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GOVERNMENT SERVICES IN IRELAND 1976–1987

by

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SECTION 1: INTRODUCTION

This paper deals with expenditure on government services in Ireland and the changes which this variable has undergone in recent years. Since OECD data are used, the OECD definitions are appropriate. OECD (1990A) p553 defines Producers of Government Services in the following way:-

"All departments, establishments and other bodies of central, state and local governments which engage in such activities as administration, defence, health, educational and social services and the promotion of economic growth, whether accounted for, or financed in, ordinary or extra-ordinary budgets or extra-budgetary funds. Included are social security schemes in respect of large sections of the community, imposed, controlled or financed by government, non-profit institutions entirely, or mainly, financed or controlled by general government or mainly serving general government, and embassies, consulates or military establishments of a country located abroad".

This, like most formal definitions, lacks something in the matter of clarity. However, the essential point is that, for all practical purposes, expenditure on government services represents the non-marketed output of the economy. The output is produced by people who are not, in general, stimulated by the profit motive, and those who benefit from it are normally not expected to pay. It is, of course, not equivalent to government expenditure.
This latter variable includes transfer payments as well as expenditure on government services, and the transfer payments are normally the greater part of the total.

Expenditure on government services is worthy of study for several reasons. Firstly, since it has become customary to divide total output into "marketed" and "non-marketed", it clearly represents an entire sector.

Secondly, the type of output produced by the sector is important in itself. Much of it, such as the security and legal systems, public administration and the public health system are essential for the existence of any sustained economic effort. In addition to this, much of the remaining output is an important civilising factor. This fact is admitted even by some of the harshest critics of the public sector. To quote Bacon and Eltis (1976) p31: "It must be emphasised that almost all the civilised activities of a modern society are wholly or largely non-marketed". Finally, in most of the OECD countries, the government services provide an important source of employment. For example, in the European countries of the OECD between 1980 and 1988, employment in government services rose by 2.3 million while numbers at work in all other activities fell by 1.9m. Thus, only the government services prevented total employment from contracting.

In spite of this, government services per se have received relatively little attention. Most recent literature in the area - for example Afxentiou (1982), Lybeck and Henrikson (1988) with many others - has studied
the effect of total government expenditure (which, though it includes expenditure on government services, consists mainly of transfer payments) on various economic variables. Of those who have used a definition of the public sector which is more or less equivalent to the OECD definition of government services, Landau (1983) and Ram (1986) have studied its relation to economic growth. Ram (1987) has also used it to test Wagner's Law and Bacon and Eltis (1978) and Gemmell (1983) have investigated the effect of government services on the marketed sector of the economy. Adachi (1984) developed a theoretical model, based on fairly strong assumptions, which, inter alia, examined the effect of increasing government services on the rest of the economy.

The change in the ratio of expenditure on government services to GDP has received little attention. It has been adverted to in passing by a few authors - such as Henkeksen (1988) and Renaud and Van Winden (1988), but it seems to have been little discussed or analysed. Perhaps this is because it is only obvious in the most recent data.

The data used in this paper are taken from the OECD National Accounts Statistics and the OECD Labour Force Statistics. There is a difficulty with the Irish data because the item Producers of Government Services includes Other Producers. The attempts made to overcome this difficulty, together with the details of the data used and their sources are set out in the appendix.
To avoid tedious repetition, the following abbreviations will be used:

- **GS** Government Services
- **EGS** Expenditure on Government Services
- **GX** Total Government Current Expenditure
- **GDP** Gross Domestic Product
- **WG** EGS/GDP (i.e. the budget share of EGS in GDP)
- **TL** The total number at work in the economy
- **GL** The number of producers of GS
- **NL** Non-government workers (i.e. TL-GL)
SECTION 2: THE BASIC FACTS

The primary fact discussed in this paper is a shift in the ratio of EGS to GDP. Wagner (1877, 1890) was probably the first to develop a coherent theory about the relationship between these two variables. In "Finanzwissenschaft" he proposed that the 'share of government' would expand as income per head rose. The term 'share of government' is, of course, somewhat ambiguous. It may mean EGS/GDP or GX/GDP, or even some other ratio. However, EGS/GDP seems to be the most reasonable interpretation. This is certainly the form used by Ram (1987) p197 and by Lybeck and Henriksen (1988) pp 30-31.

