

**A PROFILE OF THE DEMOGRAPHIC AND LABOUR FORCE
CHARACTERISTICS OF THE POPULATION: SAMPLE ANALYSIS OF THE
1981 CENSUS OF POPULATION**

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INTRODUCTION

A detailed Census of Population was taken on 5th April, 1981. This continued a long tradition in Ireland of taking a Census in years ending "1", extending back to 1821 and broken only in the 1921 to 1941 period. While maintaining a tradition, the 1981 Census nevertheless sets its own milestones. The household schedule was redesigned in the form of a booklet, as opposed to the single large page used at previous Censuses. Very extensive use was made of a tick (/) box style of answering. Three new questions were included for the first time on a Census, viz. Present (Economic) Status; Address of Place of Work; and Household Heating. And finally, it was decided to analyse a sample of Census returns in respect of some of the Census topics. This paper concerns itself with a discussion of this sample analysis, considering aspects of the methodology as well as some of the more interesting results¹ and their implications.

Under a Council Regulation, an EEC Community Wide Labour Force Survey was due to have been carried out in the Spring of 1981. Having taken both a Census of Population of limited content and a Labour Force Survey in 1979, the processing of which were still continuing, it was assessed that an attempt to carry out a Labour Force Survey in conjunction with the 1981 Census would have over-extended CSO resources. The project of the sample analysis began as an alternative to carrying out the 1981 Labour Force Survey and, because of the extended publication schedule associated with the Census, the project was developed to provide a range of Census estimates which would otherwise have been unavailable for some time.

The paper is in three parts. Part I discusses the methodology of sample selection and grossing. Part II considers the demographic characteristics of the population as revealed by the sample analysis and Part III considers some labour force aggregates.

PART I

SAMPLE SELECTION AND GROSSING

If the present experiment proves to be successful, it may well be that a sample analysis of Census returns, perhaps for most Census topics, might come to be regarded as an integral part of Census processing in the future. Indeed in some countries those

¹Some results have recently been published in "Census of Population 1981; Five per cent Sample Estimates; Age, Marital Status and Labour Force" (Pl. 1446). A further publication, due in a few months, will relate to characteristics of households and dwellings.

topics, which are expensive to code, are processed only on a sample basis. As a starting point, it is useful therefore to consider and assess in some detail the methodology of sample selection and grossing employed on this occasion.

Sample Selection

On completion of their Census duties, Enumerators were required, in accordance with strict instructions laid down by the CSO, to select from collected returns a systematic five per cent sample, with a random start, of the private households in each Enumeration Area (EA). They were required to duplicate the information given for each member of the household for selected Census topics, those relating to age, sex, marital status, usual residence and labour force. Furthermore, all non-private households were included in the sample, but only a proportion of persons in such households were included depending on the total number of persons in the non-private household: the proportion ranged from one in twenty for non-private households with 500 or more persons, to complete coverage for non-private households with 16 or fewer persons. The sample, therefore, had a very good spatial spread, selected as it was from each of 3,185 EA's throughout the country and covering some 45,000 private households. It would be out of the question, on grounds of expense, to attempt to replicate this type of sample in a survey such as the Labour Force Survey.

Initial Grossing Methodology

The original intention was to gross the sample returns on an Enumeration Area basis but, because of the results obtained when this procedure was followed, it was decided to improve on it. For the record, however, I will describe the flaws observed in the original results.

The data for each private household were originally grossed up on an Enumeration Area basis using the ratio of the total number selected for inclusion in the sample. Each non-private household was separately grossed on the basis of the ratio of the number of persons in the household to the number selected for inclusion in the sample.

Population estimates by County based on this original grossing system are shown in Table 1. Also shown are the differences between the sample estimates and the final Census results expressed as percentage of the Census count, a plus (minus) sign indicating that the sample estimate was higher (lower) than the actual Census figures based on a complete count.

The range of the differences between the initial population estimates by County and the final Census results were as follows:—

Male: + 4.7 per cent in Waterford Co. Borough to - 6.7 per cent in Leitrim.

Females: + 5.9 per cent in Sligo Co. Borough to -4.4 per cent in Kilkenny.

Persons: + 3.8 per cent in Sligo Co. Borough to - 3.5 per cent in Carlow.

When this scale of error margin is observed to apply to the largest aggregate (i.e. total population) within a County in such a well based sample, it gives a clear warning as to the inherent dangers involved in placing too much reliance on analysis at the level of the County in surveys such as the Labour Force Survey. At the level of the Planning Region the position is improved considerably.

The sample analysis overestimated the number of males for all Regions, the largest discrepancy being 1.5 per cent for the South West. For females the discrepancy ranged from -0.8 per cent in the West to +1.9 per cent in North West Donegal.

TABLE 1 : SAMPLE ANALYSIS - INITIAL POPULATION ESTIMATES

| County | Sample Population Estimates | | | (Sample less Census) as % of Census count | | |
|-----------------------|-----------------------------|------------------|------------------|---|--------------|--------------|
| | Males | Females | Total | Males | Females | Total |
| Carlow | 19,251 | 19,160 | 38,411 | - 4.7 | - 2.4 | - 3.5 |
| Dublin Co. Borough | 254,573 | 281,871 | 536,444 | + 2.6 | + 1.4 | + 2.0 |
| Dun Laoghaire | 24,777 | 30,461 | 55,238 | - 0.1 | + 2.6 | + 1.4 |
| Dublin (Rest) | 209,505 | 214,695 | 424,200 | - 0.0 | + 0.7 | + 0.3 |
| Kildare | 54,133 | 49,996 | 104,129 | + 0.3 | - 0.3 | + 0.0 |
| Kilkenny | 36,678 | 32,901 | 69,579 | + 0.8 | - 4.4 | - 1.7 |
| Laoighis | 26,853 | 24,298 | 51,151 | + 0.3 | - 0.4 | - 0.0 |
| Longford | 16,570 | 14,942 | 31,512 | + 2.1 | + 0.2 | + 1.2 |
| Louth | 43,659 | 46,058 | 89,717 | - 1.1 | + 3.8 | + 1.4 |
| Meath | 48,803 | 45,615 | 94,418 | - 0.3 | - 1.8 | - 1.1 |
| Offaly | 30,792 | 28,663 | 59,455 | + 1.7 | + 2.3 | + 2.0 |
| Westmeath | 32,074 | 31,054 | 63,128 | + 2.2 | + 3.0 | + 2.6 |
| Wexford | 50,331 | 50,288 | 100,619 | - 0.0 | + 3.2 | + 1.6 |
| Wicklow | 44,056 | 43,148 | 87,204 | + 0.9 | - 1.5 | - 0.3 |
| Clare | 45,620 | 42,153 | 87,773 | + 0.6 | - 0.1 | + 0.2 |
| Cork Co. Borough | 66,928 | 68,348 | 135,276 | + 1.1 | - 2.6 | - 0.8 |
| Cork (Rest) | 137,964 | 132,595 | 270,559 | + 1.3 | + 2.1 | + 1.7 |
| Kerry | 64,845 | 58,401 | 123,246 | + 2.1 | - 1.5 | + 0.4 |
| Limerick Co. Borough | 30,309 | 31,619 | 61,928 | + 2.0 | + 2.0 | + 2.0 |
| Limerick (Rest) | 52,442 | 49,161 | 101,603 | + 1.1 | + 0.2 | + 0.7 |
| Tipperary N.R. | 30,418 | 28,812 | 59,230 | + 0.6 | + 0.3 | + 0.4 |
| Tipperary S.R. | 40,585 | 37,628 | 78,213 | + 3.4 | + 1.6 | + 2.5 |
| Waterford Co. Borough | 19,632 | 19,869 | 39,501 | + 4.7 | + 0.7 | + 2.7 |
| Waterford (Rest) | 25,695 | 24,621 | 50,316 | - 0.3 | + 1.1 | + 0.4 |
| Galway | 89,069 | 81,972 | 171,041 | + 0.8 | - 2.1 | - 0.6 |
| Leitrim | 13,717 | 13,250 | 26,967 | - 6.7 | + 2.6 | - 2.3 |
| Mayo | 58,721 | 56,410 | 115,131 | - 0.5 | + 1.1 | + 0.3 |
| Roscommon | 28,638 | 26,362 | 55,000 | - 0.1 | + 1.8 | + 0.8 |
| Sligo | 28,643 | 28,913 | 57,556 | + 1.6 | + 5.9 | + 3.8 |
| Cavan | 29,458 | 25,425 | 54,883 | + 4.0 | - 0.4 | + 1.9 |
| Donegal | 65,240 | 61,132 | 126,372 | + 2.0 | - 0.0 | + 1.0 |
| Monaghan | 27,347 | 24,552 | 51,899 | + 2.5 | + 0.2 | + 1.4 |
| Total | 1,747,326 | 1,724,373 | 3,471,699 | + 1.0 | + 0.6 | + 0.8 |

TABLE 2 : SAMPLE ANALYSIS - INITIAL REGIONAL POPULATION ESTIMATES

| Region | Sample Population Estimates | | | (Sample less Census) as % of Census count | | |
|------------------|-----------------------------|---------|-----------|---|---------|-------|
| | Males | Females | Total | Males | Females | Total |
| East | 635,848 | 665,785 | 1,301,633 | + 1.1 | + 0.7 | + 0.9 |
| South West | 269,736 | 259,344 | 529,080 | + 1.5 | - 0.0 | + 0.7 |
| South East | 192,173 | 184,469 | 376,642 | + 0.8 | + 0.3 | + 0.6 |
| North East | 100,463 | 96,035 | 196,498 | + 1.3 | + 1.7 | + 1.5 |
| Mid West | 158,789 | 151,744 | 310,533 | + 1.0 | + 0.5 | + 0.8 |
| Midlands | 134,927 | 125,319 | 260,246 | + 1.2 | + 1.6 | + 1.4 |
| West | 147,790 | 138,382 | 286,172 | + 0.3 | - 0.8 | - 0.2 |
| N.West - Donegal | 107,600 | 103,295 | 210,895 | + 0.7 | + 1.9 | + 1.3 |

At first glance, the initial estimate for the population of the State as a whole of 3,471,699, which exceeds the final Census count by 28,294 or "only" 0.8 per cent, might seem reasonable on the basis of a 1 in 20 sample. However, when it is realised that such an apparently small percentage error will affect an estimate of the labour force by over 10,000 persons, the conception of the magnitude of the error changes rapidly. Standard Errors were calculated for the County population estimates (total persons) and these are shown in Table 4. One would expect that the set of differences between the sample County population estimates and the full Census expressed a multiples of the standard error for the County population estimate, should be distributed according to a Normal (0, 1) distribution. As can be seen, however, there is an obvious positive bias in the

TABLE 3 : OBSERVED AND EXPECTED DISTRIBUTION OF COUNTY S.E. MULTIPLES

| Type of Distribution | No. of Values in the Range | | | | Total |
|--------------------------------|----------------------------|---------------|-------------|-------------------|-------|
| | Less than - 0.68 | - 0.68 to 0.0 | 0.0 to 0.68 | Greater than 0.68 | |
| Expected from Normal (0,1) | 8 | 8 | 8 | 8 | 32 |
| Observed County S.E. Multiples | 4 | 4 | 13 | 11 | 32 |

multiples, which results in an unacceptable total population estimate for the State as a whole. In Table 3 I have compared the expected distribution of the set of County S.E. multiples.

A chi-squared test would reject with 95 per cent confidence the hypothesis that the County S.E. multiples are from a Normal (0, 1) distribution. (The values are in fact reasonably close to what one might expect from a Normal (0.4, 1) distribution.)

This was rather puzzling since there appeared to be no inherent bias in the sample selection procedure which would favour the selection of larger than average households. A number of selected samples within Enumeration Area were then examined in detail and it was discovered that there was present, in some cases, a tendency to select households for inclusion in the sample on the basis of a count of Schedules rather than by a true count of households. Since such a Schedule covered up to 8 persons only, this, of course, introduced a bias in favour of households with 2 or more schedules i.e. larger households with 9 or more persons.

