

Gender Pay Differentials and Equality Legislation in the Republic of Ireland

MARK CASSIDY

*Central Bank of Ireland
Dublin, Ireland*

ERIC STROBL

*University College Dublin
Dublin, Ireland*

ROBERT THORNTON

*Lehigh University
Bethlehem, Pennsylvania*

Les auteurs analysent l'expérience que l'Irlande a faite de la législation sur l'égalité depuis la *Loi antidiscriminatoire* (concernant les salaires) de 1974 et la *Loi sur l'Égalité en matière d'emploi* de 1977. Après avoir fourni une analyse détaillée du fonctionnement de ces Lois, ils font une estimation économétrique des effets de la législation égalitaire sur l'écart existant entre les salaires des hommes et des femmes en Irlande. Bien qu'il y ait eu, environ depuis 1975, proportionnellement, un accroissement notable du salaire des femmes, les auteurs estiment que seule une très faible part de cet accroissement peut être attribuée à la législation sur l'égalité.

The authors analyze Ireland's experience with equality legislation since the passage of the *Anti-Discrimination (Pay) Act* of 1974 and the *Employment Equality Act* of 1977. After providing a detailed analysis of how the Acts function, they econometrically estimate the effects of equality legislation on the female-male pay gap in Ireland. Although there has been a pronounced increase in the female pay ratio since about 1975, the authors find that only a very small part of this increase can be attributed to equality legislation.

INTRODUCTION

In most countries today, considerable gaps between the earnings of male and female workers continue to exist. In many of these countries, legislation has been enacted in attempts to eliminate that portion of the gender pay gap that is due to discrimination in wages and employment. The Republic of

Ireland has had such legislation since 1974, when it passed the *Anti-Discrimination (Pay) Act*, and 1977, when its first *Employment Equality Act* was enacted. However, to date Ireland's experience under such legislation has drawn very little attention in the economics literature. Yet an assessment of the Irish experience with anti-discrimination policy can be insightful for several reasons:

- Women have held a special place in Irish society, a reflection of the influence of the Catholic Church in public policy. In the Irish constitution, article 41.22 says that the state should “endeavor that mothers shall not be obliged by economic necessity to engage in labor to the neglect of their duties in the home.”
- Ireland had been slow in eliminating certain laws restricting the rights of women. For example, it was not until 1986 that the ban on night work and Sunday work by women was ended. There was also a “marriage bar” for women working in the civil service until 1973, and women were not allowed to join the ranks of the military until 1979.
- Divorce had long been illegal in Ireland until 1995, when the constitutional ban against divorce was voted down by the narrowest of margins in a voter referendum. Abortion, however, is still illegal in Ireland.
- The female labour force participation rate (especially that for married women) in Ireland had long been one of the lowest in Europe. However, since the 1990s female participation rates have begun to rise rapidly.

When considered together, these facts seem to present a particularly challenging environment for gender equality legislation.

In this paper we assess the Irish experience with legislation to eliminate pay and employment discrimination against females. We first describe the background that led to the passage of such legislation, after which we provide a detailed overview of how Irish equality legislation functions in practice. We then analyze the trend in the female-male earnings gap in Ireland over the past 60 years. Finally, we attempt to measure econometrically the effect that equality legislation has had in reducing the female-male earnings gap in Ireland.

AN OVERVIEW OF IRISH GENDER-DISCRIMINATION POLICY¹

Background to the Legislation

In compliance with European Commission directives, the Republic of Ireland passed the *Anti-Discrimination (Pay) Act* in 1974 and the *Employment Equality Act* in 1977 to ensure equal pay for men and women when work of equal value was being performed. The origins of anti-discrimination legislation within the European Economic Community (EEC) were primarily economic rather than social. By as early as 1950 the French government had committed itself to the concept of “equal pay for work of equal value” (or comparable worth) as a means of protecting male employment. Fearing that such a policy would concede a competitive advantage to its free trade partners within the EEC, France sought the inclusion of equal pay legislation in the Treaty of Rome. Article 119 of the treaty required that each member state should “ensure and subsequently maintain the application of the principle that men and women should receive equal pay for equal work.”

Prior to Ireland’s entry into the EEC, explicit wage discrimination against females had been justified on the grounds that the male was the primary source of income for a family. Attempts by women’s groups such as the Ad Hoc Committee of Women’s Organizations and the Women’s Advisory Committee of the Irish Congress of Trade Unions (ICTU) had had little effect in bringing this issue to public attention.² It was only at the outset of the formal negotiations for Ireland’s entry into the EEC that the government began to examine the implications of anti-discriminatory legislation. In 1970, the Commission on the Status of Women was established, and the commission’s report of August 1971 recommended legislation ensuring equal pay between men and women when the work was of equal value. The report also proposed that disputes about equal pay should be referred to Ireland’s Labour Court and that the court should appoint an equal pay

commissioner to investigate any such disputes. By late 1971 the Irish negotiators for entry into the EEC were informally giving assurances that the government would be implementing in full the recommendations of the Commission on the Status of Women. This position was formalized with the publication of the White Paper on Accession in 1972 (Curtin 1989, pp. 98-99).

As a consequence, Ireland's *Anti-Discrimination (Pay) Act* was passed in 1974 with its equal pay provisions becoming effective on 31 December 1975. The process of passing the Act was not entirely smooth, however. It was opposed by the Federated Union of Employers (FUE), which pushed for a later effective date, arguing that early implementation would lead to plant closings and layoffs (redundancies). The FUE also pleaded for an exemption or "escape clause" for firms that could prove they were unable to pay (Curtin 1989, p.107). In addition, citing the high costs involved, even the Irish government proclaimed that it would not be able to implement equal pay in the public sector immediately. The government also formally requested an exemption from the European Commission's equal pay directive until December 1977 in those industries where the immediate implementation of equal pay would seriously threaten employment. However, this application for a temporary reprieve was denied, and the 1974 act came into effect as scheduled.

Scope of the Legislation

The scope of the *Anti-Discrimination (Pay) Act* of 1974 was quite broad. The Act affected women working in the same employment or for an "associated employer." Also, the legislation applied to both the public and private sectors and made no distinction between employers of different sizes. Under the terms of the 1974 Act, a woman has a right to the same pay as a man employed on "like work" (a "comparator") providing that they work in the same "place," which under section 1(1) included "a city, town or locality." Like work was defined to be present where:

1. both perform the *same work* under the same or similar conditions, or where each is in every respect interchangeable with the other in relation to the work, or
2. the work performed by one is of a *similar nature* to that performed by the other, and any differences between the work performed or the conditions under which it is performed by each occur only infrequently or are of small importance in relation to the work, as a whole, or
3. the work performed by one is *equal in value* to that performed by the other in terms of the demands it makes in relation to such matters as skill, physical or mental effort, responsibility and working conditions.

In 1977 the *Anti-Discrimination (Pay) Act* was supplemented by the *Employment Equality Act* and the two were, according to section 56(2) of the 1977 Act, to be "construed together as one Act." Specifically, the Act of 1977 sought to prohibit (i) direct discrimination, (ii) indirect discrimination, and (iii) victimization in employment. Direct discrimination occurs when one person is treated less favourably than another person because of sex or marital status.³ This covers access to employment, conditions of employment, training or experience for or in relation to employment, promotion or re-grading in employment, or classification of posts in employment (section 3). Indirect discrimination occurs where, because of sex or marital status, a person is obliged to comply with a requirement relating to employment which is not an essential requirement for such employment. For indirect discrimination to occur, the proportion of persons of the other sex or of a different marital status must be substantially higher (section 2(c)). (In the United States, "disparate impact" is the term used to describe the effect of such practices.) Finally, victimization occurs when a person is discriminated against as a result of lodging a claim for equal pay, giving evidence in an equal pay claim or giving

notice of an intention to do either of these (section 2 (d)).

