

Birth Under-Registration in the Republic of Ireland during the Twentieth Century

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Précis: The efficiency of birth registration in Ireland is investigated in this article by comparing the number of registered births with Census age-distributions in the period 1916-1971. It is argued that there was a sudden increase in the efficiency of birth registration in 1942-44 as a result of the greater incentives to register births, whilst a certain amount of under-registration, in the order of 3-10 per cent, existed from 1916 to 1941. Generally speaking, registration was more complete in Leinster and Munster than in Connacht and Ulster. After 1956 birth registration was more or less complete. The findings are relevant in understanding the evolution of an efficient system of birth registration in Ireland, and also in analysing national and regional fertility trends and patterns, natural increase and migration.

I INTRODUCTION

Little research has been conducted into the extent of birth under-registration in the Republic of Ireland during the twentieth century. However, this would seem an important field of enquiry not only in contributing towards an understanding of the development of an efficient vital registration system in Ireland, but also because of the need to take into account the effect of inaccuracies in birth registration in assessing national and regional fertility levels and trends and also in deriving estimates of natural increase and emigration. This paper attempts to contribute to this rather neglected subject by using Census and Vital Registration data to assess the extent of such inaccuracies during the twentieth century and to examine whether there were marked regional variations in the efficiency of birth registration.

Several researchers have emphasised the problems of obtaining full coverage in the first half century of vital registration from 1864 (Cousens 1963,

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1964, 1968; Walsh 1970; Verrière 1979; Thompson 1919; Vaughan and Fitzpatrick 1978). Little attention, however, has been paid to whether such problems persisted throughout the twentieth century.¹ The work of Dean and Mulvihill (1972) and Hughes (1977) is thus relevant in this context. Dean and Mulvihill (1972), in a study of birth and death registration in a sample of parishes in the west of Ireland between 1965 and 1969, estimate that slightly less than two per cent of baptisms were not registered. On this basis inaccuracies in birth registration were not severe in the late 1960s and the authors suggest that late registration was more of a problem than non-registration.

For the period prior to 1942, however, Hughes (1977) suggests that the scale of under-registration was quite considerable. He argues that the introduction of rationing in 1942 and of child allowances in 1944 provided strong incentives for parents to register births. Before this period fewer incentives existed and consequently problems of under-registration were more severe. Hughes contends that the dramatic and sustained increase in the number of registered births after 1941 (from 57 thousand in 1941 to 66 thousand in 1942) provides strong evidence for his case. Such an increase, he argues, cannot be explained solely, as suggested by the Commission on Emigration (Ireland, 1955, p. 89), by a tendency towards a more prompt registration of births with the introduction of rationing or by the effect of changes in the numbers marrying.

One of the major aims of this paper, therefore, will be to follow up Hughes's suggestions and attempt to judge whether there was a sudden increase in the efficiency of birth registration from 1942, and also to estimate the extent of the under-registration of births before and after that date.

II METHODS AND DATA CONSIDERATIONS

Unfortunately there is no fail-safe method of accurately judging the extent of birth under-registration in the Republic of Ireland. Dean and Mulvihill's technique of checking individual baptismal records with registra-

1. Walsh (1970 p. 153) has suggested that over-registration of births occurred in some counties at the beginning of the twentieth century and quotes Cousens's (1964 p. 305) finding that local medical officers could augment their stipend by making fictitious entries. However, Cousens's evidence is based on one observation from Co. Mayo in 1864 (the first year of registration) whilst in another article (1963 p. 155) he suggests that under-registration was present in the period 1881-91 and does not mention over-registration. Furthermore Walsh uses information on the number of children aged 0-1, those ages most likely to be under-enumerated at the Census. Most authors, including Pantelides and Coale (1978 p. 6) mention under-registration as the central problem in the efficiency of birth registration and it is likely that, on a national basis, any local pattern of over-registration at the beginning of the twentieth century would be more than compensated by overall under-registration.

tion records is a useful method to adopt, but becomes a particularly onerous task when attempting the procedure on a national scale and covering different time periods.

The method adopted here uses data that are more readily available and involves comparing the number of registered births with information on the number of young children given in the Census of Population. In the absence of under-recording of births (and of inaccuracies in the Census data) it would be expected that the number of young children recorded in the Census, adjusted for mortality and migration, would accord with the number of registered births covering the same period. Consequently, any differences would represent either over- or under-registration of births. Unfortunately, however, while the method is straightforward in principle it is more difficult in practice because there are problems regarding the accuracy of the data sources and in obtaining information on the net migration of children. Therefore the conclusions from this analysis must be rather tentatively drawn but, given the importance of this topic, it seems appropriate to provide some approximation of the level of birth under-registration in Ireland. Walsh (1970) has used similar techniques to examine the accuracy of data around 1911, although no previous attempts have examined the data for later periods. This paper, therefore, compares registered births with the numbers of young children for the Censuses of 1926, 1936, 1946, 1951, 1961 and 1971. First, it is necessary to consider certain aspects of the data sources and to discuss the nature of the data problems.

II.1 The Timing of the Census

The Irish Census is normally conducted in April of the Census year (May in 1946) and therefore the age structure of the population is measured around that date. As the numbers of registered births are given by quarters, it is not possible to equate fully the cohorts used in the Census and the Registration data. Nevertheless, a reasonably accurate comparison can be made by aggregating the numbers of births from the last three quarters of one year and the first quarter of the following year, and this method has been adopted throughout this analysis.

II.2 Births by Year of Registration

Prior to 1970 Irish Vital Statistics were published by year of registration rather than by year of occurrence and this feature will somewhat blur the comparison between Census age distributions and recorded births. Perhaps the best way around this problem is to compare a series of single-year ages (such as 0, 1, 2, 3 . . . 9) in order to obtain an overall impression of year-to-year fluctuations, rather than relying on one age distribution only (such as children less than one). Similarly, a general picture can be obtained by con-

sidering broader Census age groupings, such as 0-4 and 5-9. This problem should not be particularly acute, providing there are not too many "late" registrations.

II.3 *"Late" Registration of Births*

Late registration of births (where more than one year has elapsed since the birth) is issued on special authority and in the period 1936-50, for example, generally represented 2-3 per cent of all births registered. This feature will therefore lead to a slight blurring of the comparison of age distributions and registered births. Two additional features can be noted: first, the number of late registrations increased dramatically in 1944 and second, late registrations were excluded from the main body of the Annual Reports on Vital Statistics from 1943 onwards. These features will be discussed further in the analysis of the 1946 data.

