

Aspects of labour supply and demand with special reference to the employment of women in Ireland*

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There has been a resurgence of interest among economists in the theoretical and empirical aspects of labour supply and demand. On the one hand, fluctuations in labour force participation (or activity) rates from year to year or between geographical areas have come to be seen as a very important aspect of the operation of the labour market and hence worthy of intensive statistical study [3, 4, 5]; on the other hand the broader theoretical and philosophical issues regarding the welfare implications of various combinations of time devoted to work, leisure and consumption have been explored in two stimulating theoretical contributions [2, 12]. Additionally, the present widespread interest in the position of woman in society naturally focusses attention on her role in the economy, and creates a demand for information regarding the relevance of sex as a variable in studies of the labour market. The present study is intended to provide some information on these topics in an Irish context. The coverage is selective, due to limitations of time, space and data.

THE DEMAND FOR FEMALE LABOUR

It has often been remarked that the overall participation rate of the female population in the labour force is low in Ireland [16]. This is generally taken as a reflection of the very small proportion of married women recorded as "gainfully occupied", combined with the importance of family farming in the total employment structure. In addition to these forces, an endemically high unemployment rate would be expected to discourage women from entering the labour market. It is also possible that negative attitudes and institutional factors have held down female participation rates.

It is natural to inquire whether these aspects of female labour supply have affected the sex-ratio of employment in Ireland. It is relevant to point out that although occupations are generally fairly specifically sex-labelled (an employment opportunity for a typist is almost equivalent to an employment opportunity for a woman), occupations are not generally reserved for *married* women, so that low participation rates among married women

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could be offset by a high proportion of unmarried women in the population—a phenomenon for which Ireland was, until recently, renowned. Additionally, it is possible that the country's structure of employment opportunities is biased towards males, so that the low labour force participation of women might be a consequence of the industrial structure rather than an independent variable.

A crude comparison with the United Kingdom (1965) reveals that 35·7 per cent of its labour force was female, compared with only 25·9 per cent in Ireland. If however, as in Table 1, this comparison is extended and refined, the Irish case no longer appears exceptional, lying as it does midway between the British and Dutch. The contrast between Ireland and the U.K. in the overall picture is largely due to the importance of "family workers" in Ireland and the low proportion of females among Irish family farm workers (11 per cent, as compared with 46 in U.K., 33 in Holland). Obviously, Census classification procedures must have a great impact on this figure and hence international comparisons are largely meaningless.¹ Examination of the columns of Table 1 relating to the non-family labour force does not suggest that Ireland's low participation rate for married women has led to a noticeable distortion of the sex ratio of employment. As will be discussed below, there is also no evidence that an overall shortage of female workers has led to an unusually male-orientated industrial structure.

Looking more closely at the structure of Irish manufacturing industry from the viewpoint of the demand for female labour a detailed comparison with Britain can be made with the data in Table 2. (The choice of Britain is determined by data availability, etc. rather than because its position is considered normal; as is clear from Table 1, the U.K. is significantly different from Holland in these matters.) There is generally a very close concordance between Ireland and Britain, industry by industry, with regard to the sex ratio of employment (the correlation coefficient between the two columns of Table 2 is +0·93). Difficulties of grouping or definition largely account for the obvious discrepancies (e.g. glass and pottery).

¹ There were 110·1 thousand married male farmers in Ireland in 1966, but only 2·3 thousand married females classified as gainfully occupied farmers. If the farmers' wives who are not classified as gainfully occupied in Ireland were added into the labour force, females would constitute 32·4 per cent of the total labour force.

TABLE I
FEMALES AS PERCENTAGE OF TOTAL EMPLOYMENT IN THREE EMPLOYMENT STATUSES AND TEN OCCUPATIONAL GROUPS, IRELAND (1966), UNITED KINGDOM (1966) AND THE NETHERLANDS (1966)

Occupation	Employers and Workers on Own A/C			Salaried Employers and Wage Earners			Family Workers			Total (including unemployed)		
	Ireland	U.K.	Netherlands	Ireland	U.K.	Netherlands	Ireland	U.K.	Netherlands	Ireland	U.K.	Netherlands
Professional technical etc.	19.1	18.1	24.5	53.3	39.6	40.8	—	—	—	50.6	38.3	39.2
Administrative, executive, managerial	—	—	—	5.7	7.5	3.9	—	—	—	5.7	7.5	4.1
Clerical workers	—	—	—	61.8	66.8	35.6	—	—	—	61.9	67.3	35.8
Sales workers	28.2	34.1	11.0	38.1	50.5	46.5	45.3	86.1	80.9	35.3	48.3	37.0
Farmers, fishermen, hunters	11.4	10.1	2.4	1.1	10.3	2.7	11.1	45.7	32.7	9.5	12.1	8.7
Miners, quarrymen, etc.	—	—	—	0.3	0.7	0.3	—	—	—	0.2	0.1	0.3
Transport and Communications workers	1.1	3.2	0.6	5.2	11.2	5.3	—	—	—	4.7	11.0	5.8
Craftsmen, Production process workers n.e.s.	6.0	9.8	5.1	19.1	20.4	9.7	6.0	34.0	9.1	17.3	20.1	9.3
Service, sports, recreation workers	50.3	39.8	22.9	69.4	73.7	69.4	—	—	—	68.1	71.0	64.7
Total (incl. armed forces and those not classified by occupation)	14.2	22.4	7.8	32.7	36.2	23.6	13.6	74.3	47.5	25.9	35.7	22.3

“—” indicates category in which total numbers employed are trivial in relation to total employment.

DATA SOURCE: International Labour Organisation, Yearbook, 1969, Table 2B.

TABLE 2
 FEMALES AS PERCENTAGE OF TOTAL EMPLOYMENT,
 MANUFACTURING INDUSTRIES
 IRELAND AND GREAT BRITAIN, 1966 (OCT.)

Industries (Irish CIP definitions)	Ireland	Great Britain
Bacon factories, other meat	24.4	47.2
Creameries, milk products	14.0	35.6
Fruit and vegetable canning	58.9	58.7
Grain milling, animal feeds	11.8	21.6
Bread, flour, biscuits	33.1	48.4
Sugar	13.3	23.6
Cocoa, confectionery, chocolate	66.2	58.0
Vegetable and animal fats, oils, etc.	46.4	33.8
Other food	43.8	45.7
Distilling and soft drinks	16.3	36.0
Brewing and malting	13.5	21.1
Tobacco	51.8	56.3
Woollen and Worsted	47.5	51.1
Spinning and weaving: cotton, man-made fibres	37.9	45.9
Footwear	54.6	54.3
Clothing and Hosiery	80.2	76.0
Made-up textiles	78.1	67.4
Wood and cork	7.6	17.7
Furniture, etc.	19.9	25.0
Paper, paper products	43.4	37.9
Printing, publishing	30.6	32.3
Fellmongery, tanning, etc.	9.1	22.3
Leather	63.6	59.6
Oils, paints, inks	23.8	30.3
Chemicals, drugs, fertilisers	30.9	30.7
Glass, pottery	25.9	37.8
Cement, clay products, abrasives	6.4	12.1
Metal trades	13.6	22.9
Machinery: non-electric	10.5	20.2
Machinery: electric	45.0	38.5
Ship building	2.6	5.8
Railroad equipment	4.0	6.7
Road vehicles	4.5	13.1
Other vehicles	10.7	15.9
Miscellaneous	34.6	34.1
All manufacturing industries	36.7	32.0

NOTE: As far as possible, British industries have been grouped to conform to Irish single or grouped industry categories.

SOURCES: Ireland, Annual Census of Industrial Production, 1966.

Britain, *Ministry of Labour Gazette*, Dec. 1967, pp. 978-9.

The orthogonal regression of the two sets of data in Table 2 is

$\%F(\text{IRL}) = 15.2 + 0.79\% F(\text{GB})$, suggesting that for all except the high concentrations of female labour, there is a tendency for GB industry to have a slightly higher sex ratio (that is, percentage female) than Irish industry.

An industry-mix-standardized sex ratio can be calculated for Irish manufacturing industry by expressing the number of female employees in Britain expected on the basis of the Irish sex ratio by industry as a proportion of total actual G.B. employment, i.e.

$$\text{Standardized rate} = \frac{\sum_{i=1}^n f_i^{\text{IRL}} E_i^{\text{GB}}}{\sum_{i=1}^n E_i^{\text{GB}}} \times 100$$

where f_i = females as % of total employment in the i th industry
 E_i = total employment in i th industry
 IRL, GB superscripts to Ireland and Great Britain

This standardized rate is 27.5 per cent, over a quarter lower than the crude rate of 36.7, showing that Ireland's manufacturing industrial structure is fairly heavily biased towards industries with a high sex ratio. This reflects the absence of large-scale heavy engineering and the consequent prominence of textile, clothing and food industries.

A related topic is the impact of the growth and changing composition of the Irish economy on the sex ratio of employment opportunities. A detailed comparison of 1961 and 1966 Census of Population data sheds some light on this question.² Between 1961 and 1966, the number of females at work recorded in the Census rose from 278.0 to 280.8 thousand. In order to examine in detail the forces that led to this overall change, the total may be broken down into the following components:

- Change due to growth (or decline) of total employment (assuming no change in sex ratio).
- Change due to changing distribution of employment between sectors (assuming the sex ratio of each sector's employment remains constant).
- Change due to the rise or fall of the sex ratios of employment in individual sectors.³

These components of change are shown in detail in Table 3, both for the economy as a whole and for the three major branches (industry, agriculture, services).

² The use of Census of Population to study the sex ratio of employment is subject to some reservations, as is discussed in an Appendix to this Paper.

³ Let F^1 , F^0 = females at work in 1966, 1961 respectively.

$$F^1 = \sum_{i=1}^n F_i^1 \quad \begin{array}{l} i = \text{sectors of the economy} \\ n = \text{number of sectors in group} \end{array}$$

$$E^1, E^0 = \text{total (male plus female) at work, 1966, 1961.}$$

then $F^1 - F^0$

$$= \left(\frac{F^0}{E^0} E^1 - F^0 \right) + \sum \left(\frac{E_i^1}{E_i^0} - \frac{E^1}{E^0} \right) F_i^0 + \sum \left(F_i^1 - \frac{F_i^0}{E_i^0} E_i^1 \right)$$

= a + b + c

TABLE 3

CHANGE IN FEMALE EMPLOYMENT, 1961-66, ANALYSED BY CAUSE; CENSUS OF POPULATION DATA (THOUSANDS)

Branch of Economic Activity	Number of Sectors in Branch	Change in Female Employment (Actual)	Attributable to		
			Change in Employment (Male+Female)	Change in sex ratio of employment in individual sectors	Change in distribution of employment between individual sectors
1	2	3	4	5	6
Agricultural	Ag., Fishing Forestry	-8.8	-5.0	-3.7	-0.1
Manufacturing Industry	18 Industries	+3.2	+6.9	-1.1	-2.6
Commercial, Service	19 Services	+8.4	+14.2	+1.0	-6.8
Total Employment	3 Branches (40 Sectors)	+2.8	+3.6 No Column Check	-3.8	+3.1 No Column Check

DATA SOURCE: Census of Population, 1966 Vol. III, Table 3.