Most recently, the Acts of 1974 and 1977 have both been repealed and replaced with the *Employment Equality Act* of 1998. This Act carried over the major provisions of the earlier two Acts but it has also broadened the scope of the earlier legislation in several important respects which will be discussed later.

Procedures

Irish employers are not required to determine the worth of jobs and resulting pay levels. Instead, the 1974 Act placed the responsibility on women to file complaints if they feel they are receiving lower pay for jobs of similar value. The process works as follows. For a female employee to initiate a pay claim, the first step is for her to compare her work and her pay to that of a male comparator. If the employee believes she has a valid complaint — that she is paid less than a male at a job she believes is of equal value — she can process her claim through her union or through the Employment Equality Agency (the government agency responsible for overseeing enforcement of the Act).⁴ Alternatively, she can carry her complaint directly to her employer. If the employer rejects the equal pay claim, the complainant can then refer her case to an equality officer. Equality officers (EOs) are officers of the Labour Court, appointed from within the ranks of the civil service. The equality officer gives notice to the employer of the claim and, if it is rejected, will investigate the case to decide whether the jobs are really of equal value with respect to the terms of the *Equal Pay Act*.

The 1977 Act required individuals to make a complaint relating to employment discrimination directly to the Labour Court. The court must then decide whether to try to settle the dispute through mediation, in which case it is referred to an industrial relations officer, or to refer the dispute to an EO for investigation and recommendation. Once a case is referred, under either the 1974 or 1977 Act, the EO arranges a preliminary hearing with both parties to the dispute in order to clarify the nature and background of the

case. At this stage the equality officer may also invite the parties to provide job descriptions (for equal pay claims) or other relevant written submissions. The officer's investigation involves a workplace inspection in the case of the 1974 Act and the consideration of written submissions in the case of the 1977 Act. Finally, a hearing is arranged at which any additional points of relevance can be raised.

After the investigation, the equality officer issues a recommendation either agreeing or disagreeing with the complainant's claim. The recommendation is not binding on either party regardless of whether it related to a claim lodged under the *Anti-Discrimination (Pay) Act* or the *Employment Equality Act*. However, the recommendation can be appealed by either side to the Labour Court, but only to challenge a matter of fact or law in the recommendation. Alternatively, if both parties accept the recommendation, but the party advised to take some action fails to do so, the other party can appeal to the Labour Court for a determination that the recommendation has not been implemented. The Labour Court must then decide whether there was discrimination and can recommend any course of action (which is an independent recommendation, not tied to the equality officer's recommendation). The decision of the Labour Court is legally binding.

As mentioned earlier, the recently passed *Employment Equality Act* of 1998 carried over most of the provisions of the earlier two Acts, but it has also broadened the scope of the earlier legislation in two important respects. First, the grounds on which discrimination is outlawed have been extended to include not just gender and marital status, but also family status, sexual orientation, religious belief, age, disability, race, and membership in the Traveller Community.⁵ Second, the provision of equal pay for work of equal value has been broadened by the removal of the requirement in the 1974 Act that the comparator be employed in the same place as the claimant.

Also under the provisions of the 1998 Act a new institution, the Equality Authority, was established

to replace the Employment Equality Agency. The authority is charged with a statutory duty to work toward the elimination of discrimination and the promotion of equality of opportunity in employment on the nine discriminatory grounds listed above. In addition, a new office of Director of Equality Investigations has been established within the Department of Justice, Equality and Law Reform. The director, with the support of equality officers and equality mediation officers assigned to his/her staff, now operates as the main locus for redress under the Act. All cases, other than those involving dismissal and gender discrimination, must be referred in the first instance to the Director of Equality Investigations. If it is believed that the case can be resolved by mediation, the director refers the case to an equality mediation officer. Otherwise the director investigates the case and issues a determination which is binding but can be appealed to the Labour Court within 42 days of the issue of the determination.

ADMINISTRATION OF IRISH EQUALITY LEGISLATION

Irish anti-discriminatory legislation has proved to be somewhat problematical to administer. As Gunderson (1989, p. 68) concludes from his extensive review of the relevant literature on discrimination policies generally, the success of such policies depends on many factors: e.g., the strictness or laxity of enforcement, whether they are proactive or merely complaints-based, and whether they work through the mechanism of collective bargaining. In this section we analyze how these and other factors have affected the way that the Irish equality legislation has worked in practice.

Determining the Value of Jobs

The means by which the value of jobs is determined is a vital part of any comparable worth pay policy like that set up by the 1974 Act. The implementation of the principle of equal pay for work of equal value often requires comparisons between dissimilar occupations. This usually involves formal

job-evaluation techniques which assign points to the various components of jobs (e.g., skill, effort, responsibility, and working conditions). In this way aggregate point scores can be compared for male-dominated and female-dominated jobs. In the Irish system, however, there is no obligation placed on employers to use job evaluation of any kind for the purpose of determining compensation levels. Under section 3(c) of the 1974 Act, the Labour Court was only required to utilize job-evaluation techniques when such techniques were already being used within the industry.

Although some Irish employers do use job evaluation, the practice is not widespread.⁶ How have equality officers determined the value of jobs when a complaint is filed? Surprisingly, there has been little legislative or judicial guidance given to EOs in their task. Their purpose is simply to determine whether the jobs under consideration are “equally demanding” in terms of the demands made on the workers with respect to skill, effort, responsibility, and working conditions.⁷ In doing so, the EOs generally spend several days observing the various aspects of the jobs under consideration. But no points are assigned to the various levels and no explicit quantitative weights are applied to the factors. In fact, some observers (e.g., Doyle and von Prondzynski 1985) have claimed that the EOs actually perform “task analysis” rather than job evaluation. Others have referred to their methods as “opaque” and have criticized them for their use of “vague and imprecise terms” in their recommendations.⁸ There appears to be some substance to these criticisms. A review of reports of equality officers has shown that detailed descriptions of the jobs being compared often run from 30 to 50 pages. But in many cases, after describing the demands placed on the workers in each of the four categories, the recommendation is as tersely stated as the following:

Accordingly, as ... the demands which are placed on each of the claimants in the kitchen and Mr. O'Brien (the comparator) do not differ to any significant degree with regard to skill, physical

effort, responsibility, and working conditions, I consider the work of each of these claimants ... to be equal in value as defined by Section 3(c) of the 1974 Act to that performed by the named comparator.⁹

Usually there is no discussion as to which factors were weighted more heavily or *how much* more or less demanding a particular job is with respect to any of the four factors. As a result, the recommendations of the equality officer sometimes appear to be based on a high degree of subjectivity. Moreover, recommendations have been frequently appealed to the Labour Court and overturned.

One of the interesting anomalies of Irish equality law is the question of whether “like work” determinations included work of *higher* value. In several cases (e.g., *Murphy v. Telecom Eireann*) equal pay had actually been denied to women doing work of higher value but who were paid less than comparators since equality officers had found that “like work” did not exist. Upon referral, the Court of Justice of the European Community determined in 1988 that work of higher value was covered by article 119 of the Treaty of Rome. This anomaly has now been legislatively corrected by the *Employment Equality Act* of 1998, which allows for the provision of equal pay when it has been found that “the work performed by the primary worker is greater in value than the work performed by the comparator” (section 3(b)).