TABLE 4.: ESTIMATED STANDARD ERRORS FOR COUNTY POPULATION ESTIMATES

| County | No. Households in Sample | Est. Standard Error (S.E.) | Sample less Census (Persons) | Sample less Census Multiples of S.E. |
|-----------------------|--------------------------|----------------------------|------------------------------|--------------------------------------|
| Carlow | 501 | 1,003 | - 1,409 | - 1.405 |
| Dublin Co. Borough | 7,557 | 3,694 | 10,562 | 2.859 |
| Dun Laoghaire | 805 | 1,114 | 742 | 0.667 |
| Dublin (Rest) | 5,176 | 2,730 | 1,414 | 0.518 |
| Kildare | 1,311 | 1,506 | 7 | 0.005 |
| Kilkenny | 910 | 1,318 | - 1,227 | - 0.930 |
| Laoighis | 649 | 1,115 | - 20 | - 0.018 |
| Longford | 441 | 905 | 372 | 0.411 |
| Louth | 1,148 | 1,431 | 1,203 | 0.841 |
| Meath | 1,212 | 1,466 | - 1,001 | - 0.683 |
| Offaly | 740 | 1,226 | 1,143 | 0.932 |
| Westmeath | 803 | 1,202 | 1,605 | 1.336 |
| Wexford | 1,271 | 1,553 | 1,538 | 0.990 |
| Wicklow | 1,168 | 1,391 | - 245 | - 0.176 |
| Clare | 1,178 | 1,400 | 206 | 0.147 |
| Cork Co. Borough | 1,790 | 1,753 | - 1,068 | - 0.610 |
| Cork (Rest) | 3,514 | 2,493 | 4,438 | 1.780 |
| Kerry | 1,654 | 1,782 | 476 | 0.267 |
| Limerick Co. Borough | 760 | 1,196 | 1,192 | 0.997 |
| Limerick (Rest) | 1,315 | 1,569 | 678 | 0.431 |
| Tipperary N.R. | 777 | 1,230 | 246 | 0.199 |
| Tipperary S.R. | 1,006 | 1,399 | 1,936 | 1.384 |
| Waterford Co. Borough | 485 | 948 | 1,028 | 1.085 |
| Waterford (Rest) | 668 | 1,124 | 198 | 0.177 |
| Galway | 2,167 | 2,071 | - 977 | - 0.472 |
| Leitrim | 424 | 869 | - 642 | - 0.739 |
| Mayo | 1,557 | 1,795 | 365 | 0.203 |
| Roscommon | 775 | 1,206 | 457 | 0.379 |
| Sligo | 765 | 1,176 | 2,082 | 1.770 |
| Cavan | 758 | 1,250 | 1,028 | 0.822 |
| Donegal | 1,685 | 1,902 | 1,260 | 0.662 |
| Monaghan | 692 | 1,159 | 707 | 0.609 |
| State | 45,662 | 9,117 | 28,294 | 3.103 |

Final Grossing Methodology

Since labour force, age and other characteristics are likely to vary considerably according to household size, it was decided to reweight the sample. This was done at the level of the County/Co. Borough by compiling a set of raising factors derived from a comparison between the distribution of households by size (no. of persons) in the sample for the County and the corresponding household size distribution based on Census data which still required some editing. In a few instances a final factor was imposed on the weights to ensure good agreement between the sample population estimate and the known Census count. Of course, apart from the estimate of total population, the profile by age, sex and other characteristics is that of the sample and subject therefore to sampling variability.

In the event of a similar sample analysis for a future Census there would be a greater awareness of the possibility of Enumerators unconsciously thwarting the sampling plan. Similarly a distribution of households by size would be compiled at an early stage of the processing in order to permit more accurate grossing procedures to be employed.

When one considers the scale of the sampling errors in the population estimates based on such an apparently representative sample and its consequential effects on labour force aggregates and recalling the difficulties previously encountered by the CSO in grossing the sample returns to the 1975 and 1977 Labour Force Surveys, it is increasingly evident that it is necessary to have available independent well-based population estimates with which to constrain the results of future sample Labour Force Surveys. It is also desirable to have the regular benchmark controls which would be yielded by the return to a five-yearly Census of Population cycle.

Since I have described in some detail the difficulties encountered in attempting to use the original grossing scheme and the levels of error, which would have applied, had we adhered to that scheme I want to finish this section of the paper by making it quite clear that the corrective action taken is considered to have given satisfactory results. I will now go on to consider some aspects of the results for individuals in greater detail than has already been published.

PART II

DEMOGRAPHIC CHARACTERISTICS OF THE POPULATION

Age Group

As mentioned previously, the sample population estimates were constrained to agree with the Census count at the overall level, but disaggregations by sex, age-group and other characteristics continue to reflect the sample profile. Table 5 shows the percentage distribution of the population by age-group for some recent Census years in the case of Ireland and for the most recent year available to me in the case of some other European countries.

The sample analysis indicates that in 1981 just under 41 per cent of the population belonged to the "Dependent" age groups, i.e. were either under 15 years or over 65 years of age. The proportion in these age groups, which was fairly static between 1961 and 1971, declined by 1 per cent in the eight years between 1971 and 1979 and the rate of decline has increased in the two years between 1979 and 1981. The numbers of married females in the main child-bearing age groups (15-44 years) increased from 274,000 in 1971 to an estimated 384,000 in 1981, an increase of some 40 per cent compared with an estimated 30 per cent increase for all females aged 15-44 years. Nevertheless, when allowance is made for declining fertility, (the total period fertility rate which was 3.98 in 1971 had declined by 19 per cent to 3.23 by 1979, while a similar

TABLE 5 : PERCENTAGE DISTRIBUTION OF THE POPULATION OF IRELAND AND SOME OTHER EUROPEAN COUNTRIES BY AGE-GROUP

| Country/Year | Age Group | | | | | "Dependent" Groups (0-14) and 65 + | |
|---------------|-----------|-------|-------|-------|-----------|--|------|
| | 0-14 | 15-24 | 25-44 | 45-64 | 65 & over | | |
| Ireland | 1961 | 31.1 | 13.9 | 22.5 | 21.3 | 11.2 | 42.3 |
| | 1971 | 31.3 | 16.2 | 21.0 | 20.4 | 11.1 | 42.3 |
| | 1979 | 30.6 | 17.3 | 23.7 | 17.7 | 10.7 | 41.3 |
| (Sample) | 1981 | 30.1 | 17.7 | 24.4 | 17.1 | 10.7 | 40.8 |
| Austria | 1981 | 20.0 | 16.6 | 27.0 | 21.1 | 15.2 | 35.3 |
| Belgium | 1980 | 20.3 | 16.1 | 26.7 | 22.6 | 14.3 | 34.6 |
| Denmark | 1981 | 20.6 | 15.1 | 28.6 | 21.3 | 14.5 | 35.1 |
| France | 1981 | 22.2 | 15.8 | 27.1 | 21.0 | 13.9 | 36.0 |
| Germany (FRG) | 1981 | 17.8 | 16.3 | 28.3 | 22.1 | 15.5 | 33.3 |
| Greece | 1980 | 22.8 | 14.8 | 26.2 | 23.1 | 13.2 | 36.0 |
| Italy | 1981 | 21.7 | 15.4 | 26.9 | 22.5 | 13.5 | 35.3 |
| Luxembourg | 1980 | 19.0 | 15.8 | 28.9 | 22.8 | 13.5 | 32.5 |
| Netherlands | 1981 | 22.1 | 17.4 | 29.1 | 19.8 | 11.6 | 33.6 |
| Norway | 1981 | 21.9 | 15.3 | 26.6 | 21.3 | 15.0 | 36.8 |
| Portugal | 1981 | 26.1 | 17.6 | 25.4 | 20.5 | 10.4 | 36.5 |
| Spain | 1982 | 25.4 | 16.6 | 25.0 | 22.0 | 11.0 | 36.4 |
| Sweden | 1982 | 19.1 | 13.7 | 28.4 | 22.3 | 16.6 | 35.6 |
| Switzerland | 1980 | 19.8 | 15.5 | 29.2 | 21.6 | 13.8 | 33.6 |
| Turkey | 1981 | 37.5 | 21.2 | 23.6 | 13.2 | 4.5 | 42.0 |
| U.K. | 1980 | 21.1 | 15.7 | 26.0 | 22.3 | 14.9 | 36.0 |

Source: Council of Europe - Country Reports 1982 Edition : EUROSTAT - Demographic Statistics 1980.

calculation confined to married females and legitimate births would show a 23.4 per cent decline) it is expected that over the next few years the number of births will be all but counterbalanced by the number of persons attaining 15 years of age, with the result that the proportion of the population accounted for by the 0-14 age group should continue to decline steadily (assuming no serious migration effect on the age structure of the population) with a consequential reduction in the overall relative size of the Dependent age groups.

With the exception of Turkey the age structure of Ireland's population is rather unique in the context of the other countries shown in Table 5. Considered purely in terms of the ratio of persons aged 15-64 years to the number in the Dependent groups, the relative narrowness of the potential tax base in Ireland, where the ratio is under 1.5 to 1, as compared to the other countries where the ratio is in many cases about 2 to 1, is highlighted. In the coming years the base will expand for Ireland but any advantages

which might be expected to accrue from this changing structure will more than likely be negated by employment constraints.

The sample analysis indicates that the proportion of the population under 25 years of age continued to be almost 48 per cent, the decline in the 0-14 age group being offset by the increase in the 15-24 age group. This contrasts with a figure of 59 per cent for Turkey (where the fertility rate is high and life expectancy for both males and females is about 9 years below Irish level); 42-44 per cent for Spain and Portugal; and about 36/37 per cent on average for the other countries. Since about 30 per cent of our population is under 15 years of age compared with an average of about 20 per cent for most of the other countries and since, with the exception of Norway and Sweden, our population density is the lowest of the other countries, it is evident that the provision of educational facilities imposes a greater relative strain here than elsewhere.

The Sex Ratio

At each Irish Census, between 1841 and 1901, there was an excess of females in the population, the largest relative excess being in 1851 when there were 1,049 females for every 1,000 males. At the 1911 Census and at each Census since then, the position has been reversed, however, and the 1936 Census showed the lowest number of females (952) per 1,000 males. Since 1961 the ratio has remained at a fairly constant level between 989 and 991. However, the number of females per 1,000 males has varied considerably between the different age groups and this is illustrated in Table 6 for certain Census years. In this table I have applied the sample age profile to the known Census count of males and females for 1981. The table also contains similar information for the countries referred to previously in Table 5.

The ratios of females to males in the 0-14 year and 15-29 year age groups have hardly changed at all over the past 20 years. The sharp decline in the ratio for the 30-44 year age group, which had been taking place between 1961 and 1979, has been arrested, increasing from 949 in 1979 to 965 in 1981. For the 45-64 year age group the ratio has declined almost to its 1971 level. By virtue of having a greater life expectancy, larger numbers of females survive into the older age groups. The female excess in the 65 year and over age group has risen steadily since 1946 when there were 1,020 females per 1,000 males to an estimated 1981 ratio of 1,277.

With the exception of Turkey, Ireland is the only country in Table 6 with an excess of males in the population. For the 0-14 year and 15-29 year age groups the sex ratio for Ireland is very much in accord with the experience of other countries in Western Europe. Although four of the most southerly countries have a female excess in the 30-44 year age group, with the ratio for Portugal as high as 1,220, the ratio of 965 for Ireland is similar to those for the remaining countries. Again with the exception of Turkey, the male excess indicated by the sample analysis for Ireland in the 45-64 year age group is at variance with the experience of the other countries. Although all countries have an excess of females among the group of persons aged 65 years and over, there is nevertheless, a startling variation in the sex ratios from Turkey, with a ratio of 1,099, to Germany, with a ratio of 1,795; the ratio for Ireland being the second lowest. There are a couple of reasons for the disparity. First, the number of males surviving into this age group would have been affected by the 1939-1945 war, a factor which might also have affected the 45-64 age group to some extent. Second, a Life Table, which is being prepared for Ireland for the 1978-1980 period, is expected to show a female life expectancy which will exceed male life expectancy by about 5.3 years. This

TABLE 6 : FEMALES PER 1,000 MALES

| Country/Year | All Ages | Age Group | | | | | |
|---------------|---------------|-----------|-------|-------|-------|-----------|-------|
| | | 0-14 | 15-29 | 30-44 | 45-64 | 65 & over | |
| Ireland | 1936 | 952 | 970 | 916 | 961 | 928 | 1,034 |
| | 1961 | 990 | 955 | 967 | 1,027 | 972 | 1,110 |
| | 1971 | 991 | 957 | 961 | 981 | 986 | 1,189 |
| | 1979 | 989 | 954 | 961 | 949 | 1,004 | 1,217 |
| | (Sample) 1981 | 991 | 958 | 962 | 965 | 988 | 1,227 |
| Austria | 1981 | 1,111 | 952 | 966 | 985 | 1,217 | 1,779 |
| Belgium | 1980 | 1,045 | 958 | 953 | 969 | 1,055 | 1,508 |
| Denmark | 1981 | 1,027 | 955 | 954 | 961 | 1,046 | 1,373 |
| France | 1981 | 1,041 | 955 | 966 | 939 | 1,047 | 1,570 |
| Germany (FRG) | 1981 | 1,091 | 952 | 941 | 942 | 1,172 | 1,795 |
| Greece | 1980 | 1,037 | 936 | 959 | 1,062 | 1,090 | 1,247 |
| Italy | 1981 | 1,048 | 949 | 964 | 1,005 | 1,088 | 1,413 |
| Luxembourg | 1980 | 1,042 | 955 | 984 | 922 | 1,083 | 1,487 |
| Netherlands | 1981 | 1,016 | 955 | 958 | 936 | 1,048 | 1,438 |
| Norway | 1981 | 1,018 | 952 | 951 | 948 | 1,027 | 1,356 |
| Portugal | 1981 | 1,110 | 966 | 996 | 1,220 | 1,222 | 1,449 |
| Spain | 1982 | 1,037 | 953 | 966 | 1,002 | 1,073 | 1,464 |
| Sweden | 1982 | 1,021 | 953 | 956 | 950 | 1,025 | 1,311 |
| Switzerland | 1980 | 1,054 | 953 | 985 | 978 | 1,078 | 1,494 |
| Turkey | 1981 | 975 | 980 | 968 | 939 | 978 | 1,099 |
| U.K. | 1980 | 1,052 | 947 | 955 | 983 | 1,052 | 1,557 |

Source: Council of Europe - Country Reports 1982 Edition; EUROSTAT - Demographic Statistics 1980.

contrasts with the most recent excess female life expectancy figures available to me for the other countries which are:

| | | | |
|------------|-----|-------------|-----|
| Austria | 7.1 | Netherlands | 6.8 |
| Belgium | 6.5 | Norway | 6.7 |
| Denmark | 6.1 | Portugal | 7.3 |
| France | 8.2 | Spain | 5.8 |
| Germany | 6.7 | Sweden | 6.0 |
| Greece | 3.5 | Switzerland | 6.6 |
| Italy | 6.2 | Turkey | 4.7 |
| Luxembourg | 7.1 | U.K. | 6.2 |

Source: Council of Europe — Country Reports 1982 Edition: EUROSTAT — Demographic Statistics, 1980.