II.4 *The Accuracy of Census Data*

The method of analysis used here rests firmly on the assumption that the Census data are completely accurate — an assumption that is unlikely to be fully correct. There are two possible sources of error, involving correct statement of age and overall coverage of the population. The Census of 1936 (volume V part 1, p. vii) reported that age misstatement had been a serious problem in earlier Censuses, while "considerable improvements" had been made in 1936 due to the careful and explicit instructions given to the Census enumerators and householders concerning the recording of exact ages. A cursory examination of the population by single years of age in 1926 indicates a considerable degree of age heaping in the adult population at ages ending in digits 0 and 5, but this problem appears less severe at ages below 20. Once again, perhaps the best method of tackling this problem is to consider a series of Census age distributions in single years 0 to 9 (rather than using one or two years only) in addition to using broader age groupings such as 0-4 and 5-9 years.

It is very difficult to assess whether all young children (or indeed, the total population) were included in Irish Censuses, particularly earlier this century, and it is perhaps somewhat unrealistic to assume that coverage was 100 per cent complete. The Census of 1936 (volume V part 1, p. 222) states that "... the numbers of children at ages 0 and 1 are somewhat understated at the Census ... in this and other countries" and this feature again hinders the accurate comparison of Census and Vital Registration data. A similar problem occurred in the pre-war Censuses of England and Wales and in 1931 (General Report) it was noted that "... it had been repeatedly observed that the enumerated numbers of children under one year of age were markedly less than those that might have been expected from the survivors of the births

of the preceding 12 months". This feature was attributed to either some householders mistakenly failing to enumerate recently born children whose births had not been registered by the time of the Census or the deliberate omission by recently married couples of children conceived extra-maritally. The under-enumeration of young children will therefore be associated with underestimating the extent of under-registration or overestimating the extent of over-registration. For the purposes of this analysis, it will be assumed initially that Census coverage of young children is complete, but the problem will be considered again at a later stage.

II.5 Accuracy of Mortality Data

Given accurate data on mortality, it is possible to calculate the size of an original birth cohort from a Census age distribution of young children (assuming an adjustment for migration has also been made). This can be computed through life table techniques, where the size of the original cohort of children aged 0-4 at the Census (${}_5P_0$) is given by:

$${}_5P_0 = \frac{l_0}{{}_5L_0/5}$$

where l_0 represents the life table radix (original population) and ${}_5L_0$ the average number of children aged 0-4 alive. This can be calculated for age groups and for single years of age.

While Irish life tables have been calculated and published from 1926 onwards, they are based on registered deaths and are therefore likely to underestimate mortality. Thus the major problem is in attempting to estimate the extent of the under-registration of deaths. Once again, this topic has received little attention. Dean and Mulvihill (1972) show that approximately 7 per cent of deaths went unrecorded for a sample of parishes in the west of Ireland in the period 1966-69. If this pattern was typical of all western Ireland and if a certain amount of under-recording was present in other parts of Ireland (assumed to be 2.5 per cent) then the overall proportion of non-registered deaths amounts to 4 per cent of all deaths in this period.² Furthermore, it can be assumed that the degree of death under-registration was considerably in excess of this figure for earlier periods. Verrière (1979, p. 497), for example, has calculated adjusted infant mortality rates for the Republic of Ireland for certain periods, suggesting that while these provide only crude adjustments, they do, at least, provide an acceptable approximation. Thus for the period 1931-36 Verrière's estimated infant mortality rate of 83 per 1,000 births contrasts with the recorded rate of 69 and on

2. Western Ireland defined as the Province of Connacht plus counties Donegal, Clare, Kerry, Limerick and Cork but excluding Limerick and Cork county boroughs. The figure of 2.5 per cent is based on the assumption that there was a certain amount of death under-registration in eastern Ireland, but at a level well below that of western Ireland.

this basis approximately 20 per cent of infant deaths were unrecorded in this period.

In order to observe the effects of differing mortality levels on Census age distributions, the present analysis will use the unadjusted values of the Irish life tables in addition to using adjusted life table death rates to allow for the under-registration of deaths. For the latter, the life table death rates (q_x) of young children were increased by 10 per cent for the 1946 life table and by 15 per cent for the 1926 and 1936 life tables. While these adjustments are necessarily crude, it can be noted that because a relatively small proportion of children die during the young ages in the Republic of Ireland (as in other developed countries) such adjustments make only a small difference to the calculated proportions of children surviving the early years of life. Consequently any errors made in the assumption concerning death under-registration should not have a profound effect in the final analysis. For example, on the basis of the published life tables for 1936, some 10.7 per cent of an original birth cohort would be expected to die before reaching the age of 5; increasing the life table death rates by 15 per cent means that the corresponding figure is 11.6 per cent.

II.6 *The Migration of Young Children*

The method of analysis adopted in this study must also make some allowance for the migration of young children, as a net outflow of young children will lower the numbers given in the Census, thus either under-estimating the extent of under-registration or overestimating the extent of over-registration.

It is difficult to assess the extent of the migration of young children because of inadequate data, although immigration can be estimated through the Census tabulations of birthplace classified by age. In 1946, for example, the proportions of the resident population aged 0-2, 3-4 and 5-9 born (and presumably registered) outside the Republic of Ireland were 1.7, 2.1 and 3.1 per cent respectively and the Census age distributions can be adjusted to allow for this immigration.

The major problem lies in trying to estimate the numbers or proportion of children who were born in the Republic of Ireland but who emigrated prior to the Census. In general terms it is known that young children have normally constituted a small proportion of all emigrants because the majority of adults emigrating have been young and unmarried. Thus the proportion of young children (0-9) to all emigrants in the first two decades of this century was 6.5 per cent (Table 1), while the emigration rates of children aged 0-9 were between one-quarter and one-seventh of the rate for the overall population (Table 2). Similarly the emigration rates of children aged 0-11 to places outside Europe in 1926 and 1936 (the former date being one of

relatively heavy emigration, particularly to North America, and the latter date representing one of low overall emigration) were between one-third and one-sixth of the overall rate (Table 3).

Table 1: *Emigrants aged 0-4 and 5-9 as percentage of all emigrants*

Period	0-4	5-9	0-9	Total, 0-9
1901-10	3.7	2.8	6.5	22,844
1911-20	3.4	3.1	6.5	9,545

Source: Registrar General: Emigration Statistics of Ireland, 1901-20.

Table 2: *Emigration rates from the 26 counties, 1901 and 1911*

Age	1901			1911		
	Number of emigrants ¹	Population	Emigration rate ²	Number of emigrants ¹	Population	Emigration rate ²
0-4	366	307,165	1.2	897	311,758	2.9
5-9	299	310,163	1.0	711	318,106	2.2
All ages	21,926	3,139,688	7.0	35,885	3,221,823	11.1

¹ Average number 1900-2 and 1910-12.

² Per 1,000 population.