Exceptions

Although all comparable worth policies attempt to ensure that females receive equal pay for jobs of equal value, many of the laws contain exceptions. The exceptions permitted by the *Anti-Discrimination (Pay) Act* became widely known and have been frequently used as defences by Irish employers. The attempts by employers to justify male-female pay differences have usually been based on the “grounds other than sex” provision in section 2(3) of the Act. This provision stated that, even though “like work” might exist, pay differentials might be justified if there were legitimate non-gender reasons for the

differential. Although at first this exception seems wide enough to drive a (Guinness) beer truck through, it is the employer who bears the burden of proof here. What is interesting, however, is that the 1974 Act contained no listing or explanation as to what specific grounds might be legitimate. Those grounds that have been successfully defended in various cases over the 25 years of the Act’s existence include the following: compassion, the threat of industrial action, red-circling, age and length of service, the capacity to perform extra duties, and extra qualifications of the job-holder. Somewhat surprisingly, even mistakes have also been held to be among the legitimate grounds other than sex. This has led the Labour Court to admit that the reasons for the pay differential “might be absurd,” but they are not prohibited unless they are based on sex.

Collective Agreements

In countries with a collective wage bargaining system, the success of equal pay legislation can depend upon the assimilation of the legislation into collective agreements. The success of the *Equal Pay Act* (1970) in the United Kingdom can be partly attributed to this (Zabalza and Tzannatos 1985). The Irish equal pay legislation was also committed in principle to including equal pay provisions in collective agreements. Section 5 of the 1974 Act asserted that where collective agreements “are based on, or are related to the sex of employees, such a provision shall be null and void.” However, no specific means of ensuring this were recommended; furthermore, as noted by Doyle (1986), industrial relations in manufacturing industries remained dominated by traditional Employment Regulation Orders which failed to recommend increased wages for women. Therefore, the onus again remained on the individual employee to claim that she merited equal pay; and, if equal pay was granted to the individual, generally no account of this was taken in the collective agreement. Furthermore, although explicit sex-based differentials were removed from collective agreements, extensive job segregation ensured that average female wages remained below those of males.

Employment Equality

Most of our discussion thus far in this section has focused on pay discrimination. However, the effectiveness of equal pay legislation also depends upon the success of employment equality legislation. An equal pay provision without a provision guaranteeing equal employment might cause discriminating employers who employ equally productive females and males (but the former at lower pay) to dismiss the females. Thus the *Employment Equality Act* of 1977 is important not only because it prohibited direct and indirect discrimination but also because it served as a means toward achieving equal pay. As we have already noted, the scope of the 1977 Act was broad inasmuch as it prohibited all forms of discrimination in *all* aspects of employment — from recruitment through training and development, promotion, and re-grading.

One of the most controversial aspects of the *Employment Equality Act* is that discrimination must be proved by the person alleging such discrimination. This can be a particularly difficult condition for complainants, given that most of the relevant evidence is in the control of the employer. In practice, however, a claimant can establish a *prima facie* case of discrimination if an inference of discrimination can be drawn from the evidence. The burden of proof then shifts to the employer to explain his actions.

The need for the claimant to prove discrimination is particularly noticeable in the case of indirect discrimination where very detailed statistical evidence may be required. Under section 2(c), the burden of proof rests with the claimant to show that the effects of an employment requirement are such that “the proportion of persons of the other sex or (as the case may be) of a different marital status but of the same sex able to comply is substantially higher.” For example, in the case of *North Western Health Board v. Martyn*,¹⁰ the judge found that the plaintiff would have to produce two sets of statistics:

1. the actual statistics of the particular application for employment; and

2. the actual statistics of an application for similar employment on the same conditions but without the impugned condition.

As noted by Curtin (1989, pp. 246-47), it is usually extremely difficult in practice to obtain such data. Irish employers are not required to collect statistics regarding the statistical composition of their workforce nor is there a body of official statistical data available for use in indirect discrimination cases.

THE FEMALE-MALE PAY GAP IN IRELAND

Having analyzed the major provisions of Irish gender equality legislation, we now turn to the effects of the legislation. In general, to evaluate the effectiveness of equality legislation on female pay, it is desirable to compare the female-male pay gap before and after the implementation of the legislation. Unfortunately, a consistent time series of wages for men and women in Ireland is available only for industrial workers employed in the manufacturing sector through data provided by the Central Statistics Office (CSO). Hence our study is restricted to this subsector of the economy. Despite a broadening of the survey base in 1985 to include several additional industries (see the note to Table 1), the group surveyed still covers fewer than one-third of Irish employers and only 17 percent of employed women. Indeed, as can be seen in Table 1 in the Appendix, most of the significant growth in female employment since 1971 has been in the services sector, and no earnings data are available for this sector.

A brief look at how female wages have compared to male wages is provided in Table 1. The table shows that as of 1997 the female-male hourly earnings ratio was 75 percent in the manufacturing sector and 73 percent across all industries covered.¹¹ What is most interesting is that in the five years following the 1974 Act the earnings gap dropped substantially, with the female-male earnings ratio rising from 0.61 (1975) to 0.69 (1980). Relative female wages declined somewhat during the

TABLE 1
Ratio of Female-Male Hourly Earnings in Ireland (Various Years) 1970–1997

Sector		1970	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997
Manufacturing	Female-male hourly earnings ratio	0.56	0.61	0.69	0.67	0.69	0.69	0.70	0.71	0.73	0.74	0.74	0.75
All industries	Female-male hourly earnings ratio				0.67	0.68	0.68	0.69	0.70	0.71	0.72	0.73	0.73

Note: The earnings information before 1985 is for manufacturing industries only. Since 1985, the CSO has produced an expanded all-industries series that includes manufacturing, mining, quarrying, turf production, electricity, gas and water supply.

Sources: Central Statistics Office (Ireland), *Statistical Bulletin*; Blackwell (1989); Durkan (1995); Ruane and Sutherland (1999).

recessionary period of the 1980s, but since the 1990s they have continued to grow.

The relative female hourly wage rate for industrial workers in the manufacturing sector for a longer period (1938–95) is depicted (by the solid line) in Figure 1.¹² In this figure we have also calculated a second relative wage series (depicted by the broken line) holding the employment weights of our subsectors constant at their 1938 levels. We have done this in order to investigate to what extent changes in industrial structure and/or movements into or out of higher paying industries may have been responsible for the trends observed in the aggregate. As is clear from the figure, changes in industrial structure and relative employment seem to have had little effect on the trend of female-male relative wages until 1980 since both series are nearly identical up to that year. However, from 1980 onwards, this second series suggests (although not conclusively since we have not yet controlled for other factors) that the changing distribution of employment may have been at least partially responsible for changes in the relative wages of females.

The developments in female relative pay must, of course, be considered in the context of trends in female relative employment. In Figure 2, therefore, we provide a graphical depiction of the number of female industrial workers relative to male industrial workers (F/M) over our sample period. After experiencing fairly volatile relative employment levels meandering around 53 percent, the relative number of employed females began to rise in the early to late 1950s. After a short fall and subsequent rise in the 1960s, from 1967 onwards the series shows a declining trend and then a reversal in the early 1980s. This reversal persisted until about 1990 when a period of stability seems to have been reached. It should be pointed out that, while the fall in employment alongside the rise in relative wages from the late 1960s until the late 1970s is consistent with supply-side explanations, the period during which the greatest increase in female relative pay occurred was also the period during which the fall in relative employment had levelled off. Thus, shifts in the relative supply curve of females cannot provide the sole explanation for movements in relative wages.

