of the 1960s and 1970s. Thus, overall, the changes in the pattern of female participation have not had a major impact on the degree of sex segregation by occupation.

4. CONCLUSIONS

Married women's participation in the Irish labour force has risen very rapidly from the very low levels of the 1960s. Most of the increase has occurred during the 1970s and 1980s. The participation rate for married women and widows is still, however, substantially below the typical level of other EC countries, as seen in Chapter 2. The participation rate for single women, which has seen declines in the younger age groups, is now quite similar to the EC average. (Blackwell, 1989b).

There are still quite distinct differences between women's and men's participation in the paid labour force. Women's participation is more likely than men's to be as an employee, part-time (though the vast majority of employed women still work full-time), and to be concentrated in certain occupational groups and industries which employ mainly women. Four out of every five women workers were to be found in just five occupational groups, as against less than one in three male workers.

In the next chapter, we examine in greater depth the influences on the participation of married women, who have accounted for the bulk of the growth in women's labour market participation.

PARTICIPATION AND NON-PARTICIPATION: CROSS-SECTION EVIDENCE ON THE INFLUENCES

1. INTRODUCTION

We have seen that most of the growth in female labour force participation, both in Ireland and internationally, has been from increased participation by married women. In this chapter we study the factors which determine the decisions of married women concerning labour force participation. This is a help in understanding the causes of the observed growth in participation. It also helps to identify the impact of current policies, and of possible policy changes, on participation. The main questions to be answered by the analysis concern the responsiveness of married women's participation and hours of work to their potential wages and to their non-employment income, including the earnings or social welfare income of their husbands. We may summarise them as follows:

How responsive is married women's participation to their potential wages?

How responsive is married women's participation to the earnings and social welfare incomes of their husbands?

How do married women's hours of work respond to various influences?

Is married women's labour market participation more responsive than that of married men to potential earnings?

The methods of analysis needed to examine these questions are inherently rather complex. As a result, much of the material in the next two chapters is, as predicted by NESc (1988), "more technical than the type of research in which NESc has traditionally become involved". The conclusion of each chapter provides a non-technical summary of the main results.

A listing of the main influences on female labour force participation is relatively uncontroversial. The review of the international literature on cross-section studies in the previous chapter noted that most studies used very similar variables. Potential earnings, non-employment income and husband's earnings, number and ages of children were the main influences investigated in each of the studies. But the relative importance of the different influences differed substantially between some of the studies reviewed. One reason for this is, of course, that the analyses refer to different samples and often different countries. This is one reason why it is essential to perform similar analyses on Irish data.

But another reason for differences in results is the use of different methods of analysis. This suggests that it is important to perform the analyses on Irish data using a number of different methods, in order to distinguish between those results which are most robust and reliable, and those which are sensitive to the use of different methods, and must therefore be used with caution. The present chapter and the next one therefore use a number of different methods, which are introduced in turn.

The present chapter lays the groundwork for the analysis, and examines the influences on participation other than from the income tax and social welfare systems. In Chapter 5 we introduce additional information on income taxes and social welfare income, and on hours of work. Section 2 below reviews earlier econometric work on female participation in the Irish labour force. Section 3 describes the relevant characteristics of the ESRI Survey of Income Distribution, Poverty and Usage of State Services, from which the data for the present analysis are drawn. Section 4 provides results from a simple form of analysis which simply distinguishes between those engaged in paid work and those not in paid employment or self-employment using a list of relevant variables. Section 5 takes this a stage further, and uses these results to predict gross wages for those who are not in work in a way which is not distorted by the influence of potential earnings on the selection of women into the labour force. Section 6 then uses these predicted gross wages to derive direct estimates of the effects of potential wages on participation. Section 7 summarises the results from the present chapter.

2. REVIEW OF PREVIOUS WORK

The dearth of microeconomic studies of women's participation in the Irish labour force largely reflects the constraints of data availability. The data gathered by a special survey on women and employment in Ireland (*Walsh and O'Toole, 1973*) did, however, allow *Walsh and Whelan (1973)* to perform an econometric analysis of the determinants of women's labour force participation, along the lines conducted in other countries. The participation variable analysed was a dichotomy: labour force participants were defined as those in employment or not employed. The method of analysis was based on the Linear Probability Function. Two main groups of women were analysed: single non-farm women, and married non-farm women. Age, education and work experience were included in the analysis as determinants of potential wages. A categorical income variable and husband's occupation provided alternative measures of family income from other sources than the wife's employment. The presence or absence of children in various age groups was used to measure the implicit value of the wife's time in home duties. Some additional measures of tastes, including the attitude of the wife to married women working, and the wife's perception of the husband's attitude to the same question, were also explored.

Walsh and Whelan summarized their econometric results for married women by outlining the characteristics leading to high or low probability of participation. The presence of children under four, the lack of a third level education, a husband with a professional occupation (a proxy for a high income) and/or disapproval of married women working were factors tending to reduce the probability of participation. Conversely, married women with no children under 14, with a third-level or technical education, with a husband in the supervisory/other non-manual social group and/or approving of married women working were more found more likely to participate in the labour force.

Perhaps the main drawback of the Walsh/Whelan study was, as recognised by the authors, that the lack of reliable data on wages and non-employment income did not allow estimation of the magnitude of these influences on participation probabilities. The ESRI Survey of Income Distribution, Poverty and Usage of State Services in 1987 went to considerable lengths to gather reliable data on just these variables. Thus, the analysis in this chapter, while beginning with methods similar to those employed by Walsh and Whelan, can go further in analysing the interactions between the influences of wages, other income, and demographic type variables such as presence or absence of children. We now turn, therefore, to a description of the data on which the following analysis is based.

3. DATA-RELATED ISSUES

3.1 FIELDWORK, RESPONSE AND INFORMATION COLLECTED

Geary (1988) concluded from his review of the international literature that micro-level data was essential for the study of participation decisions. The ESRI Survey of Income Distribution, Poverty and Usage of State Services aimed, inter alia, to gather information which would permit such micro-level studies of labour supply issues. A brief description of the survey is given here, with particular emphasis on the aspects most relevant to the analysis undertaken in this chapter; a more detailed description of the survey is given in *Callan, Nolan et al (1989)*.

The main fieldwork for the ESRI Survey took place between March and September of 1987. Information on incomes and labour market participation was gathered from over 3,300 households. The usable response represented 64% of the effective sample of households: somewhat lower than for other ESRI surveys dealing with less sensitive topics, but slightly higher than that achieved in the Household Budget Surveys conducted by the Central Statistics Office.¹ It is comparable to the response rates for the UK Family Expenditure Survey, on which much of the analysis of UK labour supply has been based.² Information was collected at both individual and household levels. The combined information included the following key elements for the study of women's labour market participation:

1 The response rates were 56 per cent, 57 per cent and just under 60 per cent in 1973, 1980 and 1987 respectively.

2 The FES response rate typically falls within the range 68 to 72 per cent.

1. Current labour force status: a detailed fourteen category classification was used to establish the exact labour market status of respondents, whether employed, self-employed, unemployed or out of the paid labour force.
2. Hours worked: information was collected on usual hours of work as well as hours in the most recent week for those paid weekly.
3. Pay: similarly, information on usual gross and net pay was obtained in addition to that for the most recent pay period.
4. Social welfare receipts: detailed information was obtained on the amounts and types of payments received currently or in the 12 months preceding the interview.
5. Income from interest, dividends, rent and pensions.
6. Occupation and industry of current or most recent job
7. Long-term labour market experience: information was obtained on the number of years spent at work, unemployed, or in other labour market statuses since first leaving full-time education.
8. Highest educational qualification obtained
9. Age
10. Geographical region
11. Urban-rural location
12. Marital status
13. Number and ages of children

Where possible, each adult member of the household was interviewed individually, in order to obtain the most accurate and reliable information on all income sources and on their current and longer-term labour market experience. The full questionnaire collecting this information typically took from an hour to an hour and a quarter to complete. Over 6,500 individuals completed full questionnaires. Where it was not possible to obtain these responses, for whatever reason, an abbreviated questionnaire with key information on income and labour market status was completed; some 1,650 responses of this type were gathered. The richer information gathered in the full questionnaire makes possible a more in-depth analysis of labour supply decisions. But it is also possible to conduct more straightforward analyses for all respondents, including those who completed only an abbreviated questionnaire: details of the alternative samples used will be given below.

3.2 REPRESENTATIVENESS OF THE SAMPLE

Responding households were reweighted to correct for a deliberate bias towards

larger households³ and for possible non-response bias. Special tabulations kindly supplied by the CSO enabled the reweighting procedure to ensure that the ESRI sample was fully representative of the national position as found in the 1986 Labour Force Survey in terms of the following characteristics: household size, urban/rural location, age of head of household, and socio-economic group of the head of household. Independent checks then confirm the representativeness of the sample in terms of a wide range of demographic and economic variables:⁴

1. Age distribution of the population
2. Distribution of the households classified by number of members engaged in paid work
3. Distribution of households classified by number of persons unemployed
4. Distribution of entitlements to health services
5. Number of children eligible for child benefit and expenditure on the scheme
6. Numbers of recipients of major social welfare schemes
7. Aggregate income tax revenue
8. Costs in terms of revenue foregone for tax reliefs on mortgage interest payments, life assurance premia, and health insurance premia.

Thus, the checks already implemented show that the survey is nationally representative in terms of many of the key socio-demographic and economic variables for a study of labour market participation.

Weighted analysis is appropriate when seeking nationally representative totals or proportions; but for the type of analysis which follows, weighted and unweighted results should be similar. Preliminary investigation confirmed that this was the case; results for unweighted analyses are therefore reported in the remainder of this chapter and in Chapter 5.

3.3 UNIT OF ANALYSIS

While information was collected at both household and individual level, it is the narrower family (single persons or married couples together with their dependent children) which is most suitable for the analysis of labour supply decisions. This is the unit for income tax purposes, and is also the basis for many social welfare schemes. Sufficient information on the intra-household relationships was collected to construct a dataset on a tax unit basis, and it is at this level that the following analysis is conducted.

³ This bias was introduced by the method of sampling, which gave a greater probability of selection to households containing more registered electors. The reason for this strategy was that the variance of income was likely to be greater for larger households so that the precision of the sample's estimate of the income distribution would be improved by oversampling from this group.

⁴ For details of these checks, see *Callan (1991a)*.

3.4 CHARACTERISTICS OF THE SAMPLES USED

The analysis in Chapter 3 showed clearly that the main growth in female labour force participation in Ireland has been among married women. This has also been the case in other countries. The gap between the labour force participation rates of married women in Ireland and in most other OECD countries suggests that further growth may also be likely. The participation rates of single women between the ages of 20 and 60, on the other hand, have been quite high and stable.⁵ For these reasons, the analyses in this chapter focus on married women. This focus is also shared by most of the cross-section studies of female participation referred to in Chapter 2. The participation decisions of certain other groups of women (especially lone mothers, widows and wives who have separated from or been deserted by their husbands) are subject to a range of other influences. Their entitlements to social welfare are quite different, as are their family circumstances. A study of the participation decisions of these groups would be interesting (see, for example, the analysis of *Walker, 1990*) but is outside the scope of the present paper.

Table 4.1
Numbers of Married Women in Alternative Sub-Samples

<i>Sub-sample</i>	Total in ESRI Survey: 2555 married women		
	<i>Exclusions</i>	<i>No. of cases excluded</i>	<i>No. in sub-sample</i>
Sample A: "Full sample"	Aged 60 or over	487	2031
	Unemployed due to illness	19	
	Unable to work because of permanent illness/disability	18	
		(524)	
Sample B: "Full information sample"	Only an abbreviated questionnaire is available	119	1912
		(119)	
Sample C: "Non-self-employed sample"	Relatives assisting	151	1714
	Self-employed/farmers	45	
	Retired	2	
		(198)	

Notes: Each sub-sample is drawn from the preceding one; the exclusions are cumulative.

For the reasons given above, we focus our attention on the 2,555 married women in the ESRI sample. The methods most suitable, or even possible, for the analysis of married women's labour supply decisions differ depending on their circumstances,

⁵ Total participation rates for single women have fallen, due to falls in participation in the under 20 and over 60 age groups.

and on the available information. The strategy pursued here has been to apply each method used to the largest sample for which it is appropriate; but also to apply it to the smaller samples which more demanding methods must use, so that possible differences between the sub-samples of women studied can be identified. Table 4.1 clarifies the different samples used in the analysis.

In the first instance, women of retirement age are excluded from the analysis. This exclusion is standard practice in the international literature, in all studies other than those specifically focussing on the retirement decision. Modelling of the retirement decision introduces a range of additional considerations (such as pension entitlements) which would require a separate study in itself. An age cut-off is used to exclude those most likely to be affected by retirement considerations. The alternative of excluding those who had actually retired, and including women of the same age who had not retired, might introduce a bias into the analysis: it would tend to include those who had a strong preference for paid work, and exclude those with a strong preference for leisure time. Thus 487 women aged 60 or over are excluded, of whom 11 are employees.⁶

The second exclusion, of married women who declare themselves to be unemployed due to illness, or unable to work because of a permanent illness or disability, is for rather obvious reasons. While in some cases the degree of illness or handicap might be such as to allow paid work to be undertaken, this would require greater independent evidence on the health status of the individuals than could be gathered by the ESRI survey. A further 37 women are excluded for these reasons; by definition, none are employees. This leaves a sample of over 2,000 women (the "full sample") for whom a basic analysis of labour market participation decisions is possible.

As indicated earlier, it was not possible to obtain full individual questionnaires for all individual respondents. Some methods of analysis require information which was obtained by the full questionnaire, but could not be obtained from the abbreviated questionnaire. Therefore a "full information" sample was defined by excluding the 119 women for whom only the limited information was available.⁷

International studies typically exclude married women who are self-employed.⁸ *Walsh and Whelan (1973)* also excluded women in farm households in the main previous econometric study of Irish women's participation decisions. The reason for this is that the such women may face different economic opportunities from others. They have the option not using their time not just in employment or in home duties, but as relatives assisting on family farms and businesses – an option widely

⁶ At a later stage we also exclude two women aged under 60 who are retired; this is most unlikely to bias the estimates.

⁷ The summary information gathered on the abbreviated questionnaire is adequate to construct the relevant variables for the husband; thus tax units where the husband completed only an abbreviated questionnaire can be included at all stages.

⁸ See, for example, *Killingsworth and Heckman's (1986)* review of the international literature.

exercised by Irish women. Furthermore, the economic value of their time as relatives assisting is not adequately summarised by a wage. By definition, relatives assisting are family members who do not receive a regular wage; this creates obvious difficulties in modelling the incentives facing them in a manner comparable to that for potential or actual employees.

Because women in farm or self-employed households are so numerous in Irish circumstances, special efforts were made to include them in as much of the analysis as possible. By comparing the results with those from the same methods applied to sub-samples excluding these women we may see whether their decisions are subject to quite similar influences, or differ markedly. Some other methods of analysis demand information on hours of work and hourly pay rates which makes it virtually impossible to include self-employed women. For such methods the analysis is conducted with a sample of non-self-employed women (i.e., excluding women who are farmers, self-employed, or relatives assisting on family farms or businesses: 198 women are excluded at this stage; by definition none are employees).

4. PROBABILITY OF PARTICIPATION: A FIRST ANALYSIS

Our initial analysis can be seen as attempting to summarise the influences on participation suggested by the crosstabulations in Chapter 2 in a more comprehensive way. The probability of a married women participating in the labour force can be seen as depending simultaneously on the number and ages of her children, her educational level, and so on. A single equation can be used to capture these effects. It attempts to explain why some married women participate in the paid labour market, while many more do not; it does not attempt to explain the extent of their participation in terms of hours worked.

The rationale for this "reduced-form" approach is that a woman will participate if and only if the wage she is offered exceeds some critical level, labelled the reservation wage. The wage offered in the labour market depends on a variety of personal characteristics such as education and work experience. The reservation wage reflects the implicit value placed on time spent in the most valued other activity, be it childcare, other "home duties" or leisure. It is seen as depending on the number and ages of children, the level of family income if the wife does not undertake paid work, and so on.⁹

In all cases we observe whether or not a woman participates in the labour market; this simple dichotomy is used as the dependent variable in the analysis. Wage offers and reservation wages are not, however, directly observable for all women. In order

⁹ These ideas can be summarised mathematically as:

$$OW_i = X_i\beta + u_i$$

$$RW_i = Z_i\gamma + v_i$$

where OW and RW stand for the offered and reservation wages respectively, X and Z are sets of variables affecting the offered and reservation wages, and u and v are error terms.

to deal with this inherent problem, the "probit" model uses as independent variables the *determinants* both of the offered wage and of the reservation wage, which are observed for all women whether they participate or not.¹⁰ As outlined in the introduction, later sections will build on this initial analysis to produce more structured estimates of the effects of offered wages and other factors on married women's decisions concerning participation and hours of work.

The treatment of unemployed women in the remainder of our analysis deserves clarification at this point. As *Killingsworth (1983)* has pointed out, the most common procedure in empirical models of labour supply has been to treat the unemployed, along with those in home duties, as voluntary non-participants i.e., as if they chose not to work. More recently, there have been moves towards a more flexible approach, reflecting the view that much unemployment may be involuntary. A number of different methods have been proposed in line with this. One would be to go to the opposite extreme, and treat those who declare themselves to be unemployed as labour market participants in the same way as those who are at work. But methods which allow for some unemployment to be "voluntary" and some "involuntary" have also been developed.

One way of dealing with this possibility is to exclude the unemployed from certain analyses, thereby concentrating on women who are definitely exercising a choice. This route has the merit of simplicity, but involves a possible bias through the selection mechanism.¹¹ Another possibility is to attempt to correct for that possible selection bias using statistical techniques. *Ham (1982)* was an early example of this approach. More sophisticated treatments have been developed by *Blundell, Ham and Meghir (1986 and 1988)*. Their framework takes into account that for an individual to be at work, two conditions must be met. First, she must want to undertake paid work; but second, she must also be able to find a job at a wage level corresponding to her qualifications and experience. The first condition is the standard one, requiring that the market wage offer must exceed the reservation

¹⁰ In terms of the notation above, the model may be set out as follows:

$$\text{Participants (P): } y_i = 1 \text{ if } OW_i > RW_i$$

$$\text{Non-participants (NP): } y_i = 0 \text{ otherwise}$$

Using these relationships we may derive

$$\text{Prob}(y_i = 1) = \text{Prob}(u_i - v_i > Z\gamma - X\beta)$$

$$\text{Prob}(y_i = 0) = \text{Prob}(u_i - v_i < Z\gamma - X\beta)$$

Assuming that the error term $u_i - v_i$ is independently normally distributed with a variance of σ_i^2 we can then estimate the parameters γ and β by maximising the "probit" likelihood function

$$L = \prod_P \left(\frac{Z\gamma - X\beta}{\sigma_i} \right) \prod_{NP} \left(1 - \Phi \left(\frac{Z\gamma - X\beta}{\sigma_i} \right) \right)$$

where Φ represents the cumulative normal distribution function.