Source: Census of Population 1901, 1911; Registrar General's Emigration Statistics of Ireland, 1900-1902, 1910-1912.

Table 3: *Emigration rates¹ from the Republic of Ireland, 1926 and 1936*

Age	1926			1936		
	Number of emigrants ²	Population	Emigration rate ³	Number of emigrants ²	Population	Emigration rate ³
<12	1,243	688,135	1.8	108	647,663	0.17
All ages	29,123	2,972,000	9.8	1,760	2,968,400	0.59

¹ To places outside Europe and the Mediterranean Sea.

² Average number 1925-27, 1935-37.

³ Per 1,000 population.

Source: Census of Population 1926, 1936; Irish Trade and Statistical Bulletin, 1925-27, 1935-37.

There is, however, no completely accurate method of measuring the migration of children for the period of study. Thus the ten-year spacing

of censuses between 1926 and 1946 means that census survival rates (a product of mortality and migration) can only be calculated for rather broad age groupings (such as 0-10, 1-11, 2-12 etc.) while information on the number of children born in Ireland but living outside Ireland, a potentially useful method of analysis, is limited by the difficulty of collating such information and the fact that the timing of the Census in countries of destination does not accord with that of the Republic of Ireland.

The migration trends of children for the post-war period are somewhat easier to discern because of the similarity in the timing of the Censuses in Ireland and Britain (the major destination of Irish emigrants in this period) and because the Censuses provide tabulations of birthplaces classified by age. Moreover, for this post-war period the Central Statistics Office has estimated net migration by age for the five-year period prior to each of the Censuses 1951, 1956, 1961 and 1966 (Census of Population 1966, vol. ii, pp. xv-xviii). These estimates are based on comparing actual population numbers in one Census with an expected number based on the number of survivors out of the group five years younger given in an earlier Census.³

Given the problems of estimating migration, particularly for the pre-war period, this analysis will attempt to gauge the extent of birth under-registration under a series of assumptions regarding the migration of children. Five such assumptions will be used for the pre-war period of study:

Assumption 1: Net immigration

It is assumed that emigration is zero and that a certain amount of immigration has taken place. The latter is determined from information on the proportion of children resident in the Republic but born outside (1.7 per cent of children aged 0-2 in 1946, for example) and the Census age distributions of children are adjusted to allow for this net immigration.⁴

Assumption 2: Zero net migration

Here it is assumed that the outflow of young children is the same as the inflow and thus the age distributions of young children given in the Census are "correct".

Assumption 3: Net emigration of 1 per 1,000 per annum;

3. These are calculated for five-year age groupings using the published life table survivorship rates. The estimates do not differentiate between persons born in the Republic of Ireland and those born outside.

4. In 1926 and 1936 the Census classifications of birthplace by age are not as detailed as that of 1946, referring to children >12 as one group. However these average figures referring to the proportion of children >12 born outside the Republic (2.2 and 1.8 per cent in 1926 and 1936 respectively) have been redistributed for age groups 0-2, 3-4 and 5-9 using the same ratio between the age groups as that for 1946.

Assumption 4: Net emigration of 2 per 1,000 per annum.

It is assumed that there has been a net loss of young children at an annual rate of, respectively, 1 or 2 per thousand. During the period 1911-46, the overall annual rate of net emigration for intercensal periods 1911-26, 1926-36 and 1936-46 amounted to 8.8, 5.6 and 6.3 respectively per thousand population. The estimates for children are calculated on the basis that their rates of net loss are between one-third and one-seventh of the average per total population. This, in turn, assumes that the ratio between child and overall gross emigration rates (Tables 2 and 3) represents a valid guide to net migration trends. Thus Assumptions 3 and 4 allow for a certain amount of net loss of children, but at a rate less than that for the overall population. In adjusting the Census age distributions, it is assumed that the emigration rates are constant through time and constant over the age ranges considered.

Assumption 5: Net emigration; emigration three times the volume of immigration.

It is assumed that emigration is considerably greater than immigration. Information on the latter is given by birthplace data and these proportions are tripled in allowing for the greater volume of emigration.

The assumptions are arranged in terms of increasing volume of emigration of children. Although they are somewhat crude in their derivation, they at least enable some insights to be gained concerning the effects of certain levels of child migration on the degree of birth under-registration.

III CENSUS AGE DISTRIBUTIONS IN 1946

As Hughes (1977) suggests that there was a sudden increase in the efficiency of birth registration in 1942, a comparison of birth registrations with the Census age distributions in 1946 is an appropriate point to begin this analysis, and the relevant data are given in Table 4. In this table, reflecting birth registrations 1936-1946, allowance has been made for the immigration of children and the under-registration of deaths but no allowance made for emigration and consequently the findings refer to the first migration assumption, that of net immigration. The effects of the remaining migration assumptions will be examined presently.

A comparison of single years of age as given in the Census and associated registered births indicates that there appears to be over-registration in 6 of the 10 years. The greatest discrepancy between age distributions and registered births covers the registration period 1942/43 (children aged 3-4 in 1946) where the excess of registered births is some 6.6 thousand, almost 11 per cent more than would have been expected on the basis of the age structure, assuming net immigration. Similarly, the following year 1943/44

Table 4: Comparison of Census age distribution and registered births, 1946

Age in 1946	Year of birth ¹	Census age distribution	Excluding those born outside the Republic of Ireland ²	Mortality correction factor ³	Expected No. of children born in the Republic of Ireland	Registered births	$\frac{\text{Registered births}}{\text{Expected no. of children}}$	% over (+) or under (-) registration
0	1945/6	66,081	64,938	1.0553	68,529	67,793	0.989	-1.1
1	1944/5	59,198	58,174	1.0856	63,154	64,432	1.020	+2.0
2	1943/4	58,171	57,165	1.0927	62,464	65,041	1.041	+4.1
3	1942/3	57,206	56,005	1.0969	61,432	68,090	1.108	+10.8
4	1941/2	54,109	52,973	1.0999	58,265	57,534	0.987	-1.3
5	1940/1	52,324	50,686	1.1023	55,871	56,183	1.005	+0.5
6	1939/40	54,427	52,723	1.1043	58,222	55,909	0.960	-4.0
7	1938/9	53,997	52,307	1.1059	57,846	57,087	0.987	-1.3
8	1937/8	52,233	50,598	1.1073	56,027	57,019	1.018	+1.8
9	1936/7	52,933	51,276	1.1086	56,845	57,235	1.007	+0.7
0-4	1941/6	294,765	289,255	1.0850	313,844	322,890	1.028	+2.8
5-9	1936/41	265,914	257,590	1.1056	284,811	283,433	0.995	-0.5

¹ Births in quarters 2-4 of first year mentioned and 1st quarter of second year mentioned.