Along each Row, Col. 3=Col. 4+Col. 5+Col. 6.

Col. 4 could be called the "growth effect" = a

Col. 5 could be called the "sex ratio change" effect = c

Col. 6 could be called the "sectoral shift" effect = b

It is evident that the single most important factor in the increase in female employment between the two dates was the rise in total employment in "commerce, services", which on its own would have led to a rise of 14.2 thousand in female employment. However, within this branch of the economy, a substantial decline in domestic service employment partially offset the expansion in female employment that would otherwise have occurred. It is also noteworthy that the female-intensity of the structure of manufacturing industry as a whole declined, as well as which there was on balance a decline in the proportion female in the individual industries. Of course the continuing decline in the importance of agriculture as a source of employment was sufficient to ensure that the *national* employment structure became more female-intensive.

A final aspect of the demand for female labour can be illustrated by examining county employment patterns in 1966. Suppose the sex ratio of employment found *nationally* in each sector of the economy obtained also in each *county*, what would be the proportions of females in each county's labour force? This hypothetical sex ratio may be used as an index of the female-intensity (or femininity) of the county's employment structure. Using a similar notation to that developed above,

$$\text{industry-mix variable,} = \frac{\sum_{i=1}^n f_i E_{ij}}{E_j} \quad \begin{array}{l} i=\text{sectors, (n)} \\ j=\text{counties, (k)} \end{array}$$

$$f_i = \frac{\sum_{j=1}^k F_{ij}}{\sum_{j=1}^k E_{ij}}, \text{ (national \% F in } i\text{th industry)}$$

This variable is displayed in Table 4, both including and excluding agriculture and fishery from county employment (that is, $i=1, \dots, 31$ sectors, or $i=1, \dots, 29$ sectors). It is clear that when agriculture is excluded from consideration there is relatively little inter-county variation, the coefficient of variation (CV) is 5.2 per cent, whereas if agriculture is included the CV is 16.3 per cent. Thus, the main reason why counties differ in the femininity of their employment structure is because of variations in the importance of agriculture in total employment. It is also evident from the Table that the expected sex ratio is very highly correlated with the actual: in other words, the sex ratio of employment by industry differs very little between the counties. In fact, the major divergences (actual as against expected) that occur are readily accounted for: the high actual proportion for Dublin is due to factors such as the particular type of food industries located in Dublin (biscuit, as opposed to bacon factories, for example), the low actual proportion for Kildare reflects the importance of defence in the public sector employment in this county. If more detailed industrial categories had been used (198 sectors, instead of 31) no doubt the actual-expected divergences would have been even smaller, but the extra effort involved in this calculation did not seem warranted in view of

TABLE 4
FEMININITY OF COUNTY EMPLOYMENT, 1966

County	Expected No. of Females at work as % of total at work (excluding Agriculture, Fishery)	Actual No. of Females at work as % of total at work (excluding Agriculture, Fishery)	Expected No. of Females at work as % of total at work (including Agriculture, Fishery)	Actual No. of Females at work as % of total at work (including Agriculture, Fishery)
Carlow	33.5	29.7	24.3	22.2
Dublin	33.5	35.2	33.1	34.7
Kildare	31.5	26.6	25.6	22.0
Kilkenny	33.2	32.0	22.8	21.9
Laois	30.4	29.4	20.6	20.5
Longford	31.8	31.5	19.7	19.4
Louth	37.6	34.9	32.8	31.1
Meath	33.5	32.6	23.5	23.3
Offaly	31.3	28.8	22.9	21.8
Westmeath	33.1	30.5	24.4	23.1
Wexford	34.3	32.6	23.7	23.2
Wicklow	34.0	33.2	27.2	26.6
Clare	33.3	33.3	21.0	20.4
Cork	33.3	32.3	26.5	25.9
Kerry	35.9	33.9	22.4	20.8
Limerick	32.6	32.8	25.6	26.1
Tipperary	33.2	32.2	22.9	22.6
Waterford	33.1	32.5	26.9	26.0
Galway	36.0	35.8	21.5	21.0
Leitrim	34.5	35.1	17.7	17.3
Mayo	35.1	35.8	19.3	19.7
Roscommon	32.4	32.9	17.8	18.1
Sligo	33.4	33.4	21.1	21.5
Cavan	34.3	32.6	19.9	19.0
Donegal	37.6	38.6	23.7	24.0
Monaghan	35.7	34.0	22.5	22.2
Total	33.8	33.8	26.3	26.3

(Based on 31 sector classification of employment, including agriculture).

DATA SOURCE: Census of Population, 1966, Vol. III, Table 4.

the very small numbers that would have occurred in individual cells.

In concluding this discussion of the demand for female labour, some material on the sex segregation of occupations may be presented. We are all so familiar with this phenomenon that perhaps we do not need to be reminded of its extent, but the data in Table 5 summarize the situation in Ireland. Over a quarter of female employment is in occupations that are 90 per cent or over female, over three-quarters of female employment is in occupations that are predominantly (50 per cent or over) female. The seven occupations that are 90 per cent female are Sewers, Typists, Boarding Housekeepers, Housekeepers, etc., Maids etc., Nurses, Probation Nurses. This degree and pattern of sex-segregation of employment are similar to those found in the U.S.A. [15, p. 71].

TABLE 5

MEASURES OF SEX SEGREGATION OF EMPLOYMENT: IRELAND, 1966

Females as Percentage of Total Gainfully Occupied in Occupations	Females in those occupations as Percentage of All Females Gainfully Occupied	Total (Male and Female) in these occupations as percentages of total Gainfully occupied
90% and over	25.2	6.7
70% and over	42.9	12.8
50% and over	75.2	27.7
Males as Percentage of Total Gainfully Occupied in Occupations	Males in these occupations as Percentage of All Males Gainfully Occupied	Total (Male and Female) in these occupations as Percentage of Total Gainfully Occupied
90% and over	79.1	62.2
70% and over	84.8	67.4
50% and over	88.9	72.4

DATA SOURCE: Census of Population, 1966, Vol. IV, Table 3.

The contrast between columns 2 and 3 in Table 5 is greater for females than for males, since females form a smaller proportion of the total labour force. The data for males and females are really alternative ways of describing the same phenomenon. It is beyond the scope of the present study to inquire whether such occupational segregation is rational, whether females really tend to have a comparative advantage in the traditionally female occupations and if so whether this reflects innate or acquired characteristics. One interesting point that is related to this question may be illustrated by considering the occupation "Clerk" (which is, of course, separate from "Typist" in the Census occupational classification). This might be called an epicene occupation, since males and females are found in it with almost equal frequency in the aggregate (34 thousand males, 38 thousand females in 1966). However, for example, only 31 per cent of the Clerks in the Dairying Industry were female, compared with 75 per cent in the Outer Clothing Industry (Census of Population, Vol. III, Table 8). In fact, if we regress female clerks as a percentage of all clerks in the i^{th} industry (Y_i) on females in "non-clerk" occupations as a percentage of all "non-clerks" in the i^{th} industry (x_i), for the 65 manufacturing industries of the Census tables, the following result is obtained (t =ratio in parentheses):

$$Y = 36.38 + 0.58X \quad R^2 = 0.64 \\ (10.59)$$

It seems that a one percentage point rise in the sex ratio of "non-clerk" employment in an industry occasions about a half of one percentage point

rise in the sex-ratio of "clerk" employment.⁴ No doubt the nature of the work performed by "clerks" in various industries varies, being more attractive to females in industries where total employment is predominantly female, but nonetheless this result does suggest a highly important non-economic factor at work in determining the sex ratio of employment. At the risk of exaggerating the importance of this finding it may be pointed out that if the lowest sex ratio for the occupation "clerk" (22.8 in Turf Production) applied in all industries the number of female clerks employed in industry would fall from its level of 7.6 thousand to 3.3 thousand.

FACTORS AFFECTING SUPPLY

The major determinants of labour supply in the long run are demographic in nature. Migration, both internal and external, is an important adjustment mechanism between labour supply and demand in a given area.⁵ The sex ratio of the migrant stream varies considerably between the different Irish counties, and those variations are probably partly due to economic and partly to social (especially, marriage-related) factors [17]. The very much lower labour force participation rates for married as compared with either single or widowed females implies that changes in the proportion of females in a given age group that is married will have a major impact on the supply of female workers. This source of change in the sex ratio of the labour supply is obviously very important in Ireland today, as the marriage rate climbs from the very low level that prevailed until the second world war. Finally, of course, changes in social and economic circumstances may produce fairly dramatic shifts in participation rates: a notable feature of many countries' post war experience has been the strong rise in married women's labour force participation [3, 6], a trend that may seem paradoxical in view of the simultaneous increase in average family income and the presumably declining marginal utility of income (or, conversely, rising marginal utility of leisure). These wider issues underlying the changing pattern of labour supply by women in industrial countries have been raised by writers such as Galbraith, Linder and Mishan [7, 12, 14], and apart from this passing reference we shall not explore this area.

Alternative attempts to measure the sex ratio of the labour supply in Ireland, 1961-1966, are presented in Table 6. By all the measures shown here, the relative scarcity of women available for work has risen between these two dates. The major part of this increased scarcity of females is of course attributable to the continuing rise in marriage rates. A secondary influence has been the decline in agricultural employment which, as far as

⁴ The data on which this is based are not reproduced here, but may be obtained on request from the author. It is possible that both X and Y are jointly influenced by a third variable (e.g. the supply of females on a regional basis), but this is not very likely in the Irish case.

⁵ Variations in sex ratio of births are obviously too slight to have any effect on the sex ratio of the labour supply.

the measured labour force is concerned, "releases" far more males than females for non-agricultural employment. These forces acting on the supply side, combined with the relatively stable sex-ratio of the demand for labour, (as far as these demand factors have been isolated in Table 3), are sufficient to account for the general impression of a scarcity of females available for non-agricultural work in Ireland in recent years.