If there are variables which influence both the offered wage and reservation wage (i.e., are in both X and Z) then the estimated coefficients on those variables reflect a net effect on participation. Later analyses in this chapter will help to separate the effects which operate through offered wages and through reservation wages.

¹¹ *Ham (1982)* points out that under plausible assumptions this bias will be in the same direction as that introduced by treating unemployed workers as choosing not to work; thus, even if the results of these two treatments of unemployed workers are similar, they may not be correct.

wage. But the second condition means that the probability of being employed is influenced by demand conditions, over and above their influence through market wage rates.¹² The basic approach adopted here is a simplification of this method. A number of demand-side variables, such as unemployment rates specific to the age-group, industry, occupation and region of the individuals are included in the analysis to take account of the fact that women who would work at the going wage rate cannot always find employment.¹³ This broad treatment is maintained throughout this chapter.¹⁴ Where it is convenient and unlikely to cause confusion, therefore, the terms "participation" and "employment" are used interchangeably, without any implication that unemployment represents voluntary non-participation.

Even this relative simple econometric analysis, reported in Table 4.2, sheds a good deal of light on the influences on married women's participation in the labour force. For all samples there is a particularly strong effect from university education.¹⁵ In the full sample there are also significant positive effects on participation from education to Intermediate and Leaving Certificate level. Further analysis will show that the effects of education on labour supply are linked to the association between higher educational levels and higher wages.¹⁶

The complex influences of age and years of work experience cannot readily be captured by this simple analysis. Information on age alone was available for the full sample, and a negative influence is shown. But for the other samples, information on years of work experience is available, and is seen to have a strong positive effect on the participation probability, while years not at work has an equally strong depressing effect.¹⁷ Later analysis will help to disentangle the role of work experience in boosting wages, while age itself tends to reduce desired labour supply.

We now turn to factors which are more closely linked to the reservation wage. We find, as might be expected, that married women with at least one pre-school child

¹² *Blundell et al. (1986)* use information on age and/or industry specific unemployment rates, vacancies and redundancies, together with the individual's occupation, industry, age and education to capture these effects.

¹³ Formally, the extension to the basic probit model of participation to cope with demand side influences over and above their effect through wages is summarised by the likelihood function set out in *Blundell et al. (1986, p. 48)*:

$$L = \prod_{i \in \text{employed}} P_i^i F_i \prod_{i \in \text{not employed}} (1 - P_i^i) + \prod_{i \in \text{not employed}} P_i^i \prod_{i \in \text{employed}} (1 - P_i^i)$$

where P_i^i is the probability of finding employment and F_i is the standard formulation of the probability of wanting to work, outlined earlier.

¹⁴ As in the analysis of *Blundell et al. (1988)*, certain coefficients reflect both supply and demand influences, but several key supply side influences can be clearly identified. Analyses which simply fail to recognise the demand side influences would generally provide a less accurate picture, without resolving the inherent difficulty.

¹⁵ Education to diploma level is significantly positive for only one of the three samples, reflecting a high unemployment rate for this group, rather than a choice not to participate. This is an example of a coefficient reflecting both demand and supply side influences.

¹⁶ A lack of job opportunities for those with lower educational qualifications might also tend to reduce their participation rates and contribute to the observed link between education and participation. But if the influence of education were coming mainly through this channel rather than wages, one would expect that education-specific unemployment rates would play a major role: additional analysis has shown that this is not the case.

¹⁷ The extent of past experience may also be correlated with an individual's "taste for work". This raises technical problems concerning endogeneity of past experience in this framework, which are investigated in *Callan (1991b)*. But the features emphasised in the present study are quite robust in this respect.

Table 4.2
Initial reduced-form probit analysis of married women's employment

Sample:	Dependent variable: Work (=1 for those in paid work, =0 for others)			
	A: Full sample	B: Full information	C: Non-self-employed	
No. of cases	2031	1912	1714	
Mean dep. var.	0.270	0.270	0.190	
Variable	Coefficient (t-value¹ in parentheses, italicised)			
Constant	1.96 (5.63)	1.16 (3.35)	0.33 (0.73)	
Group Cert	-0.06 (0.59)	-0.01 (0.04)	0.01 (0.05)	
Inter Cert	0.23 (2.24)	0.10 (1.75)	0.06 (0.37)	
Leaving Cert	0.24 (2.35)	0.04 (0.33)	0.25 (1.68)	
Diploma	0.17 (1.10)	-0.09 (0.55)	0.20 (0.93)	
University	1.05 (5.64)	0.65 (2.98)	1.02 (3.94)	
Age	-0.03 (6.23)	-	-	
Years of work experience (YRSW)/10	-	0.57 (3.59)	1.43 (6.27)	
YRSW2/1000	-	-0.77 (1.59)	-3.57 (5.09)	
Years not at work (YRSNW)/10	-	-1.46 (11.72)	-1.64 (9.28)	
YRSNW2/1000	-	2.88 (9.09)	2.65 (4.99)	
Female unemployment rate by:				
Industry	-7.5 (8.30)	-4.5 (4.38)	-5.3 (4.18)	
Occupation	-1.6 (1.62)	-2.4 (2.02)	2.1 (1.39)	
Region	-3.2 (1.75)	-2.1 (1.01)	-1.9 (0.74)	
Urban	-0.25 (3.57)	-0.28 (3.48)	0.14 (1.47)	
Youngest child aged 0-4	-0.47 (5.16)	-0.80 (7.59)	-0.94 (7.43)	
Number of children (0-17)	-0.06 (2.71)	0.06 (2.34)	-0.01 (0.28)	
Family income if wife not employed ²	-0.06 (2.42)	-0.03 (1.08)	-0.09 (2.35)	
Proportion of cases correctly predicted	76.1%	82.3%	88.3%	
Log L	-1033.5	-828.3	-516.2	

Notes: 1. The t-statistic is used to test whether the coefficient is significantly different from zero. A value of 2 or more indicates that there is less than one chance in 20 that the estimate could have been obtained by chance, if the true coefficient were zero.

2. Measured in pence per week, throughout this chapter.

are significantly less likely to enter employment in the paid labour force. The effects of the number of children on participation probability are more complex. It would appear to work mainly through the impact on previous work experience. Thus, the greater the number of children, the more likely it is that a woman will have spent more time out of the labour market in the past; and this in turn tends to reduce current participation through its effect on the offered wage. But controlling for this work experience effect, the impact of the number of children is greatly reduced. It is not significantly different from zero for the non-self-employed sample. For the full information sample, a positive effect is found; but this sample includes as

participants relatives assisting on family farms, who may find that this form of market participation allows sufficient flexibility to be combined with caring for children. But even in this sample, additional analysis shows that the greater the number of children, the less likely it is that a woman will become an *employee*.

Family income when the wife does not undertake paid work has a negative influence, which is significant for two of the three samples. This variable measures after-tax family income less the after-tax labour income of the wife. For families where the wife does undertake paid work, this understates the amount which would be received if the wife stopped working, because it does not take into account any reduction in the income tax on the husband's earnings or other income. The implications of the tax system will be considered later.

A role is also found for demand-side influences. Female unemployment rates specific to the individual's region and current or last industry and occupation have a negative influence on the probability of a married woman obtaining employment in the full sample: the effects for industry- and region-specific unemployment rates are significantly different from zero. The industry-specific unemployment rate remains significantly negative in the other samples, and is always the strongest demand-side influence. The effect of urban as distinct from rural location is less clearcut. One might expect that urban location might make it easier to find employment, and that that employment would be more accessible; but many married women in rural locations participate as relatives assisting on family farms. It is this latter factor which seems to dominate in the two larger samples, where relatives assisting are included: rural women are more likely to participate than urban women, after controlling for other factors, but urban women are more likely to be employees.

Overall, comparison of the results across the different samples reveal more similarities than differences. The results for the full information and non-self-employed samples are particularly close. The differences between these and the results for the full sample are, to a large extent, a reflection of differences in data availability. Only age information is available for the full sample; when the equations for the other samples are re-estimated using information on age rather than work experience, the results are even closer to those for the first sample.

The implications of this form of analysis for the relative importance of different influences on participation can be summarised conveniently in the following way. First, we establish a predicted probability of participation for a "reference case". This is taken to be a married woman without children, living in an urban area, and with a Leaving Certificate education: her other characteristics (years worked, husband's income, industry-specific unemployment rate etc.) are set approximately equal to the sample averages.¹⁸ We can then see how changes in particular factors

¹⁸ This is not intended to be a typical case, but a benchmark against which the effects of different family circumstances, personal characteristics and demand-side influences can be gauged.

Table 4.3
Effects of personal characteristics on predicted participation probabilities

Sample: Non-self-employed			
Reference case:			
Education level	Leaving Cert.	Urban	Yes
Years of work experience	10	Unemployment	
Years not in paid work	13	rate by	
Child aged 0-4	No	Age	8.6%
Number of children 0-17	None	Industry	8.4%
Family income if not at work	£170 per week	Occupation	8.5%
		Region	13.5%
Characteristic	Probability of participation		
Reference case	0.29		
University education	0.58		
Child aged 0-4	0.06		
High unemployment ¹	0.25		
Low unemployment ¹	0.39		
More work experience ²	0.60		
Older ³	0.24		
Younger ⁴	0.69		

Notes: 1. Using highest and lowest industry-occupation- and region-specific unemployment rates observed in the sample.
2. Five years more spent in paid work, and five years less spent not in paid work.
3. Five years more spent in paid work, and five years more spent not in paid work.
4. Two years less spent in paid work, and eight years less spent not in paid work, to reflect the typical life-cycle pattern of participation.

alter the predicted probability of participation. Table 4.3 reports the results of these calculations, where each case differs from the reference case in one particular respect. The non-self-employed sample is used; the levels of the participation probabilities for other samples would differ, but the patterns would be broadly similar.

The impact of the presence of young children, of educational attainment, of previous work experience, and of breaks in work experience are clear from this table. For example, a married woman with a university education, and no children, is 10 times more likely to be employed than a woman with a Leaving certificate education and a pre-school child. A woman who has already spent five more years in the labour market (and five years less out of the labour market) also has a much higher probability of staying in the labour market.

While the "probit" analysis in the present section differs from the "linear probability function" used by *Walsh and Whelan (1973)*, some comparisons are possible. Reassuringly, to the extent that there is an overlap between the influences examined, similar effects are found. The greater concentration on economic variables in the

dataset used for the present study may partly account for an improvement in overall predictive performance when corresponding samples of non-farm married women are used.

5. PREDICTING GROSS WAGES FOR NON-PARTICIPANTS

Thus far, we have examined the effects of determinants of earnings on participation. A more direct analysis of the effects of potential earnings on participation decisions would have a number of advantages. In the present context, perhaps the most important of these are the insights it yields on the effects of changes in income tax and social welfare policies. Indeed, a direct analysis of the effects of wages on labour supply is essential if the labour supply consequences of income tax and social welfare policy changes are to be examined. But wages are directly observed only for those who are employed. If we are to examine the effects of wages on participation, we must predict wages for those who are not currently employed.

We have seen that the international literature has moved away from trying to predict these wages on the basis of equations simply estimated for those currently participating: there is a selection bias at work, which may distort the predictive equation. We follow what is now standard practice in that literature by estimating a wage equation which corrects for the self-selection into the paid labour force.¹⁹ In the case of the "full information" sample which includes those participating as relatives assisting or self-employed, we correct in the same way for selection into the sub-sample of employees for which wage data are available. This allows us to predict wages not only for those who do not participate in the labour market, but also for those who do participate but for whom wage data cannot be obtained. This represents an adaptation of the practice in the international literature to cope with the relatively high numbers of self-employed and relatives assisting in Ireland. It allows us to retain them in the next stage of the analysis of participation decisions. The estimates for the wage prediction equations are reported as Table 4.4.

The results show a strong effect of education on gross hourly wages: higher educational qualifications are consistently associated with higher wage rates. For a married woman with the average characteristics of a participant the predicted hourly wage is around £2.90 if she has no educational qualification above primary level.

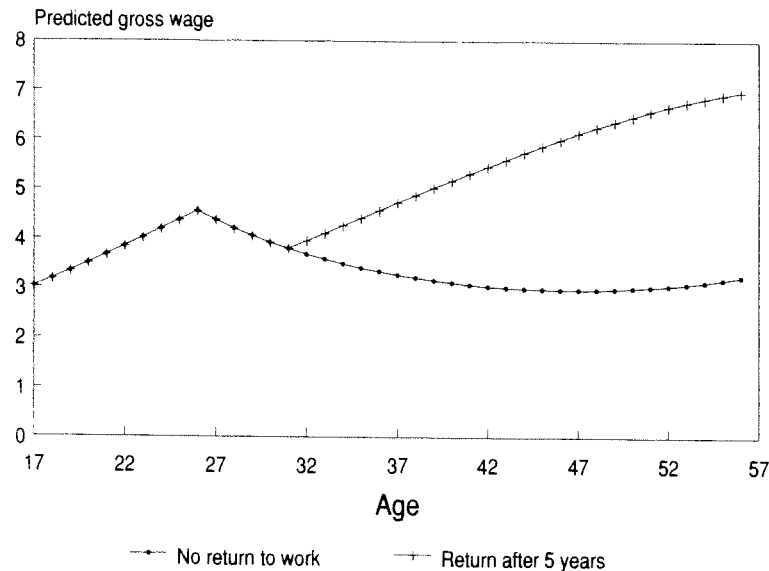
¹⁹ The method is due to *Heckman (1979)*. The intuition behind it can be summarised as follows. For a set of individuals with the same observed characteristics, some will obtain higher wages than average due to unobserved factors, and others will obtain lower wages. Wages are only observed for those who participate. If those who participate tend to have higher (or lower) wages for given characteristics, then the relationship between wages and characteristics among participants will not reflect the true relationship for the whole population. In order to counteract this possibility, the probit analysis undertaken in the previous section is used to predict whether or not it is likely that individuals will participate in the labour market. If the prediction is that they are unlikely to participate, but they are currently at work, this suggests that there is some unobservable factor making participation more likely; this might be something which tends to make their wages higher for given characteristics. Thus the predicted probabilities for participation can form the basis for the construction of a new variable (formally, the inverse Mills ratio from a probit analysis of selection into the sub-sample for which wage rate data are available). Inclusion of this additional variable then guards against selection bias.

Table 4.4
Wage Prediction Equation

Dependent variable: Log of Usual Gross Hourly Wage		
	<i>Sample B</i>	<i>Sample C</i>
	<i>Full</i>	<i>Non-self-</i>
	<i>information</i>	<i>employed</i>
No. of cases	1912	1714
No. with wages	326	326
Mean & std. deviation	1.43	1.43
of dependent variable	0.60	0.60
Variable	Coefficient (t-value in parentheses)	
Constant	1.00 (3.72)	0.99 (3.77)
Group Cert	0.08 (0.90)	0.08 (0.95)
Inter Cert	0.24 (2.81)	0.24 (2.86)
Leaving Cert	0.34 (3.95)	0.35 (4.10)
Diploma	0.65 (5.80)	0.64 (5.81)
University	0.98 (8.23)	0.99 (8.46)
Years of work experience/10 (YRSW/10)	0.51 (3.43)	0.55 (3.72)
YRSW ² /1000	-0.79 (1.90)	-0.82 (2.04)
Years not at work/10 (YRSNW/10)	-0.36 (3.44)	-0.41 (3.80)
YRSNW ² /1000	0.74 (2.03)	0.80 (2.21)
Female unemployment rate by:		
	Industry	-1.0 (1.35)
		-1.1 (1.52)
	Occupation	-1.6 (1.99)
		-1.7 (1.78)
Region	-2.2 (1.64)	-2.5 (1.78)
Urban	0.08 (1.48)	0.08 (1.37)
Selection bias correction (LAMBDA)	0.17 (1.95)	0.22 (2.51)
R ²	0.55	0.55

This figure rises by over 25 per cent (to £3.70) if she has an intermediate certificate. The corresponding predictions for a woman with a leaving certificate, third level diploma, and university qualification are about £4.10, £5.60 and £7.80.

Figure 4.1
Effects of Work Experience on Wages



Work experience has a positive but declining influence, while years spent out of employment exert a negative but declining influence. Quite commonly these opposing effects are confounded in the literature for lack of appropriate data. When actual work experience and periods out of employment are not known, age or "potential experience" (the number of years since leaving full-time education) are commonly used. But this is less satisfactory as an explanatory variable than actual experience, as might be expected when a single variable is being used to pick up two contradictory influences.²⁰ The pattern of wage rates over the life cycle implied by these results is illustrated by Figure 4.1, for an "average" woman (Leaving Certificate education, and average values for other characteristics). In each of the two cases shown, the woman works from age 17 for 10 years, and then is out of the labour force for 5 years. The wage which can be obtained after the five year break in labour market experience is sharply reduced. The wage profile of the woman who returns to the labour market at that point, and stays in it, then diverges strongly from that of the woman who stays out of the labour market for a longer period. This clearly demonstrates the important dynamic effects of participation on wages.