The ratio WG (=EGS/GDP) had been obeying Wagner's Law for a considerable period before the early 1980's. In Ireland it stood at 0.125 in 1970 and 0.162 in 1981. There had been one or two episodes in which small falls had been recorded during the period, but the general trend had been a strongly rising one. While OECD data for the period before 1970 do not exist, there is every reason to think that WG had been rising for a much longer period. For example, the ratio of total government wages (which comprise the greater part of EGS) to GNP was about 8.3% in 1960 and 9.6% in 1970.

However, after 1981 the rising phase in WG clearly ended as is clear from column (1) of Table 1:—
<table>
<thead>
<tr>
<th>YEAR</th>
<th>EGS/GDP=WG</th>
<th>EGS/GX</th>
<th>GL/TL</th>
<th>GX/GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>0.125</td>
<td>0.372</td>
<td>0.124</td>
<td>0.336</td>
</tr>
<tr>
<td>1975</td>
<td>0.142</td>
<td>0.343</td>
<td>0.154</td>
<td>0.414</td>
</tr>
<tr>
<td>1977</td>
<td>0.137</td>
<td>0.350</td>
<td>0.155</td>
<td>0.392</td>
</tr>
<tr>
<td>1978</td>
<td>0.138</td>
<td>0.349</td>
<td>0.158</td>
<td>0.395</td>
</tr>
<tr>
<td>1979</td>
<td>0.147</td>
<td>0.353</td>
<td>0.156</td>
<td>0.416</td>
</tr>
<tr>
<td>1980</td>
<td>0.159</td>
<td>0.352</td>
<td>0.161</td>
<td>0.450</td>
</tr>
<tr>
<td>1981</td>
<td>0.162</td>
<td>0.345</td>
<td>0.168</td>
<td>0.469</td>
</tr>
<tr>
<td>1982</td>
<td>0.159</td>
<td>0.317</td>
<td>0.168</td>
<td>0.502</td>
</tr>
<tr>
<td>1983</td>
<td>0.159</td>
<td>0.312</td>
<td>0.171</td>
<td>0.508</td>
</tr>
<tr>
<td>1984</td>
<td>0.156</td>
<td>0.316</td>
<td>0.175</td>
<td>0.495</td>
</tr>
<tr>
<td>1985</td>
<td>0.156</td>
<td>0.308</td>
<td>0.179</td>
<td>0.508</td>
</tr>
<tr>
<td>1986</td>
<td>0.160</td>
<td>0.314</td>
<td>0.178</td>
<td>0.508</td>
</tr>
<tr>
<td>1987</td>
<td>0.157</td>
<td>0.314</td>
<td>0.175</td>
<td>0.500</td>
</tr>
</tbody>
</table>

(1987 is the latest year for which OECD data are available)

EGS=Expenditure on government Services.
GX=Total Government Current Expenditure.
GL=Producers of Government Services.
TL=Total at work in the economy.
The rise in WG was clearly brought to an abrupt halt in 1981, the level in 1987 being distinctly lower than in 1981. There are at least two reasons why this change is of interest. In the first place, the sudden ending of a well-established trend is always a significant event, especially when it affects a large section of the economy. Secondly, it is well known that the output of services in general tends to form an increasing part of the GDP of the OECD countries. It is therefore remarkable that GS - which are an important constituent of the total output of services - should experience a sudden contraction.

Certain facts about both the Irish situation and the OECD as a whole are needed to put the checking of the growth of WG in perspective. In the Irish context, Column (3) of Table 1 shows that EGS is less than one third of GX, and that the ratio of EGS to GX has been falling for a long time - in fact, the ratio reached its peak in 1973. It is clear from this that EGS was not the main driving force behind the expansion of GX. Not only was it the minor part, but it was also a diminishing part of the total. The expansion in GX was due to the increase of transfer payments which made up the greater, and the more rapidly expanding part of the total.

Column (4) of Table 1 shows that the labour ratio GLTL continued to expand until 1985, some four years after WG began to contract. It would appear that
there was more resistance to a reduction in the relative numbers at work than to a reduction in the relative expenditure.

Finally, one may note from Column (5) of Table 1 that the maximum value of 0.308 for GX/GDP was reached in 1983, 1985 and 1986.

