The Economics of Equal Pay

By P. T. GEARY (U.C.D.) and B. M. WALSH (E.S.R.I.)*

Contribution to a symposium on the Commission on the Status of Women's *Interim Report on Equal Pay*, held by the Statistical and Social Inquiry Society of Ireland, 3 March 1972.

We are fortunate in having as our starting point this *Interim Report*, a document which succinctly summarizes the basic issues involved in a policy of equal pay between men and women. In the time allocated to us tonight we wish to concentrate on some of the economic problems raised by this topic.

The importance of the concept of equal pay appears to derive from the notion that unequal pay represents discrimination against women, and hence is unjust. There is however a basic difficulty in defining "equal pay". The simplest definition is that both men and women doing the same work should be paid at the same rate. The Commission felt (para. 77) that "outside the public service such a provision would affect only a small proportion of women workers". We certainly concur in this reasoning, since about 25 per cent of women workers are in occupations that are 90 per cent or more female [7, Table 5) and no doubt if more detailed data were available on grades etc. it would be clear that very few women are doing work for which there is an exactly comparable male rate of pay.

But even working with this admittedly too limited concept of equal pay, some problems are apparent. We draw attention to the principle (originating in an EEC Recommendation) that "factors affecting the cost or yield of female labour shall not be taken into consideration in the case of work paid by time". (This is quoted with approval in para. 82). Taken at face value, this implies that if, through no fault of their own, women doing the same tasks as men are on average less productive than men they must still be paid equally with men. This implies that unit labour costs may be higher if female labour is employed. Hence, so long as employers act rationally (in an economic sense) they would have an incentive to hire men in preference to women. How strong this incentive is depends, of course, on the extent to which women are on average less productive than men in particular tasks: the possible sources of this productivity differential are listed in paragraphs 82 and 36, and include such factors as a shorter working career, greater turnover, higher absenteeism. This is not the place to discuss the magnitude of these sex-related differentials in productivity, nor their origins. What is important for a policy of equal pay is that if they exist, they will create a tendency under equal pay for employers to substitute men for women, since unequal pay could no longer be used to

compensate for sex-related productivity differrentials. In this connection it is interesting to quote from a commentary on the Royal Commission on Equal Pay, 1944-46:

> . . . there are two main trains of evidence and argument, one showing that women's work tends to be at a discount to men's in the market because it is worth less to the employer, the other that it tends to sell at less than it is worth. Both can be right . . . but it may be claimed that the very existence of overlap areas [viz. occupations in which men and women are performing exactly the same work] rules out the second possibility; the fact that firms do not fill these areas wholly with women shows that women do not actually offer a better bargain than men—in these areas, at least, rates of pay must be proportional to productivities. The argument is strong, but not conclusive, for even within a true overlap area there may be resistances to the substitution of women for men beyond a certain line . . . But unless the whole notion of an overlap area is illusory, a rate much below its due proportion [to women's productivity] must take effect, be it only spasmodically, to raise the ratio of women to men exployed [6, pp. 394-5].

Obviously, overlap areas do exist in Irish employment. But it has been shown [7, Table 3] that between 1961-66 the proportion female in individual sectors of the economy has been *declining* slightly; the evidence contained in our Appendix also shows that, in manufacturing industry, there is no tendency for the proportion female in an industry to be positively associated with the size of the male-female wage rate differential. Although indirect, this evidence does support the logic of the above quotation in arguing that existing differentials in male and female rates of pay for "equal work" may in fact reflect productivity differentials: otherwise overlap areas would be disappearing and the proportion of the labour force that is female would be rising as employers adjust their labour forces to take advantage of the better bargain offered by female labour.

If productivity differentials do exist between the sexes, from an economic viewpoint it would make more sense to acknowledge this and to advocate a subsidy to employers to compensate for this at the same time as equal pay is implemented. This subsidy could be justified, in the case of married women, as a partial recognition by the State of their contribution as mothers and housewives, in the case of single women as a social judgement that might find wide support (cf. para. 37). Such a policy is preferable to a simple equal pay policy in as much as it starts from a realistic analysis of the *status quo* and suggests remedies that would avoid undesirable side effects, such as the large-scale displacement of female by male labour.