The collection of demand side variables exerts a significant influence, although

²⁰ The variable "years worked" may be endogenous in the wage equation: persons with wages higher than expected on the basis of other characteristics may tend also to spend more years in employment. An investigation of this issue (Callan, 1991b) concluded that taking this possibility into account did not improve the quality of the wage equation estimates.

most of the individual coefficients are not well determined. There is just over a 5% chance that a true value of zero for the selection bias term could, by chance, give rise to the estimated value in the larger sample. In the non-self-employed sample, the coefficient is significantly different from zero at that standard. The sign of the coefficient suggests that women who, for a given set of characteristics, are able to command higher wage rates, are more likely to participate. Overall the two sets of estimates are almost identical: this is not surprising, since the same sample of 326 women with wages is used in each case. Differences can only arise, therefore, through the selection mechanism.²¹

The independent variables included in the equation²² are all measured for non-participants as well as for those currently working. Therefore, it is possible to use the estimated regression coefficients to predict a wage for non-participants. This makes it possible to analyse the effects of potential earnings on the participation decisions of all women, including, as noted earlier, participants such as relatives assisting for whom wages are not directly observed.²³

6. PROBABILITY OF PARTICIPATION: DIRECT ESTIMATES OF WAGE EFFECTS

Using the predicted wages for non-participants derived from the equations reported above, we are now in a position to re-estimate probability of participation in a more structured fashion. This will allow us to give a first answer to the questions "how responsive is married women's participation to wage rates?" and "how responsive is married women's participation to other income?". A probit analysis is again used, but instead of simply listing all variables relevant to offered wages, we can now use the predicted wage for non-participants. This allows us not only to identify the direct effect of wages on participation, but also to include an important additional influence on reservation wages which could not be included in our earlier analysis. Reservation wages are influenced by a person's age, but because this is so highly correlated with the work experience/years not worked variables it was not possible to include it as an additional variable in the earlier, reduced form analysis.

At this stage, no attempt is made to model the effect of taxation on the wage: we seek simply to identify the effects of gross wages on participation decisions. The main reason for this is to give a benchmark against which more complex analysis of

²¹ Comparison with ordinary least-squares estimates, which ignore possible selection bias, show very similar results. But the effects of education and work experience seem to be slightly underestimated by the OLS method.

²² Occupation and industry dummies are often used instead of or in addition to the education and experience variables used here to predict wages. The strong association between occupational groups and educational qualifications, and the degree of overlap between occupational and industry classifications meant that a model containing all of these variables could not identify the separate influences and did not greatly improve the fit. Therefore it was decided to retain the theoretically more appealing specification which used only information on educational level and work experience.

²³ While this fitted wage is the only one which can be used for non-participants and relatives assisting, there is a choice as regards those currently working as employees: the fitted wage, or the actual gross wage can be used in further analysis. Both procedures have been extensively used in the literature. We follow the latter one in most of the analysis, but we also indicate some of the key results from the alternative approach.

Table 4.5
Probit analysis of participation probability based on gross wages

Variable	Dependent variable: At Work	
	Sample B	Sample C
	Full information	Non-self-employed
No. of cases	1912	1714
Mean & std. deviation of dependent variable	0.270	0.190
	0.444	0.393
	Coefficient (t-value in parentheses)	
Constant	0.01 (0.03)	0.31 (0.67)
Log (Usual gross wage)	1.26 (11.92)	1.35 (11.48)
Family income if wife is not employed	-0.08 (2.85)	-0.12 (3.21)
Youngest child aged 0-4	-0.70 (7.14)	-0.83 (7.34)
Number of children aged 0-17	-0.04 (1.61)	-0.11 (3.76)
Age	-0.03 (6.92)	-0.05 (10.0)
Female unemployment rate by:		
Industry	-4.85 (5.06)	-6.78 (5.99)
Occupation	1.15 (1.06)	4.40 (3.39)
Region	0.38 (0.20)	1.16 (0.49)
Urban	-0.36 (4.83)	0.07 (0.84)
Proportion of cases correctly predicted	80.0%	86.5%
Log likelihood	-920.3	-629.5

the tax system can be measured. Analysis of net wages would make no substantive difference to the analysis if the income tax system was fully proportional. Indeed, research in the US has found that despite the nominal progressivity of the income tax system, empirical labour supply analysis finds it extremely difficult to reject the hypothesis of effective proportionality (Mroz, 1987). While this seems extremely unlikely in the Irish case, the analysis of participation decisions in terms of gross wages is a useful starting point.²⁴

²⁴ Its usefulness is reinforced by the fact that most employees receive PAYE and PRSI income tax allowances of approximately £1,000. This means that the gross wage rate is relevant to decisions about after-tax pay over this region.

The most striking feature of the results in Table 4.5 is the very strong direct effect of potential earnings on the probability of participation. Women who can command a relatively high market wage are much more likely to be found in the labour market. Non-employment income, including net earnings of the husband, has a significant negative effect on the probability of participation. The higher the husband's earnings, the less likely it is that a woman will participate in the labour market, other things being equal. The direct effect of the woman's own wage is, however, by far the stronger of these two effects. In order to make this comparison, and allow the results to be compared with those from other countries, it is necessary to calculate the elasticities of participation with respect to wages and to non-employment income. The elasticities were calculated as follows. The probability of participation was predicted for all cases in the sample using Table 4.5. These probabilities were then recalculated using the same coefficients, but with a 10% increase in the variable of interest (wage rates or other income). The elasticities were then derived as the ratio of the percentage change in the participation measure (average probability of participation) to the 10% increase. So a wage elasticity of 2 means that a 10% rise in wages gives rise to a 20% increase in the participation rate. If the initial participation rate is 25%, then the increased rate will be 30%. The results of these calculations are reported in Table 4.6 below.

Despite the degree of variation in these estimated elasticities, several important results hold for all the estimates. First, the level of the wage elasticity (between 1.25 and 2.73) is much greater in absolute value than that for property income (between -0.13 and -0.29). This has the important implication that growth in real wage rates, even if at similar rates for men and women, will tend to increase married women's participation in the labour market. A more detailed exploration of this issue will be undertaken in Chapter 6.

Second, the level of the wage elasticity is towards the high end of the international

Table 4.6
Responsiveness of participation to wages and other income

Elasticity of participation probability ¹ w.r.t	Sample			
	Full information		Non-self-employed	
	Predicted wages ²	Fitted wages ³	Predicted wages ²	Fitted wages ³
Wage rate ⁴	1.25	1.89	1.45	2.73
Other income ⁵ (including husband's earnings)	-0.13	-0.17	-0.21	-0.29

Notes: 1. Participation probability: average predicted probability of participation over the sample.
2. Predicted wages: actual wage rates used where available, fitted wages elsewhere
3. Fitted wages: fitted wages from Table 4.4 used in all cases
4. Uncompensated wage elasticity
5. Property income elasticity

range: a value of between 1.3 and 2.7 is above *Zabalza's (1983)* estimate of 0.4 for the UK, and *Layard, Barton and Zabalza's (1980)* estimate of 0.49. But the range encompasses *Haartog and Theeuwes (1985)* estimate of 1.99 for the Netherlands, where the level of the participation rate was more similar to Ireland's. This also provides support for the conjecture that the elasticity of participation may be higher when participation levels are lower.

Third, internationally comparable estimates of the other or "property" income elasticity of married women's participation are difficult to find. *Haartog and Theeuwes (1985)* calculate elasticities of -0.35 and -0.02 with respect to the husband's wage rate and property income respectively; *Zabalza (1983)* gives corresponding estimates of -1.21 and -0.18 . While the figures in Table 4.6 are not exactly comparable, they are towards the lower end of the range spanned by these estimates.

Turning now to the variations in the estimated elasticities, we find that both wage and property income elasticities tend to be somewhat higher for the non-self-employed sample. Given the lack of actual wage information on women who are self-employed and assisting in family businesses, it would be unwise to place too much reliance on this tendency. More important is the fact both groups of women appear to be highly responsive to economic incentives. The estimates which are based on fitted wages for the full sample are greater than those which use actual wages where available ("predicted wages").²⁵ The wage elasticities using predicted wages range from 1.25 to 1.45; for fitted wages the range is from about 1.9 to 2.7. The differences as regards "other income" elasticities are much smaller; a range of -0.13 to -0.21 , as against a range of -0.17 to -0.29 .

The results on the influence of children confirm and strengthen those reported in the initial analysis of Section 4. Young pre-school children have a very strong negative impact on participation, while the total number of children has a more moderate but still significant depressing effect on participation as an employee. It is clear, as would be expected, that it is less difficult for women with children to become relatives assisting on family farms than to become employees. Relatives assisting are often working and living in the same premises; this, together with the nature of family businesses, tends to make for more flexible arrangements for the combination of work with childcare than employees typically encounter.

It was noted that in Section 4 the influence of age on participation could not be directly estimated. Here we find a significant negative impact of age on

²⁵ The elasticities for predicted participation (cases where the predicted probability of participation was greater than 50%) tend, on the whole to be greater than those for the predicted probability of participation. This might suggest that the decision as between participation and non-participation for many women in the sample is quite finely balanced. However, since the predicted participation rate is well below the actual participation rate, while the average participation probability is close to the average participation rate, the elasticities reported in the table may prove a better guide.

participation. It is not possible from a single cross-section survey to say how much of this is due to a life-cycle effect, and how much due to a shift in tastes and attitudes across generations. The fact that attitudes have changed is well established. But when the sample is split into younger and older age groups (below and above 40) we still find very similar results. This suggests that the life-cycle element should not be ignored. An important part of the total life-cycle influence operates through the wage determination mechanism, as illustrated in Figure 4.1.

7. CONCLUSIONS

In this chapter a number of methods of analysing influences on married women's labour force participation were examined. Data specifically designed for this purpose was gathered as part of the ESRI Survey of Income Distribution, Poverty and Usage of State Services, and used in the present chapter. It included information on all of the key influences set out by *Geary (1988)* in his review of the international literature: female wages, male earnings, nonwage income, labour market conditions (drawing on the Labour Force Survey for unemployment rates specific to sex, occupation, industry and region), number and ages of children, educational levels and age.

A simple framework which helps to clarify the influences on labour force participation was outlined. It was based on the idea that women who could command relatively high wages would be more likely to participate; women whose time in other activities was of greater value would be less likely to participate; and a woman facing relatively high unemployment rates would be less likely to find a job, or be discouraged from participating by that fact. This simple framework found that university education and previous work experience were particularly important in making current participation more likely; conversely, a long period spent out of the labour market made participation much less likely. The presence of a young, pre-school child was also a strong factor in depressing participation.

The major limitation of this simple framework was that it could not tell us directly about the effects of potential earnings on participation. In order to answer this question it was necessary to predict the potential wages of those who were not employed, since, by definition, actual wages are not currently observed for this group. The influence of educational levels on wages emerged very clearly from this analysis: the higher the educational level, the greater the wage which could be commanded in the labour market. Women with greater work experience were also able to command much higher wages than those who had spent long periods out of the labour market, other things being equal.

Using predicted wages for non-participants and either predicted or actual wages for those who were currently employed it was possible to estimate the effect of potential wages on participation. This effect was found to be particularly strong. It was

PARTICIPATION AND HOURS OF WORK: FURTHER CROSS-SECTION EVIDENCE

estimated that a 10% across-the-board increase in wages, other factors being held constant, would lead to an increase in participation of between 13 and 27 per cent: a 3 to 5 percentage point increase in the participation rate. This elasticity (1.3 to 2.7) is quite high by international standards. It is also much higher than the corresponding elasticity with respect to the earnings of husbands and other income. On the basis of this result, if male and female wages grow equally over time, married women's participation would be expected to grow: this point is taken up in detail in Chapter 7.

In the next chapter, we introduce additional information on income taxes and social welfare benefits, in order to see how robust are the estimates of the relative importance of different factors on participation. We also examine the determinants of the intensity of participation – the number of hours worked. Furthermore we compare the responsiveness of husband's and wives' labour supply decisions to wages and non-employment income.

1. INTRODUCTION

Up to this point, we have studied whether or not married women participate in paid employment without any explicit allowance for the effects of income taxes and social welfare schemes. In this chapter we introduce information on income taxes and social welfare receipts in order to study their impact on participation decisions. The analysis is extended in other directions too. It includes another important dimension of participation: the hours worked by married women who are employees. The question of whether married women's participation and hours worked are, in general, more sensitive to wage rates and other income than that of their husbands is also addressed.

Section 2 describes how the additional information on hours of work, social welfare receipts, and income tax rates required for these analyses was obtained. Section 3 describes the estimation procedures and their results. The responsiveness of married men's participation and hours decisions to key economic influences is dealt with in section 4. The final section draws together the main findings.

2. DATA AND METHODS

Information on usual hours of work per week was collected in the ESRI Survey of Income Distribution, Poverty and Usage of State Services. This information was used in combination with usual pay to obtain a usual wage rate; and it is used here to measure the intensity of participation in the labour market.

Detailed information on receipts from social welfare schemes was also obtained. The nature of these schemes is such that a married woman's labour supply decisions may be significantly affected by her husband's receipt of social welfare benefits. The schemes may be divided into two broad classes: means-tested benefits, such as unemployment assistance, and non-means-tested benefits, such as unemployment benefit or unemployment assistance. If her husband is on a means-tested benefit (MTB), then typically for each pound of after-tax income earned by a married woman, a pound of her husband's benefit is withdrawn. The situation with respect to non-means-tested or "contributory" benefits (non-MTB) is more complex. Prior to the implementation of the equal treatment directive, a husband receiving a contributory benefit was automatically entitled to an adult dependant allowance for his wife, and to child dependant allowances. The equal treatment provisions made

such payments also available to married women in receipt of contributory benefits, but at the same time made them conditional on the gross earnings of the spouse being less than £50 per week. So if a married woman earned more than £50 per week, her husband would no longer receive the adult dependant allowance, and would receive just half of the child dependant allowances. This change to equal treatment began in late 1986, coinciding with the initial stages of data collection for the ESRI survey. Furthermore, transitional compensation was paid to those who would otherwise have experienced a cut in their benefit payments. Thus, the ESRI data is likely to reflect a mixture of the pre- and post- equal treatment regimes.

One would expect the labour supply decisions of married women whose husbands receive means-tested and non-means-tested payments to be affected in somewhat different ways. Participation for those whose husbands receive means-tested benefits would be discouraged; but if they were to participate, one might expect them to work longer hours, in order to offset the loss of means-tested benefit. Post-equal treatment, one would expect participation of those whose husbands receive non-means-tested benefits to be restricted by the £50 per week rule; if they participate, one would expect their working hours to be shortened by this influence.

While the use of gross wages in the foregoing analysis can be justified if the tax system is, in effect, roughly proportional, the actual tax and benefit system is a good deal more complex. The nature of the tax liabilities and benefit withdrawals actually facing married women is dealt with in greater detail in Chapter 7. Here we may simply note that from an income tax point of view, a wife who moves into paid employment faces the full marginal tax rate already applicable to the husband's earnings as soon as the PAYE and PRSI allowances (of about £1000) are exhausted.

There are a number of technical problems to be solved in order to take into account the effects of taxation on labour supply decisions. The first was to find the marginal tax rate faced by each couple, given the labour supply decisions they had made. This was done using the model of the income tax system developed at the ESRI (*Callan, 1991a*). This "actual" marginal tax rate is partly dependent on the wife's labour supply decisions, because of the progressivity of marginal tax rates. The longer the hours worked by a woman, the higher her earnings and the more likely it is that she will face a higher tax rate. Thus the wage net of the actual tax rate cannot be used as a strictly exogenous variable to analyse her labour supply decision. In order to overcome this difficulty, we used other variables which can be regarded as exogenous to predict the actual after-tax wage rate; these predicted net wage rates were then used in the analysis. This procedure is known as "instrumenting" for a variable. The most important "instrument" used was the tax rate faced by the wife if she did not undertake paid work; given the nature of the tax system, this is determined by her husband's earnings and their collective non-labour income.¹ This variable was also constructed using the ESRI model of the income tax system.

A similar technical difficulty arises in defining the appropriate measure of family income when the wife is not employed. There are two distinct concepts here. The first, and most familiar one, represents the straightforward answer to the question what would be the net income of the family if the wife did not work. The second is what net family income would be if, instead, a deduction were made equal to the wife's hours of work times her wage net of the effective marginal tax rate she faces. We will distinguish this technical construct by referring to it as "tax-adjusted" family income.² The measures used up to this point represent a somewhat uneasy compromise between these two concepts. In what follows, however, we concentrate on tax-adjusted family income. Since it depends on the marginal tax rate faced by the wife, which depends on her labour supply decision, we instrument for it in the same way as for the after-tax wage rate.

3. PARTICIPATION AND HOURS OF WORK: FURTHER ANALYSIS

In this section, we analyse the participation and hours of work decisions in two different ways. The first is based on the idea that the actual hours worked by participants simply reflect their own preferences; the desired hours of non-participants are assumed to reflect the same influences, but all we can know about their magnitude is that they are not positive. While recognising that hours in any given job may be rather inflexible, the choice between different jobs may offer the flexibility in hours of work assumed by the model. The second method of analysis emphasises the importance of fixed costs of participation. For individuals whose desired hours mean that earnings are much greater than fixed costs, decisions as to the exact number of hours are not influenced by the fixed costs. Other individuals might wish to work a small number of hours, but find that that was undesirable because of the fixed costs, and decide not to participate. Thus, fixed costs might introduce a distinction between participation and hours of work decisions. Those for whom fixed costs are high will tend not to participate; but if they do participate, they are likely to work longer hours.

The first method of analysis, which emphasises the flexibility of hours worked, uses what is known as a "Tobit" model. The inclusion of demand-side variables to cope with the presence of involuntary unemployment is not appropriate in this instance. Demand-side factors are expected to influence participation, but not hours worked for participants: this expectation is confirmed by later analyses. So the more ad hoc method of excluding unemployed women from the sample was adopted here.³ Estimation results are presented in Table 5.1.

¹ Technically this means that the analysis is of the wife's labour supply decisions conditional on that of her husband. This does not imply that that is how married couples actually make their labour supply decisions. A more general approach is to regard their labour supply decisions as being jointly determined. But even in this case, it will be a characteristic of their joint decision that given the husband's (wife's) decision, the wife (husband) will choose a preferred number of hours. It is this choice which we analyse. If the choices are interdependent, then the estimates will not reflect those interdependencies, but will capture many of the influences on female labour supply. If husbands do, typically, make their labour supply decisions first, then our analysis will provide a complete picture.

² It is often referred to in the literature as "virtual income".