Marital Status

In Table 7, I have applied the marital status profile suggested by the sample analysis to the known Census count of males and females for 1981.

TABLE 7 : POPULATION AGED 15 YEARS AND OVER CLASSIFIED BY SEX AND MARITAL STATUS
1926 - 1981

| Year | MALES (000) | | | | FEMALES (000) | | | |
|------------------|-------------|---------|---------|---------|---------------|---------|---------|---------|
| | Single | Married | Widowed | Total | Single | Married | Widowed | Total |
| 1926 | 598.6 | 407.5 | 59.1 | 1,065.1 | 487.7 | 416.6 | 134.7 | 1,039.0 |
| 1936 | 627.3 | 418.1 | 58.7 | 1,104.0 | 492.6 | 424.6 | 126.8 | 1,044.0 |
| 1946 | 592.4 | 424.9 | 58.5 | 1,075.9 | 474.0 | 451.3 | 130.8 | 1,056.2 |
| 1951 | 565.9 | 448.8 | 55.5 | 1,070.2 | 443.1 | 464.1 | 128.5 | 1,035.6 |
| 1961 | 468.4 | 453.6 | 45.8 | 967.8 | 378.6 | 468.2 | 126.4 | 973.3 |
| 1966 | 471.6 | 477.4 | 40.7 | 989.6 | 379.4 | 488.7 | 125.9 | 994.0 |
| 1971 | 465.9 | 514.9 | 39.1 | 1,020.0 | 374.3 | 523.1 | 129.8 | 1,027.1 |
| 1979 | 508.4 | 619.9 | 37.9 | 1,166.2 | 404.8 | 626.7 | 140.6 | 1,172.1 |
| 1981 (Sample) | 523.2 | 637.6 | 38.7 | 1,199.5 | 417.8 | 648.0 | 140.4 | 1,206.3 |

The number of married males is estimated to have increased by some 18,000, or 2.9 per cent, in the 1979-1981 period. This is equivalent to a five year rate of 7.3 per cent which is similar to that of the 1966-1971 period, but considerably lower than the 12.3 per cent equivalent five year rate for the 1971-1979 period. The number of single males aged 15 or over increased by about 15,000, or 2.9 per cent, in the two year 1979-1981 period. This is equivalent to a five year rate of increase of 7.4 per cent, the highest rate of increase since 1926.

The number of married females increased by some 21,000 or 3.4 per cent between 1979 and 1981, equivalent to a five year rate of increase of 8.7 per cent. Though lower than the 1971-1979 equivalent five year rate of 12.0 per cent, it is otherwise the highest rate since 1926. For single females there was an increase of 13,000, or 3.2 per cent, equivalent to a five year rate of 8.2 per cent which is the highest rate of increase since 1926.

The proportion of males aged 15 and over, who are married, has risen over the years from under 38 per cent in 1936 to over 53 per cent in 1981. For females aged 15 and over the proportion married has risen from 40 per cent in 1926 to almost 54 per cent in 1981.

At each Census the number of married females has exceeded the number of married males, the difference ranging from as low as about 6,500 in 1936 and 1979 to a high of 26,500 in 1946. This phenomenon is to be expected considering that there is a greater likelihood that a married male will be temporarily abroad for work reasons, or may be permanently or semi-permanently working abroad.

With the exception of males aged 55-64, the sample estimates of the percentage single by age group and sex in 1981 are fairly well as expected from cohort projection from the 1979 Census results. In the fifty years between 1901 and 1951 there was little change in the marital status profile of the population up to age 44 years. In 1951 a larger proportion of both males and females remained single in the older age groups than was the case fifty years earlier. Since 1951 there have been substantial decreases in the proportion single for both males and females aged between 20 and 44 years. From Vital Statistics information it is known that the average age at first marriage has decreased by about 5½ years for males and 3½ years for females over the past 25 years.

TABLE 8 : PERCENTAGE SINGLE IN CERTAIN AGE GROUPS - SELECTED CENSUS YEARS

| YEAR | AGE GROUP | | | | | | |
|---------------|-----------|-------|-------|-------|-------|-------|-----------|
| | 15-19 | 20-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65 & over |
| MALES | | | | | | | |
| 1901 | 99.9 | 96.3 | 71.8 | 38.3 | 23.8 | 18.2 | 15.5 |
| 1951 | 99.9 | 94.9 | 67.4 | 40.5 | 31.0 | 28.8 | 26.6 |
| 1961 | 99.8 | 92.5 | 58.0 | 36.2 | 29.7 | 28.1 | 26.7 |
| 1971 | 99.5 | 84.6 | 41.3 | 26.9 | 28.1 | 27.1 | 26.8 |
| 1979 | 99.3 | 81.6 | 34.1 | 21.1 | 25.3 | 26.6 | 26.3 |
| (Sample) 1981 | 99.2 | 82.1 | 34.2 | 19.6 | 24.5 | 27.5 | 26.6 |
| FEMALES | | | | | | | |
| 1901 | 99.4 | 88.0 | 52.9 | 27.8 | 20.0 | 17.3 | 17.4 |
| 1951 | 98.9 | 82.3 | 45.6 | 27.6 | 25.7 | 24.7 | 23.7 |
| 1961 | 98.9 | 78.2 | 37.1 | 22.7 | 23.1 | 25.0 | 24.3 |
| 1971 | 97.9 | 68.9 | 25.7 | 17.5 | 18.8 | 22.0 | 25.1 |
| 1979 | 97.3 | 66.3 | 21.5 | 12.3 | 15.7 | 18.9 | 23.8 |
| (sample) 1981 | 97.5 | 67.2 | 21.9 | 11.5 | 14.8 | 18.2 | 23.6 |

Net Migration

When the results of the 1979 and 1981 Censuses of Population are considered in conjunction with Vital Statistics information for the intercensal period, it is estimated that there was a net outward migration over the period of some 3,200 males and 1,800 females. The effects of migration on the age structure of the 1981 population will be considered in some detail in Volume II of the Census Report which is due for publication during the Summer. For the purposes of this paper however I thought it would be interesting to speculate on the possible outcome of the analysis, using the sample profiles of the population structure by age applied to the known sex distribution in conjunction with an estimated age distribution by sex of deaths between April 1979 and March 1981. The results are shown in Table 9.

The estimated migration effects by age group shown in the table are small relative to the numbers in the age group and sampling errors of the order of 1 per cent could result in a change of sign for the migration effect in all but three cases. Furthermore since the net migratory effects are not measured directly but are in fact residuals, it is well to bear in mind the cautionary note sounded in Volume I of the Census Report which was as follows:—

“The Census total is a count of the number of persons actually in the State on Census night. The change in population reflects the effect of vital events (births and deaths) and of all movement of persons into and out of the State between successive Censuses. Since the number of births and deaths are known from the regular vital

TABLE 9 : ESTIMATED EFFECT OF NET MIGRATION BETWEEN 1979 AND 1981 BY AGE GROUP

| Age Group in 1981 | MALES (000) | | | FEMALES (000) | | |
|----------------------|------------------------------------|--------------------------------|---------------------------------------|------------------------------------|--------------------------------|---------------------------------------|
| | Population without Migration | 1981 Population (Sample) | Migration effect* (- = outflow) | Population without Migration | 1981 Population (Sample) | Migration effect* (- = outflow) |
| 0-14 Years | 531.6 | 529.9 | - 1.7 | 505.9 | 507.8 | 1.9 |
| 15-24 " | 315.3 | 309.7 | - 5.6 | 302.0 | 298.7 | - 3.3 |
| 25-34 " | 242.7 | 244.9 | 2.2 | 234.2 | 236.5 | 2.3 |
| 35-44 " | 183.4 | 182.8 | - 0.6 | 174.2 | 175.2 | 1.0 |
| 45-54 " | 153.4 | 154.6 | 1.2 | 149.2 | 149.2 | - |
| 55-64 " | 141.9 | 142.2 | 0.3 | 147.6 | 143.9 | - 3.7 |
| 65 years & over | 164.3 | 165.3 | 1.0 | 202.7 | 202.8 | 0.1 |
| All Ages | 1,732.6 | 1,729.4 | - 3.2 | 1,715.9 | 1,714.1 | - 1.8 |

*Effect of migration on the numbers estimated for the age group in 1981; not the same as the numbers migrating at that age.

statistics, a residual measure of net movement of persons can be obtained. In the absence of direct measures of inward and outward migratory flows, this residual is used as an estimate of "net migration" i.e. the difference between the inward and outward flows. The residual figure however also reflects, implicitly, the net effect of non-migratory movements (i.e. change between successive Censuses in the level of visitors in the State, or in the level of such as marginal variations in Census coverage achieved. Where the total residual figure is comparatively large and covers a long intercensal period (such as in 1971-1979) the possible effect of the factors mentioned is negligible. Where the total is comparatively small and covers a very short period (as in 1979-1981) the effect could be relatively more important."

Because of these reservations, it is obviously undesirable to get involved in too detailed an interpretation of the data. I will confine myself to just one observation relating to the 15-24 year age group. Even though the overall effect of migration in the eight year intercensal period 1971-1979 was an inflow of about 109,000 persons (some 61,300 males and 47,700 females), the effects on the 15-24 year age group in that period resulted in a net outflow of 6,300 males and 7,600 females. The sample results indicate that the effect of the 15-24 year age group in 1981 of migration movements in the 1979-1981 period is a net outflow on a scale somewhat larger perhaps than would be expected on the basis of the previous eight year period. One other comment which is more in the nature of an aside, it is interesting that the number of females aged 55-64 in the 1979 Census was lower, due to migratory movements, than would have been the case if no such movements had taken place and that this pattern seems to be repeating itself for the same age group in 1981. It is a pattern which has also been observed for previous intercensal periods and one which in general is stronger for females than males in this age group; it may perhaps be partly due to females born abroad returning to their country of birth on the death of a spouse.

PART III

LABOUR FORCE AGGREGATES

Principal Economic Status

In the Labour Force Surveys a basic classification for persons aged 15 years and over related to "principal economic status", coded on the basis of subjective self-assessment on the part of the respondent. In 1981 a similar question with pre-specified categories was included for the first time in a Census of Population using a list of categories which was basically the same as that used in the 1977 and 1979 Labour Force Surveys. It should be noted that in previous Censuses similar (though not identical) information was derived from questions on Occupation and Employment Status. The results for 1977, 1979 and 1981 are shown in Table 10.

