



## Comparing

International expenditure norms could be used widely both for national budgeting and planning and for international comparisons of government outlays. The authors report on an exercise which derived workable norms based on the functional and economic expenditure patterns of over 90 countries and present some of the results of using these norms.

Little work has been done to establish a framework for making intercountry comparisons of national expenditures. Officials frequently ask how expenditure patterns compare. When they do, they generally look at countries that have similar per capita incomes; but this variable is often an unsatisfactory proxy for the many underlying social, demographic, and economic factors that make countries with similar incomes so different.

This article summarizes the work on a detailed study that starts to develop more useful measures of comparison. Ninety-three countries with different economies and demographic situations were included in the study. The data collected on expenditures in both functional and economic categories provide a broad basis for comparison. Thus, predicted expenditures were estimated for the different budget categories (public service, defense, health, and so on) as well as for spending on broad economic categories such as current expenditures, goods and services, and wages and salaries. These two sets of data constituted a "norm" that could be compared with a particular country's actual expenditures to identify whether, given its budget priorities, these differed from what might be expected. The model could also

be used to forecast what a country's expenditure patterns would be, if it followed the pattern of other countries with comparable economic and demographic characteristics.

Four caveats should be stated at the outset. First, it is entirely possible that a single measure of expenditure may not capture all government activities in a particular area and may, therefore, not reflect all its financial commitments. The sheer diversity of government expenditure may preclude comprehensiveness in such a measure; in addition, many objectives can be achieved by the use of policy instruments other than direct government expenditure—through tax expenditures, for instance, or price controls, tariffs, and so on. Second, the index cannot be used to judge the appropriateness of a country's functional expenditure priorities. Ultimately, the public expenditure budget reflects the social and economic priorities of a country's government and, presumably, of its population. Third,

*This article is based on a longer study on the same topic. Copies of the longer study are obtainable from the authors.*

the indices reviewed are to be treated as possible starting points for discussion but they should not replace detailed country studies as a basis for actual expenditure decisions. Fourth, relations between central and local finance and expenditures differ widely between countries, and efforts to correct for these differences may not have been wholly successful.

### Constructing the norm

The data for this cross-country study were drawn from the International Monetary Fund's *Government Finance Statistics Yearbook (GFS)* and its *International Financial Statistics (IFS)*, and also from the *World Tables* of the World Bank. A model for each type of expenditure was constructed and used to predict a "norm" for each country. (see box on calculation of norm). The functional expenditure model was based on six groups of factors: (1) demographic influences, (2) sociological concerns, (3) the structure of the economy, (4) the level of economic development, (5) technological factors, and (6) environmental factors.

Demographic influences are likely to be the principal underlying determinants of the demand for services. The larger the share of school-age groups in the population, for instance, the greater the likely demand for education; the higher the percentage of the elderly, the greater the demand for medical care and perhaps more elaborate public mechanisms for old age support. Other demographic variables, such as life expectancy, population growth, the proportion of population in urban areas, and infant or child mortality rates, may imply the existence of demand for cer-

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tain types of services. Sociological concerns, meanwhile, may explain whether there is a need for the public sector to provide certain services. For example, social security programs are required where significant migration to the urban areas exists and extended family arrangements have broken down.

The structure of an economy may play a role in shaping priorities for public expenditure in different economic sectors. A dominant agricultural sector may require public expenditures to complement or service private sector activities. Developing countries may also desire to change the structure of the economy by expanding public expenditure in sectors that are not currently adding significantly to total output.

Technological factors influence costs. For example, the lower the desired pupil-teacher ratio, the higher the cost of realizing a given percentage of enrollment for the population. Environmental factors may influence both the cost of providing services and the likely magnitude of underlying demand; for example, inadequate access to clean water may imply a significant demand for investment to provide drinking water as well as the likely need for medical services because of the effects of contaminated water supplies.

It may be hypothesized that the types of goods and services purchased through government expenditure—the so-called economic categories of expenditure—are also shaped by functional or sectoral priorities. The mix of labor, current consumption of other goods and services, and capital goods is likely to be different for each

functional sector, so that the economic mix of expenditure will be largely determined by the functional mix.