² Based on the following percentages born outside the Republic of Ireland: 0-2:1.73; 3-4:2.1; 5-9:3.1.

³ Life table death rates increased by 10 per cent to allow for the under-registration of deaths.

(children aged 2-3 in 1946) represented an excess of recorded births by some 4 per cent. Overall, the analysis based on the broader age groupings 0-4 and 5-9, representing births between 1941-46 and between 1936-41 respectively, indicates that the former period was one of general over-registration of almost 3 per cent while the latter period was one of slight under-registration.⁵

The results of the comparison of ages and registered births for the broader age groupings according to the differing migration and mortality assumptions are shown in Table 5. Here, a certain amount of birth over-registration in the period 1941-46 prevails for all but one of the migration assumptions and the degree of under-registration in 1936-41 varies up to some 9 per cent (Table 5).

Table 5: *Percentage over-registration and under-registration 1936-46 in relation to different assumptions of child migration and mortality*

<i>Migration assumption</i>	<i>Aged 0-4 in 1946: Born 1941-46</i>	<i>Aged 5-9 in 1946: Born 1936-41</i>
1 Net immigration, zero emigration	+2.8* (+3.6)	-0.5 (+0.4)
2 Net migration zero	+1.0* (+1.7)	-3.6* (-2.7)
3 Net emigration: 1 per 1,000 p.a.	+0.7 (+1.4)	-4.3* (-3.5)
4 Net emigration: 2 per 1,000 p.a.	+0.4 (+1.1)	-5.0 (-4.2)
5 Net emigration: emigration 3 times volume of immigration	-2.7 (-2.0)	-9.3 (-8.5)

*Assumptions suggested as most appropriate.

- under-registration.

+ over-registration.

Figures in parentheses refer to calculations based on unadjusted mortality rates.

For the period 1941-46 it would seem highly unlikely that there was a heavy outflow of children because Britain, the major destination of emigrants, was involved in war. Indeed, it would seem more reasonable to assume that there was either zero net migration or a net inflow. There had been restrictions on movement in Britain at the beginning of the war and although

5. The timing of the Census in 1946 (in May rather than in April, as normal) again hinders the comparison of age distributions and births registered in the last three-quarters of one year and the first quarter of the following year. However, calculations based on aggregating registered births in the last two-quarters of one year and the first two-quarters of the following year do not make an appreciable difference to the findings.

these were relaxed in 1942 to allow the inflow of much needed labour (Jackson, 1963, p. 14) it would seem highly unlikely that children left in large numbers. On this basis, migration Assumptions 1 or 2 seem the most appropriate, implying an overall over-registration of births. For children aged 5-9 in 1946, born in the period 1936-41 and subject to migration for the whole period 1936-46, it is again unlikely that many emigrated during the war, although more could have left in the pre-war period.

Overall, net emigration was not heavy by Irish standards in the period 1936-46 and averaged 6.3 per annum per thousand population, although Hughes (1977, p. 21) shows that emigration varied within this period with considerable loss in 1936-37 and a net gain in 1939-40. If it is assumed that there was either zero net migration or a small loss of children over the whole period for this cohort (Assumptions 2-4) then the amount of birth under-registration was in the order of 3.5 to 5 per cent. Finally, it can be observed that the adjustment for mortality has a small effect on the findings, increasing the degree of under-registration or reducing the degree of over-registration by just less than 1 per cent.

The findings presented here, indicating a certain amount of over-registration in the period 1941-46 (and in particular between 1942 and 1944) are thus consistent with Hughes's (1977) suggestion that the introduction of rationing (1942) and child allowances (1944) led to a more efficient process of birth registration and the recording of previously unrecorded births. Thus the dramatic increase in recorded births in 1942 cannot be attributed to sudden changes in numbers marrying or to sudden changes in the spacing of births but rather to changes in the incentives for registering births.

Information on the number of late registrations both clarifies and confuses these issues (Table 6). Thus the dramatic increase in late registrations in 1944 is consistent with the fact that many previously non-registered births were registered, albeit late, in 1944 with the introduction of child allowances. Moreover, because late registrations were excluded from the

Table 6: *Late registration of births, 1936-50*

<i>Year</i>	<i>No. of late registrations</i>	<i>Year</i>	<i>No. of late registrations</i>	<i>Year</i>	<i>No. of late registrations</i>
1936	1428	1941	1095	1946	1803
1937	1368	1942	1428	1947	1783
1938	1471	1943	1640	1948	1881
1939	1346	1944	6116	1949	1493
1940	1311	1945	1554	1950	1120

Source: Annual Reports of the Registrar General, 1936-1950.

main body of the Annual Reports from 1943, the number of births registered in the period 1941-46 is somewhat understated and, therefore, the degree of birth over-registration is a conservative estimate. It is, of course, difficult to allocate these late registrations to year of occurrence. However, it is estimated that approximately 7,000 births occurred in the period 1941-46 which were late registrations from 1943 onwards (and excluded from the main body of the Annual Reports) and on this basis the overall levels of over-registration for migration Assumptions 1 and 2 are 5.1 and 3.1 per cent respectively.⁶ Finally, it is surprising to note that in 1942 and 1943, when there was such a large "surplus" of registered births (approximately 9,000 amongst children aged 2-4 in 1946) there was a much smaller number (approximately 3,000) of late registrations. It would appear, therefore, that either many of the births which should have been recorded as "late" were recorded as ordinary births, thus avoiding the necessity (and fee) of special authorisation or even perhaps that some fictitious or double recorded births were registered in 1942 in order to increase ration allowances.⁷ It is, of course, impossible to indicate the exact reasons from the information presented here.

III.1 *Census Age Distributions in 1936 and 1926*

A summary of the findings for 1936 and 1926 for age groups 0-4 and 5-9 calculated for the different assumptions of migration and mortality are shown in Tables 7 and 8. For 1936 all assumptions except one (net immigration) lead to overall under-registration (Table 7). It is difficult to indicate which of the migration assumptions for the 1926-36 period is the most apt and if there had been a relatively heavy net loss of children the associated level of under-registration would rise to between approximately 5 and 7 per cent. The overall average annual net emigration rate in the inter-censal period 1926-36 of 5.6 per thousand population is the lowest recorded rate prior to 1966-71 and can be attributed to the poor economic conditions in North America and Britain and the associated restriction of movement into the

6. It is assumed that these late registrations excluded from the main body of the Annual Reports from 1943 are evenly divided between those births occurring one year, and those occurring two years, prior to the year of registration. For 1944, however, it is likely that the large number of late registrations (6,116) stretch back over several years and for this year it is assumed that one half of the late registrations occurred in the period 1941-43.