TABLE 10: ESTIMATED PERSONS (000) AGED 15 YEARS AND OVER CLASSIFIED BY
SEX AND PRINCIPAL ECONOMIC STATUS, 1977, 1979 and 1981

| Principal Economic Status | 1977 L.F.S. | | | 1979 L.F.S. | | | 1981 (Sample) | | |
|---------------------------|-------------|---------|---------|-------------|---------|---------|---------------|---------|---------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| At Work | 784.5 | 298.8 | 1,083.3 | 827.8 | 322.5 | 1,150.3 | 815.5 | 335.3 | 1,150.7 |
| First job seekers | 10.0 | 5.8 | 15.8 | 8.6 | 5.8 | 14.4 | 13.0 | 6.6 | 19.7 |
| Unemployed | 72.4 | 16.2 | 88.7 | 55.6 | 14.9 | 70.4 | 90.2 | 22.7 | 112.9 |
| Student | 89.7 | 89.0 | 178.7 | 89.9 | 92.3 | 182.2 | 99.1 | 104.0 | 203.1 |
| Home Duties | 1.9 | 638.9 | 640.8 | 1.3 | 639.5 | 640.8 | 3.1 | 635.0 | 638.1 |
| Retired | 115.5 | 50.4 | 165.9 | 125.5 | 58.5 | 184.0 | 126.7 | 67.3 | 194.1 |
| Unable to Work | 47.3 | 30.8 | 78.1 | 48.8 | 29.8 | 78.5 | 50.1 | 32.9 | 83.0 |
| Other | 8.2 | 7.4 | 15.5 | 7.0 | 10.9 | 17.9 | 3.1 | * | 4.0 |
| Total 15 & over | 1,129.5 | 1,137.2 | 2,266.8 | 1,164.4 | 1,174.0 | 2,338.4 | 1,200.9 | 1,204.6 | 2,405.6 |

* Value less than 1,000

On the Census schedule persons opting for the residual status "Other" were asked to further describe their situation and it is thought that this requirement may have resulted in a transfer to other inactive categories, as compared with the pattern of answering in 1977 and 1979.

The number of persons seeking a first regular job, at just under 20,000, is at the same approximate level as measured at the 1975 Labour Force Survey when the interviewing period was May/June. (The Interviewing period for the 1977 LFS was April/May while that for the 1979 Survey was again May/June). It is interesting to consider these figures in conjunction with the results from the three most recent "School Leaver" surveys carried out by the National Manpower Services and directed at leavers of second-level schools, shown in Table 11.

TABLE 11 : SECOND-LEVEL SCHOOL LEAVERS WHO ARE SEEKING A FIRST REGULAR JOB
IN CERTAIN SPECIFIED MONTHS AFTER THE END OF THE SCHOOL YEAR.

| School Year | August | October | January | May |
|-------------|--------|---------|---------|-------|
| 1978-1979 | 10,400 | 5,150 | 3,500 | 3,000 |
| 1979-1980 | 13,900 | 8,550 | 6,900 | 5,800 |
| 1980-1981 | 15,100 | 10,850 | 9,050 | 7,750 |

Table 11 clearly indicates that increasing numbers of school leavers are taking longer to acquire their first job. Increasingly, therefore, it seems that the number of first job seekers, at any measurement point, will reflect not alone recent school leavers but the cumulative effect of persons who have been in that position for a year or more. Since classification according to some categories of Economic status are age and sex dependent, Tables 12 and 13 in the following pages give the percentage distribution for Males and Females respectively according to principal economic status and broad age group for ages 15 years and over.

It can be seen from Table 10 that the estimated number of "Students" has increased by some 20,000 between the 1979 Labour Force Survey and the sample estimates from the 1981 Census. From Tables 12 and 13 it will be seen that the increase is due to increased educational participation rates in the 15-24 year age group for both sexes, and is not just due to increasing numbers in this age group. Rather than confine myself to a narrowly based discussion of the educational participation of the 15-24 year age group, I propose to consider more general characteristics of the age group in the following section where I will make some comments integrating this aspect with aspects of employment and unemployment.

The 15-24 Year Age Group

The 15-24 year age group has been the subject of considerable discussion in this country in recent years, being the age group which is central to the whole debate relating to youth unemployment, the Youth Employment Agency, the youth employment levy on income and so on. In Table 14, I have shown comparative information for 9 member states of the EEC based on the EUROSTAT publication relating to the 1979 Labour Force Survey. (It should be noted that the table relates to the 14-24 year age group in private households.)

It will surprise nobody to find that the proportion of the 14-24 year age group "unemployed" for Ireland was among the highest of EEC members states in 1979. What may surprise some is that Ireland also had one of the highest proportions of the age group "at work". These two observations taken together imply that Ireland was most at variance with the experience of our EEC partners, in terms of participation in education and training; although I do not have the data, I would be more than surprised, if the number of females aged 14-24 years on home duties in other countries would be so large as to disprove this assessment. If the Irish situation were to develop towards that of the EEC average, then a greater participation on the part of this age group in education is to be expected. Furthermore because of the unique age structure of our population the numbers in this age group will grow at a considerably faster rate for Ireland than elsewhere. This factor, when taken in conjunction with the expected job seeking difficulties in the immediate future, is likely to lead to a continued increase

TABLE 12 : PERCENTAGE DISTRIBUTION OF MALES AGED 15 YEARS AND OVER BY PRINCIPAL ECONOMIC STATUS
FOR CERTAIN AGE GROUPS, 1977 LFS, 1979 LFS and 1981 SAMPLE

| Principal Economic Status | 15-24 years | | | 25-44 years | | | 45-64 years | | | 65 years and over | | | All ages | | |
|--|-------------|-------|-------|-------------|-------|-------|-------------|-------|-------|-------------------|-------|-------|----------|-------|-------|
| | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 |
| At Work | 57.0 | 62.0 | 56.3 | 88.1 | 89.9 | 85.9 | 80.7 | 79.4 | 78.5 | 25.6 | 25.4 | 24.1 | 69.4 | 71.1 | 67.9 |
| Looking for first regular job | 3.4 | 2.8 | 3.8 | * | * | 0.3 | - | - | * | - | - | * | 0.9 | 0.7 | 1.1 |
| Unemployed having lost or given up previous job | 6.8 | 4.1 | 7.2 | 8.3 | 6.5 | 10.2 | 6.7 | 5.3 | 7.8 | 0.6 | 0.6 | 0.7 | 6.4 | 4.8 | 7.5 |
| Students | 30.8 | 29.6 | 31.2 | 0.5 | 0.4 | 0.5 | * | * | * | - | - | * | 7.9 | 7.7 | 8.3 |
| Home Duties | * | * | * | * | * | 0.3 | * | * | * | * | * | * | 0.2 | 0.1 | 0.3 |
| Retired | - | - | - | * | * | * | 3.3 | 5.0 | 4.4 | 66.0 | 68.2 | 68.5 | 10.2 | 10.8 | 10.6 |
| Unable to work due to permanent sickness or disability | 1.3 | 1.1 | 1.0 | 2.4 | 2.5 | 2.5 | 8.0 | 9.4 | 8.8 | 6.4 | 4.6 | 6.2 | 4.2 | 4.2 | 4.2 |
| Other | 0.6 | 0.4 | 0.4 | 0.5 | 0.6 | 0.3 | 1.1 | 0.7 | * | 0.9 | 0.9 | * | 0.7 | 0.6 | 0.3 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*: Absolute Value less than 1,000

-: Nil

TABLE 13: PERCENTAGE DISTRIBUTION OF FEMALES AGED 15 YEARS AND OVER BY PRINCIPAL ECONOMIC STATUS FOR CERTAIN AGE GROUPS, 1977 LFS, 1979 LFS and 1981 SAMPLE

| Principal Economic Status | 15-24 years | | | 25-44 years | | | 45-64 years | | | 65 years and over | | | All Ages | | |
|--|-------------|-------|-------|-------------|-------|-------|-------------|-------|-------|-------------------|-------|-------|----------|-------|-------|
| | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 | 1977 | 1979 | 1981 |
| At Work | 47.2 | 49.8 | 47.5 | 25.8 | 27.6 | 29.7 | 21.2 | 21.2 | 20.8 | 5.5 | 4.6 | 5.3 | 26.3 | 27.5 | 27.8 |
| Looking for first regular job | 2.0 | 2.0 | 2.1 | * | * | * | * | - | * | - | - | - | 0.5 | 0.5 | 0.5 |
| Unemployed having lost or given up previous job | 3.5 | 2.4 | 3.9 | 1.2 | 1.3 | 1.9 | 0.7 | 0.9 | 1.1 | * | * | * | 1.4 | 1.3 | 1.9 |
| Students | 32.1 | 32.0 | 34.4 | 0.3 | * | 0.3 | * | - | * | - | * | * | 7.8 | 7.9 | 8.6 |
| Home Duties | 13.8 | 12.4 | 11.3 | 71.1 | 69.1 | 66.5 | 72.4 | 72.1 | 71.8 | 62.4 | 60.0 | 58.1 | 56.2 | 54.5 | 52.7 |
| Retired | - | - | - | * | * | * | 1.4 | 2.1 | 2.5 | 23.7 | 26.1 | 29.6 | 4.4 | 5.0 | 5.6 |
| Unable to work due to permanent sickness or disability | 1.0 | 1.1 | 0.8 | 1.4 | 1.5 | 1.4 | 3.9 | 3.2 | 3.8 | 5.8 | 5.6 | 6.8 | 2.7 | 2.5 | 2.7 |
| Other | * | 0.4 | * | * | 0.3 | * | 0.3 | 0.5 | * | 2.5 | 3.7 | * | 0.7 | 0.9 | * |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*: Absolute Value less than 1,000

-: Nil

TABLE 14: PERCENTAGE DISTRIBUTION OF THE 14-24 YEAR AGE GROUP IN 9 EEC COUNTRIES ACCORDING TO ECONOMIC STATUS - 1979 LABOUR FORCE SURVEY

| Country | At Work* | Unemployed + | Inactive | Total |
|-------------|----------|--------------|----------|-------|
| Germany | 45.2 | 1.8 | 53.0 | 100 |
| France | 37.5 | 6.2 | 56.3 | 100 |
| Italy | 26.1 | 7.0 | 66.9 | 100 |
| Netherlands | 33.7 | 2.3 | 64.0 | 100 |
| Belgium | 34.5 | 5.1 | 60.4 | 100 |
| Luxembourg | 46.7 | 2.8 | 50.5 | 100 |
| U.K. | 47.6 | 3.5 | 48.9 | 100 |
| Ireland | 45.9 | 5.9 | 48.2 | 100 |
| Denmark | 42.9 | 5.4 | 51.7 | 100 |
| EUR - 9 | 39.0 | 4.4 | 56.6 | 100 |

* At Work = "With a Main Occupation"

+ Including first job seekers

in the participation rate in education and training for the age group in the coming years.

Labour Force Participation

In the previous section I mentioned that labour force participation rates for the 14-24 year age group were higher for Ireland than for the EEC average. I will now consider participation rates by sex and age group in a little more detail. Table 15 shows participation rates by sex and broad age group for Ireland from the 1977 and 1979 Labour Force Surveys and the sample analyses of the 1981 Census and for other EEC members states from the 1979 Labour Force Survey.

The participation rates for males and females in the 14-24 year age group in 1979, though higher than the EEC average, were quite similar to those applying in the U.K. and not too different from those for Denmark and Luxembourg. The increased opportunities between 1977 and 1979 when the number of persons at work is estimated to have increased by some 62,000 (official mid-April figures), led to an increase in participation rates for the 15-24 year age group during this period. Between 1979 and 1981 the rates declined, returning to the 1977 level for males and to somewhat above that for females. In the previous section dealing specifically with this age group, I have suggested that their participation rate in education and training is likely to increase and, thus, a further decline in their labour force participation rate is likely to have occurred since 1981, a decline which may continue in the next few years. The participation rate for males in the 25-64 year age group was a little higher than the EEC average in 1979 and marginally lower than that for U.K. The results of the sample analysis indicate that this rate hardly changed at all as between 1977, 1979 and 1981. The 1979 participation rate for females in this age group was similar to that applying in Luxembourg and the Netherlands, less than two-fifths of the rate for Denmark and not much more than half of the EEC average. This rate has been increasing steadily in recent years but certainly not on a uniform basis for all constituents of the age group. In the following table, I have disaggregated the age group into narrower age bands and by marital status. I have also included data from the 1975 Labour Force Survey and the 1971 Census of Population for illustrative purposes, even though both of these are not

TABLE 15: LABOUR FORCE PARTICIPATION RATES ⁺ BY SEX AND BROAD AGE GROUP

| Country/Year | MALES | | | | FEMALES | | | |
|------------------|--------|-------|------|--------|---------|-------|-----|--------|
| | 15-24* | 25-64 | 65+ | Total* | 15-24* | 25-64 | 65+ | Total* |
| IRELAND LFS 1977 | 67.2 | 92.5 | 26.2 | 76.7 | 52.7 | 24.8 | 5.6 | 28.2 |
| LFS 1979 | 68.9 | 91.5 | 26.0 | 76.6 | 54.2 | 26.0 | 4.6 | 29.2 |
| (Sample) 1981 | 67.3 | 92.2 | 24.8 | 76.5 | 53.5 | 27.6 | 5.3 | 30.3 |
| Germany 1979 | 49.5 | 91.1 | 6.7 | 68.7 | 44.4 | 45.8 | 2.5 | 35.6 |
| France 1979 | 46.9 | 91.4 | 8.4 | 69.7 | 40.7 | 56.3 | 4.0 | 42.2 |
| Italy 1979 | 37.5 | 85.1 | 8.7 | 63.9 | 28.8 | 31.5 | 1.9 | 25.9 |
| Netherlands 1979 | 36.4 | 88.3 | 6.0 | 65.7 | 35.7 | 25.1 | 0.9 | 23.8 |
| Belgium 1979 | 42.0 | 87.8 | 4.3 | 65.2 | 37.1 | 41.6 | 1.1 | 32.8 |
| Luxembourg 1979 | 50.0 | 88.7 | 6.0 | 68.6 | 48.9 | 28.7 | 1.7 | 27.4 |
| U.K. 1979 | 56.3 | 93.2 | 10.6 | 72.3 | 45.6 | 54.7 | 3.0 | 41.8 |
| Ireland 1979 | 57.6 | 92.3 | 29.6 | 74.2 | 45.9 | 26.4 | 5.1 | 28.2 |
| Denmark 1979 | 51.4 | 91.2 | 15.8 | 71.0 | 45.2 | 68.5 | 5.6 | 51.3 |
| EUR - 9 1979 | 47.1 | 90.0 | 8.6 | 68.5 | 39.8 | 45.5 | 2.8 | 35.7 |

+ Persons At Work, Unemployed and seeking first regular job as a percentage of the population of same age and sex.