The norm derived from the model reflects what a country would be expected to spend on a sector, given its economic, social, and demographic characteristics and given the actual expenditure of the large number of countries, both developed and developing, in the sample. Given its estimates for predicted expenditure in a particular country, their ratio with actual expenditures was computed and this formed the international expenditure comparison (IEC) index. Thus, the index represents the actual expenditure/gross domestic product (GDP) ratio as a percentage of the predicted expenditure/GDP ratio. A high value of the

index (above unity) for a functional expenditure category simply indicates that a country is spending more than would be predicted, given its economic and social characteristics (or in the case of an IEC index for an economic input, given the structure of its functional expenditure). It does not indicate the actual share in GDP of a given category of expenditure; a country with a low IEC index may still be spending a higher share of GDP on a category of expenditure than a country with a higher one. The sources of a discrepancy between actual and predicted expenditures for a country may represent a conscious policy choice by the authorities to attach a different emphasis to a sector than is attached by its peer countries.

## Calculating the "norm" and the international expenditure comparison (IEC) index

An example of how the expenditure norm is calculated can be shown for social security (SS) expenditure as a share of gross domestic product (GDP).

(1) An econometric model was constructed to predict SS expenditures as a share of GDP and the weights derived from the model for the variables in the equation. The following independent variables were used to predict SS: income per capita in thousands of dollars (YPERCAP), percentage of the population over age 65 (POPAGED > 65), the infant mortality rate (INFMRT), and the share of the labor force in industry (LFINDUSTRY).  
(For example,  $SS = -4.76 + .25(YPERCAP) + .84(POPAGED > 65) + .07(INFMRT) + .13(LFINDUSTRY)$ )

(2) The actual values for the independent variables of a country were inserted into the equation and a predicted value for SS calculated. This represents the share of social security expenditure in GDP that would be expected for a country with such economic and demographic characteristics. For example, for France, in 1977,

YPERCAP (in thousands) = US\$7.21      INFMRT = 1 per cent  
POPAGED > 65 = 13 per cent      LFINDUSTRY = 41 per cent  
Substituting these values into the above equation, we obtain predicted  
 $SS = -4.76 + (.25)(7.21) + .84(13) + (.07)(1) + .13(41)$   
Result = predicted SS of 13.4  
Since actual SS for France = 16.1, the IEC index value =  $16.1 \div 13.4 = 1.2$ .

Two important data problems need to be noted. First, the disaggregated public expenditure data in the *GFS Yearbook* relate to the consolidated central government accounts. In some countries, the role of provincial and local governments is quite prominent, particularly in the provision of certain government services, notably education. Efforts were made to include their expenditures, but these could not be obtained for all countries. Second, for some countries, the *GFS Yearbook* classification of expenditure obscures the ultimate intent of the expenditure. Similarly, it is often difficult to distinguish expenditure on health from expenditure on social security. When such distortions were obvious, an attempt was made to reclassify expenditure in the appropriate functional expenditure categories.

### Index results

Tables 1 and 2 provide selected results on the indices for the different functional and economic categories of government expenditure. To illustrate the types of statements that may be drawn from them, the results in Table 1 suggest that the French Government spends a little more than might be expected, based on norm expenditures, on education (9 per cent more) and perhaps 20 per cent more than expected on health and social security. The Egyptian Government spends twice as much as expected on education and the United Kingdom 50 per cent more, but Greece spends 30 per cent less. Similarly from Table 2, it appears that the Government of Mali spends some 79 per cent more than might be expected on gov-

ernment wages and salaries and Greece spends 112 per cent more, while Korea spends 55 per cent less than predicted.

Without going into any detailed discussion, certain broad patterns in the IEC index for both functional and economic expenditures can be illustrated. In the functional index, actual expenditures on general public services, for instance, exhibit little variation from those predicted. Countries such as Argentina, Morocco, Suriname, The Gambia, and Uruguay seem to spend more than might be expected; Australia and the United Kingdom spend up to expectations, while Mexico, the United States, and Yugoslavia spend less. For defense spending, the country ranking confirmed the expected evaluations. The spread between predicted and observed results for expenditure on education and health is the smallest of all the functional categories, suggesting a greater unanimity and consensus among countries in relation to government expenditure on education.