FIGURE 1
Female Relative Wages – Aggregate Series, 1938–1995

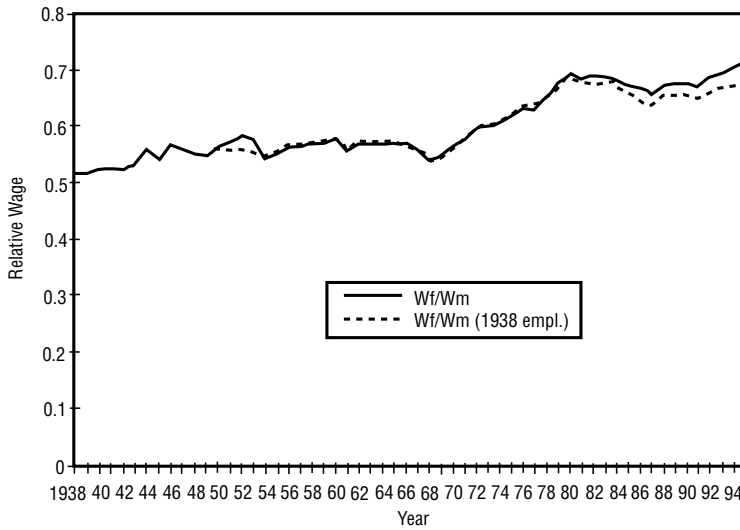
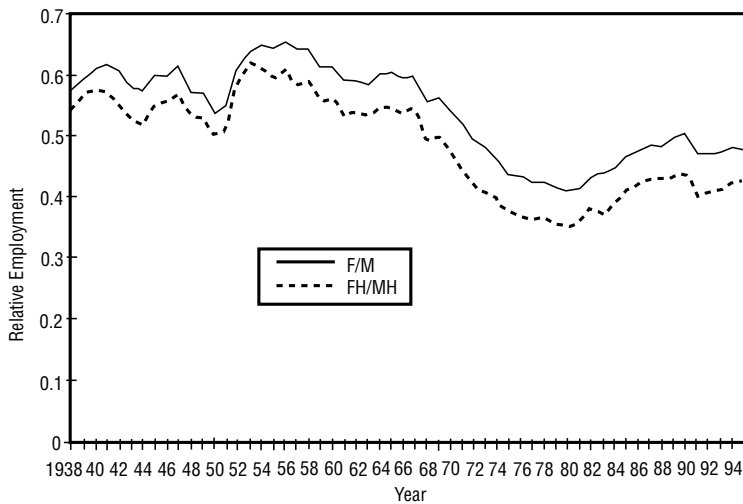


FIGURE 2
Female Relative Employment in Irish Manufacturing, 1938–1995



It is important to note that females in Ireland are more likely to experience part-time employment than males, a trend that has become more pronounced since the 1970s. This fact could potentially bias our measure of relative employment. Therefore, we have also calculated relative employment hours (FH/MH) by multiplying the number of industrial workers by the average number of hours worked per week for each gender group and similarly deriving a relative measure. This series is also shown in Figure 2. As can be seen, taking the number of hours worked into account does reduce the relative employment of females, but the difference is small and certainly does not change the aggregate trends observed for the unadjusted series.

Of course, the sizeable reduction in the female-male wage differential since the mid-1970s may not have been due to Irish equality legislation. Other structural and demographic factors may have been responsible. However, there is some evidence (although indirect) from a number of studies that have estimated the degree of discrimination in female relative pay using cross-sectional data that infer that the Irish legislation may have reduced the female-male wage gap. Walsh and Whelan (1976) conducted the only study of the female-male wage gap in Ireland prior to the 1974 *Anti-Discrimination (Pay) Act*. The authors examined male and female earnings for a sample of persons in 1972. They found that only a small part (2 percent) of the more than 50 percent wage gap could be accounted for by different attributes, and hence concluded that the discrimination component itself was over 50 percent. But later studies of female-male wage differentials for time periods *after* the passage of anti-discrimination legislation have found much smaller magnitudes for the discrimination coefficient, however. For example, Reilly (1987) used a sample of young (15–24), single, full-time employees for 1982. He discovered a wage gap of about 10 percent and a small but statistically significant discrimination index of 3 percent. In a subsequent study Reilly (1990) showed that for the same sample there was no evidence of discrimination for manual workers while the discrimination

index for non-manual workers varied between 6 and 16 percent. In a study of the Irish academic labour market in 1987, Ruane and Dobson (1990) found a female-male discrimination index of about 11 percent. Finally, Callan and Wren (1994) used information collected from a special 1987 survey of income conducted by the Economic and Social Research Institute (Dublin) that utilized a much more representative sample of Irish workers than either the above studies or the CSO survey. They found a female-male hourly earnings ratio of 0.80 — approximately ten percentage points higher than the ratio implied by the CSO data. And when earnings functions were used to decompose the earnings gap, they revealed that fully one-half of the 20-percentage-point difference could be explained by productivity-related factors, such as differences in labour market experiences. In all, only ten percentage points *at most* of the pay gap could reasonably be attributed to discrimination.

In short, the fact that the estimated female-male discrimination coefficient was apparently much smaller after the passage of the 1974 and 1977 Acts than before might be considered as indirect evidence of the success of Irish anti-discriminatory legislation. Still, this conclusion is subject to extreme caution. Not only have there been very few studies done, but the varied findings across the studies may well be due, at least in part, to sample differences. To properly assess the impact of anti-discriminatory legislation on the Irish labour market clearly requires the comparison of wages of comparable male and female groups over time. This is what we attempt to do in the following section.

MEASURING THE EFFECTIVENESS OF IRELAND'S ANTI-DISCRIMINATION LEGISLATION

Previous Studies of the Effects of Anti-Discrimination Legislation

For methodological reasons, it is helpful to review some of the previous studies that have attempted to measure the effect of anti-discriminatory legislation

on relative wages and employment of various demographic groups. Most of them have been undertaken for the Australian, Canadian, UK or US labour markets. One pioneering study on the impact of anti-discriminatory legislation on the labour market (Landes 1968) used the “taste for discrimination” theoretical framework proposed by Becker (1957) to examine the impact of fair employment laws on the relative employment of non-whites (compared to whites) in the United States. This approach has remained the most frequently utilized one for examining the effects of anti-discriminatory legislation in the US and in other countries, and it is the approach that we will be using in our econometric analysis. According to this approach, the relative female labour market can be described by:

$$W_f/W_m = f(E_f/E_m, A) \quad \partial f/\partial(E_f/E_m) < 0 \quad (1)$$

$$E_f/E_m = g(W_f/W_m, B) \quad \partial g/\partial(W_f/W_m) > 0 \quad (2)$$

where (1) and (2) constitute the relative demand and supply functions, W_f/W_m stands for female wages (relative to that of males), E_f/E_m indicates relative female employment, and A and B represent exogenous demand and supply determining factors, respectively. Although the taste for discrimination may cause W_f to be lower than W_m even if males and females are equally productive, it does not necessarily generate the negative relationship between relative wages and employment in the demand function. The negative value of this partial derivative instead implicitly rests on the assumption that tastes for discrimination in the labour market are not completely homogenous. The rationale is, briefly, as follows. For a given supply of females in the labour market, females will seek employment with those employers with the lowest tastes for discrimination. These employers will be relatively more willing to hire women at a given wage rate and will also be more likely to offer higher wages to females relative to males. As more women enter the labour market, however, some will have to accept jobs with the more discriminatory employers and hence accept lower wage rates. This will tend to lower the

average wage rate of women relative to men and thus generate the negative partial derivative in (1). The extent of the downward slope of the relative demand curve will depend on the dispersion of the taste for discrimination, and the intercept will depend on its mean. In contrast, homogenous tastes for discrimination will produce a perfectly horizontal relative demand curve. Of course, imperfect substitutability between male and female labour will also manifest itself in the slope of the demand curve; the higher the degree of substitutability, the greater the wage elasticity of the relative demand curve.