* In the lower part of the table these columns include age 14 years and relate to residents of private households only.

 TABLE 16: LABOUR FORCE PARTICIPATION RATES (%) FOR FEMALES AGED 25-64
 YEARS CLASSIFIED BY MARITAL STATUS AND THREE AGE SUB-GROUPS

| YEAR | 25-34 | | | | 35-44 | | | | 45-64 | | | |
|------|-------|------|---|------|-------|------|------|------|-------|------|------|------|
| | S | M | W | T | S | M | W | T | S | M | W | T |
| 1971 | 85.1 | 8.8 | * | 28.5 | 72.5 | 6.7 | 45.5 | 19.1 | 57.3 | 7.0 | 34.3 | 21.0 |
| 1975 | 86.6 | 16.0 | * | 30.5 | 73.0 | 14.4 | 43.5 | 22.3 | 54.8 | 14.0 | 31.7 | 22.8 |
| 1977 | 86.6 | 16.7 | * | 31.4 | 68.2 | 14.3 | 41.1 | 21.2 | 54.5 | 12.4 | 28.4 | 22.0 |
| 1979 | 86.9 | 18.7 | * | 33.4 | 72.2 | 15.6 | 51.6 | 22.9 | 54.5 | 12.8 | 28.7 | 22.1 |
| 1981 | 88.2 | 22.4 | * | 36.9 | 78.3 | 17.2 | * | 24.5 | 56.3 | 12.8 | 27.4 | 21.9 |

* Absolute value less than 1,000

strictly comparable with the later figures. Too much significance should not be attached to small changes.

The first thing I have to point out is that the number of single and widowed females aged 35–44 years is small and no conclusions should be drawn from the participation rates for these categories. For example it requires an upward adjustment of only about 500 in the estimated number of gainfully occupied single females to bring the single participation rate for the age group in 1977 into line with the corresponding rates for the other years.

The most obviously striking aspect of Table 16 is the increased labour force participation for married females in all the age groups over the past ten years. In this period the number of married females aged 15–64 years, who were at work, increased by about 68,000 from 37,000 to 105,000. In recent years the participation rate for married females has remained fairly constant for the 45–64 year age group, while continuing to increase steadily for the younger age groups. My own view is that labour force participation rates for married females will continue to increase due, even if for no other reason, to the ageing process. I feel that women who work for economic reasons and those who have become accustomed to their own income, through labour force participation, are less likely to withdraw from the labour force than was the case previously, and thus, the higher participation rates which can currently be observed in the younger age groups would gradually move up through the age groups.

I have one final comment to make in respect of the labour force participation rates shown in Table 15. This relates to the extraordinarily high participation of males aged 65 years and over in Ireland where the rate was about three and a half times the EEC average in 1979. The high rate for Ireland is primarily due to the fairly large number of elderly farmers in the country, since about two thirds of males at work and aged 65 years and over are classified to the Agriculture Sector. The results of the sample analysis indicate that the labour force participation rate for males aged 65 years and over had fallen a little over the previous few years. It is expected that this decline will continue in the years ahead, on the assumption that the control of farms is likely to be handed over to young farmers more quickly than has been the case hitherto and also because of deaths of elderly single farmers.

The Unemployed

The results of the sample analysis show that an estimated 113,000 persons (90,000 males and 23,000 females) classified themselves as unemployed having lost or given up a previous job. This compares with the estimate of 70,000 from the 1979 Labour Force Survey which was adjusted to 74,000 as a mid-April 1979 estimate for inclusion in the official series of mid-April labour force estimates. The sample analysis therefore indicates an increase of some 39,000 in the number of persons unemployed between April 1979 and April 1981. In the same period, the Live Register increased by about 33,500. The level of unemployment estimated in the sample analysis was accepted in the official labour force unemployment estimates published last December. I will comment briefly on some of the reasons why the trend shown by the Live Register is slightly different to that shown by the Labour Force/Census comparison.

First, the 1979 Labour Force Survey Report shows that persons who classify themselves as being applicants for UB or UA are not always the same persons as those who classify themselves as unemployed. Given these differences there will not always be complete agreement between Live Register estimates of changes in the level of unemployment and estimates based on Censuses or Labour Force Surveys. Second, changes in the overall level of the Live Register are net changes, resulting from

considerably larger gross flows onto and off the Live Register. For example, there was no change in the overall level of the Live Register between March and April 1981. Yet the half-yearly analysis of the Live Register by duration of continuous registration indicated that on 17 April 1981, over 4,000 persons were on the Register for less than one week with a total of almost 16,000 on the Register for under 5 weeks. The half-yearly analysis had thrown up similar movements in 1980. Given this volatility in the labour market and increasing levels of unemployment, it was felt that larger numbers than usual of first job holders were liable to become unemployed before they would have satisfied the contribution requirements to enable them to qualify for UB and they may also be assessed to be ineligible for UA. Furthermore, because of the increase in longterm unemployment (there were over 38,000 persons on the Register for over a year in April 1981) UB applicants may exhaust entitlement without necessarily being eligible for UA. Factors such as these could lead to the Live Register totals increasing a little more slowly than survey estimates of the level of unemployment.

In considering the unemployment problem, it is interesting to examine the position of the unemployed within households. Almost 111,500 of the unemployed were enumerated in private households and these were described as follows:

| | |
|---------------------|--------|
| “Head” of household | 52,500 |
| Spouse of Head | 5,400 |
| Child of Head | 41,500 |
| Other Relative | 8,800 |
| Other Presons | 3,100 |

In the context of the Census the head of the household was the person entered on the first line of the household questionnaire and a note to the Census question indicated that “Any adult member of a private household present on Census night, can be returned as the head according as the household members consider appropriate”. When the full Census results are available it will be useful to cross classify more fully unemployed persons according to age, sex and relationship to head of household and also according to the number of other household members at work or unemployed, always bearing in mind that Census enumeration is on a de facto basis and the limitations that this imposes.

Although an analysis at this level of detail is outside the scope of the present paper, I propose nevertheless to examine unemployment in the more limited context of household size and also in the context of the number of persons at work in the household. In the following table I have cross classified private households by household size and the number of unemployed persons in the household.

It can be seen from Table 17 that some 812,000, or 89 per cent, of private households had no unemployed person while an estimated 2,400 households had three or more unemployed persons. There were some 6,500 one-person households where that person was unemployed while a total of 83,000 private households had one unemployed person. There were almost 21,000 unemployed persons in the 10,300 private households having two unemployed persons.

From Table 18 it can be seen that of the 83,000 households having one unemployed person, some 40,000 had one or more other persons at work. Similarly about 6,000 of the households with two unemployed persons had at least one other person at work. It can be deduced from the table that about 55,000 of the 111,500 unemployed persons, enumerated in private households, were in households having no person at work. Some 30,000 were in households having one person at work; over 14,000 were in households having two persons at work; and about 11,500 were in households with three or

TABLE 17 : PRIVATE HOUSEHOLDS (000) CLASSIFIED BY SIZE AND NUMBER OF UNEMPLOYED PERSONS

| No. of Persons in Household | No. of Unemployed Persons in Household | | | | Total Households |
|-----------------------------|--|------|------|-----------|------------------|
| | 0 | 1 | 2 | 3 or more | |
| 1 | 148.7 | 6.5 | - | - | 155.2 |
| 2 | 170.2 | 12.4 | * | - | 183.4 |
| 3 | 120.1 | 14.2 | 1.4 | * | 135.9 |
| 4 | 124.0 | 13.8 | 1.8 | * | 139.9 |
| 5 | 102.5 | 12.5 | 1.6 | * | 116.9 |
| 6 | 69.5 | 9.2 | 1.4 | * | 80.4 |
| 7 | 38.5 | 6.6 | 1.0 | * | 46.4 |
| 8 or more | 38.6 | 7.7 | 2.3 | 1.1 | 49.7 |
| Total Households | 812.1 | 82.9 | 10.3 | 2.4 | 907.8 |

* : Value less than 1,000 - : Nil

TABLE 18 : PRIVATE HOUSEHOLDS CLASSIFIED BY NUMBER OF PERSONS AT WORK AND BY THE NUMBER OF UNEMPLOYED PERSONS

| No. of Persons At Work in Household | No. of Unemployed Persons in Household | | | | Total Households |
|-------------------------------------|--|------|------|-----------|------------------|
| | 0 | 1 | 2 | 3 or more | |
| 0 | 151.5 | 42.9 | 4.4 | 1.2 | 200.1 |
| 1 | 416.1 | 22.1 | 2.8 | * | 441.6 |
| 2 | 164.2 | 9.7 | 1.7 | * | 176.1 |
| 3 | 50.8 | 5.2 | * | * | 56.9 |
| 4 | 20.2 | 2.2 | * | * | 22.7 |
| 5 or more | 9.3 | * | * | - | 10.4 |
| Total Households | 612.1 | 82.9 | 10.3 | 2.4 | 907.8 |

* Value less than 1,000 - : Nil

more persons at work. This table clearly indicates that unemployment may result in widely varying degrees of economic hardship, depending on individual circumstances, for example, whether other household or family members, by virtue of being at work, are in a position to play a supportive role. This is not to ignore however the social or emotional problems associated with unemployment.

Persons at Work; 1981 mid-April Estimates

Having examined the overall participation rates and found them to be acceptable, the acceptance of the unemployment estimate meant, ipso facto, that the sample

estimate of 1,151,000 for the number of persons at work would also be accepted. This agreed, almost exactly, with an independently based estimate at the overall level, but the sectoral disaggregation of the sample estimates caused some surprise for two of the eight² major industrial sectors: Agriculture and "Other". A smaller number of persons were classified as being at work in Agriculture than had been expected, while the reverse was true for "Other". The high figure for "Other" was due to a large increase in the number of persons at work for whom the sector, in which working, was not specified. Many of these persons did, however, state an occupation and, in preparing the official mid-April sectoral estimates of persons "At Work", a frequency distribution of occupations by sector was used to redistribute such persons between the sectors. The adjusted figures for non-agricultural sectors were then considered in conjunction with other available indicators such as Quarterly Industrial Inquiries, Monthly Index of Employees in the private sector of Building and Construction, the Industrial Analysis of the Live Register, employment information received from the Department of the Public Service, and so on. This led to further adjustments on a sector by sector basis which resulted in an overall net downward adjustment of some 11,000 persons for all non-agricultural sectors combined. Applying the sample sectoral sex-ratio to the adjustments implied that the downward adjustment comprised some 7,000 females and 4,000 males. Since the overall total for persons at work as estimated by the sample was accepted, the downward adjustment for the non-agricultural sectors was transferred into Agriculture and the question arose as to whether this number could be justifiably added to that Sector.

Agriculture Sector

The measurement of the number of persons at work in the Agriculture sector is notoriously difficult, bearing in mind the marginal farm-work input of large numbers of family workers and the tendency of small farmers to have part-time or occasional work in other sectors. This, incidentally, is a problem which is met in many countries and not just in Ireland. In advance of the 1981 Census it was unclear as to what discontinuities might be expected in the measurement of the Agricultural labour force, because of conceptual differences between the interview approach of Labour Force Surveys and the self-enumeration process of a Census of Population. A number of inconsistencies in measurement were expected in advance as between the 1979 Labour Force Survey and the 1981 Census for the following reasons:

- (a) It was expected that the number of female relatives assisting in Agriculture would be lower in the Census. This was because the Labour Force Surveys included a question on hours worked and women classifying themselves to "Home Duties", who indicated that they worked 30 or more hours per week were reclassified into the labour force. At the Census it was expected that these women would again indicate Home Duties but the absence of a question on hours of work meant that there was no basis for reclassification.
- (b) It was thought that there may have been a tendency in Labour Force Surveys to include younger household members in the Agricultural labour force, when elderly persons in the household may have been classified as retired, in other words a substitution effect into Agriculture from other sectors. At a self-enumeration it

²The eight major industrial sectors are: Agriculture, Forestry and Fishing; Manufacturing Industry (incl. Mining and Quarrying); Electricity, Gas and Water; Building and Construction; Commerce, Insurance, Finance and Business Services; Transport, Communication and Storage; Public Administration and Defence; Other Sectors (incl. unspecified).

was thought likely that this process may be reversed, resulting in a lower than expected labour force.