Comparison with the rest of the OECD shows that the Irish experience was normal for that group of countries. The basic facts are set out in Table 2. It is apparent that the four variables shown in Table 1 reached a peak in most OECD countries within the period 1970-1988. The exceptions are:

WG : - Iceland, Italy, Norway.
EGS/GX : - Australia, Italy, Norway, Portugal.
GL/TL : - Belgium, Finland, France, Italy, Norway, Portugal.
GX/GDP : - Australia, Italy, Norway, Portugal.

A summary of the timing of the peaks in these variables and the percentage decline from the peaks for the OECD countries is given below. (N.P. = "No peak").

**TABLE 2**

<table>
<thead>
<tr>
<th>TIMING OF PEAK</th>
<th>PERCENT DECLINE</th>
<th>IRISH VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mode</td>
<td>Median</td>
<td>FROM PEAK (MEAN)</td>
</tr>
<tr>
<td>WG</td>
<td>1981</td>
<td>1982</td>
</tr>
<tr>
<td>EGS/GX</td>
<td>1971</td>
<td>1974</td>
</tr>
<tr>
<td>GL/TL</td>
<td>N.P.</td>
<td>1986</td>
</tr>
<tr>
<td>GX/GDP</td>
<td>1983</td>
<td>1984</td>
</tr>
</tbody>
</table>
The pattern in these changes is obvious. In most of the OECD countries, the ratio EGS/GX reached a peak in the early 1970's when transfer payments became the more rapidly growing branch of government expenditure. Then, in the early 1980's, WG (the share of government output in GDP) began to decline. Finally, in the late 1980's, GL/TL also began to decline. We may also note that GX/GDP began to decline in the early 1980's but a year or two after the peak in WG. The size of the decline is, in each case, roughly in line with the period which has elapsed since the peak: the most substantial is that in EGS/GX which peaked first, the next largest in WG and the smallest in GL/TL. The ratio GX/GDP shows a decline which is relatively small compared with that in WG, given that the time periods involved are not greatly different.

The Irish values resemble the OECD means very closely, both as regards the timing and the relative size of the changes. The main difference is that the decline in Ireland in each case is about one half of the OECD mean. The process of reducing the relative size of government output did not seem to operate as strongly in this country as in the OECD in general.
SECTION 3: DECOMPOSITION OF THE CHANGE IN WG.

The facts set out in Section 2 indicate that the decline in WG which took place in Ireland in the early 1980's was not a mere statistical accident, but part of a widespread phenomenon which affected the whole OECD. We may now ask how this change was brought about.

WG is the ratio of two outputs (both expressed in current values), namely output of GS divided by total output in the economy. Since, by definition,

\[ \text{Output} = (\text{Numbers Employed}) \times (\text{Average Productivity per person}) \times (\text{Average Price per Unit of Output}) \]

WG can be expressed in terms of Relative Numbers Employed, Relative Productivity and Relative Price per Unit. Changes in WG can then be expressed in terms of changes in these three variables.

In what follows, 'g' will be used to denote GS and 'm' (marketed) will be used for the rest of the economy. Define:-

\[ Y_g, Y_m = \text{output} \]
\[ N_g, N_m = \text{numbers employed} \]
\[ Z_g, Z_m = \text{real output per head} \]
\[ P_g, P_m = \text{unit price of output} \]

Then, using $Y$ for total output = GDP,

\[ Y = Y_g + Y_m = N_g Z_g P_g + N_m Z_m P_m \ldots \ldots (1) \]

The budget share of GS (WG) is:

\[ \text{WG} = \frac{Y_g}{Y_g + Y_m} \]
\[ = \frac{N_g Z_g P_g}{(N_g Z_g P_g + N_m Z_m P_m)} \ldots \ldots (2) \]
Dividing by \( Nm.Pg \):  

\[ WG = 1 / (1 + P^1.Z^\gamma.N^\iota) \]  

(3)  

where:  

\[ N^\iota = Nm / Ng = \text{numbers employed in market sector} / \]  
\[ \text{numbers employed in government sector.} \]  

'Relative Numbers'  

\[ Z^\gamma = Zm / Zg = \text{'Relative Productivity'} \]  

\[ P^1 = Pm / Pg = \text{'Relative price'} \]  

\( N^\iota, Z^\gamma \) and \( P^1 \) represent the inverses of the variables in question. These inverses, with the market sector in the numerator, emerge from the model. However, since the discussion centres on the government services, it is easier to conduct the subsequent discussion in terms of \( N, Z \) and \( P \) which have the GS in the numerator.  