Table 5.1
Tobit analysis of desired hours of work

Sample: Non-self-employed (Sample C) excluding unemployed
 Dependent variable: Usual Hours per week
 Mean of Dependent Variable: 6.10

<i>Variable</i>	<i>Coefficient</i> <i>(t-value in</i> <i>parentheses)</i>	<i>Variable</i>	<i>Coefficient</i> <i>(t-value in</i> <i>parentheses)</i>
Constant	27.36 (3.36)		
Log (usual net wage)	48.33 (13.2)	Husband on MTB	-23.97 (4.83)
Tax-adjusted family income if wife is not employed ¹	0.97 (0.92)	Husband on non-MTB	-10.78 (2.58)
Youngest child aged 0-4	-25.37 (6.61)	Age	-1.95 (10.79)
Number of children aged 0-17	-4.51 (4.31)	Urban	5.28 (1.89)

Log of likelihood function:-2044.8

Notes: 1. Measured in pence per week.

The broad pattern of results found in the earlier participation analysis is confirmed. Detailed consideration of the elasticity of hours with respect to wages is deferred until the alternative model has been presented. But it is clear that the wage coefficient is large and positive, while the response with respect to tax-adjusted family income is not significantly different from zero. Significant negative effects of young children, number of children and the wife's age on desired hours of work are confirmed. The presence of a young child has about the same impact as that of five children above the age of 4.

A husband's receipt of social welfare benefits is shown to have a depressing effect on the extent of his wife's labour market participation. The effect of means-tested benefits is, as expected, stronger than that of non-means-tested benefits.

We turn now to the results of the alternative model, which allows for fixed costs to introduce differences between participation and hours decisions. In order to provide a comparison with the results in the previous chapter, we include unemployed women in this analysis; the results are not much changed by their exclusion, so that we can also compare the results with those in Table 4.1. The analysis proceeds in

³ It is possible that some non-participants who do not report themselves as unemployed may have been discouraged from seeking employment by high unemployment rates. Inclusion of the demand-side variables for the revised sample (excluding the unemployed) suggests that this may well be an important phenomenon. But the results do not greatly differ from those reported, which provide an adequate benchmark for this type of model.

Table 5.2
Two-stage analysis of participation and hours of work

Sample: Non-self-employed (Sample C)

<i>Dependent variable</i>	<i>At work</i>		<i>Hours of work</i>	
Mean of dep. var.	0.190		31.4	
No. of cases	1713		325	
<i>Variable</i>	<i>Coefficient</i> <i>(t-value in</i> <i>parentheses)</i>		<i>Coefficient</i> <i>(t-value in</i> <i>parentheses)</i>	
Constant	0.94	(0.44)	36.4	(8.44)
Log(usual net wage)	1.43	(11.34)	14.17	(3.06)
(Log(wage)) ²	-		-8.31	(4.62)
Tax-adjusted family income if wife is not employed ¹	0.02	(0.50)	-0.75	(1.43)
Youngest child aged 0-4	-0.82	(7.15)	3.39	(2.28)
Number of children aged 0-17	-0.10	(3.34)	-0.69	(1.29)
Husband on MTB	-0.77	(5.27)	5.33	(1.86)
Husband on non-MTB	-0.40	(3.21)	-0.04	(0.02)
Age	-0.05	(10.04)	-	
Urban	0.19	(2.20)	-4.24	(3.25)
Selection bias	-		-5.49	(2.75)
Female unemployment by:				
Industry	-7.03	(6.22)	-	-
Occupation	3.91	(3.05)	-	-
Region	-6.06	(0.25)	-	-
R ²	-		0.19	
Log likelihood	-577.0			

Notes: 1. Measured in pence per week.

two stages. First, it analyses the effects of wages on participation/non-participation decisions in the same way as Chapter 4. The difference here is that influences from the social welfare and income tax systems are taken into account. The second stage of the analysis examines the hours worked of those who participate, while taking account of the possible bias inherent in this sample selection procedure.⁴

The results of the two stages of the analysis are summarised in Table 5.2.

The results of the first stage of the analysis, concerning participation/non-participation decisions, are similar to those of Table 5.1. There is a strong positive effect from potential wages, while the effect of tax-adjusted family income is not significantly different from zero. Women with young children, or with several

⁴ For more detail on the selection bias issue, see Chapter 4.

children in total, are less likely to participate as are older women. Women with husbands in receipt of social welfare payments are less likely to participate: means-tested benefits have a stronger impact than non-means-tested benefits in this respect.

The second-stage results, however, are quite different in many ways from those of all the earlier analyses. As was pointed out, the rationale for this approach was that fixed costs *would* lead to different effects on hours and participation decisions. If a woman chooses to participate and thereby incur certain fixed costs, she will work enough hours to ensure that her income offsets those costs. This means that for women who face particularly high costs, we are likely to observe lower rates of participation, but higher hours of work for those who do participate. Let us see if the differences in the estimates can be explained in these terms.⁵

The results of the two-stage analysis suggest that women with young children who do participate in the labour market tend to work longer hours, other things being equal. Could the costs of childminding arrangements explain this? This is a complex issue. An hourly rate for childminding can be seen as simply a reduction in the wage, and might tend to influence participation rather more than hours worked; but there may be elements of fixed costs in terms of setting up a childminding arrangement. If so, these could tend both to reduce participation and increase the hours of participants. Urban women are found to work fewer hours, other things being equal. If rural women face higher costs of travel to work, this might explain why they tend to work longer hours when they are employed. Finally, one possible explanation for the sign of the selection bias term is that women with unobserved high fixed costs are less likely to work, but more likely to work long hours if they do participate. The case of women whose husbands are receiving means-tested benefits is similar to those facing high fixed costs. Such women may participate only if they can work enough hours to more than offset the loss of benefit (cf. the incurring of fixed costs). If so, they would tend to work longer hours, as the two-stage analysis suggests.

One other feature of the results of the second-stage analysis should be noted. While higher wages are associated with increased hours of work at low wage levels, this association is reversed at a wage level below the average. The net effects are summarised by elasticity calculations based on a 10% increase in wages across the entire sample; this gives a more representative picture than simply evaluating the elasticities at the means of all variables because it takes into account the actual variation in women's circumstances across the sample. Table 5.3 shows the elasticities of participation and hours worked to wages and other income based on the different methods of analysis reported earlier in this chapter, and on the final results from Chapter 4. A comparison of lines 1 and 2 of the table (results from Chapter 4, Table 4.5/6, and the first stage of the analysis here) helps to show the

Table 5.3

Responsiveness of participation and hours worked to wages and other income¹

Sample C: Non-self-employed				
Elasticity ² w.r.t:	Wages ³		Other income ⁴	
	Participation probability participation	Hours given	Participation probability participation	Hours given
Chapter 4 (Table 4.5)	1.45	—	-0.21	—
Two-stage analysis (Table 5.2)	1.52	-0.09	0.03*	-0.04
Tobit (Table 5.1)	1.42	0.49	0.05*	0.01*

- Notes: a. Based on estimated coefficients which are not significantly different from zero.
 1. The elasticity calculations are based on the responses across the entire sample to a 10 per cent rise in wages (other incomes); they are not simply evaluations at the means of all variables.
 2. Based on predicted wages: actual wage rates used where available, fitted wages elsewhere
 3. Uncompensated wage elasticity
 4. Property income elasticity

effect of introducing the tax and social welfare variables. A comparison of the lines 2 and 3 helps to show the possible effect of fixed costs of participation.

How do the wage and income elasticities of participation change when the analysis is adjusted to take income taxes into account? The wage elasticity rises from 1.45 to 1.52, while the "property income" elasticity, which had been negative, is no longer significantly different from zero. When wages were measured without reference to taxation, it was found that high family income tended to discourage participation. But the tax-adjusted analysis suggests that this may simply reflect the fact that high family income tends to increase the marginal tax rate faced by a married woman; the higher marginal tax rate reduces the net wage and thereby discourages participation. Thus, the tax-adjusted analysis suggests that the effects of wages are at least as strong, and of other income weaker, than the unadjusted analysis.

The difference between the model which allows for fixed costs (line 3) and the model which does not (line 2) is perhaps more striking. The fixed costs model suggests that hours of work respond negatively to increases in the wage, whereas the alternative model suggests a positive response. Both models, however, suggest that participation is highly sensitive to the wage; and both suggest that neither participation nor hours of work are much affected by property income.

4. IS WOMEN'S LABOUR SUPPLY MORE RESPONSIVE THAN THAT OF MEN?

The responsiveness of married women's labour supply decisions to economic

⁵ As Killingsworth (1983) notes, the estimation procedure allows for the presence of fixed costs without specifying their nature; the results are, therefore, open to different interpretations.

Table 5.4

Responsiveness of male participation and hours worked to wages and other income¹

Sample: Non-self-employed
(exclusions as per Sample C, applied on basis of husband's position)

Elasticity ² w.r.t:	Wages ³		Other income ⁴	
	Employment probability	Hours given employment	Employment probability	Hours given employment
	Tobit	0.07	0.19	-0.11
Two-stage analysis	0.23	-0.12	-0.41	-0.01

- Notes: 1. The elasticity calculations are based on the responses across the entire sample to a 10 per cent rise in wages (other incomes); they are not simply evaluations at the means of all variables.
 2. Based on predicted wages: actual wage rates used where available, fitted wages elsewhere
 3. Uncompensated wage elasticity
 4. Property income elasticity

influences is of considerable interest in its own right. But there is additional interest in the question of the relative labour supply responses of husbands and wives. As seen in Chapter 2, most international studies have found married women's labour supply to be much more sensitive to wages and to non-employment income than that of their husbands. Some recent studies using different methods have questioned this conclusion, as regards the sensitivity of hours worked by participants, though the higher responsiveness of female participation to economic influences has not been put into question. These issues are relevant to the question of the tax and social welfare treatment of married couples. So while a detailed study of male labour supply is outside our scope, a comparison of roughly corresponding elasticity estimates for married men and women is in order.⁶ Table 5.4 sets out elasticity estimates for married men, which can be compared with those in Table 5.3

The estimates suggest that a 10% increase in wages would lead to a 2.3% increase in the male employment rate, as against a 14 or 15% increase in the female employment rate. In this sense, then, married women's labour supply is more sensitive than that of married men. But it must be noted that the initial male employment rate is much higher. Thus, the estimates predict a 1.8 percentage point rise in the male employment rate, as against a 3.2 percentage point rise for women.⁷ The responses of hours worked to wages are more similar: for the fixed cost model, wage increases are found to be associated with lower hours of work for both men and women. For the alternative Tobit model, women's responsiveness is somewhat

⁶ It should be noted that the participation/non-participation distinction for married men is basically one between employees and the unemployed, whereas most non-participating women are in home duties. This makes it difficult to disentangle demand and supply-side influences for men. In addition, the measure of non-employment income used, which includes unemployment benefit and assistance only for those actually receiving it, may tend to overstate its influence. However, in the absence of a detailed study of male labour supply, the reported elasticity estimates (which are based on similar methods to those used for married women) provide a useful starting point for the discussion.

⁷ The initial male employment rate in the sample is 75%. The elasticity of 0.23 implies that a 10% rise will lead to a 2.3% increase in that initial employment rate, to 76.8%. The initial female employment rate is 21.4%, and an elasticity of 1.5 implies a 15% increase in that rate, to 24.6%.

greater, but by a smaller margin than in the case of participation. Not much reliance should be placed on the result that male employment is more responsive to non-employment income. This may simply reflect the fact that, as measured, it includes unemployment compensation payments for the unemployed, but does not estimate the entitlements of those who are employed.⁸

5. CONCLUSIONS

The inherently technical nature of the research on married women's participation and hours decisions can make it difficult for the general reader to understand the results of the analysis. In this section we concentrate on a non-technical account of these results.

One major point emerges clearly from each of the different analyses: other things being equal, married women who can obtain relatively high wages in the labour market are much more likely to become employed. Family income from sources other than the woman's employment (e.g., from the husband's employment or from investment) has a more limited influence, especially when the analysis takes the effects of income taxes into account.⁹ The major exception to this is when the husband has an income from a social welfare benefit. Women with husbands on either means-tested and non-means-tested benefits are less likely to become employed. If the wife does participate despite her husband's receipt of means-tested benefit, she tends to work longer hours than otherwise. But the fact that non-means-tested benefits are only reduced if the wife earns more than £50 gross per week leads women with husbands on such benefits to reduce their hours of work. The implications of these results for income tax and social welfare policy are taken up in Chapter 7.

The analysis also identified the very strong effect of pre-school children in reducing married women's labour force participation. This could be seen as reflecting the existing balance between the value placed by women on work outside the home (in which net income earned, and possibly future income prospects, could be seen as having a large part) and the desire to provide full-time care for their own children at a young age. This balance could be significantly affected by the cost and availability of alternative forms of childcare; but it is not possible to identify the sensitivity of women's participation decisions to childcare costs and availability from the present analysis. The policy issues arising from childcare issues are taken up in Chapter 7.

Hours worked by both male and female employees seem to be much less responsive than the participation decision to wage rates and other income. Furthermore, fixed

⁸ While this procedure gives results which can be useful in the present context, it has obvious drawbacks which a study of male labour supply would wish to overcome.

⁹ Part of the negative impact of high non-employment income in the analysis of Chapter 4, which did not take account of taxes, was due to the fact that this implied higher marginal tax rates, which, other things being equal, reduced the incentive for the wife to enter paid employment.

costs seem to introduce differences in the way in which other factors (such as transport and childcare costs) influence participation and hours decisions.

The low rate of married women's participation in Ireland does not mean that Irish women's responsiveness to economic factors is low. In fact, the responsiveness of Irish women's participation to potential earnings appears to be high by international standards. We would expect, therefore, that future increases in real wages would lead to further increases in participation: it is to this issue we now turn.

FEMALE PARTICIPATION: RETROSPECT AND PROSPECTS

1. INTRODUCTION

Do trends in Irish women's participation in the labour market simply reflect changes in social attitudes and customs, or are they sensitive to economic influences such as wages and taxes? If changes in social attitudes are the main driving force, cross-section analysis could not be expected to provide a good explanation of past trends, or a guide to future experience. But if economic influences are important, as the cross-section analysis suggests, and if the nature of these influences is relatively stable over time, then cross-section estimates might explain past trends rather well, and provide useful guidance as to the likely future experience.

These are the issues dealt with in this chapter. Section 2 begins by reviewing some international evidence on these questions. Section 3 reconsiders past Irish trends in the light of the cross-section analyses undertaken in Chapters 4 and 5. Section 4 assesses the factors likely to have most influence on the future evolution of women's participation in the Irish labour market. The main conclusions are drawn together in the final section.

2. CAN CROSS-SECTION ANALYSIS EXPLAIN PARTICIPATION TRENDS?: INTERNATIONAL EXPERIENCE

The most systematic attempt to explain international participation trends using cross-section analysis was the set of interrelated country studies synthesised by *Mincer (1985)*. A total of nineteen different cross-section estimates of wage and income elasticities were available for nine countries. Participation growth over the period 1960 to 1980 was predicted using these estimates. The wage elasticity was typically applied to a measure of growth in observed average female wages. The income elasticity was applied to a measure of growth in the average non-labour income of wives, often proxied by the increase in male wages. Where possible, changes in other key variables, such as the average number of (young) children per married woman were also included. The predictions were then derived as

$$\begin{aligned} \% \text{ change in participation rate} &= (\% \text{ change in female wage}) (\text{wage elasticity}) \\ &+ (\% \text{ change in male wage}) (\text{"other income" elasticity}) \\ &+ (\% \text{ change in no. of children}) (\text{"child elasticity"}) \end{aligned}$$

Nine of the predictions derived in this manner were rated "fair" or "good". Five grossly overpredicted the increase, two underpredicted, while two estimates (one for Britain and one for Japan) predicted falls in participation when actual participation rose.

This experience, taken together with Mincer's further cross-national analysis of participation increases, suggests that changes in the factors identified by cross-section analysis play an important role in explaining the trends, but do not represent a full explanation. Clearly, it is possible that the responses to these factors are also changing over time: the coefficients estimated by cross-section analysis would then change over the period, and might not be adequately represented by the estimates for any single year. The degree of uncertainty attached to a single estimate using a given method of analysis, and differences in the estimated responses across methods add further to the margin of error in predictions based on cross-section estimates. From the point of view of using the estimates derived in this study it is encouraging to note, however, that predictions were more successful in the few cases where information on past work experience was used to estimate the cross-section parameters (*Mincer, 1985, p.10*).

A more systematic decomposition of changes in participation into changes in wages etc. and changes in the responses to these factors was recently undertaken by *Gomulka and Stern (1990)*. They examine changes in married women's participation in the UK over the period 1970 to 1983. They use the annual Family Expenditure Survey¹ to estimate a cross-section model for each of those years. They then develop and implement a technique of "growth accounting" to divide the increase in participation into two parts: one attributable to growth in wages, falls in fertility etc. and one attributable to changes in responses to such factors. They find that most of the growth in UK participation over this period was due to changes in behavioural responses, rather than to changes in the underlying factors. The participation rate rose by 10 percentage points over the period. 6 to 8 percentage points of the increase were attributed to changes in behavioural responses or attitudes; only 2 or 3 were attributed to changes in the underlying determinants of participation. Using an alternative decomposition, they found that about 4 percentage points of the increase could be attributed to declines in the number of children.² In the absence of an annual series of similar cross-section surveys, it is impossible to replicate this analysis for Ireland. But if Irish experience replicated this pattern, we would expect to find that changes in the factors identified by our cross-section estimates would not explain much of the observed increase in participation. If, on the other hand, responses to these factors had been more stable in Ireland, changes in the independent variables could provide a good explanation of past trends. The next section takes up this issue.

1 The equivalent of the Household Budget Survey in Ireland.

2 This is greater than the 2 to 3 percentage points attributed to changes in all independent variables; this implies that some other changes in independent variables would have tended to decrease participation.

3. REVIEW OF IRISH PARTICIPATION TRENDS AND CAUSAL FACTORS

We have seen from the cross-section analysis for Ireland and other countries that wage rates are an important influence on female participation in the labour market. Thus, the extent of the rise in women's wages may help to explain the increase in married women's participation in the Irish labour market. There are, however, potential difficulties in attempting to assess the effects of observed female wages on participation rates. They arise because wage rates are observed only for women who are employed. This excludes women who decide not to seek a paid job, or fail to find one: a substantial proportion of all married women in the Irish case. The distinction would not matter if employed women had similar characteristics to those who are not employed; but cross-section analysis has shown that women who are employed are more likely to be able to command higher wage rates, other things being equal. Thus, observed wage rates for employed women do not represent the wage rates available to all women at any given time; and changes in observed wage rates may not reflect the change in wage rates available to all women. The point is illustrated by Figure 6.1. Using the simplifying assumption that the group of women concerned all have an identical and unchanging reservation wage, R , it is shown that the growth in observed wages of participants (from O_1 to O_2) may, for example, greatly understate the growth in potential wages for all women (from P_1 to P_2). Thus, a small increase in the observed average wage can lead to a large increase in participation – because it reflects a large but unobserved increase in the potential wage for all women.