TABLE 6
CHANGES IN SEX RATIO OF LABOUR "SUPPLY",
1961-1966

	Numbers ('000)				Females per 1,000 Males	
	Females		Males		1961	1966
	1961	1966	1961	1966		
(1) Total Population Aged 14 and over	1,001.1	1,021.0	997.5	1,017.9	1,004	1,003
(2) Total Aged 15-64	807.6	820.9	818.5	839.7	987	978
(3)=(2) excluding married females	385.4	381.2	818.5	839.7	471	454
(4)=(3) excluding those in agricultural occupations ...	360.2	361.2	524.6	579.4	687	623
(5)=(4) excluding those at school, etc. ...	321.8	312.5	483.3	526.3	666	594

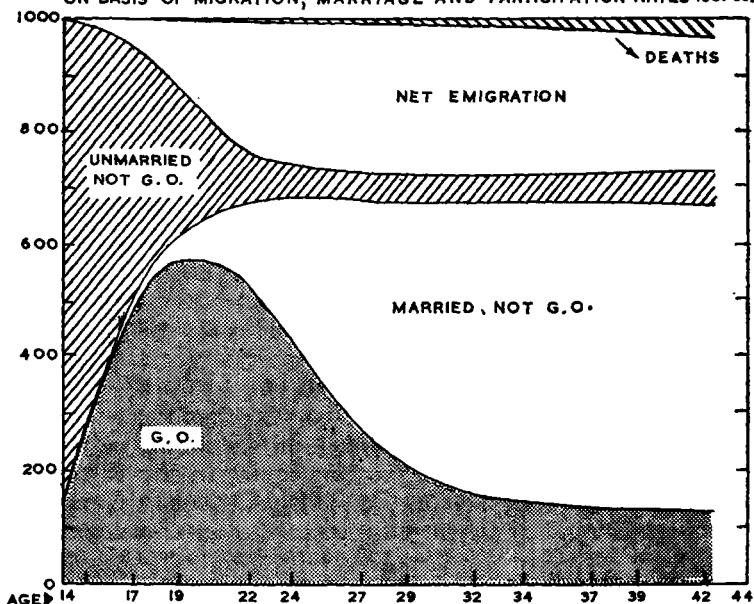
DATA SOURCE: Census of Population, 1961 and 1966, Vol. V, Tables 2 and 5.

Some quantification of the impact of rising marriage rates on female labour supply is attempted in Chart I, which contrasts the 1946 and 1961 situations.⁶ By "projected" experience is meant the outcome that would be expected on the basis of the 1946-51 and 1961-66 emigration, marriage and death rates. The decline in the years spent as "unmarried, not gainfully occupied" between the two periods is dramatic. Of course, the rising marriage rate has been partly offset by a falling emigration rate, so that the total of woman years spent "gainfully occupied" (per 1,000 women) has not altered very much. However, since the male labour supply has been increased due to falling emigration, and is virtually unaffected by the rising marriage rate, the sex ratio of the labour supply has obviously been dramatically reduced by these developments.

⁶ Similar charts appeared in the *Trend of Employment and Unemployment for 1950-52*, pp. 48-49, which describes the method used in constructing them in some detail.

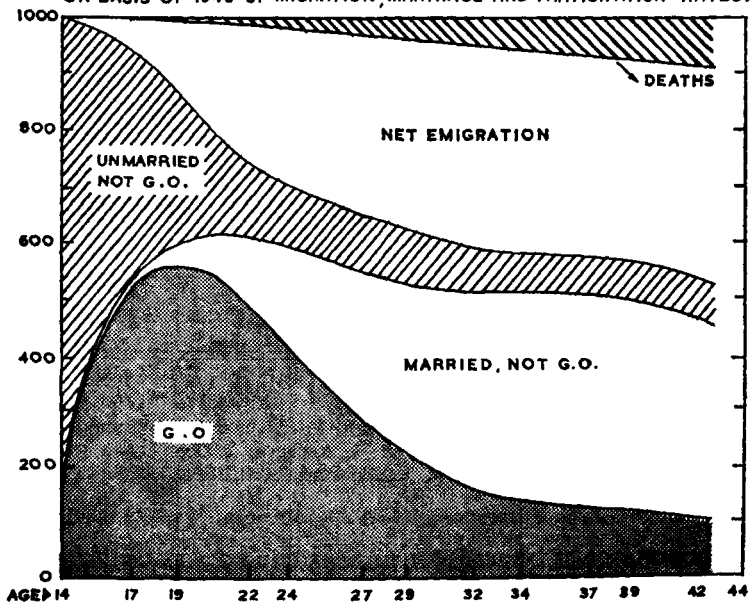
CHART I

PROJECTED FUTURE EXPERIENCE OF 1,000 WOMEN AGED 14 IN 1961
ON BASIS OF MIGRATION, MARRIAGE AND PARTICIPATION RATES 1961-66.



(G.O. = Gainfully Occupied)

PROJECTED FUTURE EXPERIENCE OF 1,000 WOMEN AGED 14 IN 1946
ON BASIS OF 1946-51 MIGRATION, MARRIAGE AND PARTICIPATION RATES.



(G.O. Gainfully Occupied)

The assumptions underlying the figures from which these Diagrams were prepared are set out in the Trend of Employment and Unemployment for 1950, 51 and 52, pp. 48-49.

On a regional basis, the measurement of the sex ratio of labour supply is less meaningful than it is over time, since the sex ratio of a country's adult population is strongly influenced by the sex ratio of its employment opportunities. Migration of men and women to areas where they can find suitable jobs is overwhelmingly more likely, in Ireland at least, than that the locational patterns of industries is strongly influenced by regional variations in the sex ratio of the labour supply. Table 7 displays one measure of the sex ratio of the counties' non-agricultural labour supplies. A significant positive correlation exists between this variable and the industry-mix (excluding agriculture) variable of Table 4 ($r=0.63$); this correlation is not tautological since the county values in Table 4 (Column 1) were calculated from the expected, rather than actual, sex ratio of county employment opportunities. In as much as this correlation may have a causal basis, it is reasonable to assume that the sex ratio of the net emigration stream is influenced by the sex ratio of local employment opportunities. The relative abundance of females (according to the present rather specialized definition) in Mayo or Leitrim, and the scarcity in Dublin, is easily understood in the light of the female-intensiveness of the various service-type activities that, as Baker noted [1, p. 20], tend to predominate in the non-agricultural employment structure of the poorer counties.

TABLE 7

SEX RATIO OF REGIONAL LABOUR "SUPPLY": UNMARRIED
FEMALES AGED 15-64 PER 1,000 MALES AGED 15-64, EXCLUDING
THOSE OCCUPIED IN AGRICULTURAL OCCUPATIONS, 1966

Carlow	606	Clare	676	Cavan	727
Dublin	569	Cork	608	Donegal	762
Kildare	493	Kerry	693	Monaghan	709
Kilkenny	655	Limerick	617		
Laois	603	Tipperary	643	Ireland	623
Longford	690	Waterford	595		
Louth	817				
Meath	491	Galway	750		
Offaly	551	Leitrim	817		
Westmeath	606	Mayo	827		
Wexford	691	Roscommon	759		
Wicklow	589	Sligo	718		

DATA SOURCE: Census of Population, 1966, Vol. V, Tables 3, 5.

NOTE: There is some inaccuracy on the county level, since occupational data by age and marital status are unavailable; hence some 2,000 married women aged 15-64 gainfully occupied in agricultural occupations cannot be exactly allocated by county.

The importance of labour force participation rates as the link between population and effective labour supply has been stressed earlier in this paper. The degree to which married women, young school leavers and elderly people of both sexes are in the labour force has been seen as the

major influence on short-run fluctuations in labour supply in the post-war experience of the United States [5]. The notion that the "secondary labour force" is not recorded in official employment statistics in periods of high general unemployment has been termed the "discouraged worker" hypothesis, and has found considerable support from the empirical evidence. The alternative notion—that special population groups are likely to enter the labour force when overall unemployment rates rise ("the additional worker" hypothesis)—has found less support, although it may be relevant to the tendency of low income married women to seek work consequent on their husband's unemployment.

Measuring labour force participation presupposes the availability of very detailed and accurate data on the labour force status of various population groups. In Ireland, the only relevant information is contained in the Census of Population. In an Appendix to this paper the reliability of the employment data contained in the Census of Population is discussed at length, but at this stage it should be noted that for both sexes the Census provides no data on hours worked, and simply classifies the population into "gainfully occupied" or "not gainfully occupied" (with a break-down of the former category between "at work" or "not at work"). Thus the respondents' account of their situation in a week in April is our only firm information on labour force participation.⁷ The Census emphasis on "principal occupation", and the absence of data on hours worked, is far more likely to affect the data on female (especially married female) participation rates than male rates.

Our only solid evidence on the behaviour of Irish participation rates over time is derived from inter-censal comparisons. The 1961-66 experience is summarized in Table 8, which is a completion of Table 17 in Walsh [16]. The strong rise in participation among single females is notable, indicating that a substantial labour pool outside the measured labour force existed in this population group in 1961. This pool of not gainfully occupied women and girls was sufficient to allow for a rise in labour force participation rates as well as a rise in school (post primary) participation. The fall in labour force participation among young males no doubt reflects the rise in post-primary school attendance. The declines in participation in the older age groups are probably due to the fall in agricultural employment.

In order to gain more insight into the determinants of participation in the Irish context it is necessary to concentrate on cross section analysis.⁸ For males, only four age groups have been analysed: 14-19, 20-24, 55-64, and 65 and over: participation rates for males aged between 24 and 55

⁷ It should, however, be pointed out that the Current Population Survey data that have formed the basis of the major U.S. time series studies have recently been criticised as too flimsy a basis to support the elaborate statistical tests that have been performed [16].

⁸ The analysis in the present paper is an elaboration of the results (for 1961) in [16, Part VI].

TABLE 8

CHANGES IN NUMBERS GAINFULLY OCCUPIED, 1961-66,
ATTRIBUTABLE TO CHANGES IN AGE- AND MARITAL-STATUS
SPECIFIC PARTICIPATION RATES (THOUSANDS)

Age	Males			Females			Both Sexes
	Single	Married	Widowed	Single	Married	Widowed	Total
14-24	-4.775	-0.015	0	+2.020	+0.222	-0.013	-2.561
25-64	+1.582	+0.556	+0.032	+6.214	+0.056	-1.394	+7.046
65 and over	-0.735	-3.763	-1.479	0	-0.042	-3.204	-9.313
All ages	-3.928	-3.222	-1.447	+8.234	+0.236	-4.701	-4.828

DATA SOURCE: Census of Population, 1961 and 1966, Vol V.

NOTE: The underlying calculations have been performed for each of the eleven age groups distinguished in the Census.