Taking differentials:  

\[
\begin{aligned}
d(WG) &= \frac{\delta WG}{\delta N^\iota} dN^\iota + \frac{\delta WG}{\delta Z^\gamma} dZ^\gamma + \frac{\delta WG}{\delta P^1} dP^1 \\
&= - \frac{z^\gamma_p^1}{(1 + N^\iota.Z^\gamma.P^1)} dN^\iota - \frac{N^\iota z^\gamma_p^1}{(1 + N^\iota.Z^\gamma.P^1)} dZ^\gamma \\
&\quad - \frac{N^\iota z^\gamma P^1}{(1 + N^\iota.Z^\gamma.P^1)} dP^1.
\end{aligned}
\]

Since the data for current-price and constant-price output in the two sectors are available, together with figures for numbers at work in the whole economy and in the government sector, the values for \( P, Z \) and \( N \) are observable. This makes it possible to separate the change in \( WG \) into those parts which are due to changes in \( N, Z \) and \( P \). The variables \( N, Z \) and \( P \) are evaluated at the midpoints of their ranges. A good approximation to \( d(WG) \) is
obtained in all cases. The results of this analysis are summarised in Table 3.
**TABLE 3**

**ANNUAL AVERAGE CONTRIBUTION TO dWG**

**BEFORE PEAK IN WG**

<table>
<thead>
<tr>
<th></th>
<th>dN</th>
<th>dZ</th>
<th>dP</th>
<th>dWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD MEAN</td>
<td>+2.9</td>
<td>-2.0</td>
<td>+1.8</td>
<td>+2.7</td>
</tr>
<tr>
<td>IRELAND</td>
<td>+2.5</td>
<td>-2.4</td>
<td>+3.8</td>
<td>+4.0</td>
</tr>
</tbody>
</table>

**AFTER PEAK IN WG**

<table>
<thead>
<tr>
<th></th>
<th>dN</th>
<th>dZ</th>
<th>dP</th>
<th>dWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD MEAN</td>
<td>+0.4</td>
<td>-2.2</td>
<td>-0.4</td>
<td>-2.2</td>
</tr>
<tr>
<td>IRELAND</td>
<td>+1.3</td>
<td>-2.1</td>
<td>0.0</td>
<td>-0.8</td>
</tr>
</tbody>
</table>

\( dWG = \) Annual average change in Government Services/GDP \((\times 1000)\)

\( dN = \) Annual average change in relative numbers
employed = government employees/market sector employees.

\( dZ = \) Annual average change in relative productivity.

\( dP = \) Annual average change in relative price of output.


Unit = 0.1% of GDP.
Table 3 shows the part of the change in WG which can be traced to the influence of changes in relative numbers (dN), relative productivity (dZ) and relative unit price (dP). The units in which dWG is expressed is 0.1% of GDP. These units are by no means trivial, because GS are, in general, of the order of 10% of GDP, so the units represent annual changes of about 1% in government services.

Table 3 shows a clear pattern. In the OECD in general, Z exerted a steady downward pressure on WG over the period. In the years before the peak in WG, both N and P each exerted an upward pressure roughly equal in magnitude to that of Z. The combined effect resulted in an upward movement of about two units per year. After the peak in WG, the increase due to N was reduced very considerably and the increase due to P was turned into a small decline, so that the downward pressure of Z became the dominant factor.

Events followed a similar pattern in Ireland. Only two minor differences are detectable. Firstly, in the period before the peak, the rise in P was considerably greater than the OECD average and, as a result, the increase in WG was also greater. Secondly, after the peak the upward pressure due to N was not reduced as much as in the rest of the OECD, and, as a result of this, the fall in WG was smaller too. However, it remains true in Ireland as in the OECD in general that the reduction in WG was achieved by eliminating the increase in P and by reducing
the rate of growth in $N$ to a level at which it no longer was high enough to compensate for the reduction caused by $Z$. 
SECTION 4: IMPLICATIONS

The consequences of a policy in which $P$ is held stable and the rate of growth of $N$ is reduced to a level considerably below the rate of decrease of $Z$ are such that it seems unlikely that they can be tolerated for long except in extreme circumstances. There are two aspects to the problem. The first is that the quality of the GS is likely to be reduced.