Up to now, we have been discussing "equal pay for equal work". But the Commission recognized the limited scope of such a recommendation (due to the relative unimportance of genuine overlap areas) and advocated a broader policy, namely, "equal pay for work of equal value". In defining "work of equal value" the stress is placed on factors such as the "mental

effort, skill, physical effort, and responsibility" involved in a job (para. 99). The recommendation is that where these factors are equal, the jobs in question are of "equal value" and hence should be paid at the same rate. But the economic theory of wage determination stresses not merely these aspects of a job as determinants of a wage rate, but also

    (i) The demand conditions for the product being produced;

    (ii) The supply schedule of the type of workers in question;

    (iii) The technology of the industries in question (i.e. parameters of the production function).

Under some, perhaps all, of these headings it is possible to claim that there are significant differences between male and female workers even when they are performing work of "equal value" in the sense implied by the Commission.

The most obvious point of contrast between males and females is in regard to (ii) above. *As Irish society is presently structured* women tend to be a "secondary labour force". In the case of married women, they are generally the second wage-earner in a household, with a relatively small commitment to the labour force; in the case of single women, they are generally not the heads of households and their career is likely to be interrupted on marriage.[1] These points are discussed in paragraph 37 of the Report but the conclusion is drawn that employers should be forced to compensate for the tendency of market forces to reflect these supply conditions. As the commentary already quoted pointed out.

> it has been found that the supply price of other professors is lower than that of professors of medicine; and a growing demand for scientists in industry may make it necessary to pay science teachers more than their colleagues; the supply-price principle in the public service does not lead solely to differences between men and women . . . The claim for "equal pay" in the public service may be based on various principles, but hardly on the principle that each member shall be paid no less than any colleague whose supply price is higher [6, p. 396].

We feel that there is urgent need to alter the situation whereby women are a "secondary labour force", but we feel that a policy of equal pay will not do this, since it concentrates on symptoms and does not attack the disease!

In connection with point (i) it is possible to argue that women are concentrated in industries whose demand conditions are such as to depress (both male and female) wages, or at least to check the rate of growth of

---

1. This is not to ignore the existence of a minority who fall outside these categories (widows, for example, or married women with unemployed husbands), it merely asserts that the supply of female labour is dominated by women whose supply price is likely to be considerably lower than that of males. In 1966 married women *plus* single women aged under 30 constituted 62 per cent of the total female labour force (Census of Population data).

these wages. The high concentration of women in industries such as Clothing and Food (whose share in total expenditure falls as income rises) points in this direction, although detailed analysis is certainly required on this point. In addition, the vulnerability of some of these industries to competition from Asia is such that only a protectionist policy can ensure long-term survival. Thus, demand conditions may be unfavourable in some industries which are important sources of female employment, and this would tend to depress women's wage rates.[2]

Under point (iii) above, it is likely that the industries that have high concentrations of female workers are characterized by a technology that is both inherently more labour-intensive (regardless of factor price ratios) and also less subject to increases in total factor productivity over time than is the case in industries with low concentrations of females. If this is so, the cost of the output of these "female intensive" industries will steadily rise in relation to the cost of the output of the "male-intensive" industries (especially if, under an equal pay policy, wage rates in both sectors rise at the same pace). Then unless demand for the "female-intensive" goods is highly inelastic, the output of these sectors will decline or even vanish (cf. p. 11, below). It strikes us as very relevant to this argument that female workers in Europe and America are concentrated in those industries for which (where transport etc. conditions permit) Asian competition is extremely menacing.