7. In order to qualify for rationing, ration books were issued to every person whose name appeared on the Register of Population which had been taken on 16 November 1941 and to children whose births were registered after that date. There would, therefore, have been no need for late registration of births which had occurred before November 1941 to qualify for a rationing book. This feature perhaps explains the smaller than expected number of late registrations in 1942 and 1943 compared with the dramatic increase in 1944, when birth certificates were needed in order to qualify for child allowances. However, it does not explain the very marked degree of over-registration in the years 1942/43 and 1943/44.

Table 7: *Percentage over-registration and under-registration 1926-36 in relation to differing assumptions of child migration and mortality*

<i>Migration assumption</i>	<i>Aged 0-4 in 1936: Born 1931-36</i>	<i>Aged 5-9 in 1936: Born 1926-31</i>
1 Net immigration, zero emigration	-1.6 (-0.4)	-0.8 (+0.9)
2 Net migration zero	-3.0 (-1.8)	-3.1 (-1.4)
3 Net emigration: 1 per 1,000 p.a.	-3.3* (-2.1)	-3.8* (-2.2)
4 Net emigration: 2 per 1,000 p.a.	-3.6* (-2.4)	-4.6* (-3.0)
5 Net emigration: emigration 3 times the volume of immigration	-5.4 (-4.2)	-6.9 (-5.3)

*Assumptions suggested as most appropriate.

- under-registration.

+ over-registration.

Figures in parentheses refer to calculations based on unadjusted mortality rates.

USA (Commission on Emigration 1955, Thomas 1973, Kennedy 1973). There were variations within this period, however, with relatively large numbers emigrating between 1926 and 1928 and also in 1936, while emigration was relatively small in 1934 and 1935 and there was net immigration in 1931 and 1932 (Hughes 1977, p. 21). Thus, given the relatively low overall degree of emigration over the period 1926-36 and assuming that there was a net loss of children at a rate considerably smaller than that for the overall population, then migration Assumptions 3 and 4 are perhaps the most appropriate, implying a level of birth under-registration of between approximately 3.3 and 4.5 per cent.

In 1926, covering birth registrations in the period 1916-26, all assumptions except one (net immigration in the period 1916-21) indicate a certain amount of under-registration, with the assumption of relatively heavy emigration associated with a level of under-registration of approximately 7-8 per cent (Table 8). In assessing which migration assumption is the most appropriate, it is known that the overall inter-censal rate of net loss 1911-26 was 8.8 per thousand population. Again, however, the volume of emigration varied during this period, being relatively large prior to the First World War but declining during the war and the rest of the decade.

Unfortunately, little is known about migration trends 1921-26, but the attractions of North America probably generated considerable movement in the post-war period. The political changes in Ireland during this period also probably resulted in a considerable amount of movement involving exchanges

between the Irish Republic, Northern Ireland and Great Britain. Thus, it is particularly difficult to judge which of the migration assumptions is the most likely, but on the basis of fairly high emigration 1921-26 the fourth or fifth assumptions would seem most apt, implying levels of under-registration in the order of approximately 4.5 to 8 per cent (Table 8). Finally, if it is assumed that the average annual rate of net emigration of children over this period was as high as 5 per thousand, then the associated levels of under-registration are again in the order of 5 to 8 per cent.

Table 8: *Percentage over-registration and under-registration 1916-26 in relation to differing assumptions of child migration and mortality*

<i>Migration assumption</i>	<i>Aged 0-4 in 1926: Born 1921-26</i>	<i>Aged 5-9 in 1926: Born 1916-21</i>
1 Net immigration, zero emigration	-2.4 (-0.9)	-0.7 (+1.1)
2 Net migration zero	-4.0 (-2.6)	-3.4 (-1.7)
3 Net emigration: 1 per 1,000 p.a.	-4.2* (-2.9)	-4.1* (-2.4)
4 Net emigration: 2 per 1,000 p.a.	-4.5* (-3.2)	-4.8* (-3.2)
5 Net emigration: emigration 3 times the volume of immigration	-6.8* (-5.4)	-7.9* (-6.3)

*Assumptions suggested as most appropriate.

- under-registration.

+ over-registration.

Figures in parentheses refer to calculations based on unadjusted mortality rates.

IV BIRTH REGISTRATION 1916-46: AN OVERVIEW

It has been argued that births were under-registered in the period prior to 1941 while between 1941 and 1946 there was, as suggested by Hughes (1977), a certain amount of over-registration which was particularly marked in 1942-44. The level of birth under-registration depends on the assumed level of child migration and mortality. However, it has been argued that adjusting for mortality does not have a profound effect on these estimates. On the assumptions presented here, correction for death under-registration leads to an increase in the degree of under-registration (or a reduction in the degree of over-registration) of approximately 1.5 and 1.0 per cent for the periods 1916-36 and 1936-46 respectively. Thus the unadjusted mortality rates are still associated with overall birth under-registration 1916-41 and over-

registration 1941-46. Generally, the degree of birth under-registration between 1916 and 1941 was in the order of 3-8 per cent, with the higher proportions associated with the earlier periods (Table 9).

The remaining factor that will influence these estimates is that of the under-enumeration of children aged 0 and 1 in the Census, a feature noted by the Census of 1936 (vol. V part 1, p. 222) and which was also recognised in the 1931 and preceding Censuses of Great Britain. Therefore, the levels of birth under-registration previously mentioned are likely to be underestimated.

Table 9: *Levels of over-registration and under-registration 1916-1946*

<i>Date of registration</i>	<i>Census age distribution</i>	<i>% under-registration</i>
1916-21	5-9 in 1926	4.8-8.0
1921-26	0-4 in 1926	4.5-6.8 (7.5-9.8)*
1926-31	5-9 in 1936	3.8-4.6
1931-36	0-4 in 1936	3.3-3.6 (4.4-4.7)*
1936-41	5-9 in 1946	3.5-4.5
1941-46	0-4 in 1946	+1.0-+2.8

*Figures in parentheses include an adjustment for the Census under-enumeration of children aged 0 and 1 in 1926 and 1936.

+Signifies over-registration.