The total change in the number gainfully occupied, 1961-66, may be decomposed into the following categories:

due to increase in population	= +22.3
due to change in population structure	= -7.4
due to changes in participation rates	= -4.8

Total change in number gainfully occupied = +10.1

Cf. Walsh, [16], pp. 34 ff.

are very stable, and whatever variations do occur are most probably a reflection of the importance of institutions (hospitals and jails, for example) in an area. For males, no distinction is made between the marital statuses, since there is generally only a small variation between married and unmarried males in regard to labour force participation.⁹

For females, all seven age groups distinguished in the census have been studied. In order to take account of the impact of the varying proportions married in the different counties, a "marital status standardized" participation rate has been constructed for each female age group. This rate is obtained by applying national age and marital status specific participation rates to the county population, thereby obtaining an expected number gainfully occupied. The actual/expected ratio is then multiplied by the national age-specific participation rate to yield the standardized rate. The crude and standardized rates for females and crude rates for males are displayed in Table 9. The standardization procedure somewhat reduces the inter-county variation in participation rates among females. For example, some counties have high crude rates in the younger age groups due to the presence of a high proportion of unmarried females. The use of standardized rates of this type is clearly a second best choice: it would be

⁹ The greater proneness of the unmarried to illness and hospitalization would probably account for whatever variation there is.

far more interesting to study separate rates for each marital status in each age group, but the census tables do not provide the necessary data, and, in any event, the actual numbers in many cells would be extremely small. The use of standardized rates implies that we are unable to test hypotheses relevant only to one material status (e.g. the effect of average family size on labour force entry by married women) and this is a serious limitation of the results presented here.

It would also be desirable to have county data on (female) wages, in order to test the impact of the wage rates on labour supply (as reflected in participation rates), but there are no such data for Ireland. Consequently the regressions performed with the participation rate as dependent variable concentrated on the following as explanatory variables:

Variable	Whether Age Specific	Expected Sign for Coefficient
Female Unemployment Rate ¹⁰	No	Negative (for females only)
Male Unemployment Rate	No	Negative for males, Positive for females
Males, Females, G.O. in Ag. as % of Total Males, Females G.O.	Yes	Varies with age
Industry mix } incl. Ag.	No	Negative for males
Variable (expected % F) } excl. Ag.		Positive for females
Supply of females/males	No	Negative (for females only)
Male Net Emigration Rate, 1961-66	No (15-64)	Negative (for males only)
Female Net Emigration, Rate, 1961-66	No (15-64)	Negative for females only)

The unemployment and net emigration rates test the discouraged worker hypothesis for the participation rates of the same sex; the inclusion of the male unemployment in the female regression tests the additional worker hypothesis. The county's employment structure is expected to influence participation, and this influence can be specified in two manners: either by including the percentage G.O. in agriculture along with the industry-mix (excl. agriculture) variable, or by using the industry-mix (incl. agriculture) variable on its own. The former emphasizes the classification bias introduced by the farm situation, the latter stresses the availability of suitable employment opportunities for the sex in question: presumably, for example, if a county is heavily endowed with female intensive industries, the search for a suitable job will be easier for a woman (other things, especially the unemployment rate, being equal). The supply variable (F/M) would be expected to measure a similar influence from the other side of the market: given the industrial structure, any one woman's chances

¹⁰ Out of work as percent of Gainfully Occupied *minus* Self-employed, Working on own account.

of obtaining a suitable job should vary inversely with the relative abundance of women in the labour supply.

The results for male participation rates may be presented briefly. Table 10 records some of the more interesting estimated equations. In these results, as well as for females, the population "at school, students" has been excluded from the denominator in all age groups where this is relevant (chiefly, the two youngest). It is clear that there is very little variation to account for in the 20-24 age group, and the low R^2 is not surprising here. In all cases the unemployment rate has the expected negative coefficient: in the first age group this coefficient is highly significant, and this variable is obviously the most important influence on participation—a significant number of school leavers, presumably, being "not yet at work" in areas where unemployment is high. The net emigration rate does not help significantly in these equations. The "industry-mix (incl. Ag.)" variable generally performs better than the combination of "% G.O. in Ag." and "industry-mix" (excl. Ag.). This interesting finding is clearest in the case of the oldest age group, where the male participation rises strongly in counties with a male intensive employment base—perhaps reflecting both the tendency for old farmers to remain in the labour force, and the fact that if the employment structure is male orientated it is easier for men to get jobs after retirement from their normal work. It is somewhat surprising to see that for the 55-64 age group, however, the "% G.O. in Ag." exercises a highly significant influence on participation, although the estimated coefficient is very small.

The inter-county variation in participation (male) is large enough to be regarded as evidence of fairly large reserves of labour supply (as far as the measured labour force is concerned, at least); if the highest county rate (found in Dublin and Kildare, respectively) applied nationally for the 14-19 and 20-24 groups, the national labour force would rise by 2.9 and 0.9 thousands in these age groups respectively. At the older end of the age structure, if Roscommon's rate for males 65 and over applied nationally, the labour force in this age group would jump by 27.9 thousand: this last figure may not, in fact, indicate any large available labour pool, but it does highlight the impact of definitional considerations on our labour force statistics.

The regression results (selected equations) for female participation rates are shown in Table 11. In order to economize on space, none of the equations containing either the male unemployment rate or the labour supply variable is shown: in all the trials including these variables, they appeared with coefficients that were not at all significant: in the case of the male unemployment rate, the coefficient was frequently negative, no doubt due to the fairly high positive correlation between male and female unemployment rates ($r=0.61$). Thus the available data show little or no support for the operation of the additional worker hypothesis, nor does the sex composition of the labour supply appear to exert a strong influence on female participation. The percentage in agriculture variable has a negative, very significant, impact on participation in the younger ages, no influence in the middle ages, and a significant positive influence in the 65 and over

TABLE 9
LABOUR FORCE PARTICIPATION RATES, 1966, BY COUNTY, AGE AND SEX,
(Gainfully occupied as Percentage of Population)

County	Males				Females (marital—status—standardised)≠							
	14-19*	20-24*	55-64	65 and over	14-19*	20-24*	25-34*	35-44*	45-54	55-64	65 and over	
Carlow	88.0	98.4	88.6	49.8	72.8 (72.2)	66.9 (62.4)	25.2 (23.9)	16.1 (15.2)	17.3 (17.2)	17.9 (17.1)	16.2 (16.4)	
Dublin	91.9	98.4	89.0	32.8	90.2 (90.4)	74.6 (74.9)	32.5 (32.6)	23.1 (24.7)	25.9 (28.0)	25.5 (26.9)	9.8 (10.3)	
Kildare	90.0	98.9	90.3	46.0	78.4 (77.2)	66.6 (59.6)	25.9 (21.5)	15.7 (12.9)	17.2 (15.7)	18.6 (17.1)	15.2 (14.7)	
Kilkenny	89.5	97.8	89.2	50.3	74.5 (73.5)	64.4 (63.2)	25.5 (26.8)	15.8 (15.2)	16.7 (16.0)	20.5 (20.5)	15.1 (15.1)	
Laois	87.1	95.3	88.2	48.9	74.3 (73.3)	63.2 (61.1)	23.6 (23.3)	13.5 (12.5)	15.1 (15.1)	20.0 (19.9)	18.6 (18.3)	
Longford	84.2	98.6	92.4	59.5	69.2 (68.8)	62.5 (64.7)	24.2 (26.2)	14.0 (12.9)	17.7 (16.1)	20.4 (19.8)	14.4 (13.7)	
Louth	87.0	97.4	90.2	37.9	90.3 (90.5)	75.0 (73.6)	33.1 (32.1)	21.9 (23.0)	22.7 (23.5)	21.3 (21.9)	12.8 (13.0)	
Meath	90.1	98.8	92.1	49.9	82.5 (82.3)	69.1 (65.9)	26.8 (24.6)	18.3 (14.3)	17.8 (16.4)	21.3 (20.5)	18.5 (18.2)	
Offaly	90.1	99.0	90.3	50.5	78.4 (82.3)	67.9 (63.7)	27.2 (23.4)	15.5 (13.6)	17.7 (17.2)	21.7 (20.8)	17.2 (16.7)	
Westmeath	85.4	96.9	87.4	48.9	74.1 (73.4)	64.4 (62.2)	26.5 (25.9)	14.8 (13.9)	17.3 (17.2)	19.8 (19.4)	15.5 (16.0)	
Wexford	88.9	98.3	89.3	43.9	73.1 (72.1)	61.8 (59.1)	24.0 (22.1)	15.5 (15.5)	16.5 (16.1)	20.1 (20.3)	16.2 (16.5)	
Wicklow	89.8	99.0	88.6	42.3	84.1 (83.6)	69.5 (64.8)	30.0 (27.3)	19.2 (18.1)	21.6 (20.9)	21.9 (20.7)	12.7 (12.5)	
Cork	90.7	98.1	88.3	40.9	82.3 (83.1)	68.0 (68.2)	27.6 (28.0)	17.7 (17.9)	19.2 (19.8)	20.1 (20.7)	11.3 (11.4)	
Clare	87.6	97.9	90.6	53.5	77.1 (77.1)	67.0 (67.4)	27.6 (28.9)	15.4 (14.4)	17.8 (16.0)	18.8 (17.6)	12.8 (12.0)	
Kerry	85.1	96.8	88.8	45.1	69.9 (70.1)	60.9 (63.6)	25.2 (27.6)	13.6 (13.3)	14.9 (13.5)	19.2 (18.4)	11.8 (10.9)	
Limerick	88.5	97.6	88.7	42.3	81.2 (80.4)	68.3 (67.4)	28.1 (27.8)	16.4 (16.3)	18.9 (18.5)	20.1 (19.9)	13.5 (13.5)	
Tipperary	86.8	98.1	89.7	49.5	75.3 (74.9)	64.2 (62.9)	25.3 (24.8)	16.3 (14.8)	18.3 (18.1)	21.0 (20.5)	15.7 (15.9)	
Waterford	90.1	98.8	88.3	40.0	84.2 (83.3)	71.4 (65.0)	28.6 (26.1)	17.8 (18.1)	19.1 (20.1)	18.9 (19.8)	12.8 (13.5)	
Galway	87.5	96.7	91.4	65.5	69.6 (70.1)	65.4 (68.9)	26.7 (29.3)	15.9 (15.2)	17.1 (15.6)	21.1 (19.8)	17.2 (16.2)	
Leitrim	84.8	97.9	93.5	66.4	68.3 (68.8)	64.0 (69.3)	25.0 (27.4)	14.0 (12.5)	17.6 (15.4)	21.6 (18.5)	16.4 (14.5)	
Mayo	87.7	97.3	93.5	66.1	63.1 (63.7)	63.0 (65.6)	25.7 (27.1)	15.1 (13.9)	18.0 (16.1)	21.9 (20.2)	16.1 (14.8)	
Roscommon	90.0	98.4	94.9	67.0	69.3 (69.6)	65.2 (69.7)	26.0 (27.8)	14.6 (13.4)	17.7 (15.8)	22.6 (20.7)	17.0 (15.7)	
Sligo	88.5	96.7	92.2	58.5	72.1 (72.6)	67.3 (68.9)	27.3 (28.9)	15.6 (14.8)	17.3 (16.8)	22.2 (22.3)	14.1 (13.9)	
Cavan	88.0	98.5	92.5	60.1	71.9 (72.5)	63.4 (66.1)	27.3 (27.3)	14.5 (13.9)	16.5 (15.1)	21.7 (21.2)	15.7 (14.6)	
Donegal	78.0	96.4	91.4	55.1	70.7 (71.0)	65.4 (68.0)	27.4 (30.3)	15.6 (17.0)	16.8 (17.2)	18.2 (18.3)	13.2 (13.7)	
Monaghan	90.8	98.2	90.6	57.5	80.2 (80.6)	68.0 (67.7)	27.4 (29.0)	15.1 (15.3)	16.6 (17.1)	20.9 (21.3)	16.0 (16.3)	

≠ Crude rates in brackets.