It is expected on the basis of our arguments under these headings that women will be employed at lower than average wage rates, and hence with a lower than average quantity of co-operating factors of production. In the Appendix to this paper we have explored some tentative and indirect evidence on this subject. We found a significant, negative correlation between the amount of capital (viz. plant and work vehicles) per worker in an industry and the proportion of the industry's labour force that is female. Thus in industries such as Clothing over 70 per cent of the labour force is female but there is less than £200 capital per worker (1958 prices), contrasted with, for example, Brewing or Fertilisers, with at least £3,000 capital per worker and less than 20 per cent of the labour force female. This evidence relates to industries, not occupations, but in the Appendix we argue that even in the capital intensive industries women are concentrated in the non-capital intensive occupations. We believe that the statistical evidence supports the general impression that women in industrial employment are highly concentrated in occupations with below average capital intensity. This association may well extend to other sectors of the economy, for which no data are available. Now it is quite likely that occupations with low capital intensity require on average *higher* skill levels than those with high capital intensity (e.g. sewing compared with gauge-reading) but this obviously does not imply that they are worth as much to the employer. In economic jargon, what is at stake is the marginal revenue

---

2. Between 1961-66 there was in fact a notional decline of 2.6 thousand jobs in Irish industry due to the changing structure of the industrial sector [7, Table 3].

product, and this is expected to be low if supply and demand conditions are such, as was argued above, as to produce a low equilibrium wage rate. If in fact the value of what a person produces working in a low capital intensity occupation is lower than that of what a colleague (who may well be *less* skilled) produces in a high capital intensity occupation, then it is not discrimination on the part of the employer to pay the second worker more than the first: it is merely a reflection of the economic facts of life. It is easy to see how the concentration of women in occupations of low capital intensity could give rise to a pattern of wage differentials that may be mistaken for discrimination. However, we feel that the real target of many of the Report's recommendations is not sex-related wage discrimination, but rather the consequences of the occupational distribution of women workers, which in turn reflects the impact of points (i), (ii) and (iii) above. The Report states that "the question of equal pay is not concerned with removing the differences between men's and women's rates which are the result of different occupational distributions . . ." (para. 83). However, as the Commission has defined its broad concept of equal pay, we feel the nub of the issue is "Why are women paid less than men performing jobs of equal skill?" and part of the answer is no doubt "due to discrimination" but the evidence suggests that a major role is played by certain features of the supply and demand for women workers.

In this connection it is interesting to see that the Report emphasizes that its concern is "not with the question relating to the . . . removal of differences between rates in various industries, regions and occupations . . ." and it admits that such differences "in rates of pay of both men and women" exist "even though they are performing the same or similar jobs" (para. 81). Our argument in the preceeding paragraph was essentially that the same factors that account for these inter-regional or inter- industry differentials may play an important role in the male-female differential. We realize that the sex differential in wage rates is on average far greater than any other wage differentials (as is the male/female contrast in capital per worker greatly in excess of the contrast found between men at similar skill levels in different occupations or industries), but then the contrast between the sexes in supply and demand conditions is obviously greater than any that exists between regions or industries employing similar types of workers.

This analysis naturally requires us to expand a little on the factors to which we attribute the existing sex segregation of employment.

Some of the reasons are touched on (in another context) in Chapter 11 of the Report: the shorter average work life of women, their more important role outside the economy is short, the lower supply price of female workers. Another major reason, we believe, is the existence of a high *de facto* minimum wage for males: if one exists for women it is considerably lower. Consider, for example, that in September 1970 the modal wage for adult women in Irish industry was £10-11.99 per week, whilst at this time county council road workers were receiving at least £17 per week (an income attained by only 10 per cent of women workers): obviously if employers had to fill female jobs at wages high enough to

attract males into them, many of these jobs would cease to exist.[3] The much higher floor placed under male wages in its turn reflects the influences discussed under the question of the lower supply price of female labour. the high *de facto* minimum wage for males is sustained even in periods of high unemployment by union pressure and by the level of male unemployment benefits. At this point the arguments against the present social structure advanced in paragraph 37 are crucial, where it is stated that "women are being asked to subsidise, in a completely unfair way, what should be direct State payments to persons with dependents and . . . this burden should be spread evenly and fairly over the whole community without regard to sex." We broadly accept this argument but believe that what is called sex-related wage discrimination in the Report is to a very important degree merely a market place reflection of this social structure. Hence to use an "equal pay" policy is inappropriate in dealing with this problem, Minimum wage legislation might be far more relevant,[4] although it makes much more explicit the risk of serious displacement of female jobs. (We argue below this is implied anyway in the equal pay policy advocated by the Commission). There may even be an unconscious political motivation behind the choice of the equal pay argument, since it is much more likely to find public acceptance than an argument based on the ideas quoted above!