- (c) It was expected that a much larger number of elderly persons would attach themselves to the Agricultural labour force in the context of self-enumeration at a Census. This expectation was based on the very large decline in the participation rates for older age groups which was observed to have taken place between the 1971 Census and 1975 Labour Force Survey.

Advance assessment of conceptual differences such as between an interview and self-enumeration approach is extremely difficult. It must also be remembered that the question of Economic Status was introduced in the Census in an attempt to maintain as much continuity as possible between the two types of survey and since this was the first labour force question encountered on the Census questionnaire, it must be allowed that, the way in which it was answered could have had fairly significant interactive effects on the subsequent labour force questions. Thus the degree of similarity or difference between the 1979 Labour Force Survey and the 1981 Census may be somewhat different to that between 1971 Census and the 1975 Labour Force Survey.

In the event, the expected decline in female relatives assisting in Agriculture mentioned as (a) above, certainly materialised as can be seen from Table 19.

TABLE 19: FEMALES (000) AT WORK IN AGRICULTURE CLASSIFIED BY EMPLOYMENT STATUS

| Employment Status | 1961 Census | 1971 Census | Labour Force Surveys | | | 1981 Census (Sample) |
|------------------------|-------------|-------------|----------------------|------|------|----------------------|
| | | | 1975 | 1977 | 1979 | |
| Employer/Self Employed | 25.2 | 18.7 | 9.3 | 9.0 | 8.3 | 8.2 |
| Employee | 0.5 | 0.9 | 1.2 | 1.4 | 1.2 | 1.8 |
| Assisting Relative | 12.4 | 5.9 | 11.1 | 8.4 | 10.8 | 1.8 |

The number of female relatives assisting in Agriculture, which was about 6,000 at the 1971 Census and which increased to about 11,000 at the 1979 Labour Force Survey (including those reclassified from Home Duties on the basis of the number of hours worked), fell away to less than 2,000 at the 1981 Census. On an age basis the 1981 unadjusted sample figures are almost identical to the 1979 Labour Force Survey figures for females in Agriculture under 25 years of age and aged 65 years and over, with a decline of about 3,500 in the 25-44 year age group and about 4,500 in the 45-64 year age group. Thus the addition of some 7,000 females to Agriculture seems to be in order.

Table 20 following shows the age structure of the male agricultural labour force for the 1961 and 1971 Censuses of Population, the three Labour Force Surveys and also for the 1981 Sample. While there was a decline of some 6,000 in the number of males at work in Agriculture for each of the age groups under 25 years and 25-44 years, the substitution of young males into Agriculture mentioned at (b), above, is not clearly discernible except that, in 1979, some 13 per cent of the male agricultural labour force was under 25 years of age compared with an estimated 11.3 per cent in 1981. The fact that the sample estimate of the agricultural labour force was unexpectedly low, considered in conjunction with the stable overall participation rate, also supports the possibility of some marginal substitution into Agriculture in previous Labour Force Surveys. In general terms then, the transfer of some 4,000 males into Agriculture, for

TABLE 20: THE NO. (000) AND PERCENTAGE DISTRIBUTION OF THE MALE AGRICULTURAL LABOUR FORCE

| Age Group | 1961 Census | 1971 Census | Labour Force Surveys | | | 1981 Census (Sample) |
|--|-------------|-------------|----------------------|------|------|----------------------|
| | | | 1975 | 1977 | 1979 | |
| MALES (000) AT WORK IN AGRICULTURE | | | | | | |
| Under 25 years | 52.7 | 30.2 | 25.6 | 25.3 | 26.1 | 20.1 |
| 25-44 years | 106.7 | 69.7 | 70.0 | 65.8 | 62.7 | 56.6 |
| 45-64 years | 123.0 | 105.4 | 91.5 | 90.5 | 84.1 | 75.9 |
| 65 years and over | 54.2 | 42.3 | 28.5 | 26.9 | 28.7 | 25.1 |
| PERCENTAGE DISTRIBUTION OF MALES AT WORK IN AGRICULTURE BY AGE GROUP | | | | | | |
| Under 25 years | 15.7 | 12.2 | 11.9 | 12.1 | 12.9 | 11.3 |
| 25-44 years | 31.7 | 28.1 | 32.5 | 31.6 | 31.1 | 31.9 |
| 45-64 years | 36.5 | 42.6 | 42.5 | 43.4 | 41.7 | 42.7 |
| 65 years and over | 16.1 | 17.1 | 13.2 | 12.9 | 14.2 | 14.1 |

the purposes of compiling the official mid-April labour force estimates, is compatible with the assessed differences between the Labour Force Survey and Census approach.

It can be seen from Table 20 that those aged 65 years and over, were not returned in the expected large numbers. In terms of the percentage distribution, the age profile of the male agricultural labour force, based on the interview process of the 1979 Labour Force Survey, is in fairly good conformity with that yielded by the self-enumeration process in 1981. Even bearing in mind that a specific Economic Status question was included in the 1981 Census while this information was only derived from other questions in 1971, the unexpectedly good agreement between the relative number of elderly male agricultural workers in 1979 and in 1981 leads me to the conclusion that the expected survey effects may have been greatly overestimated. The question that remains to be answered then is why the advance expectation, that larger numbers of elderly persons would attach themselves to the agricultural labour force, was not fulfilled. I propose to reexamine the grounds for the expectation which was based on a decrease of 14,000 males and 5,000 females aged 65 years and over, at work in Agriculture, in the four years between 1971 and 1975, a greater decrease than in the previous ten year period.

With the benefit of hindsight, I am arguing that much of the change resulted from a number of continuing social developments unrelated to survey methodology. I will initially consider the development of male participation rates for the older age groups since the 1926 Census of Population. These are set out in Table 21.

At the 1926 Census there were just over 94,000 gainfully occupied males aged 65 years and over of these some 73,000 were in Agriculture. In 1971 the corresponding figures were 66,000 and 44,000; and at each Census between 1926 and 1971 there were between 21,000 and 24,000 gainfully occupied males aged 65 years and over outside the Agriculture sector. Thus the decline in participation rates for males aged 65 years and over, between 1926 and 1971, was entirely due to developments in the Agriculture

TABLE 21 : MALE PARTICIPATION RATES FOR CERTAIN AGE GROUPS 65 YEARS AND OVER

| CENSUS or LFS | AGE GROUP | | | | |
|------------------|-------------|-------|-------------|-------|-------------|
| | 65 and over | 65-69 | 70 and over | 70-74 | 75 and over |
| 1926 | 73.5 | 86.6 | 64.8 | * | * |
| 1936 | 67.3 | 83.7 | 55.2 | * | * |
| 1946 | 62.8 | * | * | * | 47.0 |
| 1951 | 58.4 | 75.8 | 49.0 | 55.9 | 42.5 |
| 1961 | 51.5 | 69.6 | 42.1 | 50.4 | 35.3 |
| 1966 | 48.4 | 65.6 | 38.5 | 46.1 | 32.4 |
| 1971 | 43.9 | 63.9 | 32.6 | 40.0 | 26.2 |
| 1975 | 28.2 | 45.4 | 17.7 | 23.9 | 11.8 |
| 1977 | 26.3 | 42.9 | 15.7 | 22.8 | 9.5 |
| 1979 | 26.0 | 40.2 | 16.5 | 24.3 | 9.5 |
| 1981 (Sample) | 24.8 | 37.4 | 16.6 | 23.4 | 10.2 |

*Not Available

sector. It can be seen from Table 21 that the rate of decline in the participation rate certainly accelerated between 1971 and 1975. This was due to a decrease of some 15,000 in the number of elderly males gainfully occupied in Agriculture combined with a decrease (for the first time since 1926) of 7,000 outside Agriculture which was spread over all sectors. Between 1975 and 1981 there has been no further decline in the numbers gainfully occupied outside Agriculture, while for Agriculture there has been a further decline of some 3,500. There are a number of non-survey reasons which I think may largely explain the accelerated decline in the participation rates for elderly males between 1971 and 1975, as follows:

- (a) The increasing level of old age pension payments in conjunction with the reduction in the age for qualification. The qualifying age which was 70 years up to the end of June 1973 was reduced to 67 from 1 April 1975 (and was further reduced to 66 from 1 October 1977). In this context it is interesting to note that in March 1973 there were some 42,600 males and 63,900 females in receipt of the old age non-contributory pension. Less than three years later, in December 1975, these figures had increased to 52,300 and 79,200 respectively. While entitlement to contributory pension is not affected by continuing employment, payment of non-contributory pension is subject to a means test and the beneficiaries would largely have been previously involved in the self-employed sector, many of them as farmers.
- (b) In Ireland, Agriculture tended to be viewed more in terms of a "way of life", but following our entry into the EEC it came to be regarded very much more as a business. There was considerable discussion that in order to benefit fully from EEC membership, the control of Agriculture should be placed in the hands of energetic young farmers. Such comment must have created extra pressures for

elderly farmers to retire sooner than would have been the case previously. I am not referring here to a formal EEC retirement scheme for farmers, but more to the handing over of control to younger family members.

- (c) The ending of discriminatory practices in relation to the employment of women accompanied by the increased level of social acceptability that women were more likely to continue in employment after marriage.
- (d) The availability of large numbers of increasingly skilled young workers creating pressures on the labour market not experienced heretofore. In this context also it must be remembered that between 1971 and 1975 the traditional pattern of emigration was dramatically reversed and an estimated net immigration of some 60,000 persons occurred.

Reasons such as these considered in conjunction with the remarkably consistent pattern of participation rates between the three Labour Force Surveys and the 1981 Census sample results, lead me to suggest that what was originally thought to be an effect of different survey methodologies may in reality have been largely due to the changing social structure in the Ireland of the early 1970's.

CONCLUSION

Because of the extremely heavy workload involved in fully processing the information collected at a Census of Population, involving aspects such as the organisation of questionnaires into areas, coding stages, data capture, data editing, tabulation procedures, printing and publication of Volumes, there will inevitably be long delays between Census date and the completion of a publication schedule. In this paper I have attempted to illustrate some of the analytical possibilities associated with a special five per cent sample of Census returns. Such analysis will yield information for which an inherent lack of perfection (due to sampling errors) will hopefully be more than counterbalanced by its timeliness. In due course, the extent of the "imperfection" can be assessed as the final Census figures are published: in the meantime the figures, especially those relating to small aggregates, should be used with caution.

DISCUSSION

B. M. Walsh: It gives me great pleasure to propose the vote of thanks to Mr. Garvey on the occasion of his paper summarising some of the details of the 1981 Census of Population. This paper maintains a tradition of papers read to this Society by officials of the Central Statistics Office on the occasion of the publication of Census of Population results. It provides a welcome opportunity for discussion on these results and commentary on the census methodology.

The most important innovation in the Census being discussed tonight, is the publication of results on a sample basis for age, marital status, and labour force status. This is a welcome innovation and I hope the CSO will feel encouraged to extend this approach to other topics, perhaps limiting publication of the more esoteric and expensive items to a sample basis. Of course, using a sample involves some sacrifice in terms of accuracy and we are entitled to expect a gain in terms of speed of publication. In this respect I am a little disappointed to note that even on a sample basis, it is still two years from the date of the Census to the publication of these results. For the record, the second volume of the 1966 Census was published in March 1968 and this, presumably, with very little benefit from microelectronics.

The use of sample results raises another issue. Other countries, notably the US, make a “public use sample” of the Census available to reputable users (for a fee). I recall prevailing on the late Dr. Geary to explore the possibility of a similar practice with the Irish Census returns. The expected response was received, namely, that this would violate the secrecy under which the Census returns were collected. Bearing in mind that the idea is to make available a 1 in 100 or 1 in 1,000 sample of the returns, with all identifying information removed, it is hard to see why this should entail any greater risk of violation of secrecy than the publication of very detailed cross-tabulations with cells containing only one or two cases, (a practice that the US Census avoids on grounds of the need to protect secrecy!).

Turning to the material presented by Mr. Garvey in his paper, I have to be selective in picking topics for comment.

Life Expectancy: The female advantage of 5.3 years, although low by comparison with that found in countries where life expectancy is very high, compares with 4.7 years in 1970–72 or 0.5 in 1925–27. Taking account of the actual level of life expectancy in Ireland, I have argued elsewhere that the Irish male/female differential is not exceptional. (Walsh et al., 1978).