Although it is difficult to judge the degree of the under-enumeration of young children, approximate levels can be estimated. For example, when analysing the Census age distributions by single years of age in 1926 and 1936, there appears to be a "surplus" of registered births in 1926 corresponding with ages 0 and 1 (6.6 and 3.5 per cent respectively) and in 1936 corresponding with age 0 (3.8 per cent). It seems likely that these figures represent under-enumeration of children rather than over-registration of births as this period is one of overall birth under-registration. If this is the case and if it is assumed that the degree of under-registration associated with these births is the same as the average for the remainder of the 0-9 group, then the levels of under-enumeration of children aged 0 in 1926 and 1936 are 9.9 and 5.5 per cent, respectively, and of children aged 1 are 6.7 and 1.4 per cent, respectively. On this basis the 0-4 age group was under-enumerated by 3.0 and 1.3 per cent in 1926 and 1936 respectively and, therefore, the degree of birth under-registration for these periods should be increased by 3.0 and 1.3 per cent (Table 9).⁸ It is more difficult to indicate whether children aged 0

8. These figures, calculated on the basis of migration Assumption 4, compare with a 0.85 per cent level of under-enumeration of the 0-4 group in the 1931 Census of England and Wales.

and 1 were under-enumerated in the 1946 Census because of the considerable degree of over-registration prevalent in the period 1942-44, but it can be noted that even if the 1936 level of under-enumeration had prevailed, there would still have been net over-registration in the period 1941-46.

In overall terms, therefore, the pattern of birth registration between 1916 and 1946 can be divided into three phases. In the first phase, 1916-26, birth under-registration was in the order of 5-10 per cent, with a relatively large degree of under-registration between 1921 and 1926. The second phase, 1926-41 was a period of somewhat lower levels of under-registration of less than 5 per cent, calculated as being between 3 and 5 per cent. Finally, the third phase, 1941-46, was characterised by over-registration (brought about by a sudden change in the incentives to be gained from the registration of births) in the order of 1-3 per cent, with particularly high levels of over-registration in 1942-44.

V CENSUS AGE DISTRIBUTIONS IN 1951, 1961 AND 1971

Given the previously mentioned features of birth registration between 1916 and 1946, it is appropriate to examine the post-war features as revealed in the Census age distributions of 1951, 1961 and 1971. For this period the life-table death rates were increased by 5 per cent in 1951 and 1961 and by 3 per cent in 1971 to allow for the under-registration of deaths. It is easier to estimate the migration patterns of children in this post-war period because Great Britain (the major destination of emigrants) also conducted Censuses in 1951, 1961 and 1971 and provides tabulations of birthplaces classified by age.

The Irish Census of 1951 did not tabulate population by birthplace and it is thus difficult to judge the extent of child immigration in the preceding period. However, the Central Statistics Office (Census of 1966, vol. ii, p.xvi) estimate that there was a net gain between 1946 and 1951 of approximately 9,900 children aged 0-4 in 1951 and this estimate is embodied in migration Assumption 6 (Table 10). The figures have also been adjusted to allow for late registrations.⁹ On this basis it is evident that there was over-registration of approximately 5 per cent between 1946 and 1951 (Table 10) and a separate analysis of the single-year figures indicates that over-registration was particularly marked from 1946 to 1948. Thus, the period of birth over-registration in the Republic of Ireland, responding to the introduction of rationing in

9. The number of late registrations averaged 1,470 per annum from 1946 to 1953. It is assumed that the number of late registrations for any one year is evenly divided between those births occurring one year and births occurring two years prior to the year of registration.

Table 10: *Percentage over-registration in 1946-51 in relation to differing assumptions of child migration and mortality*

<i>Migration assumption</i>	<i>Aged 0-4 in 1951: Born 1946-51</i>
2 Net migration zero	+2.1 (+2.4)
6 Migration as estimated by the CSO (net inflow of 9,900)	+5.3* (+5.6)

*Assumption suggested as most appropriate.

Figures in parentheses refer to calculations based on unadjusted mortality rates.

Figures in parentheses refer to calculations based on unadjusted mortality rates.

1942 and child allowances in 1944, was most marked between 1942 and 1948.

Information on the immigration of children to Ireland between 1951 and 1971 is derived from the birthplace data given in the Censuses of 1961 and 1971. The volume of child emigration is derived by assuming that the ratio of child emigration to immigration between Ireland and Great Britain is the same as the overall ratio between child immigration and emigration.¹⁰ This indicates that there was a net inflow of children aged 0-9 between 1961 and 1971, a net inflow of children aged 0-4 in 1961 and a net outflow of children aged 5-9 in 1961. These figures are embodied in migration Assumption 7, while Assumptions 1 and 2 are based on net inflow (zero emigration) and net zero migration in the same manner as calculated for the pre-war estimates. Again, the birth registration figures have been adjusted to include late registrations.¹¹

A summary of the findings is shown in Table 11 and a separate analysis of the pattern by single years of age does not reveal any obvious pattern of under-enumeration of children aged 0 and 1 as observed for 1926 and 1936, although there appears to be a small amount of under-enumeration of children aged 0 in 1971 (2 per cent).

For those births occurring between 1951 and 1956 there appears to be a certain amount of over-registration in the order of 3.5 per cent (Table 11). While this appears to be a surprising feature, it is perhaps explained by the

10. The 1971 birthplace by age Census data indicate that 2,925 children aged 0-4 born in the Republic of Ireland were living in Great Britain in 1971, while the reverse flow was 10,252. This reverse flow represents 77 per cent of all in-movement of children born outside the Republic (total 13,375) and, given a similar proportion for out-movement, the estimated total out-movement was 3,799, giving an overall inflow of 9,576 children aged 0-4. Keating (1977 p. 116) has calculated net migration flows of children 0-14 for the post-war period, indicating net immigration in 1961-71 and net emigration 1951-61.

11. The number of late registrations averaged 1,140 per annum during the 1950s and 860 per annum during the 1960s. They have been allocated to year of occurrence in the same manner as for the period 1946-51 (see Footnote 9).

Table 11: *Percentage levels of over-registration and under-registration 1951-1971 in relation to different assumptions of child migration and mortality*

<i>Migration assumption</i>	1961		1971	
	<i>Ages 0-4 Born 1956-61</i>	<i>Ages 5-9 Born 1951-56</i>	<i>Ages 0-4 Born 1966-71</i>	<i>Ages 5-9 Born 1961-66</i>
1 Net immigration, zero emigration	+2.1 (+2.2)	+9.5 (+9.8)	+2.8 (+2.8)	+4.1 (+4.2)
2 Zero net migration	-0.1 (-0.1)	+6.8 (+7.0)	-1.5 (-1.4)	-2.4 (-2.4)
7 Overall migration flow is the same as the ratio of net movement between Ireland and Great Britain	-0.6* (-0.5)	+3.5* (+3.7)	+1.5* (+1.5)	+1.3* (+1.3)

+ Over-registration - Under-registration.

*Assumptions suggested to be most appropriate.

Figures in parentheses refer to calculations based on unadjusted mortality.