On a practical note, we are sceptical of the ease of achievement of the aims set out by the Report. Even the relatively restricted definition of "equal pay" adopted in Britain has encountered resistence. A recent survey of British experience since the passage of the Equal Pay Act claims that "while women have increased their percentage of male rates over the past three years. the difference in their take-home pay has widened by as much as £10 a week. The big catch occurs when women and men are pushed into different jobs" [3]. A survey of European (EEC) experience concluded "thus the Six seem to be moving towards stability based on a relative inferiority for women" [5]. Clearly the existence of equal pay legislation (and even its enforcement) does not guarantee the equality of treatment for women workers sought by the Commission, and the existence of such strong resistance to this goal on the part of employers suggests that there is more than economic discrimination involved in the present situation.

On the question of the impact of the wide definition of equal pay favoured by the Commission on the level of female employment, we are considerably less optimistic than Chapter 11 of the Report.

First, we are sceptical about the prospect of equal pay eventually leading to a lowering of resistance by male-dominated unions to female entry into

3. Only if one postulates abnormally high profits in female-type industries at present could the higher wages be paid without a substantial decline in employment: this point is discussed again towards the end of the paper.
4. It is interesting to note that under U.S. minimum wage laws women appear to have been among the most important beneficiaries [4, p. 510].

traditional male occupations (para. 125). It has been claimed in Britain that "equal pay is as unpopular on the male-dominated shop floor as it is in the male-dominated boardroom" [3]. Even in conditions of full employment, any union whose aim is to maximize existing members' income has an incentive to restrict the supply of new entrants to the trade, and equal pay does not alter this situation. From the men's viewpoint, any increase in labour supply will lead to a decline (or a slower rate of increase) in their wages unless the demand for the type of workers in question is infinitely elastic (a most improbable condition, but perhaps what is implied by the reference to labour shortages in paragraph 125: in fact, the origin of such shortages as exist probably lies in nearly vertical supply curves, due to barriers to entry, and not in horizontal demand curves). Male and female wages may be equalized, but at a level below the original male rate. It is precisely this fear that at present leads unions in skilled trades to resist any attempt to increase the flow of *male* recruits to the occupations. Only if an equal pay policy were to result in a major expansion of demand would these adverse effects be avoided, and it is not clear that such an expansion would result. Finally, the Report fails to consider the effect of equal pay in increasing the supply of males to traditionally all-female occupations. This type of repercussion is surely more plausible than the obverse (that is, females entering male preserves) especially in a country with high male unemployment.

Secondly, in discussing the prospect that equal pay will raise the skill level of the female labour force, two distinct possibilities are confused in paragraph 128: the first is the return to work of women with skills that are not now being used (or are being underutilized due to discrimination), the second is the acquisition of higher skills and training by all women in future. The first possibility is costless (at least in economic terms) but the second refers to increased investment in women's training etc., and is not costless (requiring either an increase in total investment or a change in the composition of investment). The more important potential source of increased supply of skilled labour is, in our opinion, the second.

Thirdly, there is a bias in favour of market activities in the Report which may be justified but is not made explicit. To claim, for example, that the State "does not secure an adequate social return on its investment" in women's education if they are discouraged from obtaining paid employment (para. 128) ignores the possibility that much of Irish women's education is geared to fitting them for home duties and the State certainly should count as part of the social return on these outlays the improved quality of child-care etc., in which they may result.

Fourthly, the most important criticism of Chapter 11 centres on the analysis of the impact of equal pay on the level of female employment (cf. para. 148). The basic steps involved in employers' adjustment to the increase in female labour's price relative to that of other factors of production are:

(1) An initial substitution effect: capital (and/or male labour) is substituted for female labour to the point where the increased productivity of the reduced female labour force reflects the new ratio of factor prices.

This effect would occur even if the level of output were to remain constant.[5]

(2) The increased price of one of the factors of production entails an upward shift in the marginal cost curve of the firms employing this factor, and hence a backward shift in their supply curves.[6] This implies a reduction in the quantity of the output that is sold, the magnitude of which depends on the demand conditions for this output (3).