Figure 6.1

Growth of Observed and Potential Female Wages

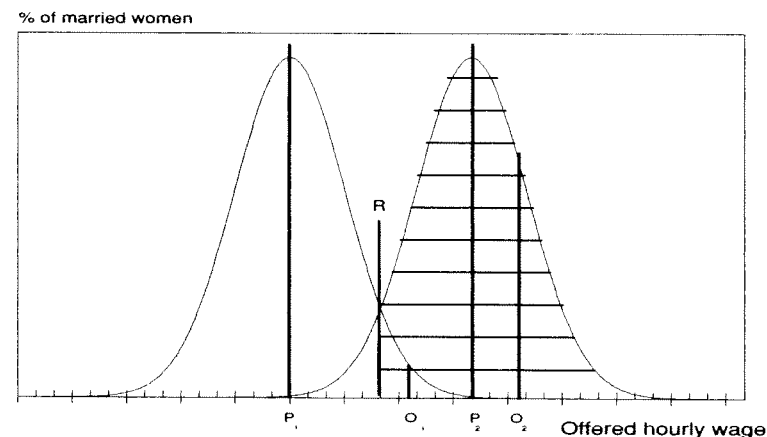


Table 6.1

Male and Female Real Hourly Earnings in Manufacturing, Ireland, 1962-1989

<i>Year</i>	<i>Index of female real hourly earnings</i>	<i>Average annual growth rate: women</i>	<i>Index of male real hourly earnings</i>	<i>Average annual growth rate: men</i>	<i>Average annual growth rate: women-men</i>
1962	100	4.1	100	4.1	0.0
1972	150	3.9	150	2.4	+1.5
1982	222	2.0	190	1.9	+0.1
1989	255		217		

Sources: Average hourly earnings in manufacturing: *Geary and O Muirheartaigh (1974)*, Table 1.15; and *CSO Statistical Bulletin*.
Consumer Price Index: *Department of Finance Databank*

In principle, the solution to this problem would be to use predicted wage rates for non-participants to obtain a measure of the change in wage rates for all women. However, this would require information comparable to that gathered in the ESRI Survey of Income Distribution, Poverty and Usage of State Services at the beginning and end of the period of interest: this is simply not available. A more practicable solution in this context may be to use male wages rather than observed female wages as a proxy measure for potential female wages. Mincer summarises the issue succinctly:

“ If it is assumed that the market productivity of men and women grew at the same rate over the past several decades, the best approximation to the growth of all women’s wages would be the growth of men’s wages, where selectivity is a relatively minor matter. It is possible, however, that over relatively long stretches of time potential wages of women grew more rapidly than wages of men, in which case the use of observed wage growth of women may be preferable” (*Mincer, 1985, p. 13*)

The next step is to investigate the growth rates of male and female wages in Ireland. If a divergence is found, we must ask whether it is likely to be due to the effects of self-selection of higher paid married women into the labour market, or to other factors tending to affect male and female wages in different ways e.g. equal pay legislation. Table 6.1 presents data on the growth of male and female hourly earnings in manufacturing, deflated by the increase in the consumer price index, between 1962 and 1989.

It is clear from the table that for most of the period of interest, male and female wages grew at very similar rates. Divergences are concentrated in the period 1972 to

1982, when female real hourly earnings grew at 3.9 per cent as against 2.4 per cent for men. On balance, it seems more likely that this differential growth reflects a general rise in female wage rates rather than a selection bias. In principle it is possible that selection bias could make the observed growth of women’s wages exceed the growth of potential wages for all women; however, it is more likely, as illustrated in Figure 6.1, to lead to an understatement of the rise. Furthermore, the rise in the female-male wage ratio coincided with the introduction of a series of equal opportunity and equal pay acts in the 1970s. The Anti-Discrimination (Pay) Act, 1974, established the rights of men and women employed on like work by the same employer or an associated employer to equal pay. Its effects would have been reinforced by the Anti-Discrimination (Employment) Act, 1975 and the Employment Equality Act, 1977: these acts prohibited discrimination on grounds of sex or marital status in recruitment for employment, training, in conditions of employment or in the provision of opportunities for promotion. The removal of the marriage bar in the public service (1973) would also have contributed to this improvement.

On balance, therefore, it seems preferable to use the growth in observed female wage rates rather than male wage rates as the measure of overall growth in wages available to women from market work. We will use growth in male wages as a proxy for the growth in wives “other income”, since husbands’ earnings represents the dominant influence on this variable in the cross-section analysis.

The trends identified above are in gross wages. Ideally, one might wish to use a measure of net wages in the analysis. Over the 1980s, for instance, it has been widely noted that for a single individual on average industrial earnings, gross pay has increased, while net take-home pay has been roughly static. But for present purposes, it is the net wage facing married women which is of most interest. For married women, the general increase in the tax wedge over the 1980s may have been offset by the shift in tax structure in the 1980 Budget, which effectively reduced the tax on their earnings. Thus, trends in gross wages over the decade may not be unrepresentative of changes in the net wage facing married women. For simplicity, therefore, gross wages are used in the analysis which follows.

The next issue in explaining past Irish trends is what elasticities of participation with respect to wages and other income should be used. The elasticities from various analyses were summarised in Table 4.6 and Table 5.3. Elasticities with respect to potential wages ranged from about 1.3 to 2.7. We will consider estimates based on each of these extremes, with a value of 1.5 treated as the central estimate for present purposes. The elasticity with respect to non-employment income ranged from -0.13 to -0.29 when taxes were not included, to a value not significantly different from zero for the tax-adjusted analysis. In the present context, we will consider values of 0 and -0.29, with a zero value treated as the “best” estimate.

Predicted participation rates based on these estimated elasticities, and on the

Table 6.2
Cross-Section Predictions of Past Trends in Participation

Year	Actual participation rate	$\eta_w=1.3$ $\eta_y=0$	$\eta_w=1.5$ $\eta_y=0$	$\eta_w=2.7$ $\eta_y=0$	$\eta_w=1.5$ $\eta_y=-0.29$
1971	7.5	8.6	9.1	12.2	8.3
1981	16.7	13.4	14.7	22.3	13.4
1988	23.6	15.7	17.3	27.0	15.5

Notes: η_w = wage elasticity of participation
 η_y = elasticity of participation with respect to other income (including husband's earnings)

observed growth in male and female wage rates are set out in Table 5.2, together with the actual participation rates for 1971, 1981 and 1988.

The predictions suggest that increased wage rates accounted for at least half of the growth in married women's labour market participation between the early 1960s and late 1980s. Using the central wage elasticity estimate, over two-thirds of the growth in participation can be accounted for by this factor. The largest wage elasticity estimates suggest that wage increases alone would lead to somewhat larger increases in participation than were actually observed. Even the largest estimate of the elasticity with respect to wives' non-wage income makes very little difference to this broad picture. There is a tendency for the estimates to over-predict the growth in the 1960s, and under-predict it in the later decades. A full explanation of the trends would require that other factors tended to retard participation growth in the 1960s and accelerate it in the 1970s and 80s; and/or that responsiveness to wage growth increased over the period.

The most important factor affecting participation which is not taken into account in the above predictions is the influence of children.³ Given the difficulty of obtaining time-series information on the variables used to capture that influence in our cross-section estimates, we do not attempt a precise calculation of the change in participation which could be attributed to changes in fertility. It is noteworthy, however, that the crude fertility rate (average number of children per 1000 women) rose slightly between 1960 and 1970 and then fell sharply between 1970 and 1987. It is possible that this factor could give rise to a small downward influence on participation in the 1960s, and a sharper increase in the 1970s and 1980s. If this were added to the central predictions set out above, based purely on wage and other income effects, other influences (including changing responsiveness) would have a relatively minor role to play, on balance.⁴

³ It should be noted, of course, that fertility trends cannot be regarded as entirely exogenous. Improved economic opportunities for women can be seen as raising the opportunity cost of childbearing and child-rearing; this in turn can lead to reductions in average family size. *Joshi (1988)* notes that while there is evidence of such an effect in the UK, "cultural and social forces must also have contributed to the fall in fertility".

⁴ It is, of course, possible that other factors had large but counterbalancing effects; but the net effects would have to be small.

4. FUTURE EVOLUTION OF WOMEN'S PARTICIPATION IN THE IRISH LABOUR MARKET

The difficulties in forecasting future trends in women's labour supply are cogently summarised by *Killingsworth (1983)*:

"Various important questions about past secular trends in labor supply are still very much open. Getting definite answers to such questions from parameter estimates of simple labor supply models is likely to prove difficult. It is still more difficult to use simple labor supply models to make accurate forecasts of future trends in labor supply....In part, forecasts may err because the models on which they are based are overly simple...On the other hand, forecasting is bound to be difficult even if one uses a highly sophisticated and detailed labour supply model: future values of independent variables, such as the wage rate, cannot be known in advance, and factors that may shift little in the short run, such as tastes, may change substantially in the long run." (*Killingsworth, 1983, p. 441*)

With these strong caveats in mind, it may be useful to try to identify the main factors which will influence future participation patterns. A clear understanding of these influences may have more relevance for policy than numerical projections which would necessarily encompass a wide range of values. We may distinguish between two types of influence on future participation patterns. First, there may be changes in the factors whose influence was identified by the cross-sectional analysis of Chapter 4 e.g., real wages may increase over time. Second, there may be shifts in the responsiveness of participation to the different factors e.g., for given levels of wages and other factors, there may be a general shift in the social attitudes leading to greater female participation in the paid labour force. The analysis of past trends in Ireland and abroad has suggested that changes in female wage rates, together with changes in fertility patterns, could readily explain the observed changes in married women's participation. In general, however, the work of *Mincer (1985)* and *Gomulka and Stern (1990)* suggested that shifts in responsiveness could not be neglected.

It is clear from the international evidence that real wage growth has played an important part in inducing increased female participation in the labour force. Trends in Ireland, and the cross-sectional analysis of the ESRI survey, are consistent with a similarly important role for this factor in the Irish experience. Thus, future growth of real wages can be expected to stimulate further increases in female participation in the Irish labour market. Estimates based on the ESRI macromodel (*Bradley and Fitzgerald, 1989*) suggest that real wages in industry will grow by about 2.5 per cent per annum during the 1990s. If the responsiveness of married women's participation to real wage rises is constant at the central level of 1.5, this would lead to a ten percentage point rise in married women's participation over the decade. Even with such a substantial increase, it would remain well below the participation rates in other EC countries. The influence of taxation policy on after-tax wage rates, and its possible impact on married women's participation, are discussed in the next chapter.

Declines in fertility have been associated with increases in female labour force participation; the cross-section analysis confirms the importance of the negative impact of children, especially young children, on women's participation. The international literature is still a considerable distance from a satisfactory resolution of the interdependence between participation decisions and family-building. There are, however, independent social and cultural forces leading to a decline in fertility, as noted by *Joshi (1988)* in the UK. This will tend to increase female participation in the labour force. Cost and availability of child care will also influence participation; the policy aspects of this issue are taken up in the next section.

General macroeconomic conditions, reflected in the demand for labour, will also affect the future level of female participation. A wide range of international evidence suggests that the net effect of high levels of unemployment is to depress female participation through a number of mechanisms. One of these is that married women in particular may be discouraged even from seeking employment by a low probability of success; evidence of this mechanism in the Irish context was noted in Chapter 5. Another mechanism is through the operation of unemployment compensation schemes, also discussed in Chapter 5. Further consideration is given to this topic in the concluding chapter.

Future increases in overall educational participation are unlikely to match those of the 1960s and 1970s. Nonetheless, the impact of education on future trends may be considerable. Firstly, future cohorts of labour market entrants will tend to have higher educational levels than the average of the existing labour force. This means that they will have higher potential wages than those currently in the active age categories, and hence higher participation profiles, after leaving education.⁵ Secondly, policies directed at reducing sex segregation in education could be expected to have long-run effects on the degree of occupational segregation. This effect could arise both through formal mechanisms (young women being qualified for a wider range of jobs, including some which were traditionally male-dominated) and through less formal effects on attitudes and ambitions (e.g., interests in subject areas which were not formerly available to girls influencing later career choices).

5. CONCLUSIONS

International experience suggests that cross-section analysis can help to explain past trends in female participation. Information on the changes in key variables (such as wages or other incomes) can be combined with the cross-section estimates of the responsiveness of participation to these influences to yield predictions of the observed change. Predictions on this basis indicate that changes in these basic variables do play a role in determining trends in female participation. It was noted, however, that shifts in the responsiveness of participation to wages and other

5 It is assumed that not all of the effect of education on wage levels arises from employers' use of educational qualifications as a "screening" or "filtering" mechanism.

influences also played an important role; in a recent UK study, this was the dominant effect over the period 1970-83.

Turning to the Irish experience, it was found that our cross-section estimates could account quite well for the growth in female participation since the 1960s. Changes in female wages and in fertility appeared to be the dominant influences, with a relatively minor role remaining for other factors. This does not mean that the entire increase can be attributed to "supply" as distinct from "demand" factors. The increase in wages reflects both supply-side influences (such as higher levels of education) and demand-side influences (such as increases in productivity due to higher investment). It also reflects the introduction of equal opportunity legislation, in so far as it had the effect of raising female wages. If participation continues to be governed by the same influences, substantial increases in married women's participation are likely: an increase from the present level of about 24 per cent to a level above 35 per cent by the end of the century would seem likely.⁶ Given the international evidence on shifting influences on participation⁷ there is no guarantee that future Irish participation will follow that course; but it represents the best guess which the evidence and analysis presented here will support.

6 The increases in participation in the decades of the 1970s and 1980s were each below 10 percentage points.

7 Summarised in the preceding paragraph.

POLICY ISSUES AND CONCLUSIONS

1. INTRODUCTION

The analysis to date is now brought to bear on a range of policy issues. A natural first question might be whether there are any implications for policy. Growth in women's participation, it might be argued, could be seen as reflecting market forces in a normal process of economic development: no particular policy response would be required. This view ignores two main factors. First, the relative responsiveness of men's and women's participation to wage rates has important implications for the policy goal of increasing living standards: these arise because of the efficiency effects of alternative tax and transfer policies, particularly in the tax treatment of married couples. Second, the effects of childcare responsibilities on women's participation has implications for the goal of equality of opportunity.

Section 2 deals with the implications of the analysis for income tax reform, concentrating on the efficiency implications of alternative tax treatments of married couples. Some implications for the design of social welfare schemes are discussed in section 3. Policies which are thought of as more specific to the labour market are discussed in section 4: this includes policies relating to childcare and to part-time and other "atypical" forms of working. Finally, the main findings and conclusions of the study are drawn together.

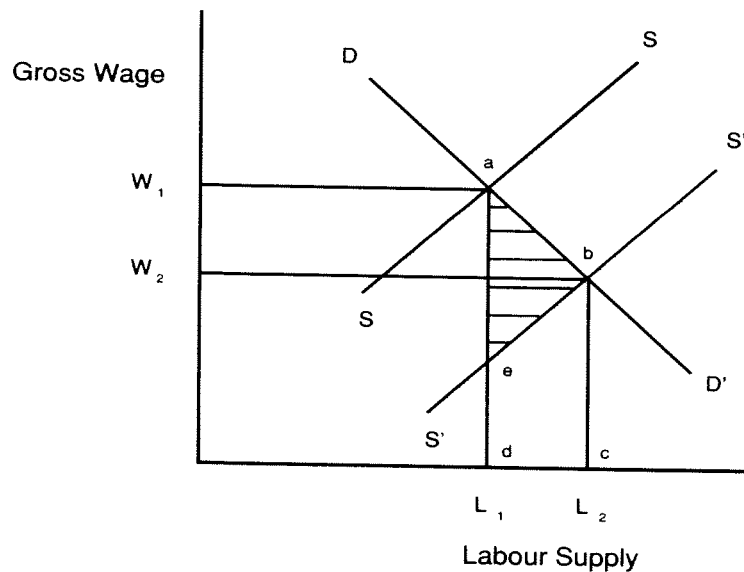
2. TAXATION

2.1 TAX REFORM, EMPLOYMENT AND THE LABOUR MARKET CONTEXT

Unemployment and emigration have been the dominant labour market issues for many years. Each of these phenomena has been the subject of separate studies in the NESC/Department of Labour programme of labour market research (Newell and Symons, 1989; NESC, 1990). It is not the purpose of this section to duplicate the coverage of these issues, or to trespass on the overview of the labour market provided by *Barry and Bradley, 1990*. However, there is an important link between these issues and that of female participation, which is developed in this section.

The view that the "tax wedge" between the gross costs faced by employers (including employer social security contributions) and the net wage received by employees (after income tax and PRSI deductions) has become a major barrier to

Figure 7.1
Effects of an Income Tax Cut in a Competitive Labour Market



employment growth and the reduction of unemployment has gained considerable weight. For this reason, a reduction in direct taxes has been seen as desirable.¹

What is the mechanism underlying the view that a direct tax cut would stimulate employment? This question be answered most easily in the simplest possible framework: a perfectly flexible and competitive labour market in which the wage adjusts to bring labour supply and labour demand into balance. Figure 7.1 shows the impact of a simple tax cut in such a market.

Suppose that, in aggregate, labour supply is increased by an increase in the wage offered: this may come about through increased hours of work for those already working, or through an increase in the number of labour market participants.² Then aggregate labour supply can be represented by the upward sloping line SS in Figure 1.1. A reduction in the income tax is represented in the diagram by a downward/outward shift of the labour supply curve (to S'S'): aggregate supply is the same for

any given after-tax wage, which means that supply is higher for a given gross wage, when the income tax is reduced. This results in a fall in the gross wage (from W^1 to W^2) and an expansion in the employment³ (from L^1 to L^2). The value of this additional labour to employers is represented by the amount of the wage bill they would be willing to pay in order to obtain it.⁴ The cost to the suppliers of labour of this additional effort is measured by the wages they would require to supply it.⁵ The difference (given by the area abea) represents the efficiency gain from the tax cut.⁶

Thus in this simple framework, a tax cut can bring about an increase in employment. It does so by stimulating in the first place the supply of labour; labour demand is brought into balance with the increased supply by a reduction in the gross wage, while the after-tax wage rises. In part, the gains to employers and employees correspond to a loss in tax revenue. But the efficiency gain represents a gain which is not offset by any corresponding loss. A key question in this context is how the initial increase in labour supply is induced. How much of it arises from increased hours of work by those already at work? How much from increased participation by married women? And how much from reduced emigration or returned migrants?