Marriage Rates: The data in Table 7 reveal a tendency for the proportion ever-married to decline between 1979 and 1981 in the case of males and females aged 15–34. This is a marked reversal of a trend apparent since 1946: the popularity of earlier marriage even asserted itself during the depression decade of the 1950’s. But it now appears that the level of nuptiality is levelling off. The evidence in Table 7 is reinforced by the fact that the number of marriages recorded has been declining since 1980. If this trend is confirmed, our nuptiality will have peaked at a lower level than that recorded in most Western countries in the post-war period.

Labour Force Status: The concept “Principal Economic Status” (PES) yields different figures on both the level and trend in the labour force than those derived from labour force status during a reference week, as has been documented in the tabulations of the 1979 Labour Force Sample Survey (Sexton et al., 1982). Mr. Garvey mentions various sources from which supplementary data on the labour force can be obtained. Noticeable, for its absence from this list, is information on the insured labour force from the records of the Department of Social Welfare. In the monthly Economic Statistics, published by the Central Statistics Office, we are told that “Following the introduction of the PSRI scheme in April 1979, it has not yet proved possible to obtain updated estimates of the currently insured population”. This lacuna in our knowledge of the size of the labour force is little short of a national scandal. It is difficult to conceive of any other operation that can imprison people for not paying one-fifth of their earnings but cannot even provide a tally of the total number of people it deals with.

Labour Force Participation Rates: The most striking feature of the 1981 results is the rise in female labour force participation. Whereas only about one-half of the female population aged 15 and over was in the labour force, about two-thirds of the increase in this population is accounted for by an increase in the labour force. The declining importance of “home duties” as a PES for women aged 25–44 years is not confined to married women, as may be seen from Table 15. The increasing labour force participation rate among women has raised their share of the total labour force at an accelerating rate. The following are the proportions of the total labour force represented by women:

| | | | | |
|------|------|------|------|------|
| 1966 | 1971 | 1977 | 1979 | 1981 |
| 25.9 | 25.7 | 27.0 | 27.8 | 28.4 |

The share of women in the total "at work" has risen even more rapidly. These trends are in keeping with experience in the Western world generally and, in fact, Ireland still has a lot of catching up to do in this regard.

Age Structure: The results highlight once more the abnormal age structure of our population and in particular the high proportion aged under 15 years old. The proportion age 15-24 is just short of 18 per cent of the population, which is the highest in the EEC and is often cited as a reason for the high level of youth unemployment found here. But from the data in Tables 5 and 14 it may be seen that correlation between age structure and youth unemployment is by no means close. The Netherlands is only just behind Ireland in terms of the proportion of population aged 15-24, yet its youth unemployment rate is only half ours. France, and Italy, with much lower percentages in the age group, have even higher rates of youth unemployment than Ireland. We have tended to assume, too readily, that our youth unemployment is due in large measure to our population age structure. Empirical studies of, for example, the Canadian experience have not found a close relationship between age structure and age specific unemployment rates (Forrest, 1981).

Unemployment: The Census results suggest a total of 113,000 unemployed in April 1981. At end-March 1981, there were 126,000 on the Live Register and the most recent figure is 189,400, an increase of 50 per cent. Mr. Garvey gives reasons why the Census concept of unemployment, which is more meaningful, tends to rise more rapidly than the Live Register figure during a recession. It is most valuable to have a tabulation of the unemployed by the numbers at work in the household. These statistics fill a gap in our knowledge of the structure of unemployment.

Tables 17 and 18 contain the most important new information in the paper. This is the first time we have been provided with an analysis of unemployment by household composition. A wealth of information will eventually be revealed with detailed cross-tabulations of these results are published. The popular stereotype of unemployment is probably the case of a head of household who is out of work, where the household has no other source of income. These results show that, in fact, just 47 per cent of the unemployed described themselves as the head of the household. From Table 18, it may be calculated that only 42,900 from a total of 111,500 unemployed persons lived in households where they were the sole member of the labour force. As Mr. Garvey points out, just over half the unemployed (50.7 per cent) lived in households where at least one other person was at work. A further 12,000, or 11 per cent, were in households where there was at least one other unemployed person.

It would be very desirable to be able to establish if there has been a trend in the proportion over time. The only source of information in any way comparable to these figures is the tabulation of the Live Register by number of dependents. During 1957, 37.5 per cent of unemployed males had no dependants. The latest available figure, for 1978, shows that this proportion had risen to 44.6 per cent. This would support the belief that the proportion of unemployment accounted for by heads of households or the sole member of the labour force in a household had declined. This aspect of the unemployment statistics is important when we try to gauge the degree of hardship implied by a given level of unemployment.

In conclusion, I would like to congratulate Mr. Garvey on his paper and propose the vote of thanks to him.

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B. J. Whelan: It gives me great pleasure to second this vote of thanks and to congratulate the author on a novel and interesting paper. I hope that the warm welcome accorded to valuable material presented to us tonight will encourage the CSO to repeat and extend these sample exercises in the future.

Professor Walsh has already dealt with a number of the substantive issues raised in this paper. My comments will lean more towards the underlying methodology. First, I would like to make the point that the procedure adopted in other countries of coding only a sample of the most cumbersome questions is less likely to be useful in Ireland. Our smaller absolute population means that significant cost savings could not be achieved unless many of the useful disaggregations were abandoned.

Second, I would disagree with the author's conclusions that the errors in the initial grossing cast doubt on the reliability of samples. It is acknowledged that an avoidable error (a bias) crept into the present design resulting in the over-representation of the larger households. This seems to be the main cause of the over-estimate in the initial grossing. It is not helpful to present, as is done in the paper, the gross differences between the sample estimate and "true" value because these differences confound bias and sampling error. The former is unlikely to occur in Labour Force Surveys and hence it is only the (small) component attributable to sampling fluctuations which will lead to errors. It would, therefore, be very interesting if the author could disaggregate the total error into its two components.

While on the subject of sampling errors, it might be noted that the use of the simple random sampling formula will tend to over-estimate the standard error. This is because the design involved is more appropriately considered as a stratified sample with uniform sampling fraction within each stratum, (EA).

The true s.e. would be

$$N \sqrt{\sum_{h=1}^L \frac{N_h}{N} \frac{\sigma_h^2}{n_h} \left(1 - \frac{n_h}{N_h}\right)}$$

where L is the total number of strata (EA's = 3145).

N_h is the total number of households in stratum h.

σ_h is the population standard deviation of household size in stratum h.

n_h the number of households in the sample from stratum h.

It would also be interesting to have some information about the cost of the sampling procedure. This would help to determine whether 5 per cent is the correct sample size.

To turn to more substantive issues, I think the official school leaving age (which is higher in a number of European countries than in Ireland) should be borne in mind when interpreting Table 15. The analysis of labour force participation by married women is interesting. I would tend to agree with the author's view that this is likely to increase. In addition to the points he makes, it might also be pointed out that participation on a part-time basis may also have increased without being fully reflected in the figures presented.

I would, tend to disagree, however, with the author's interpretation of the enormous drop in labour force participation by over 65's as a real event, rather than a spurious

phenomenon caused by different interview techniques. While the points he makes about the increased availability and level of pensions do have some validity, I doubt that social change is quite so cataclysmic as the figures suggest. Furthermore, I think the emphasis on the differences between interview and self-completion approaches is misplaced. The real issue is, I feel, the design of the interview schedule. If one examines the actual schedule used in the 1971 Census and earlier, the data on labour force status were inferred from the respondents' answers to the question headed "Occupation". It is eminently plausible that many retired people filled in their former occupation here. In the Labour Force Surveys and in the 1981 Census, however, the form contained an explicit pre-coded question on employment status, one of the categories of which was "retired". This form of question is likely to produce a higher (and more valid) figure for the number of retired persons. This would account for the substantial discontinuity between 1971 and 1975, and the consistency of the 1979 and 1981 figures.

In conclusion, I would like to thank the author for a most interesting paper and to commend him and the CSO for this important initiative.

J. J. Sexton: I would like to add my voice to that of the previous speakers in congratulating Mr. Garvey on a very fine paper. I will not dwell too much on the demographic aspects of the paper, as this has been covered in some detail by earlier speakers, except to note with interest the age classification of the net migration flows for 1979/81 given in Table 9. The evidence of fairly significant outflows in the younger age groups is not altogether surprising, as I would have considered it more likely that the change in the overall migration scenario, which materialised after 1979, was due to a greater outflow of younger people rather than reduced inflow of former migrants with their families. One aspect of this table which I find rather puzzling, however, is the net inflow of about 5,000 in the 25-44 year age category along with a child inflow of near zero proportions. However, as the author points out, these estimates are residuals; are based on a sample and the position may change somewhat when the final 1981 Census results are used in these calculations.

With regard to the question of "public use" samples derived from basic census returns raised by Brendan Walsh and Brendan Whelan, I naturally appreciate the usefulness of such a facility to researchers but I would have reservations lest the practice to be misunderstood by the public at large in regard to confidentiality. I would settle for more flexible access to the census computerised file, whereby users' programs could be applied to the data, subject to the output being vetted by the CSO. Such a procedure is currently followed satisfactorily with the Household Budget Survey data.

I would like to reserve most of my comments for the part of the paper relating to the labour force. Concerning the difficult question of deriving a consistent series of labour force estimates from successive surveys and censuses, I, too, was looking forward to the issue of the 1981 Census results in the expectation that they would throw further light on the situation. As with all major surveys of this kind, there are some surprises, notably the relatively low figure for the numbers at work in agriculture in 1981. As for the question of compiling a consistent series of estimates covering the entire decade of the 1970s, as many here are aware, I made an attempt some time ago to compile such a series. The method then employed involved adjusting some of the aggregates from the 1971 and earlier censuses, mainly the totals for the number at work in agriculture and for the unemployed. I would presume, even though it is not explicitly said, that it is to these estimates that Donal Garvey is referring at the end of his paper. In putting forward the view that the original census employment aggregates were largely comparable with those from the subsequent Labour Force Surveys, the author refers extensively to the figures for those at work aged 65 years and over, indicating that a

number of social welfare improvements, changes in attitude etc., would have contributed to a significant fall in the participation rate for this age group between 1971 and 1975. Certainly these developments would have had an effect on participation among older people but I doubt if they could have accounted for all of the significant decrease which actually took place. In analysing this problem, one has to look not only at the age group covering persons aged 65 years and over, but also at the immediately younger age groups. The adjusted figures which I compiled some time ago involved quite sizeable changes in this area also. If one considers, for example, the age category relating to males, aged between 55 and 64 years, it will be noted that the labour force participation rate as given by the 1971 and the immediately preceding censuses is of the order of 90 per cent. In fact, the census series indicates a slight rise in participation in this age category over the 1960s. In the 1975 Labour Force Survey, however, participation is seen to have fallen sharply to about 82 per cent, and a similar level is indicated for 1977. It fell to 78 per cent in 1979 and, significantly, rose again to 80 per cent in 1981.

If one moves down to the age group covering persons aged between 45 and 54 years, and here we are dealing with a category where labour force participation would not have changed at all over the whole period, the censuses indicate a constant level of participation of 97 per cent throughout the 1960s but the Labour Force Surveys indicate an equally constant level of about 92 per cent covering the period from 1975 onwards. In short, even though I am not claiming any undue wisdom in relation to the estimates that I have made, I really do not believe that you can compare the Labour Force Survey estimates for unemployment and Agricultural employment with the earlier Census data. The changes in the ratios to which I have referred are too sizable and too abrupt; and I do not consider that you can attribute them entirely to social or economic changes during the period 1971 to 1975. It should also be noted that, if one is to assume that the original 1971 census figure for males at work in Agriculture can be compared with the corresponding Labour Force Survey estimate for 1975, then the implied decrease is nearly 32,000 compared with a much lower figure of 23,000 as indicated by the Males Engaged series derived from the Agricultural statistics.