*Non-student population in denominator.

DATA SOURCE: Census of Population, 1966, Vol V.

NOTE: Census Figures for "gainfully occupied" refer to county of residence.

TABLE 10
MALE PARTICIPATION RATES REGRESSION RESULTS

Dependent Variable: Part. Rate in Age Group	% GO in Ag. (In each age group)	% Males U.	Industry Mix Excl. Ag. (% Female)	Industry Mix Incl. Ag. (% Female)	Male Net Em. Rate	R ²	S.e.e.	Eq. No.
14-19 (C.V.=3.2%)	0.0746 (1.71)	-0.565 (4.71)	-0.284 (1.41)		0.243 (1.37)	0.72	1.66	1-1
		-0.577 (5.40)		-0.328 (2.33)	0.307 (1.72)	0.72	1.61	1-2
		-0.579 (6.71)				0.65	1.73	1-3
20-24 (C.V.=0.95%)	0.0048 (0.16)	0.0496 (0.73)	-0.088 (0.78)		0.054 (0.54)	0.16*	0.93	2-1
		-0.065 (1.06)		0.040 (0.50)	0.071 (0.70)	0.15*	0.92	2-2
		-0.083 (1.87)				0.13*	0.89	2-3
55-64 (C.V.=2.17%)	0.0785 (2.16)	-0.095 (0.85)	0.184 (0.95)		0.053 (0.27)	0.44	1.59	3-1
		-0.051 (0.47)		-0.240 (1.68)	0.140 (0.77)	0.38	1.64	3-2
	0.0757 (4.10)					0.41	1.53	3-3
65 and over (C.V.=18.41%)	0.313 (2.46)	-0.365 (0.98)	0.418 (0.64)		1.143 (1.65)	0.73	5.33	4-1
		-0.329 (1.13)		-1.614 (4.19)	1.035 (2.12)	0.81	4.41	4-2
	0.462 (7.18)		0.348 (0.564)			0.69	5.57	4-3
	0.463 (7.30)					0.69	5.35	4-4
				-2.159 (8.87)		0.77	4.36	4-5
		-0.051 (0.18)		-2.19 (7.45)		0.76	4.74	4-6

t-ratios in parentheses beneath coefficients.

*Equation not significant at .05 level (F-test).

TABLE II
(UNWEIGHTED) REGRESSION RESULTS: FEMALE LABOUR FORCE PARTICIPATION RATE

Dependent Variables Standardised Participation Rate. Aged:	Independent Variables					R ²	S.e.e.	Eq. No.
	% GO in Ag. (By Age)	% U (females)	Ind. Mix Excl. Ag.	Ind. Mix Incl. Ag.	NMR (females)			
14—19 (C.V.=9.0%)	-1.048 (4.17)	-0.750 (1.70)	0.241 (0.80)	—	-0.965 (3.85)	0.88	2.58	1-1
	—	-0.331 (0.68)	—	0.766 (2.52)	-0.965 (2.75)	0.83	2.99	1-2
	-1.056 (4.24)	-0.816 (1.90)	—	—	-0.933 (3.80)	0.88	2.56	1-3
	-1.755 (8.29)	-1.636 (3.50)	—	—	—	0.79	3.18	1-4
	—	—	—	—	—	—	—	—
20—24 (C.V.=5.4%)	-0.572 (2.99)	-0.301 (0.93)	0.309 (1.33)	—	-0.321 (1.61)	0.74	1.99	2-1
	—	-0.391 (1.13)	—	0.520 (2.40)	-0.229 (0.91)	0.68	2.16	2-2
	-0.561 (2.95)	—	0.351 (1.54)	—	-0.385 (2.06)	0.73	1.98	2-3
	-0.797 (6.16)	-0.517 (1.66)	—	—	—	0.69	2.05	2-4
	-0.606 (3.14)	-0.383 (1.19)	—	—	-0.262 (1.32)	0.72	2.02	2-5
25—34 (C.V.=8.5%)	-0.080 (0.79)	-0.300 (1.30)	0.500 (2.92)	—	-0.340 (2.29)	0.68	1.40	3-1
	—	-0.460 (2.07)	—	0.465 (3.35)	0.074 (0.46)	0.67	1.39	3-2
	—	-0.430 (2.06)	—	0.412 (5.40)	—	0.67	1.36	3-3
	—	—	0.578 (3.59)	—	-0.483 (5.84)	0.65	1.41	3-4
	—	—	—	—	—	—	—	—
35—44 (C.V.=14.3%)	-0.023 (0.40)	-0.165 (0.81)	0.393 (2.51)	—	-0.511 (3.81)	0.78	1.19	4-1
	—	-0.284 (1.68)	—	0.430 (4.07)	-0.095 (0.78)	0.82	1.05	4-2
	—	-0.321 (2.00)	—	0.498 (8.51)	—	0.81	1.05	4-3
	—	-0.247 (1.13)	—	—	-0.508 (5.74)	0.69	1.37	4-4
	—	—	0.441 (3.34)	—	-0.579 (8.55)	0.77	1.15	4-5
45—54 (C.V.=12.7%)	-0.027 (0.41)	-0.233 (0.77)	0.208 (0.98)	—	-0.372 (1.52)	0.56	1.66	5-1
	—	-0.270 (1.12)	—	0.355 (2.35)	-0.938 (0.54)	0.62	1.51	5-2
	—	-0.308 (1.35)	—	0.422 (5.08)	—	—	—	—
	-0.117 (3.92)	-0.508 (2.06)	—	—	—	0.51	1.68	5-4
55—64 (C.V.=7.8%)	0.016 (0.33)	-0.515 (1.99)	-0.050 (0.26)	—	-0.050 (0.25)	0.20 *	1.59	6-1
	—	-0.501 (2.01)	—	-0.047 (0.30)	-0.045 (0.25)	0.19 *	1.55	6-2
	—	-0.504 (2.34)	—	—	—	0.19	1.49	6-3
65 and over (C.V.=15.0%)	0.098 (5.40)	—	—	—	—	0.55	1.53	7-1

*Equation not significant at .05 level of significance.

group. On the other hand the industry-mix (including agriculture) variable exercises a strong, positive influence in the middle age groups, and a weaker, less significant influence for the very young and the elderly. The unemployment and emigration rates always have the "right" sign, and the emigration rate is significant in many of the younger age group equations. This suggests that the unemployment rate on its own is not sufficiently sensitive as a measure of the tightness of the labour market for females. If, however, the results for the unemployment and emigration rates are considered together, there is ample support for the operation of the discouraged worker hypothesis. In labour markets where there is an excess supply of females, the percentage of the female population that is in the labour force is lower than in areas with a scarcity of women workers. For women aged 25-44 it is also evident that, given the tightness of the labour market, the structure of available employment opportunities (even if agriculture is excluded from consideration) is an important factor in determining labour force entry: in areas with a high female-intensity of employment structure, it may be supposed that women who wish to work will find it easier to get a "suitable" job than is the case in areas of low female-intensity. Obviously, it would be very important to study these effects by marital status, but as mentioned above data limitations prevent this.

The main interest of these regressions is that they reveal a pattern in the county participation rates, and they show some responsiveness on the part of the female labour supply (as measured in Census data) to labour market conditions: over a surprisingly wide age interval, the entry or exit from the labour force does respond to the tightness of the labour market (as reflected in unemployment and emigration rates) and the sex ratio of employment opportunities (even where agriculture is left out of the calculations).

The labour pool available among females may be judged at a point in time by applying the highest county rate (marital status standardized) to the national population. These highest rates are found in the following counties (the seven age groups, in ascending order): Louth, Louth, Louth, Dublin, Dublin, Dublin, Laois: and would increase the national labour force by the following numbers (thousands): 7.8, 4.7, 6.0, 7.4, 9.2, 4.9, 9.2. Ignoring the oldest age group (since high rates here are largely a farm phenomenon) there are some substantial gains apparent, especially in the youngest, and in the 35-44 and 45-54, age groups.

Unfortunately, our cross-sections results are of little use to projections over time: the coefficients that might be estimated from a year-by-year time series would reflect a number of forces that are held constant in a cross-section, in particular, changing values and attitudes or "tastes". We have no way of measuring the likely future behaviour of participation in the absence of information on these factors. As the relative scarcity of women in the labour supply continues to rise in Ireland (along the lines outlined in Table 6) it seems likely that there will be a sharp rise in labour force participation by women, especially married women and older women. The U.S. labour market experienced a very similar change in the sex ratio of its labour supply after the second world war, and this resulted in

substantial rises in participation rates among women [15, Chapter 5].

The evidence of the regression results presented here does suggest that supply will partially adjust to rising relative scarcity, but also underlines the need for policy to anticipate the scarcity and to attempt to alleviate it either by changing the sex ratio of new employment or by positively encouraging greater participation by women, especially married women, in the labour force. Obviously the extent to which the sex ratio of new employment can be controlled is limited and the main adjustment is likely to come through a rise in participation rates. (Large scale changes in the sex ratio of certain occupations should not be entirely ruled out, but are not likely to have a major impact on the general situation).

An attempt was made to explain the 1961-66 change in participation rates by county. Attention was confined to the two youngest age groups, males and females (the female rates were marital status standardized). The largest increases in participation rates occurred in the following counties:

		County	Percentage Rise in Rate
	Males, 14-19 (non-school)	Monaghan	6.4
	Males, 20-24 (non-school)	Roscommon	1.9
(Standardized)	Females, 14-19 (non-school)	Clare	14.7
(Standardized)	Females, 20-24 (non-school)	Roscommon	6.8

The general tendency was for intercounty variation to fall over the period, since the largest rises were concentrated in counties with low rates to start with. In Louth and Dublin, the female rate, 20-24, actually declined between the two dates. On the whole, the female changes were highly correlated with the change in the importance of agriculture, the simple correlations between the percentage change in participation rates in these two age groups, and the percentage change in the proportion of the corresponding labour forces in agriculture were -0.63 and -0.61 respectively. No significant correlations emerged for males. More elaborate tests, such as the application of the coefficients estimated with 1966 data to "prediction" of the 1961 situation, have not been performed.