A more disaggregated framework can help to show the implication of different answers to these questions. Aggregate labour supply can be split into two segments. First, the labour supply of married women and of potential migrants (mostly young, single people): this can be represented, as was aggregate supply, by an upward sloping labour supply curve. Second, the labour supply of others (mostly married men or older single people). International research reviewed in Chapter 2 suggests that the labour supply of this group is less responsive; for convenience, we will represent it by a fixed labour supply, unresponsive to the wage. The income tax regime affects these two groups differently.⁷ It is possible, therefore, to consider income tax reforms which favour either the more responsive or the less responsive group. For simplicity, this can be represented by two polar cases: in the first, the income tax reduction is targetted wholly on the more responsive group, while in the second, it is targetted wholly on the more responsive group.

The results, given these simplifying assumptions, can be seen in Figure 7.2.

Under the simplifying assumptions, a tax cut targetted on the unresponsive group produces no increase in employment or efficiency gain; while a tax cut targetted on the responsive group does produce employment and efficiency gains. More

1 High rates of income tax are also seen as playing a role in stimulating emigration by some highly skilled young people; income tax reductions have also been seen as desirable on these grounds.

2 It may be that many existing participants will reduce their hours of work in response to a wage increase, but the analysis in earlier chapters shows that the participation response is likely to outweigh that effect. In Irish circumstances, increased wages are also likely to reduce or reverse net emigration flows, thereby increasing aggregate labour supply.

3 Strictly speaking, the diagram shows an increase in aggregate labour supply which may be brought about wholly by an increase in hours worked by existing participants. But it is more likely to arise from additional participants, including some who would have emigrated or returned migrants, as well as married women.

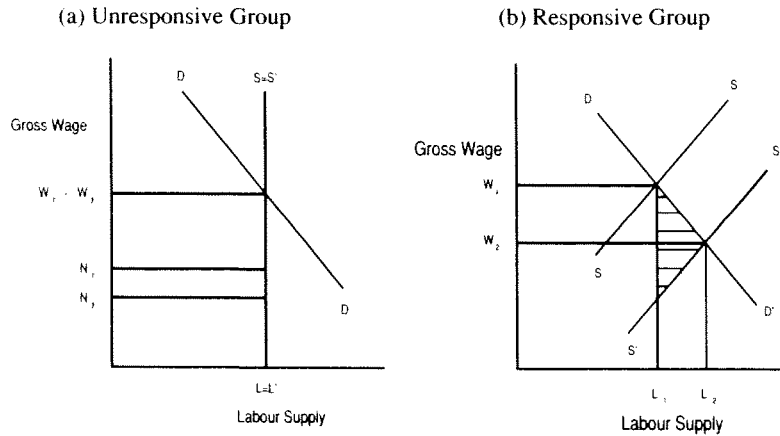
4 This is given by the area under the demand curve, abcd.

5 This is measured by the area under the supply curve, bcdeb.

6 Looked at from the other point of view, of the effects of raising a tax, it represents the "deadweight loss" or "excess burden".

7 In particular, the tax treatment of married couples has, since 1980, structured the tax burden in such a way that single people and two-earner couples face particularly high marginal tax rates: see Chapter 5, Section 2 for details.

Figure 7.2
Effects of Alternative Income Tax Cuts



generally, an income tax cut which is designed to favour groups with more responsive labour supply will tend to maximise the employment and efficiency gains from a given loss of tax revenue.

This result is, however, subject to important qualifications. The simple competitive framework is not an adequate description of the labour market. It fails to take account of anything more than purely frictional unemployment. Models which attempt to explain the persistence of unemployment may differ from the competitive model in such a way as to invalidate the proposition that efficiency gains will be maximised by concentrating tax reductions on the most responsive groups. The model of *Newell and Symons (1989)*, for example, treats income taxes as having only a short-run effect on wage bargaining and employment. Other models, such as that of *Barry and Bradley (1990)*, involve wage determination mechanisms which can be consistent with the proposition.

The efficiency gains from tax cuts targetted on those whose labour supply is likely to respond to an improved incentive have been central to much of the recent UK research, as emphasised by *Geary (1988)*. For example, *Blundell and Walker (1988)* conclude that:

“It is essential to recognise the importance of the labour supply decisions of all household members who are potential participants in paid employment. A reform of the tax and benefit system which cuts the marginal rates faced by certain individuals, married women in particular, on average offers far greater efficiency gains than one which reduces the marginal rate on total household income.” (*Blundell and Walker, 1988, p. 3*)

This conclusion has important implications for policy. High marginal tax rates can be seen as constituting a disincentive to work. But the effects of this incentive on economic behaviour depend on the responsiveness of the economic agents to which they apply. Our analysis has shown that the responsiveness of married women’s participation to potential earnings is relatively high by international standards. Married men’s participation was found to be less responsive. Hours worked by married men and married women who did participate did not appear to be much influenced by the wages they received. This suggests that if the aim is to derive efficiency and employment gains from tax reform or tax reduction, particular attention must be given to the tax treatment of married women, whose response is likely to play a major role in the process: this is the subject of sections 2.2 and 2.3.

The broader labour market models are also relevant to the issue of whether increased labour supply tends to increase unemployment. None support the naive view that an increase in labour supply (whether from increased female participation or elsewhere) implies a one-for-one increase in the level of unemployment: this would only happen if the stock of jobs was immutably fixed. *Bean, Layard and Nickell (1986)* note that growth in the labour force did not accelerate in most countries between the 1960s and the 1970-84 period, so that it could not be regarded as a satisfactory explanation of the widespread international increases in unemployment rates over that time. In the Irish case, demographic factors and participation increases do appear to have played some role in the rise in unemployment. *Barry and Bradley (1990)* find that the 1987 unemployment rate would have been 4 percentage points lower if there had been no natural increase in population and no trend growth in participation since 1970. The economic costs of this “thought experiment” which artificially depressed population and participation growth are also made clear by the Barry/Bradley calculations: GDP per capita falls by about 1 per cent, while the debt/GNP ratio rises by 8 percentage points.

2.2 EFFICIENCY IMPLICATIONS OF THE CURRENT TAX TREATMENT OF MARRIED COUPLES

We begin this process by identifying the distribution of the tax burden as between single persons and married couples, distinguishing between first and second earners in a married couple, under the current Irish tax system. Our results have justified a focus on decisions regarding participation (whether or not to take up a job) rather than hours of work (which were less responsive to wages). Given this focus, it is the average effective tax rate on earnings from a job which is of primary interest, rather than the marginal tax rate on an extra hour’s earnings. Table 7.1 shows how average direct tax rates (including PRSI) can be calculated for a job at average industrial earnings in 1991, using the income tax rates and allowances set out in the January 1991 budget. Effective tax rates are calculated for three distinct cases. First, for a single person taking up a job at average industrial earnings (of about £11,500 per

Table 7.1

Marginal Tax Rates on First and Second Earners at Average Industrial Wage, 1991

	Single person	One-earner couple	Two-earner couple
Gross income-Husband/1st earner	11,500	11,500	11,500
Gross income-Wife/2nd earner	n.a.	0	11,500
Basic personal allowance	2,100	4,200	4,200
PAYE & PRSI allowance-Husband	1,086	1,086	1,086
PAYE & PRSI allowance-Wife	n.a.	0	1,086
Total allowances	3,186	5,286	6,372
Taxable income	8,314	6,214	16,628
Tax	2,718	1,802	5,435
PRSI – husband	891	891	891
PRSI – wife	n.a.	0	891
Effective tax rate on single person =	$\frac{(2718 + 891)}{11500} = 31\%$		
Effective tax rate on first earner (husband) =	$\frac{(1802 + 891)}{11500} = 23\%$		
Effective tax rate on second earner (wife) =	$\frac{(5435 - 1802 + 891)}{11500} = 39\%$		

annum). Second, for a husband (or the first earner in a married couple) taking up such a job. Finally, the effective tax rate on a second earner in a married couple is calculated. The calculation is presented as if the first earner was already earning the average industrial wage, and the potential second earner is considering a job offer also at that wage. The effective tax rate calculated in this way applies whether or not this is how the married couple reach their decision. They may, in fact, decide at the same time on whether one, or both, will take up paid employment: but the incentives facing them are described by showing the tax rate if only one does so (the “first earner”/husband’s effective tax rate) and the tax rate on the second earner if both take up paid employment.

An alternative perspective may clarify this point. Since about three out of four married women are not participating in the labour market, most of whom are married to employed husbands⁸, the average effective tax rate on a second earner is what is relevant to them in considering whether to take up paid employment. For married women who are already in paid employment, and married to husbands who are also employees, the average effective tax rate on the second earner is also relevant: the net gain from their employment (or the loss which they would experience by withdrawing from the labour market) is determined by this rate.

The Irish income tax code has, since 1980, effectively taxed the joint income of

⁸ The incentives facing women married to unemployed men are described in section 7.3 below: they face an even stronger disincentive to take up paid employment.

Table 7.2

Average Effective Tax Rates (%) in 1987

Average tax rate on earnings of (£ p.a.)	Single Person	Married Couple	
		Husband/ first earner	Wife/ second earner*
2,500	6	6	29 – 43
5,000	22	6	36 – 54
7,500	29	15	38 – 58
10,000	36	22	42 – 60
12,500	41	26	45 – 61
15,000	45	29	48 – 62
17,500	48	32	49 – 62

* Tax rate depends on income of first earner: the tax rates shown are for first earner incomes of £7,500 and £20,000. Calculations are for PAYE workers paying full PRSI.

married couples, using double the allowances and double the rate bands applicable to single persons.⁹ This procedure is sometimes known as “income-splitting”: the aggregate tax bill can, alternatively, be calculated by splitting the incomes equally between the two spouses, and applying the tax code for single persons to each spouse. This structure leads to a lower effective tax rate on the first earner in a couple (23 per cent in the example) and a much higher rate on the second earner (39 per cent in the calculation). The rate for a single person (31 per cent) is in between these two.¹⁰

Table 7.2 presents the results of similar calculations for earnings at various levels, under the tax rules applicable in 1987.¹¹ These again show that first earners (typically husbands) face the lowest tax rates; single persons face higher tax rates; and the highest effective tax rates are faced by potential or actual second earners in a married couple, typically wives. This structure will tend to maximise the efficiency losses associated with raising a given amount of income tax revenue, by concentrating the highest tax rates on the most responsive groups: married women and potential emigrants, most of whom are single.

Have the changes in the income tax system since 1987 altered this basic structure? The calculations reported in Table 7.3 show that they have not. The effective tax rate on jobs under £10,000 has in fact risen for wives/second earners when the first

⁹ In this description of the overall structure of the tax treatment of married couples, the fact that PAYE and PRSI allowances are not transferable between husband and wife is neglected; but this is taken into account in the detailed calculations of tax rates.

¹⁰ Inclusion of mortgage interest relief would change the effective tax rates at each income level; but the structure as between single persons, first earners and (potential) second earners would remain as shown.

¹¹ The calculations are based on standard personal allowances for employees. The central points which emerge from the calculations would not, however, be affected by taking into account discretionary allowances such as mortgage interest relief: they would simply mean that the different tax rates calculated in the tables would apply at somewhat higher gross income levels than those shown.

Table 7.3
Average Effective Tax Rates (%) in 1991

Average tax rate on earnings of (£ p.a.)	Single Person	Married Couple			
		Husband/ first earner	Wife/ second earner*		
			(A)	(B)	(C)
2,500	0	0	42	16	27
5,000	18	6	43	30	45
7,500	24	8	41	33	50
10,000	28	18	40	39	52
12,500	33	22	40	42	54
15,000	38	24	42	45	55
17,500	41	26	44	47	55

* Tax rate depends on income of first earner: the tax rates shown are for first earner incomes of £7,500 (A), £12,500 (B) and £20,000 (C).

Calculations are for PAYE workers paying full PRSI; married couple is assumed to have 2 children.

earner is on a low income: this is because of the operation of marginal relief just above the income tax exemption thresholds. At other income combinations the tax cuts have reduced the effective tax rates on single persons, first and second earners, but the relativities are maintained: first earners face the lowest rates, second earners the highest rates, with rates for single persons falling in between.

The reason given in the 1980 Budget Speech for the decision to move to full income splitting was that

“A narrow approach towards effecting the Supreme Court’s decision would lead to unjustifiable discrimination against the one-income family, particularly where a married woman elects to care for the family on a full-time basis at home rather than take up work outside the home”. (Minister for Finance, 1980, p. 18).

Thus the tax treatment of married couples has been justified mainly as a *de facto* subsidy of childcare by married women in the home. If this is really the aim of policy, the present mechanism seems an inefficient way of going about it. First of all, the tax subsidy is not conditional on having children, but simply on marital status. It applies not to married women with children, but to all married women: this means that the benefit from this tax break is, in terms of its main stated objective, rather inefficiently targetted. Secondly, it imposes high effective tax rates on married women with or without children, thereby giving rise to a substantial efficiency loss by discouraging market work. Other methods of providing child income support, notably through child benefit, may involve smaller efficiency losses and better targetting.

2.3 OPTIONS FOR REFORM

We have seen that the concentration of the highest effective tax rates on the more responsive groups (married women and single persons) arises from the current tax treatment of married couples. A recent review has found considerable variation in the tax treatment of married couples across countries, but noted “a world-wide trend in developed countries away from joint taxation of married couples” towards treating the individual as the unit of taxation (*Pechman and Engelhardt, 1990, p.9*). A move towards greater independence in the tax liabilities of husbands and wives would tend to equalize the effective tax rates described earlier. Even if additional revenues raised by such a move were not used to reduce tax rates or widen tax bands, the effective tax rates would each move closer to those faced by single persons: the effective tax rates faced by married women would fall, those facing married men would rise.

While a comprehensive evaluation requires consideration of the amounts of revenue raised by alternative tax treatments of husbands and wives, and the uses to which the additional revenue could be put (which could include reductions in tax rates or widening of bands) we concentrate at this stage on clarifying the *nature* of the alternatives. In order to do this we compare and contrast tax liabilities under alternative schemes, ranging from the current “income-splitting” provisions at one extreme (option A in Table 7.4 below), to fully independent taxation of individuals at the other extreme (option D). There are several intermediate possibilities, including the recently reformed UK system, and that which operated for many years in the UK prior to that reform. For simplicity, we concentrate our attention on just two intermediate cases: elimination of transferability of rate bands, while retaining fully transferable personal allowances (option B); and partially transferable allowances (option C), which are an element of the recently reformed UK system.¹² We compare these options as if each could be introduced starting from a *tabula rasa*. Transitions between the current regime and any alternative raise further complex issues, including those of equitable treatment over the life-cycle. But our comparisons concentrate on evaluating the end goals which such transitions would reach.

Each of the options meets the constitutional requirements defined by the Supreme Court judgement in the Murphy tax case. There is no discrimination against married couples under any of these options: in no case would a married couple be better off being taxed as single persons. There is a trade-off between the incomes of one-earner couples, and the effective tax rate on a second earner. The current system minimises the tax liabilities of one-earner couples at the cost of maximising the marginal tax rate on a second earner. This results in an effective average income tax rate on a job at average industrial earnings of 16 per cent for the first earner, and 32 per cent for a second earner. Under full independence, these rates would be

¹² Under Option C, 60 per cent of the personal allowance would be transferable to the other spouse.

Table 7.4
Alternative Tax Treatments of Married Couples: Illustrative Calculations

<i>Earnings</i>	<i>Single person</i>	<i>One-earner couple</i>	<i>Two-earner couple</i>	<i>Two single earners</i>
	23,000	23,000	23,000 ^a	23,000 ^a
(A) Fully transferable allowances and rate bands ("income splitting")	8,638	5,957	5,435	5,435
(B) Transferable allowance only (no transferability of rate bands)	8,638 ^a	7,456 ^a	5,435 ^a	5,435 ^a
(C) Partially transferable allowance	8,638 ^a	7,983 ^a	5,435 ^a	5,435 ^a
(D) Full independence (no transferability of allowances or rate bands)	8,638 ^a	8,638 ^a	5,435 ^a	5,435 ^a

Notes: a. The liabilities are calculated for the 1991/92 set of tax rates and bands. Aggregate revenue would increase the greater the degree of independence in the tax treatment of husbands and wives for this given set of tax rates and bands i.e. would be lowest for option A and highest for option D. Thus tax rates could be reduced, or bands widened, on a revenue neutral basis, if one of the latter three options was introduced. The expected behavioural responses would allow further reductions. In evaluating options (B), (C) and (D) as alternatives to the present system, the reductions in tax rates or widening of bands that they would make possible are important considerations: the table is used merely to explain the nature of the different options. Thus the main focus should be on comparisons along a given row, rather than between rows.

b. Earnings of each partner assumed equal i.e. each earns £11,500.

equalised at 24 per cent; intermediate policies, such as options B and C, would in general go some way towards equalising the rates.

The efficiency gains from a restructuring of taxes away from second earners onto first earners were discussed earlier. But does this trade-off between the incomes of one-earner couples and the marginal tax rate on second earners simply represent a trade-off between equity and efficiency? Table 7.4 addresses this issue, by considering the tax liabilities under the various options for couples and single persons with the same aggregate incomes.

It is often argued that equity requires that a married couple should pay less tax than a single person, since the married couple's needs are greater. Two forms of this argument can be distinguished. The first is based on the assumption that the married couple have dependent children. But if this is the case then the argument is really concerned first of all with the appropriate level of child income support, and secondly with the form in which that support should be provided: tax relief is one method of doing so, but other forms of child income support, such as child benefit, may provide superior options. Also this argument neglects the fact that many married couples do not have dependent children: tax relief which is intended as a form of child income support is inefficiently targetted, since it applies to all married couples, rather than simply those with dependent children. The dynamic

implications of employment interruptions associated with child-bearing and child-rearing can also be taken into account here.