Some of the results were surprising. Most of the industrial European countries spend more on health than might be expected, while the United States and Japan spend some 25-30 per cent less. Again, expenditures on social security and welfare in the United Kingdom, often considered to be a welfare state, are some 35 per cent less than would be expected. Most interesting, too, is the number of highly industrial developed countries that apparently spend more than might be expected on economic services such as mining, manufacturing, and construction. Norway spends 23 per

cent more than expected; the United Kingdom, 31 per cent; Belgium, 38 per cent; France, 35 per cent; Sweden, 140 per cent; and Italy, over 300 per cent more.

Comparing predictions based on economic expenditure categories with actual expenditures also threw up some useful results. Surprisingly some large European countries (Italy, the United Kingdom, and Austria) spend less than expected on wages and salaries. Overall, Asian, African, and Latin American countries allocate less to wages and salaries than might be expected, while Middle Eastern countries tend to allocate more. The narrow dispersion of IEC indices for this category of expenditure suggests that countries tend to be more likely to spend what would be expected on wages and salaries than other categories. Meanwhile there seems to be no systematic bias across regions in expenditures on other goods and services.

Surprisingly, however, Mexico and the United States seem to offer less in subsidies and other current transfers than might be expected (Mexico almost 50 per cent less, although this is possibly because it gives aid to industries in other ways, such as tax concessions). At the same time, it would not necessarily be expected that the United Kingdom spends some 24 per cent more than predicted on subsidies, Korea 73 per cent more, the Philippines and Egypt more than twice as much, and Sudan and Pakistan over four times as much. Equally interesting, African countries spend far more than expected on subsidies and transfers, while more than half of the Latin American countries spend less than expected.

Table 1  
International expenditure comparison index: some functional categories of expenditure, 1977<sup>1</sup>

Country	General public service	Defense	Education	Health	Social security & welfare	Health, social security, & welfare	Housing, community amenities	Agriculture, forestry, & fisheries	Mining, manufacturing, & construction	Electricity, natural gas, & water	Transportation & communication
Australia	96	71	130	111	69	85	38	61	—	—	72
Belgium	64	71	132	87	119	111	68	29	138	400*	171
Egypt	67	68	211	107	187	163	342	132	19	91	47
France	77	75	109	121	120	120	93	45	135	37	19
Germany, Fed. Rep. of	64	114	92	118	97	101	89	51	—	—	188
Greece	83	325	71	69	83	82	64	121	46	19	103
Italy	109	39	108	147	104	120	73	100	400*	—	190
Japan	—	—	85	75	50	60	122	204	14	—	88
Kenya	73	89	104	123	400*	138	28	94	43	231	115
Mexico	43	13	82	52	217	142	—	163	—	400*	57
Norway	62	121	120	92	82	84	309	227	123	27	118
Pakistan	39	164	15	23	27	24	169	31	46	102	117
Sweden	94	85	154	127	123	122	86	94	240	400*	58
Tanzania	95	114	106	138	400*	188	81	135	286	171	93
United Kingdom	99	112	152	110	66	79	265	95	131	400*	112
United States <sup>2</sup>	51	318	85	71	78	76	64	18	—	—	19

Sources: IMF, *Government Finance Statistics Yearbook* and *International Financial Statistics*, and World Bank, *World Tables*.

—Indicates data not available.

\*Denotes that this particular international expenditure comparison index should be treated with care as actual expenditures were extremely small and predicted expenditures negative.

<sup>1</sup>As the text explains in more detail, this index represents the actual expenditure-gross domestic product (GDP) ratio as a percentage of the predicted expenditure/GDP ratio.

<sup>2</sup>1973-75.