(3) There are two possible substitutions in consumer demand consequent to a rise in product prices due to equal pay: the first consists in substituting identical imported goods for the domestic goods whose prices have risen. It is argued in paragraphs 141-146 of the Report that such substitution will not be great and this estimate is not contested here, although attention is drawn to the role of protectionism in arriving at this conclusion. The other substitution that is possible is a switch in the pattern of consumption (regardless of its import content) away from the products which have increased in relative price. This type of price elasticity does not seem to have been considered in Chapter 11, and yet in view of the concentration of the main impact of equal pay in a small range of industries and sectors, it may be very important. A central feature of modern economic growth has been the contraction in the market for certain very labour intensive products (e.g. stately houses, hand laundries, homespun tweeds) despite in many cases a high income elasticity of demand: the rise in relative prices has often led to a fall in the quantity demanded even *in* periods of rising real income.[7]

There may be ways of mitigating these unfavourable influences, such as reduced wastage of female labour (dismissed in para. 130 as "unlikely to be significant") or improvements in technology *induced by higher wage costs*. It is difficult to evaluate the importance of the latter, or to say whether they would offset the reduction in demand for female labour attributable to the factors mentioned above.

(4) There are likely to be supply effects as a result of equal pay. It is argued in paragraph 124-128 that these effects will on balance improve the occupational distribution of female labour. Some other likely effects should be taken into account. If we very simply assume that the female labour market is presently in equilibrium and the enactment of an equal pay law works to impose a floor to women's wage rates (based on existing male wage rates), then the supply of females available for work at the new rate is likely to exceed the demand at that wage, with a consequent rise in unemployment (much of it perhaps outside the population eligible for

---

5. The only qualification to this statement derives from the possibility of a rigid technology allowing no substitution between the factors of production, which is very unlikely in this case since male labour must be counted among the other factors of production. If this occurred the impact of (2) above would be all the greater.

6. The possibility that the increased cost could be absorbed from lower profit margins need not be entertained, since the sectors of the economy in which most female workers are employed are not characterized by monopolistic or oligopolistic market structures.

7. This aspect of economic growth is discussed in detail in [1]. The economic theory of the effects of an increase in a factor price is discussed for example, in [2, Chapters 6 and 7].

benefits). If in addition the equal pay law results in major changes in attitudes or is accompanied by improvements in child-care facilities etc. (as envisioned in para. 126 of the Report) the whole supply schedule for female labour might shift outwards, thus adding to the magnitude of the unemployment problem. These points are illustrated by Figure 1: the wm is the new "minimum wage" for women, based on the lowest male rate, the distance a-b is unemployment created by this even if the supply curve does not shift, the distance a-c is the unemployment that would occur if the supply curve shifted outward as a result of an equal pay policy being vigorously supported by various encouragements to women to enter the labour force.[8]
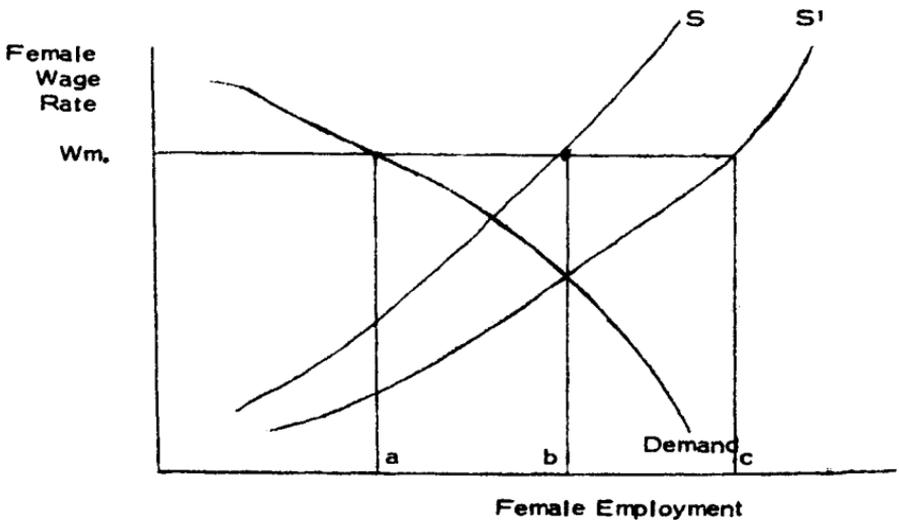
Figure 1