A second form of the argument is based simply on the fact that two persons have greater needs than one person. But if, as we have argued, the question of child income support is treated separately, then here we should be thinking of a married couple which is exercising a choice between one partner or both participating in the labour market. It could be argued that in these circumstances that a tax system which provides tax relief for a "dependant adult" is in effect offering a reward for one adult to stay out of the labour market. Given the choices made, however, a married couple with the same income as a single person may be regarded as having lower ability to pay¹³; on this basis a single person would be expected to pay more than a married couple with the same aggregate income. This would rule out fully independent taxation (option D).

What about the relative tax liabilities of one-earner and two-earner married couples with the same joint income? At first sight, it might be regarded as equitable that each should pay the same tax since they have the same cash income. But this neglects an important difference between the circumstances of the two couples. The one-earner married couple enjoys a higher living standard because of the work done by the woman in the home.¹⁴ On this basis, the one-earner married couple should pay more tax than the two-earner couple. Recognition of costs of working, such as travel to work expenses, represents a distinct argument for tax relief for those in employment. Provisions for work expenses, and the PAYE allowance can be regarded as partly aimed at meeting this argument, but they do not address the central issue of equity between one-earner and two-earner married couples with the same aggregate cash incomes. In the table, it is the second earner's PAYE and PRSI allowances which result in a lower tax liability for a two-earner couple under the present system.¹⁵

Thus on equity grounds as well as efficiency grounds there is an argument for a move away from the current "income-splitting" system, towards one of the intermediate options of fully or partially transferable allowances. Each of these options (B and C) would have single persons pay more tax than married couples with the same joint incomes; and would have two-earner married couples pay less tax than one-earner married couples.

As noted earlier, evaluation of these options requires first of all that the increased in revenue they would generate be identified; and secondly that we consider how that revenue might be spent. Options B and C were explored using a modified version of

13 A one-earner couple's ability to pay may be understated by their cash income, since the value of the work done in the home by the non-earning spouse is not taken into account: this point is dealt with in more depth below.

14 More precisely, the time available to the non-earning spouse may be divided between what economists call "home production" and "leisure".

15 Because of the ceiling on PRSI contributions, the total direct tax payment by a two-earner couple may, at higher income levels, exceed the direct tax payments of a one-earner couple.

the ESRI model of the income tax and social welfare systems (*Callan, 1991a*). If tax rates and bands were constant, and behaviour was unchanged, then option C would increase income tax revenue by something in the order of £200m; the more extensive change (option B) would increase the tax take by about £350m.¹⁶

The revenue thus gained could be used to finance either:

- (1) general reductions in tax rates or widening of bands, or
- (2) a restructuring of child income support.

Alternatively, some combination of these options could be chosen. For simplicity, we consider polar alternatives of using all the revenue to finance tax reductions; or using it to restructure child income support.

Looking first at the option of applying the revenue raised to reduce income taxes, it is clear that even the more limited amount could finance quite a substantial reduction in income tax rates. The net effect of such a package would certainly be to reduce the income tax rate faced by many married women and single people. The effects on the rates faced by married men would depend on the nature of the tax reductions. If they were concentrated on reducing the higher rates of tax, most married men might not experience an increase in their marginal income tax rate, though average tax rates for a substantial number would rise. If, on the other hand, the reductions were concentrated on the standard rate, many married men would face an increase in their marginal rate, while some would experience a reduction. In either case, the overall package would tend to improve the incentive to work for those who are most responsive; the incentive to work for those who are less responsive might be reduced. It seems likely that this would stimulate an overall increase in labour supply and lead to an efficiency gain. It should be noted, however, that small responses from the large group of married men could exert a significant aggregate effect.

An alternative reform package, which concentrated on restructuring of child income support, might be capable of improving incentives to work for some of the most responsive groups in the population while focussing resources on families with dependent children. It should be noted, however, that this strategy would not reduce marginal tax rates facing single people.

The existing forms of income support for children are exceedingly complex, including child dependant additions under social welfare schemes, Family Income Support for low-paid workers and a universal Child Benefit (formerly children's allowances).¹⁷ The resources used in these schemes could, together with those

¹⁶ The estimates of labour supply responses in Chapter 5 suggest that the dynamic effects would be positive; however, in line with NES's (1986) suggestion that such effects should be treated as "a bonus", further discussion is based on these conservative figures.

¹⁷ See *Nolan and Farrell (1990)* for details.

currently used to provide indirect support to children through the tax treatment of married couples, be consolidated into a single child-benefit type payment.¹⁸ The resultant level of payment would be close to the total support now given to the children of many social welfare recipients.

The net effect of such a package would be to provide more effective support for childcare, but would allow mothers to choose freely between providing all of the necessary care themselves, and paying for childcare to facilitate continued work in the labour market. Under the present system, a substantial element of income support for families with children is paid through the transferable allowances and bands of the tax system; but this is effectively made available only if the mother does not participate in the paid labour market. There is no corresponding subsidy for the purchase of childcare in the case where both parents are working outside the home.¹⁹ The package would have several additional features:

- (i) Incentives to work for men and women currently in receipt of social welfare payments (such as unemployment assistance or benefit) would also be greatly increased. Replacement rates would be lower because child income support would no longer increase when becoming unemployed: it would be payable irrespective of labour market status.
- (ii) The role of Family Income Supplement, which provides income support to low-paid workers but interacts with the tax system to produce very high effective tax-cum-benefit-withdrawal rates (described in the next section) would also be greatly diminished, if not eliminated.
- (iii) Similarly, the incentive to work would be increased for lone parents, because the replacement rate they face would be reduced by making child income support independent of the parent's labour market status.

Thus, several groups currently facing high effective tax or benefit withdrawal rates would find their work incentives improved. It is important to note, however, that tax revenue used for child income support could not be used to finance more general reductions in income tax rates. Thus, if all the funds were used for child income support, marginal tax rates facing many married men would be increased. The overall income distribution consequences would also be very complex, as noted by *Nolan and Farrell (1990)*. If policy moves in this direction were considered desirable, further investigation of the consequences for incentives, labour supply responses and income distribution using the ESRI model would be advisable.

A general tax reform along the lines set out by the *Commission on Taxation (1982)* or *NESC (1986)* could, of itself, have important effects on the participation of

¹⁸ In terms of the wider debate on "basic income", this could be regarded as a "basic income" for children.

¹⁹ A number of routes towards the elimination of this distortion of the childcare decision are possible. The most expensive is to leave in place the existing subsidy to married couples (which is irrespective of whether or not they have children); and to add some form of subsidy or tax allowance for purchased childcare. This would not appear to represent the most efficient means of achieving policy goals: the restructuring package described seems superior.

married women. A reduction in income tax rates financed by broadening of the base, and increased revenue from taxes on property, capital and/or the corporate sector would raise the after-tax marginal wage rates of both men and women. The results of our analysis suggest that female labour supply would respond strongly to such changes, while male labour supply would respond less strongly. To the extent, however, that tax reform aims at deriving efficiency gains by improving work incentives, some element of reform in the structure of taxation of married couples to introduce a greater degree of independence is worthy of consideration.

3. SOCIAL WELFARE SYSTEM

Effective marginal tax rates do not depend on the income tax system alone. The withdrawal, in whole or in part, of benefits paid from the social welfare system creates high effective tax rates for some single, widowed and married women. From the point of view of incentive effects, what matters is how much of an extra pound of gross earnings is retained as disposable income: a tax rate of 50%, or the withdrawal of benefit at the rate of 50 pence per pound of gross earnings are equivalent. Women whose husbands are in receipt of social welfare payments can face very high effective tax rates. Means-tested social welfare schemes typically involve pound-for-pound withdrawal of benefit in response to increases in net income. Contributory or non-means-tested schemes have a different incentive structure: part of a husband's benefit (the adult dependant allowance and half of any child dependant allowances) is withdrawn if his wife's gross earnings exceed £50 per week.²⁰ In effect this means that the wife faces a very strong incentive to keep earnings below this limit, or else move substantially above it, if possible. But over the range of possible earnings, she may face a very high effective tax rate, as illustrated in Table 7.5

Married women with husbands on means-tested benefits (such as Unemployment

Table 7.5
Benefit Withdrawal Rates for Wives with Unemployed Husbands

Wife's Gross Earnings	Husband on UA	Weekly Family Income		ETR UB
		Husband on UB	ETR UA	
0	112	107	—	—
50	112	112	100%	90%
100	112	154	100%	53%
150	134	196	85%	41%
200	155	218	79%	45%

* ETR=average effective tax-cum-benefit-withdrawal rate on wife's gross earnings. Calculations assume two children, ignore child benefit and medical card eligibility.

²⁰ Similarly, if the wife is receiving benefit, part of the payment is dependent on the husband earning less than this amount.

Assistance) therefore face strong disincentives to participate in the labour market, or to work longer hours if they do participate. The analysis in Chapter 5 confirmed this expectation. The much smaller group of women whose husbands are receiving Family Income Supplement also face very strong disincentives. In some cases, such families face effective tax-cum-benefit withdrawal rates close to or in excess of 100 per cent, irrespective of which spouse earns the extra income. Married women whose husbands receive contributory payments tend, if they participate, to work shorter hours so as not to run into the £50 per week limit.

For women who are themselves in receipt of widow's non-contributory pensions, unmarried mother's allowances or deserted wife's allowances, the incentive effects of benefit withdrawal rates are also very real issues. International research suggests that lone parents are, like married women, particularly responsive to economic incentives facing them. Some recent UK research has investigated whether subsidised child-care for lone parents who wish to work would, therefore, represent a cost-effective strategy. The consensus of studies by *Ermisch and Wright (1989)*, *Metcalf and Leighton (1989)* and *Walker (1990)* is that a number of policies could increase the employment rate of lone mothers and increase their economic welfare. Some lone parents to whom the state pays income support could be induced to take up employment if, for example, an hourly childcare subsidy was available; in its absence, childcare costs would mean that disposable income from employment would not be sufficient to induce a move off the basic social security payment. Such policies could achieve improvements in the overall living standards of lone parents. Costs to the state might be higher in the short-term, but could be lower in the long-term. The key factor in this respect is that a build-up of work experience tends to raise potential earnings with a longer-term positive impact on labour market careers.

In the Irish context, childcare costs are deductible in the means test for unmarried mothers' allowance, so that this argument is, to some extent, taken into account. But the means test operates in such a way as to restrict the combined amount of the state allowance and disposable income (after tax and childcare costs) to the same amount as a full allowance. An alternative which allowed a greater incentive to work would, if the same level of income was guaranteed to those who did not work, be more costly in the short-term. But the possible extent of longer-term gains to the Exchequer from policies of this type deserves further investigation.

These issues are closely related to the more general effects of withdrawal of income-related benefits on labour supply. Recent changes in the social welfare system may lead to improvements in this respect. The institution of the Part-Time Job Incentive is likely to lead to an increased flow from unemployment into part-time work, according to *Blackwell (1990)*.

Until recently, most social insurance coverage applied above a limit of 18 hours of work per week. It was possible that employers wishing to reduce costs by avoiding

social insurance contribution would tend to hire up to that limit. However, *Vaughan (1985)* found little evidence of such a phenomenon. More recently *Blackwell (1990)* confirmed that in 1988 hours of work for part-timers tended to be concentrated in the 12-15 hours or 20-23 hours ranges, as was initially found by *Vaughan*.

Recent changes in social welfare provisions have extended coverage to part-time workers with gross earnings over £25 per week. Part-time workers with earnings over this limit will pay the health and employment levies of 2.25 per cent²¹. The full PRSI contribution, including the social welfare element of 5.5 per cent, will be payable by those with earnings above £60 per week, under the PRSI exemption provisions put in place by the 1990 Budget.²² Contribution conditions will be applied to determine eligibility for benefit; and it is intended that potential short-term benefits will be linked to earnings.

4. LABOUR MARKET POLICIES

4.1 STATE POLICY TOWARDS CHILDCARE

At present many Irish women are engaged in full-time care for their children; future growth in married women's labour market participation is likely to be associated with the development of childcare services.²³ But does this mean that state policy should promote childcare provision which would facilitate greater participation? And if so, how should this be done? This section will focus on these questions, concentrating in particular on the financing of childcare services. While there are many different forms of childcare (day-care centres, childminding, playgroups, kindergartens, nursery schools, school-based care, after-school care) the discussion will focus on the broader issues rather than on the balance between different types of care.

A recent OECD review of childcare policies (*OECD 1990, Chapter 5*) proposed two benchmark models of childcare, against which actual policies could be measured. The first model was labelled one of "maximum private responsibility", in which childcare, family organisation and women's economic activity rates are regarded as private concerns. The state's role is restricted to one of providing a safety-net of services for the poor and those with special needs; guaranteeing a minimal level of quality for childcare; and encouraging the use of private or voluntary services. The second model, of "maximum public responsibility" applies to countries "which recognise the educational value of child care" outside the home.

The OECD review found that, of the countries considered, the US and the UK were closest to the "maximum private responsibility" model. The Irish case, which was not considered by the OECD, is, if anything, less interventionist. Legislative

frameworks, codes of practice and/or registration requirements are more developed in the UK than in Ireland; while the US encourages the use of private services by allowing a tax credit on part of the costs. The Scandinavian countries are the exemplars of the "public responsibility" approach. They place great importance on childcare as a means of promoting equality between the sexes, both in the labour market and in private life, and on the educational aspects of early care as a right for all children. Registered childcare services are heavily subsidised, to the extent of 80 or 90 per cent of the cost. (*OECD, 1990, p. 137*).

The fact that most other countries have chosen a more interventionist stance than the Irish one does not, of itself, establish a case for state intervention here. It is useful, however, to review some of the arguments which have been made for state intervention in other countries, and assess their applicability to Irish circumstances.²⁴

4.1.1 REGULATORY POLICIES

We deal first with forms of intervention which do not involve financial support by the state. One form of intervention deals with the control and monitoring of standards of care by private providers. The state accepts some such role in protecting consumers in many areas. The fact that the quality out-of-the-home childcare is not easily observable by parents might suggest the need for stronger than average protection in this area. Another form of intervention deals with entitlements to parental leave. The OECD review notes that there are many reasons underlying the development of parental leave, one of which is to facilitate parents who wish to provide more care for their children than has typically been possible when working in the labour market; in particular, it may allow for care of children when they are ill, a time when other services may not be available. Parental leave is often unpaid; thus, it need not involve a cost to the state, though it may involve a switch in disruptive costs from parents to employers. If leave is paid it is often at a flat rate. The most generous provisions are found in the Nordic countries, where replacement income of 80 to 90 per cent is available to either parent. Leave entitlements are not automatically used to the full by either parent; but mothers typically use it more, even in Scandinavia. As noted by the OECD, there are attendant risks for career development. Thus, it is not clear that this form of intervention would promote equality of the sexes, though it may be seen as part of a broader package of policies which would promote that goal.

We concentrate, however, on the wide variety of arguments for state financial support of childcare (which could include payment for parental leave). Some are based on the implications for labour force participation seen in earlier chapters. Others are based on broader social aims, such as equality of opportunity between the sexes. In what follows, several of these arguments are first set out and then subjected to closer examination.

²⁴ For more detail on these issues, see *Callan (1990)*.

²¹ Unless they hold medical cards in which case these levies will be payable by the employer instead.

²² No contribution is paid by women in receipt of certain social welfare payments for widows and (other) lone parents.

²³ This does not imply that availability or costs of childcare would necessarily be seen by those not participating in the labour market as obstacles to their participation.

4.1.2 "ECONOMIC" ARGUMENTS FOR PUBLIC FINANCIAL SUPPORT OF CHILDCARE

Argument E1: Childcare facilitates current and long-term participation in paid work

One argument for state financing of childcare facilities is based simply on the economic facts established in earlier chapters. In the absence of subsidised childcare many women do not participate in the paid labour market particularly while their children are young, and their later participation is also reduced by the effect of this break in their working experience on the wage offered to them in the labour market. The longer-term implications for mothers of withdrawal from the paid labour market associated with child-bearing and child-rearing were studied by *Joshi (1987)* in the UK. She calculated that a woman with a typical work history and child-rearing pattern had lifetime earnings UK£130,000 lower than a woman without children. Only 40% of this amount is due to the period typically spent out of employment; another 35% is due to a period spent in part-time work; and 25% is due to the reduction in hourly rates of pay caused by the loss in work experience while out of the labour force. Subsidised childcare would, it is argued, facilitate the participation of women with children, with subsequent positive effects on their longer-term labour market careers.

Against this, it can be argued that the benefits of purchasing childcare (in terms of higher current and future earnings in employment) accrue to the mothers themselves, and can be offset against the costs in their calculations. Thus, in a pure free market economy, strict economic calculation would suggest that the optimal level of provision of childcare will be set by market forces. Parents whose potential earnings would justify the outlay would purchase childcare; others would not participate in the labour market. On this basis, there would be no economic case for state subsidisation of childcare.

The distinction between the current effects and the longer-term ones is, however, an important one. Capital market imperfections which make it impossible, or unduly costly, to borrow against future earnings do lead to a case for state intervention. Theoretically, an intervention directly aimed at the capital market imperfection would be a first-best solution. In practice, the bias which this imparts against training or education which will raise future earnings is usually addressed by more direct subsidisation of training. In the present context, therefore, it could be argued that greater on-the-job training of women with children is desirable, and, to that extent, a corresponding childcare subsidy to facilitate their current participation would be justified.

Argument E2: Private costs of purchased childcare are greater than social costs

Following on from the above argument, another one might be developed, which takes into account the fact that the real world is more complicated than a pure

market model would suggest. The private costs of purchasing childcare, it might be argued, are greater than the social costs. Two forms of this argument may be distinguished. The first concentrates on the fact that market work is taxed, while home work and leisure time are not taxed.²⁵ The total value of production would be maximised if, at the margin, the value of an extra hour's work in the market, given by the gross wage, was equal to that of an extra hour's home work or leisure. But the tax element introduces a distortion: individuals will equate the after tax wage, which undervalues market time, to the value of an extra hour's home work or leisure. As a result home work, including childcare by mothers in the home, will tend to be overexpanded. A childcare subsidy can be seen as improving efficiency by tending to remedy this balance.