TIME SERIES RESULTS

It has been emphasised in the course of the present paper that the data necessary for an analysis of participation rates over time are unavailable. Our only annual data for the total labour force are contained in the *Trend of Employment & Unemployment* and these estimates are not broken down by sex or age. Thus it is not possible to obtain meaningful participation rates on a yearly basis. It is feasible however to relate changes in unemployment to changes in employment and to emigration. The relevant

equations for the period 1951-69 are presented in Table 12, the data in Appendix 3. Similar equations appeared for an earlier period in [16]. Implicitly this relationship deals with participation rates, since reductions in unemployment are shown to be considerably lower than increases in employment (or emigration). If the intercept of these equations is taken as indicating the growth of unemployment as a result of the natural increase of the non-agricultural labour force in the absence of growth in employment or of emigration, the coefficients of the employment and emigration, variables do suggest, for example, that a fair proportion of and increase in employment comes from men and women who were not in the labour force. This suggests considerable short-term sensitivity by the participation rate to changes in the level of unemployment: the measured rise (or fall) in unemployment thus tells only part of the actual change in unemployment, the remainder being hidden in entry to, or exit from, the labour force. This is consistent with our cross-section results, but unfortunately no detailed comparisons of the two sets of findings is feasible due to the very aggregate nature of the time-series data. The choice of dependent variable for the regressions of Table 12 is largely arbitrary, since all three variables are "jointly determined". Alternative results have been presented using net emigration as the dependent variable, and it may be seen that the same general conclusions are warranted from this set of results.

TABLE 12
TIME SERIES ANALYSIS 1951-69 (MID-APRIL) OF THE RELATIONSHIP
BETWEEN CHANGES IN NON-AGRICULTURAL UNEMPLOYMENT,
CHANGES IN NON-AGRICULTURAL EMPLOYMENT, AND NET
EMIGRATION (THOUSANDS)

"Dependent" Variable	Intercept	Δ Non. Ag. Employ-	Δ Non. Ag. Unemploy- ment	Net Emigra- tion	R ²	S.e.e.
Δ Non-Ag. Unemploy- ment	A 18.15	-0.699 (6.34)	—	-0.537 (6.12)	.75	3.33
	B 15.82	-0.588 (6.71)	—	-0.461 (6.60)	.77	2.65
	C 15.20	-0.578 (6.88)	—	-0.442 (6.59)	.77	2.54
Net Emigration	33.44	-1.21 (10.34)	-1.33 (A) (6.11)	—	.88	5.08
Net Emigration	33.83	-1.20 (10.90)	-1.61 (B) (6.60)	—	.90	4.81
Net Emigration	34.00	-1.22 (11.00)	-1.68 (C) (6.59)	—	.90	4.81

Non. Ag. Unemployment: Definition A: Total Live Register less Agriculture.

Definition B: A less "Other Construction"

Definition C: B less Fishing, Private Domestic Service.

DATA SOURCES: *The Trend of Employment and Unemployment, Statistical Abstract, and Irish Statistical Bulletin.*

CONCLUSION

This paper has touched on a number of topics relating to the employment of women in Ireland. The structure of total employment opportunities was shown to be biased towards male employment due to the importance of family farming in the economy, and the tendency for women living on farms not to be counted in the labour force. The structure of manufacturing industry, on the other hand, was seen to be biased towards female employment due to the unimportance of heavy engineering in our economy. There is no evidence that Ireland's low participation rate among married women had, as of 1966, distorted either the economy's industrial structure or the sex ratio of employment in individual sectors of the economy. However, a situation is now being faced in which the rise in the proportion of young adult females who are married is gradually, but significantly, altering the sex ratio of the population available (by conventional Irish norms) for work. Virtually all of the growth of the female population is now occurring among married females, who traditionally contribute very little to the labour force as it is measured by our Census of Population. On the other hand, there is every reason to expect the demand for female labour to continue to expand, especially in the commercial and service sectors of the economy.

In Ireland, as elsewhere, there is a very high degree of sex segregation of occupations—with over one quarter of all working women employed in occupations that are at least 90 per cent female—and some, no doubt, of this process of occupational sex-labelling is discriminatory and irrational from an economic viewpoint. Implementation of equal pay might significantly reduce this type of segregation, but on the whole changes in the sex ratio of occupations are likely to occur only slowly, so that not much relief from the prospective shortage of women workers can be expected from this source.

A rise in labour force participation especially among married women, is the most likely labour market adjustment to the situation now facing Ireland. No doubt much of the work contributed by married women will be on a part-time basis, as is now the case in many European countries with higher participation rates. This will call for adjustments on the part of employers to the special needs of married female workers, as well as the development of appropriate community services to facilitate those married women who are anxious to take advantage of the employment opportunities that will be increasingly open to them. Several European countries (both western and eastern) and the U.S.A. have experienced fairly sharp rises in participation by married women since the second world war. Thus, we can anticipate the problems we shall face, and learn from the experience of others.¹¹

Our study of the inter-county variations in Irish participation rates established a definite—if not very dramatic—tendency for women to be

¹¹ For an excellent summary of the post-war experience in Europe and America, as well as a very convenient discussion of the social and economic problems at stake, cf. [6].

attracted into the labour force in tight (female) labour market situations. To a limited extent, at least, demand creates its own supply. It is not possible to state the upper limit to this process, but one may suspect that it would be fairly quickly reached in Ireland in the absence of some major changes in the basic social, cultural and institutional influences on employment of married women.¹²

The questions, whether or not it is desirable that married women should work, and if so, how this should best be organized, are obviously too important and far-reaching to be left to economists to decide. We need, however, a more widespread appreciation of the fact that major issues of this nature are now being posed to us by the course of demographic and economic events.

¹² It is, of course, arguable that many of our attitudes towards married women working will change as a result of the new urgency of raising the proportion of married women who work.

APPENDIX 1

COMPARISON OF CENSUS OF POPULATION AND CENSUS OF INDUSTRIAL PRODUCTION DATA ON NUMBERS AT WORK IN IRISH MANUFACTURING INDUSTRY

Throughout this paper, considerable use has been made of the labour force statistics given in the Census of Population (CP). It must be recalled that the CP asks the "principal occupation or calling" of each person aged 14 and over. In general it seems likely that married women will return "housewife" or "home duties" unless they are full-time gainfully occupied. This would tend to bias our female labour force statistics downward, and may be part of the reason for the very small proportion of our married women who are classified gainfully occupied.¹

Our only check on the CP labour force data is based on Census of Industrial Production (CIP) data for employment in the industrial sector. The CIP data are based on returns filled out by all employers, and given, for a week in October, details of the labour force by sex. A detailed comparison of the CP and CIP data is presented in Table A1.

A similar comparison, not decomposed by sex, was published in the *General Report of the CP 1946 & 1951* (CSO, 1958) Table 75. The general commentary to that Table is relevant here:

"The CIP extends only to businesses with three or more persons (including working proprietors) engaged. In consequence the difference between the two sets of figures should give an indication of the numbers employed in the one—and two—man concerns not covered by the CIP. The difference is inflated by its including those concerns in which three or more persons are engaged but who fail to send in CIP returns" (p. 94).

A further complication arises from the treatment of "outside piece-workers": data are collected for these in the CIP labour force statistics, but separate statistics are given for them, so that it is possible to calculate a total including or excluding outside workers. Since most of these workers are women, and over three-fourths of them are in the Hosiery industry, the emphasis should be placed on the total excluding outside workers.² However, when the totals (excluding outside workers) are compared, a striking difference between males and females appears: for males the CP total exceeds the CIP total by 16.6 thousand or 14 per cent, whereas for females the CIP exceeds the CP total by 2.1 thousand or 3.5 per cent. The male shortfall in the CIP (compared with the CP) is expected (although its size is surprisingly high); the female shortfall on the CP (compared with

¹ The contrast with the U.S. questionnaire is instructive. The person filling out the Census Form is asked in respect of all persons "Did this person work at any time last week? (excluding housework)". If "yes", "How many hours did he (she) work last week (at all jobs)?" Thus, the U.S. labour force includes all those who did any work during the Census week, regardless of how few hours.

² Even more important is the evidence (from the wage statistics) that such workers are earning on average very small weekly income.

TABLE A1

EMPLOYMENT BY MANUFACTURING INDUSTRY—COMPARISON OF
C.P. (APRIL) AND C.I.P. (MID-OCTOBER) DATA, 1966

(Outside piece workers, C.I.P., in Parentheses)

Industry	Females		Males	
	C.I.P.*	C.P.	C.I.P.*	C.P.
Grain milling and animal feed ...	582	533	4,344	4,610
Bread and flour confectionary, biscuits	3,297	2,625	6,666	5,549
Milk Products	802	1,070	4,928	5,896
Jams, etc.	2,263	1,196	1,577	1,099
Cocoa, chocolate, etc. ...	3,831	2,415	1,960	2,057
Sugar	280	317	1,826	1,894
Bacon factories	1,320	1,500	3,477	3,749
Canned Meat, etc.	657	362	2,639	1,759
Other food (incl. margarine) ...	573	588	729	1,016
Malting	32	31	742	631
Brewing	748	637	4,271	4,512
Soft Drinks	265	372	1,368	2,381
Distilling	119	189	607	825
Tobacco	1,180	1,113	1,097	1,092
Woollen and Worsted (incl. carpets)	3,241 (342)	3,040	3,860 (102)	3,821
Linen and Cotton	1,266 (8)	1,525	2,419	2,360
Jute etc., Cordage Rayon, etc. ...	1,559	1,267	2,225	1,903
Hosiery	4,895 (3,440)	5,187	2,283	2,255
Other Textile goods	554	829	155	754
Footwear (factories)	3,324 (37)	3,271	2,791	2,970
Clothing (excl. handicraft) ...	12,892 (496)	12,725	3,073 (13)	3,497
Tanning	144	148	1,436	1,281
Leather, etc.	479 (16)	536	277 (6)	596
Wood and Cork	284	252	3,460	6,041
Furniture and brooms, brushes	786 (14)	737	3,215 (5)	4,950
Paper, paper products	2,308	1,894	3,010	2,714
Printing and Publishing	2,929 (20)	3,787	6,521 (155)	8,392
Fertilisers	215	188	2,388	2,404
Oils, paints, inks and polishes ...	328	276	1,050	1,307
Soap etc.	331	390	367	461
Chemicals, drugs, etc.	1,389	1,768	1,199	2,630
Glass, pottery, china, glasswear	789	837	2,258	2,597
Clay products, etc., cement ...	312	263	4,601	5,550
Metal trades	1,481 (1)	1,457	9,218 (160)	1,587
Non-electrical machinery	262	494	2,229	4,317
Electrical machinery	3,859	3,342	4,717	5,610
Ship building	34	40	1,278	1,328
Railroad equipment	92	58	2,199	1,806
Road vehicles	293	437	6,260	6,338
Other vehicles	170	98	1,425	1286
Miscellaneous, "other"	2,734 (87)	3,024	5,571	6,528
Total	62,899 (4,461)	60,818	115,716 (441)	132,353

*Excluding outside piece-workers—(given in brackets under original total.)

the CIP) occurs when our expectation is for the CP figure to exceed the CIP. Thus, there may be significant underenumeration of the female labour force in the CP, due presumably to the bias towards returning "home duties" or "housewife" inherent in the census question. The extra women appear in the CIP in certain food industries (confectionery, etc., cocoa, chocolate, etc., Jams) and in Paper and Paper products. The discrepancies between the two Census for Linen and Cotton, Woollen and Worsted, Jute, etc., appear to reflect classification problems: if the total of these industries is considered the discrepancy is greatly reduced.