Assume:-

(1) That $Z$ is falling continually at 1.5% to 2.0%
(2) That $P$ is held stable.
(3) That the costs of GS consist entirely of wage payments. (This does very little violence to the facts).

It implies that the price per unit of output in GS and the wage cost per unit of output in that sector are the same.

Define:-

GWU = Wage cost per unit of output in government services.
MWU = Wage cost per unit of output in the market sector.
MNU = Non-wage cost per unit of output in the market sector.

It follows that:-

\[ P = \frac{GWU}{(MWU + MNU)} \]

\[ = \frac{GWU}{MWU} \left( \frac{1}{1 + \frac{MNU}{MWU}} \right) \]

If we assume for the moment that $MNU/MWU$ is constant, then with $P$ stable $GWU/MWU$ must remain stable
too. This means that relative wage cost per unit in the
government services is constant. However, \( z \) is falling
continually - that is to say, the number of units of
output produced by each person working in the GS is
falling relative to the number of units of output produced
by each person working in the market sector - so relative
income per head in the GS must fall at the same rate. If
this process continues for any length of time it will
become impossible for the GS to attract or retain
employees of high quality. Since the quality of any
service is closely connected with the abilities of those
who produce it, the quality of the GS will fall too. The
process may simply make it impossible to attract suitably
qualified people - at the time of writing (Apr 1991) there
are about 10,000 unfilled teaching posts in Great Britain.

The above depends on the assumption that that
the ratio MNU/MWU remains constant. This represents the
ratio of non-wage costs to wage costs per unit of output
in the market sector. The numerator consists of capital
costs, profit and net taxes, all per unit of output. With
\( P \) stable, the relative wage per unit of output in the GS
(GWU/MWU) can rise if MNU/MWU rises too. In fact this
ratio has risen in the period 1976 - 1988 in most OECD
countries including Ireland. The exception - where the
ratio has fallen - are the USA, Japan, Iceland and
Luxembourg. In the period 1976 - 1987 the ratio rose in
Ireland from 1.096 to 1.223, an annual increase of 1.0%.
The mean value for the entire OECD (1976 - 1988) rose from
0.998 to 1.150, an annual growth rate of 1.2%. However, using the Irish figures, it is easily calculated that the rate of growth of 1.0% in MNU/MWU only permits GWU/MWU to grow at about 0.55% per annum if P is to be held stable. To compensate for the decrease in Z, MNU/MWU would have to rise at least three times as fast as at present. Thus, in the basis of the assumptions about Z made at the beginning of this section and assuming no change in the rate of change of MNU/MWU, there will be an annual decrease of at least 1.0% in the relative income of the producers of government services. Sooner or later, this will lead to a decline in the quality of those services. It is difficult to believe that a community in which income per head is increasing will be content with GS which are falling in quality.

The second aspect of the matter is that, if N is not allowed to rise as fast as Z is falling GS will become scarce relative to marketed output. If the gap between the two rates of change is substantial, it will cause tensions in the economic sphere. The standard of service provided in the government sector will become increasingly poor in comparison with that provided by the market sector. Those who are forced to deal with tax administrators, customs and excise officials, law enforcement agencies and public administrators in general will experience increasing delays and frustration. In addition to this, there will be a decline in social equity as a growing gap opens between the standards in the
marketed services such as health and education and those in the public sector.

Evidence of the strong resistance to a reduction in $N$ is provided by Table 3. Even in a time when substantial reductions were being made in WG, in both Ireland and the OECD in general N continued to grow and make a positive contribution to WG. Furthermore, while a slow rate of growth in $N$ may be tolerable for a short while, its effects may be more difficult to tolerate in the longer run. There are two reasons for this. Firstly, in the early stages the scarcities which will be encountered will affect relatively trivial matters: as the scarcity grows, more substantial problems will arise. Secondly, it takes time for the problem to be recognised and attempts made to overcome it.

In any case, it is difficult to find any solid reason for believing that considerable sacrifices should be made to reduce the real share of government services in the GDP. The normal reason advanced is that the increase of the government sector slows the rate of economic growth. However, recent research - Ram (1986), O'Riordan (1987) and Conte and Darrat (1988) - casts considerable doubt on this hypothesis. In the words of Ram (p 202):-

"The main result is that it is difficult not to conclude that government size has a positive effect on economic performance and growth and the conclusion appears to apply in the majority of the settings considered." In view of this it is not easy to see why extreme efforts should be
made to curb the growth of employment in the government services.

