

## *Are Ireland's Social Security Payments Too Small? A Note*

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ON several occasions in recent years, Ireland has been taken to task for the alleged smallness, percentage-wise, of its social security payments, by comparison with other countries in Western Europe. Comparisons are odious, never more so than with statistics, because one is rarely comparing like with like. In other words, in making comparisons allowance should be made for countries' relevant circumstances. This we do to some extent in Table I, our single relevant circumstance being national income per head. Despite the eminence of the source of the figures they are not to be taken too seriously for comparative purposes; International comparisons of dollar income per head are notoriously unreliable. Still, the unfavourable contrast between Ireland and its eight EEC partners in this matter is so marked as not to be explicable by statistical dubieties. Ireland has by far the lowest income of the Nine. Although not shown in the table, its dependency ratio (i.e., the ratio of the number aged 0-14 and 65+ to the active population, those aged 15-64) is by far the largest, exacerbating its social security problem.

The social security percentages are subject to the qualification that they relate only to payments by central government. They do not include payments (i) by local authorities, or (ii) by firms for their employees by way of fringe benefits. It is known that (i) and (ii) vary considerably in degree between countries. Taking the figures as they stand, Ireland's is the lowest percentage. However, having regard to income, comparison, for example, with UK, is not unfavourable to Ireland, on the showing of this table alone. On theoretical grounds one would expect the percentage to vary directly with income, indeed to do so to a far greater degree, than shown in Table I.

TABLE 1: *National Income per Head of Population 1969 (X) and Current Transfers (except National Debt Interest) as Percentage of Personal Income 1968 (Y) in Nine EEC Countries*

Country	X (\$)	Y (%)
Belgium	2,150	15.3
Denmark	2,610	12.2
France	2,485	19.0
Germany (FDR)	2,246	16.5
Ireland	1,111	9.0
Italy	1,420	15.3
Luxembourg	1,907	17.7
Netherlands	1,976	18.0
United Kingdom	1,817	10.3

Sources: X — UN Yearbook of National Accounts, 1970, Vol. II, Table 1B.

Y — Derived from data in UN Yearbook, 1969, Vol. I.

Notes

Y: Figures for Luxembourg lagged a year. See text for reservations about table. Current transfers are those of central government only.

In fact, income redistribution must depend on taxable capacity which is usually progressive in marked degree. We leave Table 1 with the observation that it illustrates why statisticians have a constitutional dislike of tables of international comparisons. We are on surer ground with Table 2 (and the chart derived from it) which compares for Ireland the trend in the percentage and in real personal income per head of population during the 25 years 1947 to 1971 inclusive. The chart shows that while the percentage graph (Y) is much more irregular than the income graph (X) there can be no doubt about their relationship. However, many attempts to establish a causal relationship by OLS, i.e., by regressing Y on X, both current and lagged, failed. While these regressions produced calculated values of Y very close to actuals, none could be accepted because all indicated marked autoregression in calculated disturbances by the  $\tau$  (tau) test.

However, there is much to be learned from the chart itself. We suggest that the take-off in Y in 1962 is associated with the take-off in real personal income in 1958, i.e., there is a 4-year time lag in incomes affecting percentage. (It was disappointing that the sample regression of Y on  $X_{-4}$  failed to pass the  $\tau$ -test). The four years' lag phenomenon is also evident in the marked

TABLE 2: *Personal Income per Head of Population at Constant (1958) Prices (X) and Current Transfers (except National Debt Interest) as Percentage of Current Personal Income (Y), Ireland 1947-1971*

<i>Year</i>	<i>X</i> (£)	<i>Y</i> (%)
1947	142.9	5.34
1948	150.7	5.33
1949	162.7	5.51
1950	165.9	5.40
1951	165.8	5.35
1952	166.5	6.56
1953	172.5	6.84
1954	173.1	6.91
1955	179.8	7.81
1956	177.1	7.1
1957	178.5	7.55
1958	175.9	7.41
1959	186.7	7.12
1960	196.7	7.02
1961	210.1	7.13
1962	216.8	7.08
1963	222.0	7.57
1964	237.6	7.60
1965	239.9	7.87
1966	245.5	8.40
1967	256.2	8.50
1968	275.8	8.86
1969	287.9	9.67
1970	299.5	10.52
1971	311.2	11.16

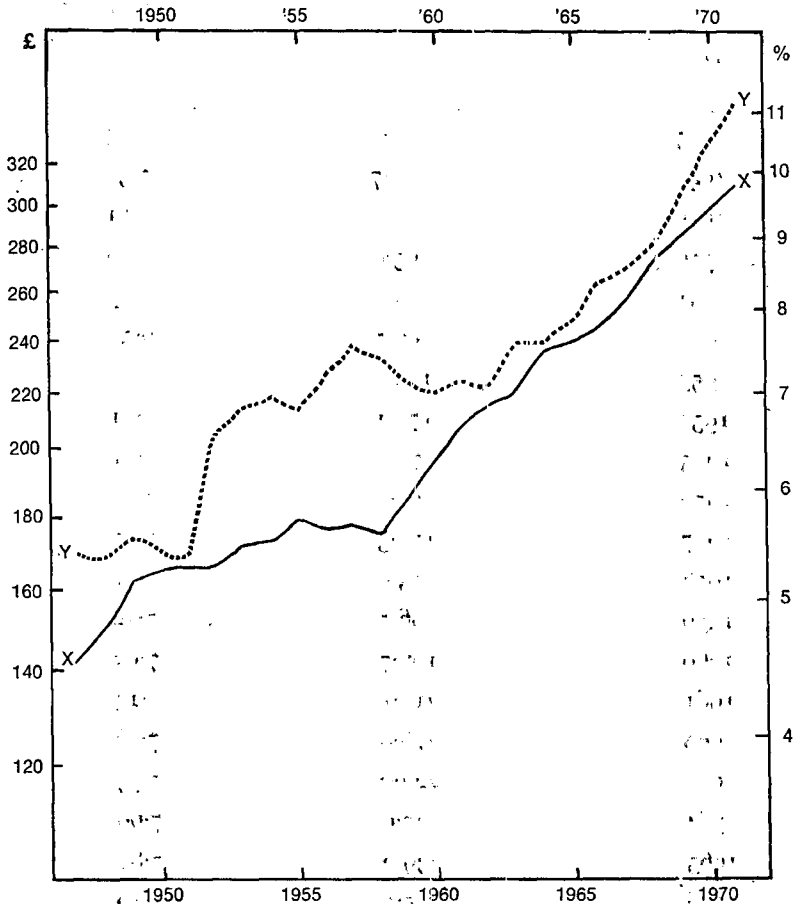
*Basic sources:* National Income and Expenditure 1969, Tables B.5, B.6, B.7. NIE 1970 and 1971: Tables A.5, A.6, A.7. Population estimates from Reports on Vital Statistics.