Figures adjusted for late registrations: see Footnote 11.

fact that children's allowances were extended in 1952 to include second and older children (the original 1944 scheme applied to families with at least 3 children), thus prompting a more efficient system of birth registration. From 1956 to 1971 there was a much closer correspondence between census age distributions and registered births, reflecting a very low level of under-registration between 1956 and 1961 and slight over-registration between 1961 and 1971. This latter feature could be influenced by the extension of the children's allowances scheme in 1963 to include all children or perhaps by a certain degree of under-enumeration of young children in the Census of 1971. It appears, therefore, that birth registration has been a more or less efficient process since the mid-1950s.

VI REGIONAL VARIATIONS IN BIRTH UNDER-REGISTRATION

The final theme of analysis is the extent to which there were regional variations in the efficiency of birth registration in the first half of the twentieth century. It can be hypothesised that the under-registration of births would be greater in less economically advanced and rural areas. On a provincial basis, therefore, it would be expected that under-registration would reach higher levels in Connacht and Ulster compared with Leinster and Munster.

Once again, however, data problems prohibit an exhaustive examination of this theme because little is known regarding varying mortality levels, the levels of death under-registration by province or the inter-provincial patterns of child migration. Furthermore, provincial variations in the level of under-enumeration of children in the Census will also affect regional comparisons. However, some inferences can be made on the basis of certain simplifying assumptions and registered births are compared with Census ages 0-4 in 1946 on a provincial scale in Table 12.

Table 12: *Provincial levels of over-registration and under-registration 1941-46*

<i>Province</i>	<i>Percentage over (+) or under (-) registration (Ages 0-4 in 1946)</i>
Leinster	+3.7
Munster	+3.4
Connacht	-0.4
Ulster (excl. N. Ireland)	+2.8
Republic of Ireland	+2.8

Calculations based on national (adjusted) mortality rates and assumption of net in-migration with zero emigration.

It has been assumed that the provincial mortality rates are the same as the national (adjusted) rates and that emigration of children 0-4 was zero in the period 1941-46. Information on the immigration of children was derived from the birthplace data of the 1946 Census, tabulated by age and province, and those children aged 0-4 born in the Republic of Ireland but living outside their county of birth (8 per cent of Irish born children 0-4) were redistributed on a provincial level on the basis of the county-of-birth/county-of-residence flows for the total population.

It can be seen that the major feature is that, in a period of over-registration nationally, Connacht differed by showing slight under-registration (Table 12). Indeed this feature is at odds with the previously stated hypothesis, in which the anticipated greater degree of birth under-registration in Connacht should have been associated with a proportionately greater increase in registered births in 1941-46 (representing previously unregistered births). Perhaps, therefore, the trend towards the greater efficiency of birth registration did not occur simultaneously in all parts of the country and Connacht lagged behind in this respect. Unfortunately, however, it is not possible to draw definitive conclusions here because late registrations, excluded from the main body of the Annual Reports from 1943, cannot be allocated to province of occurrence.

The data for 1936 and 1926 (Table 13) are also calculated on the basis that provincial mortality levels were the same as the national (adjusted)

Table 13: *Provincial levels of under-registration 1921-26 and 1931-36*

<i>Province</i>	<i>1926 Ages 0-4: Born 1921-26</i>	<i>1936 Ages 0-4: Born 1931-36</i>
Leinster	-1.2	-2.5
Munster	-5.0	-2.2
Connacht	-7.0	-4.5
Ulster (excl. N. Ireland)	-5.6	-5.8
Republic of Ireland	-4.0	-3.0

Calculations based on national (adjusted) mortality rates and assumption of zero net migration.

rates and that the net migration flow of young children for each province was zero. On this basis it can be seen that, in a period of overall-birth under-registration, the levels in Connacht and Ulster were greater than in Leinster and Munster. The differences are particularly marked in 1926 when the level of under-registration in Connacht was some 75 per cent greater than the national level. It should be emphasised, however, that it is more difficult to draw conclusive statements from the provincial data because of the problems

of measuring provincial levels of mortality, migration and the under-enumeration of young children. Indeed the effect of the migration assumption probably serves to conceal rather than exaggerate the inter-provincial differences in under-registration. Thus it is likely that more young children left than entered Connacht given the high overall rates of emigration, while it seems more likely that Leinster gained rather than lost in terms of child migration.¹² Therefore the assumption of zero net migration of children in both areas tends to minimise the differences in migration and to minimise the differential concerning the under-registration of births.

From this brief survey of the regional differences in birth under-registration it can be seen that in the period prior to 1941 the registration of births was generally less complete in Connacht and Ulster compared with Leinster and Munster. It is difficult to place precise estimates on the extent of the inter-provincial variations but a conservative estimate indicates that the degree of under-registration in Connacht was in the order of 50-75 per cent greater than the national level. In the period 1941-46 it appears that it was also Connacht that lagged behind the other provinces when the introduction of rationing and child allowance brought about a sudden change in the efficiency of birth registrations.