Such unemployment created as a consequence of equal pay could only be avoided if the demand curve is spontaneously shifting to the right while the new policy is being introduced. This implies that it would be very hard to enforce an equal pay policy in periods when the economy (and female-type industries in particular) is not expanding vigorously. In such circumstances however the equal pay policy is not required to produce the desired effect.

8. It should be mentioned that if employers are highly organized, and female workers are very poorly organized, it is possible to construct a model which shows a *rise* in employment as a result of the imposition of a minimum wage.

CONCLUSION

We have found the Report a very stimulating document and are largely in agreement with its viewpoint. We have, however, several reservations concerning the cogency of the economic analysis contained in the Report. In fact we believe that the analytical problems involved are very complex and have not been fully explored in the present paper. Nevertheless we hope we have clarified some of the points at issue.

We are not convinced that unequal pay as it exists in Ireland today is simply, or even largely, a matter of discrimination by employers against women workers. The problem goes deeper than that, into the position of women in society and their role as a secondary labour force. Given existing arrangements, women probably *are* less productive in some occupations than their male colleagues; but more importantly, the present pattern of occupation segregation by sex tends to assign women to jobs that are frequently very demanding in terms of skills etc. but relatively unproductive due to the small amounts of capital equipment in use. The possibility that many of these occupations would contract greatly in importance or even disappear altogether if they had to be filled by workers earning even the lowest male rates must be acknowledged. If this change in emphasis is accepted, it shifts the discussion away from the technicalities of an equal pay policy and towards the more basic aspects of the general division of labour and roles between men and women in society. The apparent failure of equal pay policies of themselves to achieve dramatic improvements in the position of women in other countries points to the need to raise these issues explicitly. We have no doubt that the Commission is already deeply involved in these topics, and we look forward to reading the final report.

APPENDIX

Table 1 displays data on the following variables for Irish manufacturing industries in 1968/9: capital stock per worker, male and female adult wage rates, their ratio, and the proportion of the labour force that is female. These data are of interest in themselves, but we wish to explore some interrelationships between them in order to support some of the arguments that have been advanced in the main part of this paper.

Table 2 shows the simple correlation coefficients between the variables of Table 1. It may be seen that there is a significant, negative correlation between capital stock per worker and proportion of the labour force that is female. This relationship is displayed in more detail in the following regression: (t—ratio in parentheses),

$$(1) \log X_1 = 1.38 - 0.565 \log X_2 \quad \bar{R}^2 = 0.26$$
$$(4.05) \qquad F\,(1.43) = 16.4$$

(This equation is based on the full sample of industries, plus laundries)

$$(2) \log X_1 = 1.38 - 0.557 \log X_2 \quad \bar{R}^2 = 0.26$$
$$(3.99) \qquad F\,(1.42) = 15.9$$

(This equation is based on the sample of industries only). The regression line suggests that every one per cent rise in the capital stock per worker is accompanied by on average a one half of one per cent fall in the proportion of the labour force that is female.

It is also evident from Table 2 that the association between the male wage rate and capital per worker is closer than that between the female wage rate and capital per worker: the correlation between the female wage rate and the capital/labour ratio is not significant at the 90 per cent confidence level, whereas that between the male wage rate and the capital/labour ratio is significant at 98 per cent level. Although many other factors are obviously at work, it seems that interindustry variations in male wage rates are associated with the varying capital intensities of the industries, whereas this is not the case with female wage rates. This evidence is consistent with the hypothesis that females working in capital intensive industries are not on average in occupations with a higher capital intensity than those working in less capital intensive.

Further support for this viewpoint is provided by the much smaller dispersion in female wage rates between industries, as compared with males: the standard deviation of the female wage rate is 2.5p, compared with 6.0p for males. When these are divided by their respective means the resultant coefficients of variation are 10.1 per cent for females, 13.4 per cent for males.