The model outlined above allows one to make predictions about the effect of anti-discriminatory legislation on the female relative labour market. Specifically, effective legislation should cause a rightward shift of the relative demand curve. As argued by Landes (1968), the effectiveness of legislation will depend on the inclusion of provisions guaranteeing both equal pay and equal opportunity,¹³ and its ability to alter discriminating employers' behaviour will depend on the cost of compliance as well as the cost and probability of being caught in violation. As long as the legislation results in fewer discriminating employers and/or less discrimination among violators than before, the relative demand curve will, *ceteris paribus*, shift to the right.

As we have already noted, empirical studies of other countries have thus far been largely limited to the US, Australian, Canadian, and UK labour markets. Interestingly, the evidence concerning the success of anti-discrimination legislation in reducing the female-male wage gap has been rather mixed, as Table 2 indicates. For instance, for the US, Beller (1976) finds that equal pay legislation raised female earnings by 4.7 percent, while Oaxaca (1977) finds no significant effect. Gregory and Duncan (1981) find that equal pay legislation in Australia increased the average earnings of full-time female employees by 30 percent relative to the average earnings of full-time male employees, while Gunderson (1975, 1985), Baker and Fortin (1999), and McDonald and Thornton (1998) find little or no effect for Ontario.

TABLE 2
Representative Studies of the Effects of Anti-Discrimination Legislation on Female Wages

<i>Study</i>	<i>Country</i>	<i>Data</i>	<i>Impact</i>
Beller (1976)	United States	Current Population Survey; 1967, 1974	Increased female earnings by 4.7%;
Oaxaca (1977)	United States	Census; 1960, 1970	No significant change in discrimination component of the earnings gap;
Oaxaca (1977)	United States	Current Population Reports; 1955–71	Statistically insignificant and small increase;
Beller (1979)	United States	CPS; 1967, 1974	Statistically insignificant increase;
Beller (1980)	United States	CPS; 1968–1975	Reduced gender gap by 10.2%;
Baker and Fortin (1999)	Canada (Ontario)	Canadian Labour Force Survey; early 1990s	Very modest direct effects on wages of females working in female jobs;
Gunderson (1975)	Canada (Ontario)	Wage Rates, Salaries and Hours of Labour (Canada Department of Labour); 1968 and 1969, narrowly defined occupations	No significant impact;
Gunderson (1976)	Canada (Ontario)	Wage Rates, Salaries and Hours of Labour (Canada Department of Labour); 1946–1971 for nine occupational groups	Statistically significant reduction in gender gap in only two occupational groups;
Gunderson (1985)	Canada (Ontario)	Wage Rates, Salaries and Hours of Labour (Canada Department of Labour); 1946–1979 for nine occupational groups	No significant effect on gender gap;
McDonald and Thornton (1998)	Canada (Ontario)	Sample of Toronto employers	Very modest. Average pay adjustment for females was less than 1.5% of payroll.
Chiplin and Sloane (1988)	United Kingdom	New Earnings Survey; 1949–75	Statistically significant increase of eight percentage points in relative female earnings, although some of this may have been due to other wage policies;
Zabalza and Tzannatos (1985)	United Kingdom	New Earnings Survey; 1950–80	Statistically significant increase of 19.4% in relative female earnings;
Borooah and Lee (1988)	United Kingdom	Department of Employment <i>Gazette</i> , Census, New Earnings Survey, Cambridge Growth Project Databank; 1960–1980 for 22 industries	Statistically significant increase in relative female earnings in all 22 industries (but six specifications failed diagnostic tests);
Gregory and Duncan (1981)	Australia	Wage Rate Index & Earnings and Hours of Employment (Australian Bureau of Statistics); 1914–1977	Increased relative female earnings by 30%, although no statistical test of this was done.

The study upon which the econometric model in this paper is most closely based is that of Zabalza and Tzannatos (1985) on the effect of Britain's anti-discriminatory legislation on female relative pay and employment. Specifically, the authors use aggregate series of relative wages, relative employment and other control variables to examine the effect of the UK *Equal Pay and Sex Discrimination Acts* (which were implemented over the 1970s) within the framework of the model described by (1) and (2). They find that the legislation increased relative wages of females by nearly 20 percent although their results have been partially contested by Borooah and Lee (1988) and Chiplin and Sloane (1988).

Econometric Analysis of the Success of Ireland's Anti-Discrimination Legislation

We noted earlier that the female relative wage rate in Ireland's manufacturing sector has increased significantly in the last quarter of a century, particularly in the latter part of the 1970s. While this increase followed the implementation of anti-discriminatory legislation in 1974 and 1977, the fact that female relative employment levels were still declining during this period prevents one from necessarily inferring any causality. Moreover, it is important to control for other factors that may have been responsible for changes in the relative wage rate. To control for these factors, we specify the relative demand equation given by (1) as follows:

$$\ln(W_f/W_m) = \beta_0 + \beta_1 \ln(FH/MH) + \beta_2 \ln(IND) + \beta_3 \text{EMPGR} + \beta_4 T + \beta_5 D76 + \beta_5 D77 + \varepsilon \quad (3)$$

where \ln is the logarithmic function, W_f/W_m is the average wage of female industrial workers relative to that of males, FH/MH is the employment of female industrial workers (relative to males) measured in employment-hours, IND is an index of industrial structure, EMPGR is the employment growth rate of the manufacturing sector, and T is a time trend variable. The variables $D76$ and $D77$ are legislation dummy variables, which take on a value of zero until 1976¹⁴ and 1977, respectively, and a value of one thereafter to control for the *Anti-Discrimination*

(*Pay*) and *Employment Equality Acts*. We should note that these dummy variables, given our argument earlier that all anti-discriminatory legislation was due to Ireland's accession to the EU, can be considered at least weakly exogenous in the sense of Engle, Hendry and Richard (1983). The index of industrial structure (IND) is defined as in the original Zabalza and Tzannatos (1985) study. It is intended to control for the possibility that female-intensive sectors which may have expanded (or contracted) may have had important effects on the relative employment of females, and hence on their relative wages, in the aggregate. The index is defined as follows:

$$IND = \sum_{i=1}^j A_i (M_{it} / M_t) \quad (4)$$

where M_{it} is the employment of male workers in sub-industry i at time t , M_t is total male employment in manufacturing at time t , and A_i are time invariant weights defined as the female average relative wage bill ratio over the period 1970–80. The appropriateness of this variable is based on the assumption that manufacturing output is determined by a Cobb-Douglas production function with unitary elasticity of substitution between inputs.¹⁵

EMPGR is included in (3) to serve as a proxy for the business cycle in manufacturing.¹⁶ Because women are likely to receive less job-specific training than men due to their weaker labour force attachment, female employment is likely to increase in economic upturns and decline during economic downturns. Finally, the time trend (T) is included to control for other unidentified or unmeasurable factors, such as relative changes in productivity.

Since equilibrium relative employment and wages can be considered endogenous in the model given by (1) and (2), we also consider factors that determine these dependent variables through the supply function (2). Ultimately the variables we seek as instruments to control for the endogeneity of FH/MH are factors that may influence the female labour force participation decision. Two of the most

important such factors are female own-wages and other income. For married women, most other income can be assumed to take the form of their husbands' income, and hence is captured by W_m . The variables that we do use as instruments are aggregate non-labour income (NLINC), a fertility index (FERT) and the male unemployment rate (MURATE), all three of which were similarly used in the Zabalza and Tzannatos specification. Non-labour income is included to control for those types of income, such as dividend and interest income, that may not be captured by W_m . The fertility index serves as a proxy for the average number and age of children in any given year, and is defined as the number of births in the last five years per thousand women. The male unemployment rate is used in order to capture what are commonly known as added and discouraged worker effects.