In the 1980's Ireland, in common with most OECD countries, found it necessary to reduce the ratio of government expenditure to GDP. It seems that this reduction fell more heavily on government services than on the transfer payments which make up the greater part of government expenditure. However, since government services form only about one third of total government expenditure, cuts in these services make only a modest contribution to the reduction of government spending. In addition to this, it is difficult to find any convincing evidence to support the theory that an increase in government services is detrimental to economic growth. If anything, the reverse would appear to be true.

If it is believed necessary to maintain the quality of the government services, their relative price of must increase continually. If these services are not to become scarce in relation to other forms of output, the relative numbers employed in that sector must also increase. Taking these two factors together, it is difficult to see how the reduction of the ratio of expenditure on government services to GDP can be maintained for very long. It may well be politically necessary to accept the fact that the ratio referred to above must increase. In the long run, it may be to Ireland's advantage that the reduction has not gone as far here as in most OECD countries.
SUMMARY

In Ireland the ratio of expenditure on government services to GDP had been rising steadily at least since the mid-1960's. In 1981 this trend was reversed and the ratio went into a modest decline. This pattern was common to virtually all the OECD countries.

A decomposition of the changes shows that the increase in the ratio was due to the fact that increases in the relative price and relative numbers employed in government services more than compensated for the decrease in relative productivity. The decline in the ratio was brought about by stabilising relative price and reducing the rate of increase in relative numbers to less than the rate of decline in relative productivity.

There are reasons for thinking that the reduction in the ratio of expenditure on government services to GDP cannot be maintained without straining the economy.
APPENDIX - THE IRISH DATA

OUTPUT OF GOVERNMENT SERVICES

It was necessary to correct the data in Table 12 of OECD (1990A) by removing the output of domestics and ministers of religion. The value of the output of domestics 1976-1982 was obtained from the Irish National Accounts Table A11. The values were extended to 1987 by using the information in the Household Budget Surveys 1980 and 1987. These show that the fraction of household expenditure devoted to domestic service increased by 46% between 1980 and 1987. This increase was interpolated linearly and applied to the consumption figures in the national accounts.

There is no direct source for the output of ministers of religion. Numbers employed in 1981 and 1986 were obtained directly from the Central Statistics Office, Dublin. The changes over the period were interpolated linearly and projected for 1987. The number of ministers of religion in 1971 was derived from the 1971 census data by assuming that the change 1971 to 1981 was in proportion to the change in the number of professed religious. Changes between 1971 and 1981 were interpolated in a linear manner. It was then assumed that ministers of religion receive the national average wage. (Some who are teachers receive more; those who are engaged in pastoral work probably get rather less). The value of the output of ministers of religion was then found by multiplying the numbers by the national average wage. The correction to
the output of Producers of Government Services caused by deducting the output of domestics and ministers of religion was about 4% for 1976 and 3% for 1987.

**NUMBERS EMPLOYED IN GOVERNMENT SERVICES**

This is based on General Government Employment. OECD (1990C) gives, in Table 2.13, "General Government Employment as a Percentage of Total Employment". Total employment was found from OECD (1990B) Table 2, by subtracting unemployment from the total labour force. The number of general government employees was then found by multiplication. To make the series consistent with the corrected output figures described above, it was necessary to add the numbers of secondary teachers and university staff. Numbers of university staff were obtained from Ross (1986) Table 113 for the period 1974-1984 and from the reports of the universities for 1985-1987. Numbers of secondary teachers were obtained from the Irish Statistical Abstract Table 9.9. The proportion of producers of government services formed by these two groups was almost exactly 10% in both 1976 and 1987.

**OUTPUT OF GOVERNMENT SERVICES AT CONSTANT 1985 PRICES**

No series for this variable is directly available. However, it was noted that, in OECD (1990A), the output of government services (Table 12) formed 81% to 91% of government current consumption in Ireland. The value of the latter at current and constant prices is given in Table 1. The implied index was calculated, and this was applied to the current-price data for output of
government services to obtain a constant-price series.
REFERENCES


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Wagner A. (1877,1890) *Finanzwissenschaft* Vol 1, Vol 2. Leipzig C.F Winter