It might be hypothesized that the female/male wage differential acts as an incentive to employers to increase the proportion of females in their labour force: in fact, to the extent that such unequal pay is not merely the reflection of productivity differentials (whether caused by lower capital/labour ratios or by other factors) it must create an incentive for employers to replace males with females, as was argued by Phelps Brown in the quotation cited in the text above. From Table 2 it is evident that there is a

significant *positive* correlation between the female/male wage rate ratio X_5 and the proportion of the labour force that is female X_1. The sign of this correlation coefficient is not in accordance with expectations, since higher female/male wage rates ratios should lead, other things being equal, to lower proportions of females in the labour force. In order to explore this relationship in more detail, the following multiple regression was estimated:

$$(3) \quad \log X_1 = 1.92 - 0.44 \log X_2 + 1.90 \log X_5 \quad \bar{R}^2 = 0.32$$
$$(3.50) \qquad (1.81)$$

The significance of the capital/labour ratio remains unaltered, while that of the wage rate ratio is reduced (to below the 5 per cent level), although its sign remains positive. This suggests that the capital/labour ratio is a far more important determinant of the proportion female in an industry than the wage rate differential whose influence is not only uncertain but also contrary to expectation in its direction. The resolution of this finding regarding the wage rate differential may lie in the negative (although low) correlation between the capital/labour ratio and the female/male wage differential ($r = -0.25$)*. It is at least clear that the data offer no support to the view that the proportion of the labour force that is female responds to the female/male wage differential in such a manner as to suggest that this wage differential exceeds the differential in productivities between the male and female labour force. And this productivity differential seems, on average, to be related to the quantity of capital per worker, which on the whole is lower for females than their male counterparts, either in other industries or in the same industry.

REFERENCES

[1] Baumol, W. J. "Macroeconomics of Unbalanced Growth", *American Economic Review*, June 1967, 415-426.

[2] Ferguson, C. E. *Microeconomic Theory*. Homewood, Illinois: Richard D. Irwin, Inc., Revised Edition, 1969.

[3] Hanna, Vincent, "Equal Pay: Industrial Apartheid as Firms Evade the Act", *The Sunday Times*, 21 Nov. 1972, p. 65.

[4] Lester, Richard A., *The Economics of Labour*, New York: The Macmillan Company, 2nd ed. 1964.

[5] Lyon, Margot, "Womanpower Wasted", *European Community*, no. 10, Oct. 1971, pp. 22-23.

[6] Phelps Brown, E. H. "Equal Pay for Equal Work", *The Economic Journal*. Sept. 1949, pp. 384-398.

[7] Walsh, B. M. "Aspects of Labour Supply and Demand, with Special Reference to the Employment of Women in Ireland", read before the

*It should also be noted that the female/male wage differential is very much more closely correlated with the male wage rate than with the female ($r = -.64$ and $+0.18$ respectively).