The statistics on hours worked by females in those industries where the CIP total is high do not suggest that many of these workers are part-time. For example, average hours worked by females aged 18 and over in Cocoa, Chocolate etc. in October 1966 was 36.7. The fact that the CIP data relate to October, the CP to April could account for some of the discrepancy, but quarterly estimates of persons engaged (CIP) show little evidence of a rise in the third or fourth quarters in any of the industries where the CIP records an excess of females over the CP figure, except for Jams.

If in fact there is serious underestimation of the female industrial labour force in the CP, the problem is likely to be greater in the service and commercial sectors of the economy where part-time work (especially among married women) is probably more common and almost certain to increase due to the scarcity of young single women.

It may be noted that the contrast between CIP and CP returns (as between males and females) mentioned in this Appendix parallels the comparison of CP and Live Register statistics of unemployment provided by R. C. Geary and J. G. Hughes in Appendix A of *Certain Aspects of Non-Agricultural Unemployment in Ireland* (ESRI, 1970). This source shows considerably higher female unemployment in the Live Register returns for the Food, Textiles, Clothing, Paper industries than is recorded in the CP returns.

Some idea of the importance of part-time work for married women can be gauged from the fact that 21.1 per cent of English (adult) married women were found to be working full-time, compared with 21.4 per cent working part-time (less than 20 hours per week). For widows the proportions were 29.6 and 22.8 per cent respectively [9]. If two part-time workers are set equal to one full-time worker, it appears that in Britain one-third the hours worked by married and widowed women are contributed on a part-time basis. Once again, these figures stress the dangers of international comparisons of female labour force participation rates. The conclusion seems justified that it is increasingly important to collect data on all working women in the Census of Population.

APPENDIX 2

THE PROBLEM OF HETEROVARIANCE

The use of the 26 counties of the Republic in a cross-section analysis implies including units of greatly varying size as observations in the regressions. It is true that all the variables included in our analysis are expressed as rates or ratios, so that the absolute size of the county is not apparent from the data. Nevertheless, serious risk of heterovariance is introduced in a situation like this. Stated simply, the county participation rates may be regarded as sample means, and the variance of a sample mean is inversely proportional to the sample size. More formally the 2nd moment of a parameter estimate about the population value, i.e.

$$\frac{\sum_{i=1}^N (\hat{\theta} - \theta)^2}{N}$$

is inversely proportional to sample size. θ the true population value of the parameter, will be unbiasedly estimated by the sample mean, $\hat{\theta}$, so the variance and 2nd moment about population value happen to coincide when an unbiased estimator is used.

Let, $h_i = a + b W_i + e_i$

where h_i = hours worked by the i th individual.

W_i = a market variable such as the wage paid to the i th worker

e = stochastic error term.

If we wish to obtain estimates of a , b the necessary conditions under which ordinary least squares will yield unbiased and best (minimum variance) estimates are:

$$\begin{aligned} E(e_i e_j) &= 0, i \neq j \\ &= \sigma^2, i = j \end{aligned}$$

If however we take note of the fact that worker i lives in area s and that our observations are by area, namely county average participation, wage rates etc., then it is arguable that we are dealing with the following situation

$$\frac{\sum_i^{P_s} h_{i,s}}{P_s} = a + b \frac{\sum_i^{P_s} W_{i,s}}{P_s} + \frac{1}{P_s} \sum_i^{P_s} e_{i,s}$$

or

$$Y_s = a + b W_s + \frac{1}{P_s} \sum_i e_{i,s}$$

then

$$E \left[\left(\frac{1}{P_s} \sum_i^{P_s} e_{i,s} \right) \left(\frac{1}{P_k} \sum_i^{P_k} e_{i,k} \right) \right]$$

$$= \frac{1}{P_s^2} \sum_i^{P_s} E(e_{i,s} e_{i,k}) = \frac{1}{P_s} \sigma^2 \text{ for } s=k$$

Hence the variance of the error term of the county regressions is inversely proportional to the county population. If this is the case, the estimates of a and b obtained from ordinary least squares regressions on the original observations are not minimum variance estimates, nor are the estimated standard errors of these estimated parameters unbiased estimates of the true standard errors. An alternative procedure is to obtain the following weighted regression:

$$Y_j \sqrt{P_j} = a \sqrt{P_j} + b (W_j \sqrt{P_j}) + u_j$$

U_j may be seen to have the desired properties for minimum variance estimates if the assumptions of the model just outlined are valid (that is, homovariance at the individual observation level). Intuitively, it is appealing that the larger counties receive a weight proportional to the square root of their population, since it seems that the Dublin observation contains far more information than that of Leitrim, for example.* Most of the regression results presented in this paper have been estimated in their weighted and unweighted forms. The weighted regressions in all cases utilized the square root of the county population (in the relevant sex, age-group) as the weight for all variables, and the intercept was obtained as the coefficient of the weight itself (the normal intercept term being suppressed). For ease of presentation, and because more trials were performed in the unweighted specification, the main discussion has been confined to these results. However, it is of methodological interest to present a comparison of the two types of regressions, and this is done for selected equations in Table A2. Note that this table does not record any R^2 or S.e.e.: these are meaningless for comparisons of unweighted results, since the dependent variable is not the same and since in the weighted regressions all the variables (dependent and independent) have been multiplied by a common variable, hence R^2 is always extremely high in our weighted results but this indicates nothing as to the superiority of the weighted equations. If the assumptions regarding error variance spelled out above are valid, the weighted results may be taken as a more efficient estimate of the parameters, and the t -tests for the weighted results should be more reliable than the unweighted.

By far the more striking feature of Table A2 is the consistency of the two sets of results, and this consistency was noticeable in virtually all the comparable equations that were estimated. There is some tendency for the weighted regression results to be more significant (by the t -test on the individual coefficients), but this was not universally true. The values of the coefficients remained remarkably stable between weighted and unweighted results, even in the cases where these coefficients were subject to very large standard errors. Thus, little if any difference in the overall

* The standard theory of weighted regression is presented for example, in Johnston [8, pp. 207 ff.]. Geary and Leser provides estimates of the increase in inefficiency due to the heterovariance problems [7]. The above discussion leans heavily on Leroy [9, Appendix F.]. I am grateful to Mr. Colm McCarthy, University of Salford for discussing this topic with me and making helpful suggestions.

TABLE A2
COMPARISON OF WEIGHTED AND UNWEIGHTED REGRESSION RESULTS SELECTED EQUATIONS: DEPENDENT VARIABLE LABOUR FORCE PARTICIPATION RATE
IN SPECIFIED POPULATION GROUPS: REGRESSION COEFFICIENTS WITH t-RATIOS IN PARENTHESES

Dependent Independent	MALE				FEMALE													
	Weighted 14-19	Un-weighted 14-19	Weighted 14-19	Un-weighted 14-19	Weighted 14-19	Un-weighted 14-19	Weighted 20-24	Un-weighted 20-24	Weighted 25-34	Un-weighted 25-34	Weighted 35-44	Un-weighted 35-44	Weighted 45-54	Un-weighted 45-54	Weighted 55-64	Un-weighted 55-64	Weighted 65 and over	Un-weighted 65 and over
Unemployment Rate	-0.509 (4.44)	-0.565 (4.71)	-0.555 (5.45)	-0.577 (5.40)	-0.710 (1.27)	-0.750 (1.70)	-0.393 (1.14)	-0.301 (0.931)	-0.228 (0.80)	-0.300 (1.31)	-0.372 (1.66)	-0.284 (1.68)	-0.233 (0.77)	-0.276 (0.64)	-0.515 (1.36)	-0.515 (1.99)	-0.193 (0.61)	-0.054 (0.23)
% 60 in Ag. Occupations	0.070 (1.60)	0.075 (1.71)	—	—	-1.099 (4.33)	-1.048 (4.17)	-0.728 (4.43)	-0.572 (2.99)	-0.173 (1.57)	-0.080 (0.79)	—	—	-0.027 (0.41)	0.002 (0.02)	-0.013 (0.18)	0.016 (0.33)	0.110 (2.93)	0.133 (3.97)
Industry Mix (excl. Ag.)	-0.418 (1.92)	-0.284 (1.41)	—	—	0.058 (0.18)	0.241 (0.80)	0.322 (1.52)	0.309 (1.33)	0.524 (2.87)	0.500 (2.92)	—	—	0.208 (0.98)	0.301 (1.13)	0.061 (0.23)	-0.050 (0.26)	-0.278 (1.33)	-0.325 (1.92)
Industry Mix (incl. Ag.)	—	—	-0.376 (2.47)	-0.328 (2.33)	—	—	—	—	—	—	0.494 (4.20)	0.430 (4.07)	—	—	—	—	—	—
Net Em. Rate	-0.316 (1.82)	-0.243 (1.37)	-0.404 (2.41)	-0.307 (1.72)	-0.852 (3.96)	0.965 (3.85)	-0.329 (2.35)	-0.321 (1.61)	-0.370 (2.79)	-0.340 (2.29)	-0.121 (0.97)	0.095 (0.78)	-0.372 (1.52)	-0.678 (2.42)	-0.204 (0.84)	-0.050 (0.85)	-0.048 (0.24)	-0.109 (1.09)

conclusions and commentary on the regression results would follow if only weighted equations had been discussed; as far as can be gauged from this problem, and given the assumptions that were made concerning the choice of weights, very little error would have been introduced by ignoring the problem of heterovariance entirely. Of course, this conclusion can only be reached by a direct comparison of the two sets of results, and unfortunately it cannot be generalised to other situations. It seems reasonable to lay down the general principle that heterovariance is a potentially serious problem in any regression involving units of such different size as the Irish counties.