*Notes*

X - col.: Deflator is implicit personal consumption price index.

Y - col.: Quotient (x 100) of item 70 ("Other transfer income") by item 73 ("Personal income"), NIE.

CHART: *X* Personal Income (£) per Head at 1958 Prices, *Y* "Other" Transfer Income as Percentage of Personal Income, Ireland 1947 to 1971.  
Logarithmic Scale for Ordinate.



rise in *Y* starting in 1951 corresponding with the *X* rise starting in 1947. In fact, the three phases in the *X* curve—(i) rise 1947-1951, (ii) steady 1950-1958, (iii) rise 1958-1971—are fairly faithfully reproduced in the *Y* curve four years later.

The logarithmic scale used for both graphs is the same, which means that the same "vertical" distance indicates the same proportionate rise on each graph.

Apart from their possible relationship, it is suggested that the *Y* curve from 1958 and the *Y* curve from 1962 are worthy of closer study. To the eye the *X* curve is almost a straight line, though the gradient of the latest three years seems appreciably lower than in the first three of the period (i.e., 1958-1961);

and one barely notices the dip in the years of recession, 1965-1967. When the first two orthopols in time  $t$  (i.e., a polynomial of degree 2 in  $t$ ) are fitted by OLS to  $\log_{10} X$ , we find—

$$(1) \log_{10} X = 2.3742 + 0.029115 \xi_1' - 0.031607 \xi_2' + v$$

$v$  being the disturbance. Here  $\xi_1' = 2t$  and  $\xi_2' = t^2/2 - 65/8$ , with  $t$  changing by units from  $-6\frac{1}{2}$ , 14 values in all. Analysis of variance for (1) is—

	D.F.	S.S.	M.S.
$\xi_1'$ term	1	0.075607	
$\xi_2'$ term	1	0.000019	
Remaining terms	11	0.000705	0.000064
Total	13	0.076331	

Hence the negative coefficient of  $\xi_2'$  cannot be regarded as significantly different from zero. Ignoring therefore the term in  $t^2$ , the non-logarithmic version of (1) is—

$$(2) X = 236.7 \exp(0.042t)$$

which means that during the 14-year period 1958-1971 real personal income per head of population was increasing at a rate of 4.2 per cent per annum, with little appreciable sign of a falling-off towards the end of the period.

The  $Y$  graph (really the  $\log Y$  graph) shows to the eye a sharp increase in gradient in the years 1968-1971, compared with that of 1962-1968. Orthopol analysis as before yields—

$$(3) \log_{10} Y = 1.9362 + 0.01049 \xi_1' + 0.002853 \xi_2' + v$$

for 10 years 1962-1971. Here  $\xi_2' = t^2/2 - 33/8$  with  $t$  ranging by units from  $-4\frac{1}{2}$  to  $+4\frac{1}{2}$ , 10 values in all. Analysis of variance is—

	D.F.	S.S.	M.S.	F
$\xi_1'$ term	1	0.036299		510.7
$\xi_2'$ term	1	0.001074		14.9
Remaining terms	7	0.000509	0.000073	
Total	9	0.037882		

Its F value shows that the  $\xi_1$  term is significant at the 1 per cent null-hypothesis level. The coefficient of  $\xi_2'$  (i.e., of the  $t^2$  term) is significantly positive.

Orthopol analysis of the two variables confirms the showing of the diagram that since 1962 the ratio of social security payments to personal income has been increasing at a greater rate than real personal income per head.

What would the Irish percentage be if its income were as large as that of other EEC countries? To answer this question we might use extrapolation of formulae (1) and (3): given income estimate  $t$  from (1), and then calculate  $Y$  from (3). While extrapolation using (1) might be sound enough the second part of the procedure might overestimate  $Y$ . Instead, we note from the chart that the ratio of  $Y$  to  $X$  is almost identical at the beginning (in 1947) and at the end (in 1971) of the period; furthermore that this ratio might be near the mean of the ratios for the 25 years.

If then the percentage be taken as a constant proportion of income and we apply this principle to Table 1, an Irish percentage of 9.0 would be equivalent to a Belgian percentage of 17.4 ( $=2,150 \times 9.0/1,111$ ) compared with actual 15.3, and a UK percentage of 14.7 compared with actual 10.3. In fact, working a hypothetical percentage on these lines for all eight EEC countries we find that actual percentages exceed this hypothetical Irish percentage only in the cases of Italy, Luxembourg and Netherlands.

### *Conclusion*

Having regard to relative incomes Ireland's present distribution of transfer income (except national debt interest) measures up to best EEC standards. Of course, this conclusion is subject to the reservations mentioned about the comparability of the actual percentages between EEC countries.

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