Concept and applications of “costs and expenditure” in education

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What are education costs and expenditure

- **Education Costs** include:
  - Public (government) expenditure on human and material inputs needed for provision of education services
  - Opportunity costs of the country
  - Private costs borne by pupils and their families and
  - Social costs borne by the community as a whole

- **Total Education expenditure** covers all the financial resources employed for the mobilisation of the human and material resources necessary for the operation of education system (**NOT INCLUDE**: opportunity costs, private costs and social costs)
Which factors determine the education expenditure

- Education expenditure depends on the quantities and the prices of the various goods and services used for the provision of education
- It is influenced by the number of students served, and how educational institutions are organised and run
- Three major factors significantly influencing the amount spent on education:
  - population structure and the demand for school enrolment
  - the conditions under which pupils are enrolled and supervised (learning conditions)
  - the working conditions and remuneration of teachers

Classifications of educational expenditure

Educational expenditure covers:
- Teaching activities in educational institutions
- The organization and supervision of the system
- Activities to facilitate schooling (lunch, meal, dormitories ...)
- Spending linked to school attendance (books, uniforms ...)

and can be classified by:
- nature of expenditure
- function or purpose
- source of financing
- level of education
Classification by nature of expenditure

- the costs of the inputs necessary for educational activities and to determine the respective shares
- shares of salaries, other recurrent costs, and capital costs
- the classification can be more or less detailed, depending on the data available and the purpose of the analysis
- between recurrent and capital expenditure
- under recurrent expenditure, it is useful to separate the salaries of personnel from other items

<table>
<thead>
<tr>
<th>Recurrent expenditures</th>
<th>Other recurrent expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remunerations of personnel</td>
<td>Rent</td>
</tr>
<tr>
<td>- Teachers</td>
<td></td>
</tr>
<tr>
<td>- Administrative Staff</td>
<td></td>
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<tr>
<td>- Service personnel</td>
<td></td>
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<tr>
<td>- Water/ electricity, telephone etc..</td>
<td></td>
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<tr>
<td>- Minor repairs,</td>
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<tr>
<td>- Textbooks and teaching materials</td>
<td></td>
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<tr>
<td>- Land, Provision of facilities</td>
<td></td>
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<tr>
<td>- Construction works</td>
<td></td>
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<tr>
<td>- Major repairs</td>
<td></td>
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<tr>
<td>- Purchase of expensive equipment</td>
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</table>
Schools, especially secondary schools or schools with activities beyond primary purpose of teaching in the classrooms, have a number of additional activities accompanying and/or facilitating educational process.

The breakdown of expenditure by purpose enables to analyse various schools activities.

At the national level, it allows expenditure on teaching activities in the strict sense to be separated from expenditure on associated activities.

**Classification by function or purpose**

- **Teaching activities**
  - salaries, textbooks, teaching-learning materials, ...

- **Para-educational activities**
  - extra-curricular activities
  - supervision of pupils outside the classroom

- **Administrative activities**
  - relations with central and local authorities
  - relations with teachers, parents and pupils
  - administration and financial management

- **Social and pupil welfare activities**
  - school meals and boarding facilities
  - health, preventive medical care
  - educational guidance
Classification by source of financing

Public bodies
Central Authorities
- Ministry of Education
- Other Ministries
Local Authorities
Private sector
- Households: families, parents associations, communities
- Non Government organizations
- Business and industry
Rest of the world
- Loans
- Grants

Classification by level of education

- The breakdown by level of education is essential for a correct analysis of educational expenditure
- It may also be useful to make a finer distinction between levels and types of education (e.g. general, technical, vocational)
- Some activities, such as the work of the administrative departments of the Ministry of Education, may not come under any particular level of education
### Classification by level of education

<table>
<thead>
<tr>
<th>First level</th>
<th>Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-school education</td>
<td>Universities</td>
</tr>
<tr>
<td>Primary education</td>
<td>other institutions</td>
</tr>
<tr>
<td>Secondary level</td>
<td>Adult education</td>
</tr>
<tr>
<td>General</td>
<td>literacy programs</td>
</tr>
<tr>
<td>technical and vocational</td>
<td>on going training</td>
</tr>
<tr>
<td>teacher training</td>
<td></td>
</tr>
<tr>
<td>Apprenticeship</td>
<td>Unclassified activities</td>
</tr>
<tr>
<td></td>
<td>general administration</td>
</tr>
</tbody>
</table>

### Some technical notes on education finance

**What are:**
- recurrent expenditure and capital expenditure
- growth rate and average annual growth rate
- expenditures in current prices and constant prices
- indices
Recurrent expenditure and capital expenditure

- **Recurrent expenditure** applies to goods and services of which immediate use is made
- Normally, annual expenditure
- Purchase of replace and renewable items
- Staff salaries, textbooks, some teaching materials, electricity, water and gas supplies, etc.
- high proportion of the State budget

Recurrent expenditure and capital expenditure

- **Capital expenditure** - goods and services used over a longer period, these are durable assets
- Premises, equipment and furniture
- Several generations of pupils will benefit from this investment in capital goods
- affect pupil intake capacity and help to match the supply of available places to the demand and to distribute equipment according to needs
What is the rate? It is a ratio expressed as percentage.