APPENDIX 3

DATA USED IN REGRESSION OF TABLE 12

Year	Change in Non-Ag. Unemployment			Net Emigration	Change in Non- Ag. Employ- ment
Year	A	B	C		
1951-52	11.5	10.9	10.8	35.0	-7.9
1952-53	7.4	3.4	3.8	33.0	-5.0
1953-54	-8.9	-4.9	-5.3	36.0	3.0
1954-55	-2.8	-2.6	-1.9	45.0	-7.0
1955-56	-2.2	-2.5	-2.1	48.0	-9.0
1956-57	11.7	10.8	10.8	41.0	-25.0
1957-58	-5.0	-4.5	-4.2	58.0	9.0
1958-59	-4.6	-3.4	-3.5	32.0	1.0
1959-60	-5.8	-4.7	-4.2	41.0	3.0
1960-61	-6.3	-5.0	-5.0	40.0	8.0
1961-62	1.0	1.4	1.6	15.0	16.0
1962-63	3.6	3.4	2.8	9.0	14.0
1963-64	-2.6	-2.2	-1.5	17.0	14.0
1964-65	0.8	1.1	1.0	19.0	12.0
1965-66	2.6	2.7	2.6	21.2	3.5
1966-67	4.0	3.9	3.6	13.9	8.5
1967-68	4.4	4.1	3.0	17.7	11.0
1968-69	-4.2	-3.5	-3.1	17.3	16.0

All data refer to April, and are given thousands.

DISCUSSION

Mr. Ian Finlay, proposed a vote of thanks to Dr. Walsh. I congratulate him on a very interesting and stimulating paper which would require extremely close study to enable its full value to be appreciated.

I would like to refer to the manpower surveys of Drogheda, Waterford and Galway which had been published by the Department of Labour and point out that these surveys tended to confirm the "discouraged worker" hypothesis referred to by Dr. Walsh. In all three areas substantial pools of potential employees had been revealed whose presence was not shown by official statistics. Most of these people were in the categories of recent school-leavers and married women interested in employment. The surveys had suggested, however, that many of the school-leavers had not the qualifications for, or interest in, the type of employment (mainly in industry) likely to be available. Most of the married women had family responsibilities which would make it difficult for them to accept employment.

The Department of Labour research indicated the need for caution in examining labour supply and demand on a purely statistical basis. Many local factors are frequently of importance, such as attitudes of potential employers and employees, and these could only be ascertained by on the spot enquiries.

I would also like to refer to a study by the E.S.R.I. which had been commissioned by the Department of Labour on the Labour Force Status of Women. The purpose of the study was (a) to measure participation rates of women workers in Ireland; (b) to isolate reasons for the apparent low participation rates; and (c) consider if manpower policies can change the participation situation and to attempt to assess the costs and benefits involved. The Commission on the Status of Women under Dr. Beere's chairmanship, were also interested in this study and would use the results of the research in their work.

One of Dr. Walsh's conclusions is that a rise in labour force participation by married women was the main labour market adjustment facing Ireland. He has also pointed out that employment in Irish industry already has a female bias. Most of the complaints about shortages of female workers came from manufacturing industry. If, in fact, our industry moved further towards female employment our general employment situation would become even more unbalanced. The I.D.A. were, of course, concentrating on attracting industries with male employment and perhaps even greater efforts in this direction would be necessary.

I would point out that apart from problems relating to employment of women, there was also a very large pool of male unemployed. In the Live Register of 8th April over 56,000 of the 70,000 registered were men. Even allowing for the imperfections of the Live Register this was a very big figure and many of the men on the Register were unskilled and unsuitable for industrial employment. Dr. Walsh had suggested that community resources would have to be devoted to providing facilities to enable married women to work. Community resources would also be necessary

to solve the problem of the unskilled male unemployed. It might be necessary to determine priorities between these objectives in the commitment of community resources.

Miss Beere: Dr. Walsh is to be congratulated on his interesting paper which deals with a very topical subject. Little research has been done in Ireland on the part being played by women in the economic life of the country and I hope that this paper will be the forerunner of others relating to various aspects of the subject.

I agree with Dr. Walsh's comments on the increasing importance of collecting information on all working women and it is unfortunate that no information on part-time workers will be provided by the Census of Population and that many women engaged in part-time work will be described as "housewives". Many women, particularly married women and widows, are engaged in part-time work and this trend seems to be on the increase. There are, of course, advantages and disadvantages in part-time work. Much of the part-time work available is in 'dead end' jobs. The workers are seldom members of a Trade Union and the Unions are naturally concerned that their employment should not result in depressing wages. Relatively few part-time women workers seem to be engaged in industry in Ireland, but in at least some European countries experiments are being made in "twinning" (employing two women on one factory job). Part-time household workers of course perform a very useful function in that their availability releases other women from some of their household duties and enables them to take up full-time employment, or at least to participate in some outside activity.

Dr. Walsh referring to the sex ratio of clerk employment in various industries concludes that employment is more attractive to women in industries in which total employment is predominantly female. I have some reservations on this conclusion. I would think that the determining factors are more likely to be found in male resistance in traditionally male industries and to failure of certain establishments to provide adequate and acceptable facilities for women employees.

Males become eligible for unemployment assistance at age 18 merely by registering, while women must acquire a year's stamps before they are entitled to claim benefit. This distinction would make it less imperative for 18-19 year-old males actively to seek employment while it may influence females to get a job as soon as possible. There is a further factor in that apprenticeship is largely confined to males who may be still at school, while at the same time, gainfully occupied. I wonder to what extent, if any, the participation rates for the younger age group (Table 8) may be affected by these factors.

Dr. Walsh says that the degree and pattern of sex-segregation of employment in Ireland are similar to those found in the United States. This would seem to indicate broadly that the U.S. Civil Rights legislation which prohibits outright exclusion of women from any kind of job has not so far had much effect.

There has been a tendency to regard women as a reserve in the labour

force, technically and economically. There has been a market largely confined to men and a market largely confined to women. There is now an emergent market which the two meet and it will be interesting, when the 1971 Census figures become available, to see what changes have occurred in the sex ratios particularly in the fields of distribution and hotel work.

Professor M. P. Fogarty: I would like to raise a theoretical point which has also a good deal of practical importance. It is clear from Dr. Walsh's paper that there is a growing demand pull drawing women into the work force. I would be interested to see in a later stage of his study a fuller analysis of the cost push which impels them into it.

I recently analysed in connection with some questions arising on the Commission on the Status of Women the way in which the net income of the family of an average industrial worker, after deducting tax and social security but adding back children's allowances, compares with a standard of adequacy on various assumptions about the number of children and whether or not the wife is working. For the purpose of argument I took as the standard of adequacy the standard of living enjoyed by a single man on average industrial wages for a basic working week: that is, excluding overtime, but including incentive earnings, bonuses, service pay, and the like. On this basis the earnings of single men (including overtime) and of married couple with no children and the wife working of course comes out well above "adequacy". The earnings of single women and of married couples with no children and the wife not working, or with one or two children and the wife working part-time, fall short of "adequacy" by a margin which is marked but probably not intolerable, at least in terms of level of living; I am not referring to other objections to unequal pay. When however one comes to families with three, four, five, or more children and the wife at home, the income available drops quickly to half of "adequacy" or less. The contrast between these larger families and others will become still more marked under equal pay, which will raise the standard of living of single women and of married couples with the wife working, but leave single-earner families where they are.

Add to this the problem of social isolation for the mothers of large young families which makes itself felt particularly in parts of the bigger towns, and you have what could be called a spring-loaded situation. A number of strong barriers at present stand in the way of married women working—the marriage bar, social custom and in some occupations and parts of the country lack of jobs—over and above the difficulty which anyway arises at the stage of a family's development where there are several small children to be looked after. Take some or all of these barriers away in a situation where there are serious economic and social disadvantages in *not* being a working wife, and immediately there is a strong incentive for wives to get out of their home and look for a job.

Suppose however that, instead of removing the barriers while leaving the "cost push", the cost push factors are themselves removed, or at least mitigated. Suppose that instead of having one of the lowest levels of children's allowance (or is it *the* lowest?) in Europe we begin to measure

up better to the European standard. Suppose also that the efforts now being made to relieve social isolation in areas like Ballyfermot pay off, and that along with them goes a widespread development of playgrounds and other ways of involving parents, especially mothers, in their children's education, and so creating a richer environment for the mothers as well as the children. Is it not possible that after taking steps like these, including some, like the multiplication of playgrounds and nursery schools, which are often recommended as an incentive and aid to working outside the home, we shall find that we have so increased the welfare and prosperity of the housewife at home as to cut off the cost push which drives wives towards work and to reduce, perhaps sharply, the supply of women workers? Perhaps the reduction would not be great in the case of graduates and other highly qualified women, for whom the push towards work arises from a sense of deprivation if prevented from using trained abilities on interesting work as from a wish to raise the family's standard of living or to escape from social isolation. But if one is thinking of the ordinary factory, service, or clerical worker there is a real question here, for in these groups the push towards work does tend to be primarily the need to close a gap in the cash standard of living and the wish for companionship.

The effect of strength or weakness in the cost push factor could be particularly important in Ireland, since in this country the number of children per family is still relatively high, and also in spite of recent developments is the proportion of late marriages and of births to mothers at relatively high ages. Whatever happens to the other barriers to wives working, the demographic barriers to their doing so are likely to remain relatively strong in this country for as far ahead as can yet be foreseen. That being so, even a relatively small reduction in the strength of the cost-push factor might have a substantial effect on women's readiness to enter the work force, or at least to enter it full-time. If you ask me how substantial this effect is likely to be, I do not know. And this is my point; that this is a factor of unknown size, but which could be important and therefore is worth measuring, if possible, at a later stage of the study.

I support strongly what Dr. Beere has said about the need for better statistics on part-time work, for the special demographic circumstances of Ireland mean that part-time could well prove to be relatively even more important here than in a country such as Britain. Given the demographic facts that I have just mentioned, which amount to saying that an Irish family is much more likely than a family elsewhere in the industrialised parts of Europe to have several very young or young school age children around the home up to a fairly high age of the mother, and that mothers are likely to be older when they return to work, I would guess that Ireland could become the classic country for part—rather than full-time work by married women. It is just in this country that it is particularly important to have the development of part-time work carefully monitored.

Finally, I cannot let Dr. Beere get away with her doubts about the validity of Dr. Walsh's findings, with specific reference to clerks, that the proportion of men or women in jobs not otherwise sex-typed will tend to vary in line with the proportion of men or women in each industry's

work force as a whole. Dr. Walsh did after all base his findings on sixty-five industries, and not only on far-out examples of the willingness or otherwise of girls to get lost in a bog. Custom and practice, that vague thing one might call the "atmosphere" of a particular industry, does have its effect. And, of course, the effect is not only one way. Sex segregation is not simply something which is enforced by men against women. Women, too can be less than enthusiastic about letting men in on their own preserves. When general clerical and typing jobs have to be filled in my own office, I sometimes wonder, when the short-lists are made up, where all the male applicants have gone. Actually, I do not wonder; I know. When equal pay sweeps through the offices of Ireland I suspect that a great many more men will be knocking on the doors, and it may not be so easy to keep them out.

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