Yet another factor that may have affected female labour force participation decisions in Ireland over our time period is the 1973 *Civil Service Act*. Prior to this Act, women were, upon marriage, legally required to forfeit their employment in the civil service (the so-called "marriage bar"). The end of this practice may not have had a large direct impact on the supply of married women to the manufacturing sector because a similar practice was common in some manufacturing industries and only became illegal with the passage of the 1977 *Employment Equality Act*. However, it certainly made the civil service a much more attractive job alternative to employment in manufacturing. In order to control for this legislation we included a dummy variable that takes on a zero value until 1973 and a value of one thereafter (MB). Descriptive statistics of all our variables are given in Table 3.

The results of our regressions for our sample period (1938–95), first *without* including the anti-discrimination legislation dummies, are provided in the first column of Table 4.¹⁷ Overall, the diagnostics of our model specified with an MA(2) error term are satisfactory. As indicated by the high

TABLE 3
Descriptive Statistics of Variables

Variable	Obs	Mean	Std.Dev.	Min	Max
FERT	58	0.51	0.08	0.31	0.60
IND	58	0.27	0.06	0.20	0.38
MURATE	58	12.69	4.13	5.15	21.14
ln(FH/MH)	58	0.48	0.08	0.35	0.62
ln(W_f/W_m)	58	0.60	0.06	0.51	0.71
NLINC	58	1.09	0.50	0.57	2.73
EMPGR	58	0.01	0.04	-0.08	0.11

Notes: FERT = fertility index; MURATE = male unemployment rate; NLINC = aggregate nonlabour income; IND = index of industrial structure; EMPGR = employment growth rate of the manufacturing sector; FH/MH = employment of female industrial workers (relative to males).

R^2 value, our model is able to explain a substantial proportion of the variation in the data. Furthermore, the value of the DW-statistic, 1.80, indicates that the Hayashi and Sims (1983) procedure has adequately corrected for serial correlation.

Turning to the coefficients, the negative value and statistical significance of the coefficient on the relative employment variable (FH/MH) is consistent with the taste-for-discrimination model, as well as with other models that posit a downward sloping relative demand curve, as described earlier. It furthermore suggests that the relative demand curve for female labour in Ireland is characterized by an elasticity¹⁸ similar to that found by Zabalza and Tzannatos (1985) for manual and non-manual workers in the UK: namely about -4.0 for the period 1950–80.¹⁹ As discussed earlier, this suggests that there may be similar heterogeneity in tastes for discrimination among employers and/or about the same degree of substitutability between male and female industrial labour in Irish manufacturing as in the UK samples.

TABLE 4
Instrumental Variable Estimation of Equation (3) under MA(2) Specification

	(1)	(2)	(3)	(4)
Ln(FH/MH)	-0.278** (-3.297)	-0.116* (-1.764)	-0.130* (-1.880)	-0.120* (-1.800)
IND	-0.167 (-1.320)	-0.174 (-1.145)	-0.203 (-1.304)	-0.191 (-1.320)
EMPGR	0.080 (1.35)	0.004 (0.090)	0.007 (0.047)	0.014 (0.331)
TREND	0.001 (0.952)	0.001 (1.642)	0.001 (1.640)	0.001 (1.523)
D76	—	0.039** (3.125)	0.046*** (3.591)	—
D77	—	0.014 (1.176)	—	—
D76+D77	—	—	—	0.027*** (3.987)
EEC	—	—	—	—
Constant	0.840*** (10.577)	0.655*** (8.693)	0.671*** (8.570)	0.663*** (9.121)
E(-1)	0.861*** (5.708)	0.698*** (5.458)	0.696*** (5.667)	0.742*** (5.616)
E(-2)	0.672*** (4.214)	0.418*** (3.044)	0.447*** (3.147)	0.438*** (3.269)
F ($\beta_1=0$)	142.81***	134.55***	147.62***	158.53***
DW	1.800	1.827	1.932	1.830
R ²	0.944	0.956	0.954	0.955

Note: The symbols ***, **, * indicate significance levels of 1, 5, and 10 percent, respectively. T-ratios are in parentheses.

The coefficient of the cyclical proxy variable (EMPGR) is of the expected sign but it is insignificant, suggesting that economic conditions do not affect the demand for female labour relative to male labour. Other identified factors, such as changes in productivity, at least if modelled as a simple time trend (TREND), are insignificant. The negative and statistically insignificant coefficient for our indus-

trial structure control variable (IND) indicates that changes in the structure of employment in Irish manufacturing have not had a significant effect on relative wages.

We also provide the estimates of the reduced form equation for $\ln(\text{WH}/\text{MH})$ in Table 5. As can be seen, overall this equation explains a large proportion of

TABLE 5
Reduced Form Estimates of ln(FH/MH) Equation

	Coefficient	T-Ratio
NLINC	-0.015	-0.704
FERT	0.103	0.506
MURATE	0.009***	3.559
MB	-0.156***	-11.719
Constant	0.392**	2.608
F ($\beta_1=0$)	66.54***	
R ²	0.837	

Note: The symbols ***, **, * indicate significance levels of 1, 5, and 10 percent, respectively.

the variation in relative female employment. However, examining the individual coefficients reveals that only the male unemployment rate and the marriage bar dummy (MB) are significant factors. Specifically, the negative coefficient on the male unemployment rate shows that when males experience high unemployment, female relative employment increases, possibly suggestive of an added worker effect. We also find that the marriage bar acted to decrease relative female employment in manufacturing. This may have been due to the fact that females no longer had to leave the civil service upon marriage and hence look for alternative employment in other sectors such as manufacturing.

Column 2 of Table 4 provides re-estimates of equation (3), this time including the dummy variables representing the implementation of anti-discrimination legislation from 1976 onwards. While our estimates of the coefficients of the other explanatory variables remain largely unchanged, of the two dummies only D76 (that of the *Anti-Discrimination (Pay) Act*) is estimated to have had both a positive and statistically significant effect on female relative wages. The size of the coefficient is small, however, and suggests that the 1976 legisla-

tion may have increased female relative wages by just under 4 percent. In contrast, the coefficient for D77 is also positive but very small (0.014) and not statistically significant.

As can be seen in the third column of Table 4, the exclusion of the insignificant D77 dummy only slightly raises the coefficient of the D76 dummy, indicating that our qualitative and quantitative conclusions regarding the effect of the 1976 legislation are robust. Nevertheless, we also tried adding the two dummies to estimate the cumulative effect of the two Acts. The resulting coefficient, reported in column 4 of Table 2, amounts to about 2.7 percent.²⁰

Overall, our results can probably best be compared to those found in the Zabalza and Tzannatos (1985) study since we utilized a similar framework and the legislative changes in the UK took place at roughly the same time as in Ireland. In any case, our estimate of about 4 percent for the effect of anti-discrimination legislation on female wages in Ireland is substantially lower than the 20 percent figure offered by Zabalza and Tzannatos for the effects of similar and concurrent legislation in the UK.²¹ Although this may be due to the fact that our sample includes fewer industries and is restricted to only industrial workers, our prior discussion suggests that the legislation may simply have been less effective in Ireland.