Table 2  
Examples of the international expenditure comparison index for economic categories of expenditure, 1977<sup>1</sup>

	Current expenditure	Goods and services	Wages and salaries	Other goods and services	Interest	Subsidies	Capital expenditure	Acquisition of capital assets	Capital transfer
Bolivia	80	86	87	57	29	127	81	72	66
France	83	58	89	86	26	110	84	323	97
Germany, Fed. Rep. of	102	127	—	—	60	89	99	392	—
Greece	89	145	212	107	70	26	96	117	39
Kenya	95	90	95	100	125	143	89	93	—
Korea	83	74	45	97	47	173	140	96	155
Mali	12	118	179	59	6	101	87	55	—
Malaysia	90	96	113	75	150	98	223	115	224
Netherlands	92	47	66	61	56	127	114	—	193
Sri Lanka	102	81	79	84	306	109	170	128	230
United Kingdom	93	73	65	104	114	124	34	62	61
United States	103	138	—	—	101	77	212	400*	—
Uruguay	92	105	99	73	30	89	94	87	12

Sources: IMF, *Government Finance Statistics Yearbook* and *International Financial Statistics*, and World Bank, *World Tables*.  
<sup>\*</sup>Denotes that this particular international expenditure item should be treated with care as actual expenditures were extremely small and predicted expenditures negative.  
<sup>\*</sup>Indicates data not available.  
<sup>1</sup>Data are for 1977, except for Uruguay, which refers to 1978. As the text explains in more detail, this index represents the actual expenditure-gross domestic product (GDP) ratio as a percentage of the predicted expenditure-GDP ratio.

Another surprise is that a country such as the Netherlands is spending almost twice what might be expected on capital transfers, given the relative importance of its agricultural, mining, and manufacturing

sectors. However, this may be explained by the sporadic nature of capital transactions, although capital transfers—often made under entitlement programs—would be expected to be less open to major fluctuations than purchases of capital assets directly by government. Across regions, countries in Africa and Latin America tend to spend less than would be expected on capital transfers.

It is often argued that countries economize on nonwage forms of current expenditure, particularly when faced with a budgetary squeeze, and that they maintain excessive current spending relative to capital expenditure. If this were true, one would expect that countries would exhibit higher IEC indices for wages relative to their indices for other purchases of goods and services—and similarly, for current expenditure relative to capital expenditure. The IEC indices were used to test these hypotheses. The study found that the wage imbalance hypothesis cannot be confirmed. With the exception of the Asian region, half the countries appear to spend more than expected on wages, relative to the amount spent on goods and services. Only in the Asian region is there a clear overemphasis on purchases of other goods and services relative to wages.

Examining next the relative balance of current and capital expenditures, the study found a more varied pattern. In Africa and the industrial countries, a clear bias was found toward spending more than expected on current relative to capital expenditure. On the other hand, almost two thirds of the Latin American and Middle Eastern countries appeared to demonstrate the opposite bias in favor of capital expenditure.

In comparing wages to subsidies and transfers, greater emphasis on subsidies

was found in Africa and among the industrial countries. More than two thirds of the African countries attached a higher weight to subsidies vis-à-vis wages than would have been predicted. The reverse was true in the Latin American region.

These examples of the implications of IEC indices show how they can help the policymaker to obtain a broad sense of whether public expenditure in a given sector appears reasonable, in terms of the expenditure policies of other comparable countries. The indices avoid the misleading results that might occur if per capita income data were used to identify "comparable countries"; statistically the results often show that per capita income is a weak predictor of the share in GDP of government spending in a given sector.

Yet the user of the indices must never forget that they are not normative measures and countries should not be "judged" on the basis of these data. After all, if a country is spending, say, twice as much as might be expected (given its population structure, urbanization rates, economic structure, and so on) on education, it probably has a good reason. This discrepancy signaled by the index should have one primary function: to focus attention on the question of why there are these differences. These indices are not intended to replace detailed country studies as a basis for actual expenditure decisions but they may be constructive in provoking further policy analysis and discussion of methodological questions in this area. The predictive equations can also be used to examine the likely evolution of the expenditures for a country. This data would be helpful for any medium-term financial planning exercise.

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