This argument should, perhaps, be set in a wider context. Why should childcare be singled out for a subsidy to remedy the tax-induced distortion in the balance between home work and market work? Given that income taxes are deemed necessary to fund public services, how should the distortions they introduce affect other public policies? Cost-benefit analysis or project appraisal techniques can be seen as offering a framework for thinking about these issues. It recognises both tax-induced distortions and the existence of unemployment by valuing labour not at the gross wage rate but at its "social opportunity cost" in its most-valued alternative use to the project under consideration. Projects involving childcare would then be evaluated in a wider context, competing for subsidies against other projects valued on the same basis.

The issue of the appropriate social cost (or "shadow price") of labour is a thorny one. *Honohan (1986)* notes that "There is possibly no other major issue of economic policy on which opinions differ so widely". But let us suppose that Honohan's advice that "it would be prudent to assume that the shadow price of labour lies between 50% and 75% of the [gross] wage rate" is accepted.²⁶ Would this justify a childcare subsidy? This does not follow directly: the discounting of wages applies not just to that drawn into childcare provisions, but also to those women thereby taking up other employment. But if the opportunity cost of the labour of those who would be drawn into childcare was particularly low relative to the private cost (because of limited opportunities elsewhere) then there might be an argument for a childcare subsidy on this basis. An additional consideration from the cost-benefit literature (but relevant to all arguments for state subsidies) is that the benefits obtained must be offset not simply against the cost of a government subsidy, but the full costs of raising the revenue to pay for the subsidy (*Honohan and Irvine, 1987 and Honohan, 1986*).

²⁵ This standard economic argument is set out in more detail by *Verry (1990)*.

²⁶ At a more general level, *Honohan* notes that the question of whether goods and factors should be valued at tax-inclusive or tax-exclusive prices is regarded as an open one in the literature, but advises that proposals should "normally" be valued at tax-inclusive prices.

Argument E3: Childcare is a form of work expense

There is a provision in the existing tax code to take account of “expenses wholly, exclusively and necessarily incurred in the performance of duties of the employment”. Similarly, the costs of inputs used by self-employed persons or businesses are allowable against tax. But childcare costs are not included by these definitions. It could be argued that in present day circumstances childcare costs are a necessary input to allow mothers to undertake paid employment. In this light, taxing gross income without an allowance for childcare expenses could be seen as equivalent to taxing the gross revenue, rather than the profits, of self-employed persons or businesses.

Let us tease this idea out a little further. Could food be regarded as a necessary input to allow us to work? Yes, but it could not be argued that food costs were incurred in order to undertake employment: they would be incurred even without that employment. Childcare costs seem at first sight to pass that test. But on closer examination, there is a flaw in this argument. The childcare must be undertaken in any case: if a parent undertakes it, there may be no cash payment involved, but equivalent time costs are incurred. Similarly, someone engaged in paid work might buy food, while someone not engaged in paid work might grow food instead: but food would not be regarded as a legitimate work expense in this context. Thus the argument for childcare as an allowable work expense for income tax purposes seems rather weak.

Argument E4: Workplace childcare benefits employers

It is now widely recognised that provision of workplace nurseries or assistance with nursery placements can be of significant benefit to employers. The advantages claimed for it include improved morale and productivity, reduced absenteeism, and reduced staff turnover with consequent savings in training and recruitment costs. But if these benefits are obtained by the employers, this implies that they should be willing to pay for them, rather than require state subvention. It does, however, imply a case for provision of childcare facilities by the state, for the benefits it would gain as an employer.

The question then arises as to whether any employer subsidy in the provision of childcare should be taxable. The answer depends on whether childcare expenses should be tax allowable to individuals making their own arrangements. If not, then subsidised provision by employers should be counted as a benefit-in-kind just like any other “perk”.

A further interesting issue is whether the employer provision of childcare introduces an element of differential pay for the same work. It might be seen as a method by which employers induce extra workers to take up employment without an increase in the wages of existing employees.

Table 7.6
Total Period Fertility Rates in Europe

<i>Country¹</i>	<i>1980</i>	<i>1985</i>	<i>Annual % change 1980-85</i>
Turkey	3.97 ²	3.97 ²	n.a.
Ireland	3.23	2.49	-5.1
Iceland	2.48	1.93	-4.8
Cyprus	2.46	2.38	-0.6
Greece	2.23	1.68	-5.5
Spain	2.22	1.75	-5.8
Malta	2.20	2.00	-1.9
Portugal	2.19	1.70	-5.0
Liechtenstein	2.02	1.93	-1.2
France	1.95	1.82	-1.3
United Kingdom	1.89	1.80	-1.0
Norway	1.72	1.68	-0.5
Belgium	1.70	1.50	-2.4
Sweden	1.68	1.73	+0.6
Italy	1.66	1.46	-2.5
Austria	1.65	1.47	-2.3
Netherlands	1.60	1.51	-1.2
Switzerland	1.55	1.51	-0.5
Denmark	1.55	1.45	-1.3
Luxembourg	1.51	1.39	-1.6
Germany (Fed. Rep.)	1.45	1.28	-2.4

Notes: 1 Descending order of fertility rate in 1980

2 Average over 1980-1985

Source: *Recent Demographic Developments in the Member States of the Council of Europe*, September 1987, Strasbourg, as reproduced in CSO's *Population and Labour Force Projections, 1991-2021*, Dublin: Stationery Office.

Argument E5: Demographic trends require greater support for mothers in employment

Demographic trends in continental Europe and the UK have provided a particularly strong impetus towards the provision of childcare, both by employers and by the state. From the employer point of view, the incentive to provide childcare is that it provides a relatively cheap way of inducing extra labour supply if their relevant labour market is relatively tight. From the state point of view the incentive to provide childcare is to increase the birth rate (or slow its fall) to avoid the problems associated with an aging population. The issue of the benefit to employers has been dealt with above, so in this section the focus is on the issue of the birth rate.

Eight of the 21 countries in Table 7.6 had fertility rates above replacement level in 1980; by 1985 only three countries (Turkey, Ireland and Cyprus) were in this position. Much attention has been focussed on the problems of aging populations in

the countries with typical fertility rates of 1.5 to 1.8, and in Germany, where the rate has fallen to below 1.3. The fall in the Irish fertility rate since 1985 has brought it towards a replacement level of 2.1 rather faster than anticipated in the CSO Population and Labour Force Projections, and given the rate of decline in Ireland and elsewhere, further falls in the Irish rate seem likely.

The typical response of continental European countries has included the adoption of pro-natal policies: improved childcare facilities can be seen as part of that package. The economic grounds for this response would seem to rest on the idea that a fertility rate below replacement level should be boosted.²⁷

In principle, the problems of aging populations associated with birth rates below replacement levels are soluble by means other than increasing the birth rate. It could be argued that, for example, funding of pensions or healthcare need not rely wholly on “pay-as-you-go” arrangements and that the reduction in societal costs of child-rearing should allow increased savings to fund pensions and healthcare in future.²⁸ Alternatively, or additionally, in the context of a rising global population, immigration policies could be adjusted. But there may also be a case for pro-natal and childcare policies in these circumstances.

Argument E6: The tax treatment of married couples distorts the choice between childcare options

Argument E7: Childcare support could reduce the dependence of lone parents/low income parents on state income supports

These arguments were discussed in Sections 2 and 3 above, and are noted here for completeness.

4.1.3 “SOCIAL” ARGUMENTS FOR PUBLIC FINANCIAL SUPPORT OF CHILDCARE

Argument S1: Subsidised childcare is necessary to equalise opportunities between the sexes

Equalisation of opportunities between men and women is an aim enshrined in several pieces of legislation. But it is clear that elimination of employer discrimination is not enough to equalise access to employment: family responsibilities have a greater impact on women’s employment opportunities than on those of men. There is therefore a strong argument that if equality of opportunity is to be attained, childcare will have to be subsidised. This would have long-term as well as short-term effects on women’s wages and opportunities. This argument is quite clear-cut:

²⁷ A rather discontinuous societal welfare function would seem to underlie this idea; there is a critical value of the fertility rate (at 2.1) below which intervention is regarded as justified.

²⁸ For a small, open economy such as Ireland such a solution would not affect the rate of return available on investments.

if equality of opportunity is an aim of the society, then the role of economics is to find the most efficient means of achieving it. It would be surprising if childcare did not figure strongly in that solution.

Argument S2: All children have the right to the developmental effects of early education

Early nursery education can have very beneficial developmental effects for children, as emphasised by McKenna (1988). This leads to a quite distinct and powerful argument for the provision of nursery education as a “merit” good in the same way as primary education. The justification for state intervention here is that all children have the right to these developmental benefits. This is the argument most heavily stressed by OECD (1990) as justifying state intervention. The extent to which this argument applies depends, however, on the particular form of care involved: it applies less to care which emphasises the “custodial” or “minding” element and more to care which emphasises the educational elements. It could also be seen as an argument against raising the minimum age at which children are allowed to enter national schools.

4.1.4 ARGUMENTS ON FINANCING CHILDCARE: AN OVERVIEW

A wide range of arguments for state subsidisation of childcare has been outlined and considered. It is important to note that they are not based on the simple idea that increased female participation in the labour market is, of itself, an end of policy. Rather the arguments flow from broader aims of economic and social policy: efficiency considerations, equality of opportunity between the sexes, a desired demographic structure and so on. Views on the different arguments set out above will undoubtedly differ. It is hoped that our discussion of them has helped to clarify the issues involved. In our view, the arguments that childcare costs constitute necessary work expenses, and that workplace nurseries provide benefits to employers do not provide sound reasons for public financial support for childcare; the demographic argument also seems less applicable in the Irish context than in the continental European countries. The arguments based on the necessity of childcare for equality of opportunity between the sexes, the developmental benefits for children, and the distortion of childcare decisions by the tax treatment of married couples are on much stronger ground. The appropriate means of providing financial support to childcare will also be influenced by which of these arguments are accepted and which are rejected. It is to such issues that we now turn.

4.1.5 METHODS OF STATE FINANCIAL SUPPORT FOR CHILDCARE

State financial support for childcare services could come in three main forms. First, direct provision of a subsidised service. Second, a tax allowance or tax credit for childcare expenses. Third, a subsidy unrelated to tax liabilities, paid either to parents using commercially provided childcare, or to the commercial suppliers. Much of the

debate on state involvement relates to registration, regulation and supervision of childcare services;²⁹ but here we concentrate on these issues of how state financial support might be provided if some of the arguments discussed in the preceding subsection were accepted.

The question of whether childcare services are best provided by the state or local authorities, or by the private sector, can be seen in the context of the broader debate as to whether certain services should be provided by public or private agencies. Two of the arguments considered above would be particularly germane to the issue. First, the idea that workplace nurseries have particular benefits for employers would suggest that there might be some case for state provision of services for their own employees. Second, the idea that nursery education has developmental benefits akin to that of primary education might suggest that provision should follow the lines decided for that sector. A distinct argument for public sector involvement arises because school premises may be the most suitable and efficient locations for after-school care. Such care may also be relatively cost-effective. The absence of such care may prevent many women from undertaking paid work, or severely restrict its extent. It could, potentially, be provided relatively cheaply. Thus, even without a subsidy, it could be a profitable enterprise: its failure to emerge as a private enterprise may reflect the fact that if buildings were used only for this purpose, rental costs could be prohibitively expensive.

The argument for state support which would most strongly suggest the use of tax relief as an instrument was that childcare costs were equivalent to work expenses. But this argument was shown to be particularly weak. Standard objections to tax reliefs include the fact that the net benefit from the taxes is concentrated on high earners with the highest marginal tax rates; and that the tax relief may not help those on low incomes at all. Taken together, this represents a strong set of arguments against making childcare expenses tax deductible.

If state financial support for childcare services is justified, then the provision of subsidies to parents or suppliers may well be the most efficient method of achieving this end. Subsidies to parents could take several forms: an allowance for childcare costs in the calculation of social welfare entitlements for lone parents or low income families; cash refunds based on documented expenses; or a "voucher" scheme. Subsidies to suppliers could be made on a general basis, relying on market forces to apportion the benefit; or could be based on a more interventionist strategy, with receipt of the subsidy depending on price controls. The *Moss (1988)* report documents a wide range of such methods used in many European countries.

4.2 OTHER LABOUR MARKET POLICIES

Does part-time and temporary working represent simply a desirable increase in the

²⁹ There could, of course, be interactions between state financial support and state regulation of childcare services: for example, the financial support might be paid only if childcare was provided by a registered person or agency..

flexibility of the labour market? Or does it "comprise the dead-end of a dual labour market?", as *Blackwell (1990)* asks. The answer is of particular importance to women, since most part-time workers are women, who are also likely to account for much of any future growth in part-time employment. If part-time work is simply an increase in flexibility, then policies to encourage greater part-time working might well be considered. If, on the other hand, it represents the unstable, low paid and low status element of a dual labour market, increased protection of part-time workers and measures aimed at assisting them to break into the wider labour market might be deemed desirable.

The question is a complex one. Increased flexibility as regards hours of work may represent a net benefit both to employers and employees. But increased flexibility in hiring and firing, and reduced labour costs have different connotations for employers and employees. Practices such as enforced breaks in service which limit workers' rights have also given rise to fears that "flexibility" from the point of view of employers can have very negative connotations for employees. If part-time and temporary workers affected by these considerations were able to move freely into more stable or full-time jobs, these concerns might be less pressing. But if instead, part-time workers tended to be limited to moving frequently between low status, low skilled jobs with few fringe benefits a different policy response might be thought appropriate. *Blackwell (1990)* notes that existing data has been unable to provide answers to many of the key questions in this regard.

One limited form of evidence on these issues is given by the reasons given for working part-time in answers to the Labour Force Survey. These show that most women work part-time because of family responsibilities or did not want a full-time job; most male part-timers reported that they could not find a full-time job. But almost 25 per cent of part-time women workers cited inability to find a full-time job as the main reason they were working part-time. (*Blackwell, 1990*) These figures do not imply that the possible problems associated with part-time work (with employer flexibility having negative connotations for employees) do not exist; merely that they are not sufficient to overcome preferences and family responsibilities which at present result in women choosing to work part-time rather than full-time. *Blackwell (1990)* concludes on the basis of the available evidence that "many part-time workers are on relatively low pay and have relatively low occupational status. From what is known of women's working lives, it is unlikely that many of the women who work part-time move in to relatively high paying jobs, whether of a part-time or full-time nature".

Until recently, much labour legislation (such as that governing unfair dismissals, minimum notice and redundancy provisions, holidays and maternity leave) covered part-time employees only if they worked for more than 18 hours per week. The Worker Protection (Regular Part-Time Employees) Act of 1991 extended the coverage of such legislation to workers who would normally be expected to work

more than 8 hours or more per week, with at least 13 weeks continuous service. Safeguards against the use of breaks in service to avoid the effects of this legislation were also put in place.

Equal pay legislation and anti-discrimination legislation in the mid-1970s was specifically aimed at improving labour market opportunities for women. To the extent that they did so they may have led to a permanent upward shift in participation. But given that they are now in place, future growth in participation is more likely to arise from other stimuli. In Ireland, as in many other countries, a gap between male and female wages has remained. The factors underlying this gap require a separate study, which is now under way.

5. CONCLUSIONS

Although the overall level of female participation in the Irish labour market has been relatively stable over the past three decades, there have been substantial changes in the nature of that participation. Reduced participation by young single women, who are tending to remain for longer in full-time education, and by older women were offset by increases in participation by married women. In this respect, Irish experience has reflected a widespread international trend towards increased participation by married women. However, Irish married women are still much less likely than their foreign counterparts to participate in the paid labour market. This cannot be explained simply in terms of Irish fertility rates being higher than elsewhere; participation rates for women with given numbers of children are also lower in Ireland than in most other countries.

The extent of part-time work in Ireland is also at the low end of the international range. There is, however, considerable variation in the extent to which increased female participation is associated with increases in part-time employment. The UK experience, where the numbers of women in full-time employment fell, but were more than counterbalanced by the increase in part-time work, represents one extreme. Part-time employment played a more limited role in the increase in female participation in many other countries, including some which have reached very high levels of participation.

The lack of a detailed study of the labour supply decisions of married women, along the lines developed in the international literature over the past 15 years, was identified by *Geary (1988)* as a major lacuna in Irish labour market research. This study has helped to fill that gap. The analysis was based on data collected by the ESRI Survey of Income Distribution, Poverty and Usage of State Services, which included information on all the key influences set out by Geary in his review of the international literature. The wide range of estimates of key elasticities in the international literature cautions against reliance on a single method of analysis; thus, several different methods of analysis were applied.

One major point emerged clearly from each of the analyses. Female participation in the labour market was found to be very responsive to potential earnings. Thus, married women who could command relatively high wages in the labour market (because of educational qualifications or extensive past work experience, for example) were much more likely to become employed. A 10 per cent increase in wages could, other things being equal, lead to an increase in participation of between 13 and 27 per cent: a 3 to 5 percentage point increase in the participation rate. This elasticity (1.3 to 2.7) is quite high by international standards. The influence of the earnings of the husband or investment income was much more limited, especially when the analysis took into account the effects of the income tax system. Women whose husbands received social welfare benefits were less likely to become employed, because of the loss of benefits entailed. The analysis also identified the strong effect of pre-school children in reducing married women's labour force participation. Hours of work were found to be less responsive to wage rates, for both married women and married men.

The cross-section analysis was capable of providing a good explanation of past trends in married women's participation. The growth of married women's participation in the Irish labour market looks set to continue at a rapid pace. Many of the factors underlying rapid growth in the 1970s and 1980s remain relevant. Furthermore, international experience does not suggest that the a tailing off in growth is likely at this point: comparison even with other countries having relatively low participation rates indicates considerable scope for growth.

The policy implications of these results were discussed earlier in this chapter. Broadly speaking, the results support the common international finding that married women's participation decisions are more responsive than those of their husbands to potential earnings. This suggests that, from the point of view of economic efficiency, particular attention should be given to the effects of income tax and social welfare policies on women's labour supply decisions. Considerable attention was therefore devoted to just these issues. The complex arguments concerning public financing of childcare services were also discussed. As in the case of tax reform, these arguments were evaluated in terms of the broader aims of economic and social policy. A study such as this cannot hope to resolve differences of opinion on the relative importance of different goals; but we have sought to clarify the implications of our findings as regards the most effective means of achieving policy goals.

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