CONCLUSIONS

In this paper we have analyzed the experience of the Republic of Ireland with equality legislation. After analyzing how the two principal Acts have functioned, we turned to the female-male pay ratio in manufacturing and saw that it has risen substantially in recent decades — from about 0.61 in 1975 to about 0.75 most recently. After econometrically analyzing the movements in the pay ratio, however, we discovered that we can attribute only a very small effect, about 4 percent, to Ireland's equality legislation.

What could be the explanation for the small influence of the Irish legislation? Early in the paper we noted that certain features of Irish society — for example, the bans on divorce and abortion, the lateness in eliminating laws restricting female labour, etc. — would seem to present a challenging environment for equality legislation. Another possible reason for the apparently small effect that equality legislation has had on female pay could be the perception on the part of some women that the filing of an equal pay or employment claim is a risky proposition with a low probability of a favourable outcome. As one woman (a secretary) confided confidentially to one of the authors a couple of years ago: “The big reason there are so few claims is that women are fearful of repercussions. Ireland is a small country. There are not a lot of good jobs available.” Whether or not this perception is correct, it is certainly supported by the apparently small number of claims brought under the 1974 and 1977 Acts. Over the period 1976–98, on average only 23 equality officer recommendations concerning equal pay complaints were issued per year. An even smaller number of equality officer recommendations under the 1977 Act have been issued (about 18 per year on average).

Finally, we should note that even if equal pay legislation in Ireland had functioned more effectively, the gains in relative average pay for Irish women might still not have been substantial. Given the rise in female labour force participation rates in recent decades (especially since about 1990), supply effects alone could have put considerable downward pressure on the average female wage.²² In a sense, then, Irish women may have been swimming upstream in their quest to achieve equal pay.

NOTES

We wish to thank Michael Abbott of Queen’s University and two anonymous referees for helpful comments and suggestions. All views expressed in this paper are those of the authors and not necessarily those of the Central

Bank of Ireland, University College Dublin, or Lehigh University.

¹Some material in this section has been drawn from Thornton (1998, pp. 53-59).

²See Doyle (1986, pp. 31-34) for a more complete discussion of the role of these women’s groups in the late 1960s.

³The 1974 Act explicitly prohibited only discrimination on the grounds of sex, but under the 1977 Act discrimination on the basis of marital status was also prohibited.

⁴As we discuss later, under the *Employment Equality Act* of 1998 the Employment Equality Agency has been replaced by the Equality Authority.

⁵The Traveller Community is a distinct group of about 30,000 people, many of whom live in trailer caravans across the country. “Tinkers” is the name that was at one time applied to the group because many made a living by fixing tin kettles and pots.

⁶Interview with D. Sweeney, head of Equality Service, 26 April 1995.

⁷It should be noted that “equally demanding” with respect to skill, effort, responsibility, and working conditions does not mean the same as “equal in value” in the conventional sense. But when an equality officer argued that “equal in value” meant more than merely “equally demanding” (*Lissadell Towels Ltd. v. Forty-six Female Employees*, 1986) the argument was rejected by the Labour Court.

⁸For example, Curtin (1989, p. 198).

⁹Equality Officer’s Recommendation in *Twenty-Five Female Employees and Paramount Hospital*, Labour Relations Commission, Dublin, 1993, p. 25.

¹⁰From *Irish Laws Reports Monthly* (1985, pp. 226-32). See Curtin (1989, p. 245).

¹¹Hourly earnings is a superior measure of the pay gap here since in Ireland women work an average of five fewer hours per week than men.

¹²Given that our later econometric analysis only uses data up to 1995 as constrained by necessary control variables, we only depict here the manufacturing series up to the same year.

¹³An equal pay provision without a provision guaranteeing equal employment would cause discriminating employers who employ equally productive females and males (but the former at lower pay) to dismiss the females, while an equal employment provision without an equal pay provision would cause employers with tastes for discrimination to offer jobs to females at lower wages.

¹⁴As noted previously, the *Anti-Discrimination (Pay) Act* only became effective at the beginning of 1976.

¹⁵See Zabalza and Tzannatos (1985) for proof of this.

¹⁶Another possible proxy for this could be the growth of real manufacturing output. However, because of the likely, though unmeasurable, influence of transfer pricing in the output series due to foreign direct investment, we preferred employment growth as a cyclical indicator. Nevertheless, we did experiment with a real output growth variable and found that our results did not differ qualitatively and only slightly quantitatively. Results for these estimations are available from the authors.

¹⁷We originally estimated (3) using a standard two-stage least squares methodology. However, a low Durbin-Watson statistic (0.78) and a Lagrange multiplier test statistic (18.96) for serial correlation indicated serial correlation of the residuals. This suspicion was further confirmed from a plot of the residuals. We thus proceeded to investigate the dynamics of the serial correlation by employing the simple procedure developed by Burke *et al.* (1990) to test the null hypothesis of AR(1) against MA(1) disturbances; and in light of our test statistic, $p = 0.623$, we were able to reject an AR(1) in favour of an MA(1). Inspection of a correlogram also seemed to indicate a moving average process of the disturbance, in particular an MA(2) error term. Hence we proceeded estimating (3) along the lines of Hayashi and Sims (1983).

¹⁸Given that relative employment and wages are included in logarithmic form, the wage elasticity is simply the inverse of the coefficient.

¹⁹The private sector sample in their study excluded the mining, transport, utilities, professional and scientific services, and public administration.

²⁰We also experimented with including a dummy variable representing Ireland's entry into the European Economic Community (EEC). We reasoned that EEC entry may have induced structural changes in the Irish

manufacturing sector that could have in turn changed relative wages and that hence our legislative dummies could simply be capturing such effects. However, the EEC variable turned out to be insignificant, and its inclusion only slightly lowered the coefficient on D76 and did not alter its statistical significance. There may have been still other possible structural breaks over our sample period that may have affected the relative wage rate. However, despite a rigorous study of the period and consultation with experts in Irish economic history with regard to industrial policy and the legislative environment, we were unable to isolate any other such breaks.

²¹The *UK Equal Pay Act* was passed in 1972, but its implementation was delayed until 1977. The *UK Sex Discrimination Act* was passed and implemented in 1977.

²²See, for example, Blau and Kahn (1995, p. 121). Also, Polachek and Robst (2001) find that new female labour market entrants in the US in the 1970s brought down mean female wages, hence slowing down the narrowing of the gender wage gap.

REFERENCES

- Baker, M. and N. Fortin. 1999. "Comparable Worth Comes to the Private Sector: The Case of Ontario." Paper presented at conference "Équité Salariale." CIRANO, Montreal, 15-16 October. (A later version is entitled "Does Comparable Worth Work in a Decentralized Labor Market?" NBER Working Paper No. 7937. Cambridge, MA: National Bureau of Economic Research.
- Becker, G. 1957. *The Economics of Discrimination*. Chicago: University of Chicago Press.
- Beller, A. 1976. "EEO Laws and the Earnings of Women," *Industrial Relations Research Association Proceedings*. Madison, WI: University of Wisconsin, pp. 190-98.
- _____. 1979. "The Impact of Equal Employment Opportunity Laws on the Male-Female Earnings Differential," in *Women in the Labor Market*, ed. C. Lloyd, E. Andrews and C. Gilroy. New York: Columbia University Press, pp. 304-30.
- _____. 1980. "The Effect of Economic Conditions on the Success of Equal Employment Opportunity Laws: An Application to the Sex Differential in Earnings," *Review of Economics and Statistics* 62(3):370-87.
- Blackwell, J. 1989. *Women in the Labor Force*. Dublin: Employment Equality Agency.