Turning now to the current labour force estimates, having noted what Donal Garvey has said in his paper and studied the details of the report on the Sample Analysis, I would largely agree with the changes which the CSO has made in the sample census results in order to achieve a consistent employment series covering the period since the Labour Force Surveys were instituted in the mid-1970s. I do have some doubts, however, about the size of the unemployment estimate for 1981, not, I might add, in its own right as a census figure, but whether it is strictly comparable with the corresponding total from the 1979 Labour Force Survey. The increase here is estimated at over 42,000 compared with a Live Register net rise of over 36,000. However, all of this difference relates to males. In fact, the increase in the Live Register for females is slightly greater than that indicated by the 1981 census and the 1979 Labour Force Survey. In relative terms, the survey approach indicates a rise in male unemployment of over 60 per cent while the Live Register indicates an increase of under 40 per cent, a very substantial difference indeed. This prompted me to start probing through the detailed figures in the Sample Analysis Report to see if I could identify any areas which might have contributed to this difference. One unusual feature which I did notice is that there appears to have been an unexpected rise in the participation rate for older single males, i.e., those aged 45 years and older. In the 55 to 59 year age category for example, the series of Labour Force Surveys indicated that participation in this age group was falling and by 1979 it had reached a level of 74 per cent, but the 1981 report indicates

this as having increased again to 78 per cent. Similar "horse shoe" type trends are evident for the adjacent age groups but the corresponding participation rates for married males are shown as having remained stable. This leads me to suggest that perhaps under the Census self-classification system some older single males, who would have been categorised as inactive in a Labour Force Survey (i.e., as permanently ill, retired etc.), have been classified to the labour force in 1981 and it is more likely that such persons would end up as unemployed rather than employed. The size of the absolute difference that could be attributed to this apparent phenomenon is not very great. Perhaps it would reduce the unemployment total for 1981 by up to 5,000. But even this would result in a better compatibility between the trends indicated by the two sources (the Surveys and the Live Register). It would also mean that the net increase in the labour force for 1980/81 in the current estimates would be closer to what one would have normally expected on the basis of past experience (i.e., about 20,000). I must admit that I have some reservations about the size of this increase (25,000) particularly in the teeth of a recession when most commentators would lean to the view that labour force growth slows down during such a period. Another aspect which needs to be looked at here is the parallel movement in the adult population, in so far as this can be estimated. The population aged 15 years and over went up by over 67,000 between 1979 and 1981 and, working on the basis of the CSO's own estimate of the total population for the year 1980, it would appear that about 36,000 of this increase was concentrated in the year 1980/81. Recent data published by the Department of Education in the Statistical Report for 1980/81 now indicate that the net increase in the number of full-time students, aged 15 years and over during the same twelve month period, was about 8,000 and this, therefore, when combined with the estimated labour force increase of 25,000 leaves very little room for any increase in the remainder of the non-active population (which total nearly 1 million). If one looks back over the previous labour force surveys and censuses, it is clear that the net movements in this latter aggregate have been fairly substantial and at no stage did they ever come as low as 3,000, which is the figure for 1980/81 as suggested by the current labour force estimates.

I think at this stage that we have had enough of detailed dissection. Where we should turn our minds is to utilising the experience of recent years derived from the series of Censuses and Labour Force Surveys in order to help us to decide as to what, now, is the best approach to use in order to achieve a consistent series of annual labourforce estimates for the future. The question of having an annual Labour Force Survey has been under consideration for some time: it was one of the principal recommendations in the report of the Study Group on Unemployment Statistics issued as far back as 1979. A Labour Force Survey is currently being taken in respect of 1983 and perhaps the CSO representatives here tonight will enlighten us as to whether this is, in fact, the start of an annual series. While many would consider that this is the obvious solution to the problem and, on balance at this stage, I, myself, think that it is an approach that should be followed. There are potential difficulties involved which cannot be dismissed out of hand as being insignificant. Apart from the question of sampling errors (and this has been considered by the author and other speakers here tonight), there is the crucial problem of the annual population estimates which are used to control the labour force survey figures. It is extremely difficult to compile accurate estimates on an annual basis here, mainly because of the difficulties with the volatile net migration component. Having embarked on an annual series of inquiries the fear is that come the next Census of Population after some four or five years, and the expenditure of four million pounds worth of taxpayers' money, the labour force estimates will be found to be seriously out of line. Nevertheless, I see no other alternative at the moment, as it is of vital importance, particularly in the years ahead, to have a consistent series of estimates of the

labour force and of its sectoral components. Even if adjustments subsequently have to be made, at least we will have had a series which is internally consistent, compatible with movements in the estimated population, (and this is very important). Furthermore, the survey estimates should be capable of indicating significant shifts between sectors, particularly, for example, in relation to the private services area about which we know very little on an ongoing basis. It may be argued that other less expensive approaches should be explored, for example, the PRSI file of employees. However, judging from the signals which I hear coming from that source, it is likely to be many years yet before the system is in a sufficient shape to yield meaningful statistics. In any case it will yield information only on employees. Nothing will be discernible about the self-employed who are a rapidly growing group outside of agriculture. Furthermore, it would not be possible to present the estimates in the context of the population as a whole which, as I have said, is a very important aspect in view of the rapidly changing pattern of participation.

I should like again to commend Mr. Garvey for a very excellent and well presented paper and I feel sure that he will not take issue with the points which I have raised. Apart from the interesting material presented, one of the major advantages of this paper is that it has given all concerned an opportunity to have a discussion on this important subject of labour force estimates. Having listened carefully to the presentation of the paper and the discussions so far I have no doubt that we will all go away considerably more enlightened about the subject as a whole.

E. Embleton: I wish to be associated with the vote of thanks to Mr. Garvey for an excellent and very readable paper. I am aware that a lot of hard work went into its preparation and this is clearly manifested by the contents. We owe Mr. Garvey a considerable debt of gratitude. I do not propose to raise questions on the paper but to take up some wider issues raised by the three previous speakers, each of whom has posed questions generally relevant to a number of CSO activities.

First, I wish to comment on the question of public use samples. CSO is fully aware of researchers' needs in this area and the restrictions imposed by the Statistics Act. I can only say that in any review of that Act, we will certainly bear in mind the particular issue of public use samples. Presently, there is much debate on the subject in a number of countries, in which many diverse and opposite views are being expressed. In any consideration of the matter, it is essential that the prevailing attitude of the public, on whom we depend for the basic information, be taken into account. Their interest and privacy must be adequately protected.

Second, there was a plea for more timely results. I repeat what has often been said before and assure everybody that it is our desire also to provide statistics as quickly as possible. The present analysis of a sample of the 1981 Census returns is a step towards providing more timely results. While we have an open mind towards similar exercises for future Censuses, if the present analysis proves successful (and we think it will) then we would be encouraged to repeat it in future and to extend it to all Census topics.

Third, the question of an annual Labour Force Survey has been raised. The need for these has been recognised. The EEC Commission, which promotes the EEC-wide surveys, has formulated proposals for annual surveys, beginning in 1984, to replace the existing biennial series. Member States, including Ireland, are in the process of examining these proposals and it is anticipated that an early decision will be made.

Finally, there was a reference to the non-availability of an up-to-date figure for the insured workforce. Since the PAYE/PRSI scheme was introduced in April 1979, it has not yet been possible to obtain such a figure. We have discussed the matter with the Revenue Commissioners and the Department of Social Welfare and I think it only fair

to point out that a number of difficulties have arisen. Efforts to resolve these are continuing and we would hope that up-to-date figures will eventually be available on a regular basis.

To conclude, I wish again to congratulate Mr. Garvey on an excellent paper.

G. O'Hanlon: There are major difficulties involved in deriving accurate trend information from censuses and household sample surveys. Users are often not sufficiently aware of these problems and I therefore welcome Mr. Garvey's examination of the difficulties encountered with recent Censuses of Population and Labour Force Surveys in this regard.

In identifying the problems which can arise with sample surveys, Mr. Garvey suggests that "independent well-based population estimates" should be used as controls. While these "controls" can undoubtedly help in constraining the overall population estimates they can be totally in-effective in correcting for biases in the distribution of that population. For example, I would suggest that, notwithstanding the population correction factors which were used, the number of students estimated from the 1979 survey is not strictly comparable with the estimated levels for 1977 and 1981 because of differences in the timing of the surveys (April in 1977 and 1981 as opposed to end-May/June in 1979). Similarly, I would contend, like other speakers tonight, that the relatively large decline observed in agricultural employment of persons aged 65 and over between 1971 and 1975 is due, to a significant extent, to fundamental changes in the questionnaires used.

Many of these problems of comparability have arisen because the individual censuses and surveys were designed with the primary objective of providing independent benchmark estimates of the population and labour force. It is clear that there is a considerable demand for accurate trend information to the extent that this requirement should probably be the main objective in the design of future surveys. In this regard I would stress the absolute importance of avoiding, as far as possible, such obvious distorting influences as changes in questionnaire, different survey reference dates and changes in sample design or field force procedures.

I would also like to comment briefly on the calls we have heard for the provision of individual Census returns, in anonymous form, to researchers for detailed analysis. While I can agree with the desirability of doing this I must add a word of caution. It is clear that the public are becoming increasingly concerned with possible infringements of their right to privacy particularly in the modern computer age. The Census of population, because of its high profile, is unfortunately an obvious target for groups who wish to protest against such infringements. The recent decision of the German Constitutional Court, which has effectively forced the postponement of their planned census, in response to an action by a small minority group, is an example of what can happen. Any change in the Statistics Act to facilitate researchers should, therefore, be considered in the context of it being misinterpreted by the general public.

Mr. W. A. Honohan: This paper was pre-eminently suitable for the Society in that it provides plenty of statistics and plenty of "social inquiry". Whatever about the technical justification for the validity of results achieved by sampling, a public relations exercise was required before the public generally would be prepared to accept conclusions based on sample without having to look over one's shoulder, as it were, to other criteria or sources for "confirmation". Could it be established, for instance that a 5% sample was preferable to a 1% or 10% sample. The full census results were not, of course, themselves "perfect". Are we improving in this respect, and how do we stand

by reference to other countries? Sampling gave quick results, but would it, in time, render unnecessary the publication of the full results, apart perhaps from keeping a record of the real thing!

The question of public pressure was mentioned in connection with the possible invasion of privacy. It is of interest to note that in the United States a case is being pressed for the publication of a Unisex Life Table instead of separate Male and Female Life Tables — a line somewhat akin to the objections voiced there against comparisons of mortality rates of black and white people, on the grounds that this was discriminatory.

It has yet to be determined what is the best periodicity for censuses (e.g. is the quinquennial one to be reviewed?) and Labour Force Surveys, and what is to be done about the vexed question of marital status. The traditional married, single and widowed grouping is becoming less relevant in modern times, especially if international comparisons are to be continued.

Reply by D. Garvey: I would like to thank all of the speakers who contributed to the discussion on the paper.

Turning first to the methodological points raised by Brendan Whelan I would like to confirm that I used the simple random sampling formula to calculate the standard error estimates of Table 4; having discovered that the more correct stratified sampling formula made very little difference to the standard error estimates for a few of the smaller countries. I agree that it would be interesting to estimate the contribution of the bias in sample selection to the population estimate error of 28,300 and if our future Work Schedule permits it we might redraw the sample by computer and recalculate the various aggregates. Of course my comments relating to County labour force estimates are not calling into question the reliability of samples, but at the same time it is necessary that users be aware of the limitations of results from sample surveys. Finally the cost of this particular sampling procedure, being just a part of the whole Census operation, was small and has no relevance to the cost of, say, a Labour Force Survey where the field structures would have to be established for the specified purpose of data collection.

As Brendan Walsh observes, the figures in Table 8 suggest a levelling off in nuptiality with early marriage becoming less popular for the under 35's. This has interesting implications for the level of future births and of course for the labour force since labour force participation rates vary dramatically by marital status, especially for females. An increasing tendency to remain single could very quickly result in a large increase in the female labour force under 35 years of age. This would seriously affect the labour force/population ratios referred to also by Jerry Sexton.

As outlined in my paper I believe that up to 1981 the Irish economy had been quite successful relative to other countries in providing jobs for our young people. I agree with Brendan Walsh that our youth employment problem was at that stage symptomatic of our overall unemployment problem. One particular demographic structure however certainly carried warnings of a relative worsening of the employment situation for young people after 1981. Such a problem can be dealt with only in the context of increasing overall employment levels. Special measures with possible labour force displacement effects do not provide a long term solution.

Jerry Sexton, Ger O'Hanlon and Brendan Whelan all wondered about the extent of the effect of changes in form design and survey approach on the numbers recorded as being at work in agriculture between 1971 and 1975. Of course it is easy to take a stance either way on this since no information exists to prove or disprove a particular viewpoint; and I include my own observations as expressed in the paper in this comment.

However I think that *a priori*, at least, it was expected that the Census self-enumeration methodology would yield a count of persons at work in agriculture far in excess of that estimated on the basis of the direct interview approach of the 1979 Labour Force Survey. When in the event this did not materialise — indeed an unexpectedly low figure was obtained — it strongly suggests that other significant factors must be at work. The main purpose of that section of my paper was to log the extensive social changes which occurred in the early 1970's and to suggest that these must be important factors to be taken into account in any analysis of the 1971–1975 period. The extent to which the measured decrease in agricultural employment can be attributed to different questionnaire design rather than to the extensive social changes is purely a matter for conjecture but I believe the latter must play a significant role.

The “horseshoe” pattern of some age-group participation rates noted by Jerry Sexton certainly exists but it is unclear whether the 1979 or 1981 rates may be out of line. This point, and that relating to the level of the unemployment estimate for 1981, will be cleared up only when we have data from the 1983 Labour Force Survey.

The more general comments relating to “public-use samples”, annual labour force surveys and the data-flow problems of the PRSI system have all been dealt with by Eric Embleton and I would not disagree with his comments. I would personally not agree with any moves which might be interpreted as a relaxation of confidentiality guarantees to the public. If a hardening of public attitudes prevented us from collecting the basic data, than a willingness to make public-use samples available would count for nothing.