TABLE 1

Industry (Census of Industrial Production)	Females % Total Labour Force* X_1	Capital Stock £000s** 1958 prices per person engaged X_2	Industrial Workers Average Hourly Earnings Adult Rates: Sept. 1969		
			Male X_3	Female X_4	Ratio F/M X_5
			p	p	
5. Bacon	27·1	·789	39·6	22·3	·56
6. Slaughtering	19·5	·757	44·6	23·8	·53
7. Creameries	15·0	2·514	36·4	24·1	·66
8. Canning: Vegs	52·8	1·059	40·4	23·1	·57
9. Flour and Milling /Other Animal Feed	12·4	1·758	39·5	22·4	·57
10. Bread, Biscuits and flour Confect.	33·9	·884	43·7	28·0	·64
11. Sugar, Manuf. and Refining	10·6	2.677	46·8	25·4	·54
12. Sugar/confect.	62·9	1·313	50·3	27·1	·54
13. Margarine	42·5	1·220	43·1	23·1	·54
14. Miscellaneous Food including Fish	44·9	1·297	37·6	25·1	·67
15. Distilling	16·8	1·185	43·5	—	—
16. Malting	4·5	1·499	42·9	—	—
17. Brewing	15·8	3·000	59·5	31·5	·53
18. Mineral Waters	15·5	1·112	40·1	20·9	·52
19. Tobacco	53·5	1·202	55·3	31·0	·56
20. Woollen and Worsted	46·6	·946	38·5	23·7	·62
21. Linen, Cotton	33·3	1·465	42·1	24·2	·57
22. Jute, Canvas and Misc. Tex. M.	36·6	1·322	42·9	25·3	·59
23. Hosiery	67·2	1·027	48·1	23·3	·48
24. Boots	56·3	·334	44·5	26·6	·60
25. Men's Clothing	76·4	·135	43·5	25·1	·58
26. Shirt Making	87·7	·132	38·7	23·3	·60
27. Women's Clothing	82·0	·133	40·2	24·2	·60
28. Misc. Clothing	75·6	·145	40·5	22·5	·56
29. Made up Textiles	77·1	·678	42·3	23·2	·55
30. Wood and Cork	8·1	·810	37·3	19·5	·52
31. Furniture, Brushes and Brooms	18·7	·326	40·2	25·8	·64
32. Paper	40·2	1·592	48·8	25·5	·52
33. Printing	29·9	·872	56·3	27·0	·48
34. Tanning	10·8	1·107	40·8	22·0	·54
35. Leather Goods/ Leather Substitutes	59·1	·296	41·2	23·1	·56
36. Fertilisers	9·0	5·751	56·5	24·4	·43
37. Oils, Paints	25·3	1·106	42·0	21·9	·52
38. Chemicals, Drugs	51·7	1·100	44·2	23·4	·53
39. Soap	48·8	1·081	50·0	29·1	·58
40. Glass, Pottery	26·0	·816	48·4	25·2	·52
41 & 42 Structural Clay and Cement	6·6	3·009	45·4	25·9	·57

Table 1 (continued)

Industry (Census of Industrial Production)	Females % Total Labour Force X_1	Capital Stock £000s** 1958 prices per person engaged X_2	Industrial Workers Average Hourly Earnings Adult Rates: Sept. 1969		
			Male X_3	Female X_4	Ratio F/M X_5
43. Metal Trades	14·5	1·224	46·0	22·6	·49
44. Machinery except Electrical	11·5	1·025	43·0	21·4	·50
45. Electrical Machinery	47·1	·657	45·1	24·7	·55
46. Land and Road Vehicles/Assembly	5·0	·611	50·9	25·3	·50
47. Other Vehicles	13·1	·750	59·0	24·3	·41
48. Ship and Boat Building	2·9	1·125	51·7	—	—
49. Laundries	65·5	·673	—	—	—

*Excluding outside piece works. Mid October (1968).
**Capital Stock is work vehicles plus plant (excluding rented assets), 1968.
   SOURCE: X_1 Census of Industrial Production, *Irish Statistical Bulletin* December 1969, March, June, September and December 1970.
   X_2 E. W. Henry and S. Scott, Estimated Levels of Capital Stock in Irish Industry 1953-1968. Unpublished ESRI Memorandum December 1971.
   X_3, X_4, X_5 Irish Statistical Bulletin March 1971, Table 6.

TABLE 2
SIMPLE CORRELATION COEFFICIENTS BETWEEN THE VARIABLES OF TABLE 1 (40 INDUSTRIES FOR WHICH ALL DATA AVAILABLE)

A. Original Data

	(% Female) X_1	(Capital/ Labour) X_2	(Male Wage Rate) X_3	(Female Wage Rate) X_4	
X_2	—0·49**				
X_3	—0·19	0·37*			
X_4	0·09	0·19	0·63**		(Female/Male Wage
X_5	0·32*	—0·25	—0·64**	0·18	Ratio)

B. Logarithms

	X_1	X_2	X_3	X_4
X_2	—0·54**			
X_3	—0·16	0·32*		
X_4	0·17	0·16	0·63**	
X_5	0·37*	—0·26	—0·65**	0·18

* =Significant at the 95% cofidence level (two-tailed test).
** =Significant at the 99% confidence level (two-tailed test).