- Blau, F. and L. Kahn. 1995. "The Gender Earnings Gap: Some International Evidence," in *Differences and Changes in Wage Structure*, ed. R. Freeman and L. Katz. Chicago: University of Chicago Press, pp. 105-43.
- Borooah, V.K. and K.C. Lee. 1988. "The Effect of Changes in Britain's Industrial Structure on Female Relative Pay and Employment," *Economic Journal* 98(392):833-38.
- Burke, S.P., L. G. Godfrey and A.R. Tremayne. 1990. "Testing AR(1) Against MA(1) Disturbances in the Linear Regression Model: An Alternative Procedure," *Review of Economic Studies* 57(1):135-45.
- Callan, T. and A. Wren. 1994. *Male-Female Wage Differentials*. Dublin: The Economic and Social Research Institute.
- Chiplin, B. and P. Sloane. 1988. "The Effect of Britain's Anti-Discriminatory Legislation on Relative Pay and Employment: A Comment," *Economic Journal* 98(392):833-38.
- Commission on the Status of Women. 1971. *Interim Report on Equal Pay*. Dublin: The Commission.
- Curtin, D. 1989. *Irish Employment Equality Law*. Dublin: Round Hall Press.
- Dolton, P., D. O'Neill and O. Sweetman. 1997. "Gender Differences in the Changing Labor Market," *Journal of Human Resources* 39(3):549-65.
- Doyle, P. 1986. "The Equal Pay Act." Dublin: Trinity College. Unpublished PhD Thesis.
- Doyle, P. and F. von Prodzynski. 1985. *Equal Pay for Work of Equal Value: An Analysis of Section 3(c) of the Anti-Discrimination (Pay) Act of 1974*. Dublin: Employment Equality Agency.
- Durkan, J. 1995. *Women in the Labor Force*. Dublin: Employment Equality Agency.
- Engle, R.F., D.F. Hendry and J.F. Richard. 1983. "Exogeneity," *Econometrica* 51(2):277-304.
- Gregory, R.G. and R.C. Duncan. 1981. "Segmented Labor Market Theories and the Australian Experience of Equal Pay for Women," *Journal of Post Keynesian Economics* 3(3):403-28.
- Gunderson, M. 1975. "Male-Female Wage Differentials and the Impact of Equal Pay Legislation," *Review of Economics and Statistics* 57(4):462-70.
- _____. 1976. "Time Pattern of Male-Female Wage Differentials," *Relations Industrielles* 31(1):57-71.
- _____. 1985. "Spline Function Estimates of the Impact of Equal Pay Legislation: The Ontario Experiment," *Relations Industrielles* 40(4):775-91.
- _____. 1989. "Male-Female Wage Differentials and Policy Responses," *Journal of Economic Literature* 27(1):46-72.
- Hayashi, F. and C. Sims. 1983. "Nearly Efficient Estimation of Time Series Models with Pre-Determined, but Not Exogenous, Instruments," *Econometrica* 51(3):783-98.
- Landes, W.M. 1968. "The Economics of Fair Employment Laws," *Journal of Political Economy* 76(4):507-52.
- McDonald, J. R. and R. Thornton. 1998. "Private Sector Experience with Pay Equity in Ontario," *Canadian Public Policy/Analyse de Politiques* 24(2):185-208.
- Oaxaca, R. 1977. "The Persistence of Male-Female Earnings Differentials," in *The Distribution of Economic Well-Being*, ed. F.T. Juster. Cambridge, MA: Ballinger Co., pp. 303-54.
- Polachek, S. and J. Robst. 2001. "Trends in the Male-Female Wage Gap: The 1980s Compared with the 1970s," *Southern Economic Journal* 67(4):869-88.
- Reilly, B. 1987. "Wages, Sex Discrimination and the Irish Labour Market for Young Workers," *The Economic and Social Review* 18:271-305.
- _____. 1990. "Occupational Endogeneity and Gender Wage Differentials for Young Workers: An Empirical Analysis Using Irish Data," *The Economic and Social Review* 21:311-28.
- Ruane, F. and E. Dobson. 1990. "Academic Salary Differentials: Some Evidence from an Irish Survey," *The Economic and Social Review* 21(2):209-26.
- Ruane, F. and J. Sutherland. 1999. *Women in the Labour Force*. Dublin: Employment Equality Agency.
- Thornton, R.J. 1998. "Comparable Worth Pay Policy in the Republic of Ireland," *Journal of Collective Negotiations in the Public Sector* 27(1):53-62.
- Walsh, B.M. and B.J. Whelan. 1976. "A Micro-Economic Study of Earnings in Ireland," *The Economic and Social Review* 7:199-207.
- Wright, R.E. and J.F. Ermisch. 1990. "Male-Female Wage Differentials in Great Britain." Birbeck College Discussion Paper in Economics.
- Zabalza, A. and Z. Tzannatos. 1985. "The Effect of Britain's Anti-Discrimination Legislation on Relative Pay and Employment," *Economic Journal* 95(379):679-99.

APPENDIX

TABLE A1
Overview of Employment by Sector and by Sex since 1971 ('000s)

<i>Sector</i>	<i>1971</i>	<i>1981</i>	<i>1987</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
Agriculture									
Males	248	176	152	142	131	130	132	123	123
Females	26	13	12	12	12	12	11	15	12
Industry									
Males	258	297	232	245	241	256	267	273	295
Females	68	69	68	74	70	77	82	82	92
Services									
Males	152	174	145	157	159	166	172	175	186
Females	184	248	272	314	328	342	365	397	410
Total									
Males	776	809	735	740	736	757	789	804	826
Females	278	329	353	399	410	431	459	494	513

Sources: Central Statistics Labour Force Survey 1997, Table 7A, 7B, 7C; Ruane and Sutherland (1999).

DATA SOURCES

Female Relative Wages: This series is calculated by using the male and female industrial worker hourly wage rate series for individual industries as given by the Census of Industrial Production and published in the *Statistical Bulletin, Some Statistics on Hours and Wages*, and the *Quarterly Survey of Employment and Earnings*. In order to arrive at an aggregate series we grouped industries into eight different groups: Metals and Engineering; Chemicals; Food, Drink and Tobacco; Clothing, Footwear and Leather; Non-Metallic Minerals; Timber and Furniture; Paper and Printing; Textiles. We excluded the “miscellaneous industries” over the entire period, because some of these were re-classified into our main eight subcategories.

Female Relative Employment: This series, consisting of industrial workers in the manufacturing sector, was calculated using the same data sources as for female relative wages. As for the case of relative wages, we excluded all employment in industries classified as miscellaneous.

Female Relative Employment Hours: Average hours worked per week by gender group were calculated with the same methodology and sources used for our aggregate wage series. Aggregate employment hours were then obtained by multiplying the average hours by the respective employment levels for males and females.

Employment Growth: This series is the simple growth rate of employment in manufacturing (excluding miscellaneous sectors) compiled from the *Census of Production* and provided by the data sources named above.

Male Unemployment Rate: The male unemployment rate is defined as the percentage of the male labour force on the Live Register. Because there is no consistent series for total employment in the Irish economy before 1970, we proxied the Irish male unemployment rate before this date by the unemployment rate in the manufacturing sector, provided by the *Industrial Analysis of the Live Register*.

Fertility Index: This is defined as the number of births in the last five years per thousand women aged 15–44 using data given in the *Statistical Abstract*.

Non-Labour Income: We calculated this series as national income minus income from employment, deflated by the Wholesale Price Index.

Industrial Structure: This variable is defined as using data on employment, hours, and wages for the main eight subsectors from sources described and calculated as above.