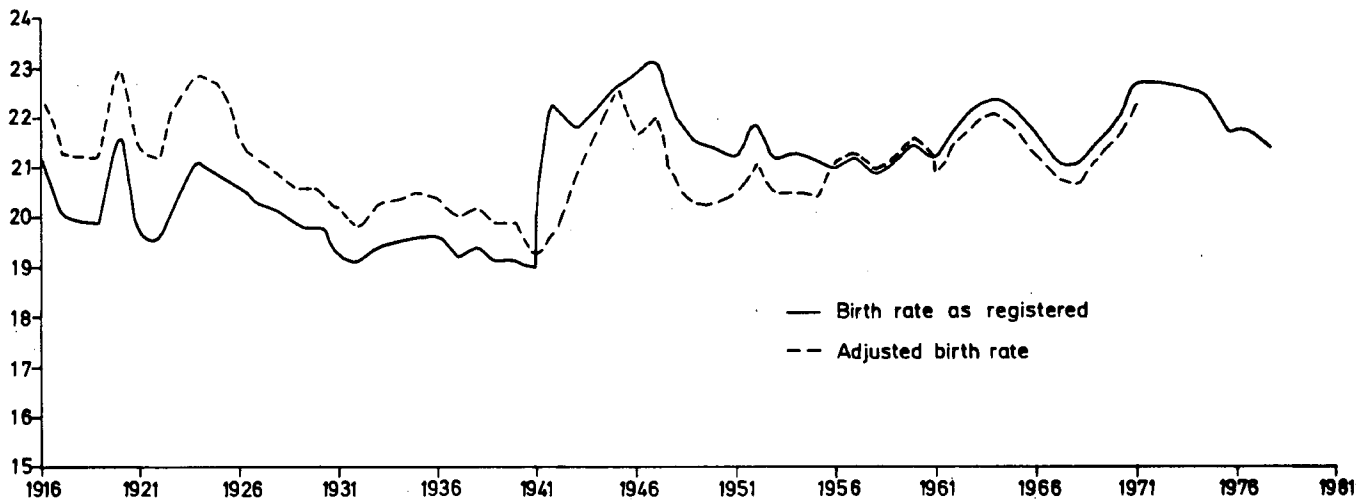
VII CONCLUSIONS AND IMPLICATIONS

From this analysis of the efficiency of birth registration in Ireland it has been seen that births were under-registered prior to 1942, by approximately 5 to 10 per cent in 1916-26 and by approximately 3 to 5 per cent in 1926-41. On the other hand, a certain amount of over-registration took place between 1941 and 1951, particularly 1942-44, as a result of the greater incentives to register births and many previously unregistered births were registered in this period. Furthermore, the levels of birth under-registration prior to 1941 were higher in Connacht and Ulster compared with Leinster and Munster. The increasing efficiency of birth registration brought about in the 1940s seems to have been maintained and the post-war period is characterised by a certain amount of over-registration in the period 1951-56 followed by a more or less completely efficient process of birth registration.

It has been stressed throughout this study that these findings are approximations due to the various limitations of the available data concerning the

12. Data on the out-movement of children aged 0-4 by province are not available, but the limited information on in-movement suggests that there was greater mobility in Leinster than Connacht (children aged 0-4 born outside their mother's county of residence, 11 and 5 per cent respectively), although the information also includes intra-provincial movement.

Figure 1: Registered and adjusted birth rates, 1916-1971.



under-registration of deaths, the degree of under-enumeration of children at the Census and levels of child migration. Attempts have been made to take each of these factors into account. In the case of the under-registration of deaths, for example, it has been argued that the actual mortality level would have to be very different from the assumed level in order to make a major difference to the findings. The estimate of the degree of under-enumeration of children aged 0-4 in the Census indicates levels of 3.0 and 1.1 per cent in 1926 and 1936 respectively, based on the under-enumeration of children aged 0 and 1 in the Census. Finally, it has been argued that the level of child migration in the pre-war period has been quite small compared with the general population and it has been suggested that the net emigration rate of children between 1916 and 1941 was considerably smaller than that of the general population, while there was either immigration or zero net migration between 1941 and 1946. However, if the actual patterns of child migration were distinctly different from these trends, then the overall levels of birth over- and under-registration as calculated here would need to be revised.

These results, apart from helping to chart the development of an efficient system of birth registration, have several implications for the study of Irish demography. For example, it is necessary to take account of the varying efficiency of birth registration when analysing time series measures of fertility. Thus the existing figures, referring to births by year of registration prior to 1970 and excluding late registrations from 1943 onwards, can be adjusted to allow for the various levels of over- and under-registration as well as incorporating late registrations.¹³ These alterations, summarised graphically in Figure 1 involving raising the birth rate between one and two points prior to 1941, do not bring about marked changes in the overall pattern of annual change. However, the particularly high rates of the 1940s are much less marked when allowing for the pattern of over-registration. Similarly, the differences in the birth rate between the pre-war period and the immediate post-war period are diminished considerably after allowing for these variations in the efficiency of birth registration.

Another implication concerns the study of regional variations in fertility in that in the pre-war period the registration of births was less complete in Connacht and Ulster compared with Leinster and Munster. On this basis, regional crude birth rates, generally higher in the eastern half of the country,

13. Adjustments for the period 1916-41 are based on the average of the estimated levels of under-registration for each five-year period given in Table 9. Adjustments for the period 1941-46 have been made for single years on the basis of Table 4 and adjustments for the period 1946-71 have been made for each five-year period on the basis of the assumptions suggested as most appropriate in Tables 10 and 11. The method used in allocating late registrations to year of occurrence is summarised in Footnote 9.

probably slightly exaggerate the degree of regional variation although considerable spatial differences in the birth rate still remain as a result of variations in age structure, nuptiality and marital fertility. Moreover, the degree of regional variation in marital fertility in the pre-war period, reflecting the generally higher rates in the western half of the country (Coward 1978, p. 358) is therefore likely to be underestimated. This reinforces the previously stated pattern of marked regional differences in marital fertility in the first half of this century. Finally, given the lack of strong incentives to register births prior to 1942, it can be speculated that illegitimate births were particularly likely to remain unregistered and thus the proportion of illegitimate births in relation to all births prior to 1942 (between 2 and 4 per cent) is likely to be markedly underestimated.

The other major implication is the extent to which the inaccuracies in birth registration affect estimates of natural increase and emigration. The main problem here, however, is in estimating the level of the under-registration of deaths. Given that the level of the under-registration of deaths in the late 1960s was approximately 4 per cent, as calculated previously, this level is somewhat higher than that of the under-registration of births and, therefore, the existing post-war estimates of natural increase and emigration are likely to be slightly overestimated. It is very difficult to judge the level of the under-registration of deaths in the pre-war period, although it is likely to be considerably in excess of 4 per cent and Verrière's (1979, p. 497) estimates of infant mortality suggest a substantial level of under-recording of infant deaths for the period 1931-36. On this basis it might be expected that the pre-war levels of under-registration of deaths (or child deaths) were higher than those of births. On the other hand, however, Cousens (1964, p. 305), reviewing population trends between 1861 and 1881, suggests that birth registration was less efficient than death registration and Teitelbaum (1974, p. 332) suggests that the same situation applied to England and Wales in the second half of the nineteenth century. It would appear, therefore, that the difference in the relative efficiency of birth and death registration was reversed sometime between the end of the nineteenth century and the 1960s.

It is apparent, however, that more research is needed on the levels of the under-registration of deaths if accurate pre-war estimates of natural increase and emigration are to be ascertained. Given the levels of birth under-registration as presented in this paper, and if it is speculated that the under-registration of deaths was approximately 15 per cent from 1916 to 1936 and 10 per cent from 1936 to 1946, then the recorded rates of natural increase and emigration from 1916 to 1941 are again slightly overestimated. On the other hand, if the levels of birth and death under-registration were approximately equal from 1916 to 1941, then the recorded rates of natural increase and emigration are slight underestimates. It can be noted, however, that in

both cases the revised rates of natural increase and emigration do not make a substantial difference to the existing recorded rates.

In overall terms, therefore, the findings presented here support Hughes's (1977) contention that there have been important changes in the efficiency of birth registration in Ireland during the twentieth century. Indeed several distinct phases can be recognised associated with under-registration in the order of 3-10 per cent between 1916 and 1941, over-registration between 1941 and 1956 and more or less complete registration in the period 1956 to 1971. These findings are relevant in the understanding of the evolution of an efficient system of birth registration in Ireland and in analysing national and regional fertility trends and patterns, natural increase and emigration.

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