- A growth rate is measured by calculating the relative variation of quantity between one period to another.
- It was done by relating its absolute variation to its original value.
- Annual education expenditure for 2000, 2001
- Education expenditure in 2000 – 24 million currency units
- Education expenditure in 2001 – 32 million currency units

The growth rate is +33 percent.

The relative variation: \( \frac{32 - 24}{24} = 0.33 \)

The rate is expressed as percentage.

Average annual growth rate

- A uniform growth rate which applied each year to observe a variable over certain period
- To have overall growth at the end of the period as the cumulated annual growth rates
- To summarize variations over a long period

Education expenditure in 1990 – 12 million currency units

Education expenditure in 2000 – 24 million currency units

Multiplicator over 10 years: \( \frac{24}{12} = 2 \)

Average annual multiplicator: root 10 of 2 = 1.072

Average annual growth: \( (1.072 - 1) \times 100 = 7.2\% \)

Annual Growth rate: \( \sqrt[n]{\frac{X_n}{X_0}} - 1 \times 100 \)
Expenditure at current prices and at constant prices

- The main difficulty in analyzing education expenditure is the effect of inflation.
- A given sum of money cannot buy the same amount of goods or services at different times.
- Expressing expenditure in terms of constant prices makes it possible to assess real variations in expenditure (not because of inflation or deflation).

Expenditure at current prices and at constant prices

at Constant prices - A valuation expressed at the prices prevailing during a fixed reference or base period. Let, the base period for national accounts estimates in constant prices is 1992 and construction cost for a classroom is $2,000 in constant prices. It means that total cost to construct a classroom will be $2,000 if all materials and labour costs were the same as in 1992.

at Current prices - A valuation at current prices is expressed at the prices prevailing during the period being referred to.

Value at constant prices is normally estimated by:

\[
\text{Value at constant prices} = \frac{\text{value at current prices}}{\text{price index in current year}} \times 100
\]

where, Price index can be obtained from National Statistical Office or Ministry of Finance.
Expenditure at current prices and at constant prices

<table>
<thead>
<tr>
<th>Example : GDP</th>
<th>Price index (based 1995)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001 : 1,200 millions</td>
<td>150</td>
</tr>
<tr>
<td>2002 : 1,500 millions</td>
<td>180</td>
</tr>
</tbody>
</table>

- Growth rate of GDP at current prices: \( \left( \frac{300}{1,200} \right) \times 100 = 25\% \)
- GDP 2001 at 1995 prices = \( \frac{1,200}{150} \times 100 = 800 \) millions
- GDP 2002 at 1995 prices = \( \frac{1,500}{180} \times 100 = 833 \) millions
- Growth rate of GDP at constant prices is: \( \left( \frac{33}{800} \right) \times 100 = 4.1\% \)

Indices

An Index measure the variation of quantity in relation to the level of reference, a base, conventionally chosen as 100

- Education expenditure in 2000 = 24 million currency units
- Education expenditure in 2001 = 32 million currency units
- Education expenditure in 2002 = 40 million currency units

<table>
<thead>
<tr>
<th>Index base 100 in 2000</th>
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<tbody>
<tr>
<td>2001 : ( \frac{32}{24} \times 100 = 133 )</td>
</tr>
<tr>
<td>2002 : ( \frac{40}{24} \times 100 = 167 )</td>
</tr>
</tbody>
</table>
Education Finance Indicators at National level

Financial indicators most widely used in education are:
- Public expenditure on education as percentage of gross national product
- Public expenditure on education as percentage of total government expenditure
- Percentage distribution of public recurrent expenditure on education by level
- Public recurrent expenditure per pupil (student) as % of GNP per capita
- Public recurrent expenditure on education as percentage of total public expenditure on Education.
- Teachers’ emoluments (salaries and allowances) as percentage of public recurrent expenditure on education

Some Economic Indicators of Educational Expenditure

Educational expenditure expressed as a proportion of the GDP/ GNP
- It is a measure of society’s contribution to the provision and development of education

Public expenditure on education as a proportion of overall public expenditure
- This indicator allows you to calculate the state priority to the public education

Expenditure per student at current/constant price
- Main indicator to estimate/project the cost of education
Public expenditure on education as percentage of GNP

**Definition:** Total public expenditure on education (recurrent and capital) expressed as a percentage of the Gross National Product (GNP) in a given financial year.

**Purpose:** This indicator shows the proportion of a country's wealth generated during a given financial year that has been spent by government authorities on education.

**Calculation method:** Divide total public expenditure on education in a given financial year by the GNP of the country for the corresponding year and multiply by 100.

\[
\text{Pub expenditure on education as % of GNP} = \frac{\text{Total Public expenditure on edu. in financial year}}{\text{GNP in financial year}} \times 100
\]

**Data required:** Total public expenditure on education and Gross National Product for a given financial year

**Data sources:** Annual financial reports by central or federal governments, state or provincial or regional administrations. Data on GNP are normally available from National Accounts reports from the Government Statistics Office.
Disaggregation: This indicator is normally calculated at the national level only.

Interpretation: High percentage of GNP devoted to public expenditure on education denotes a high level of attention given to investment in education by the government.

Limitations: In some cases, total public expenditure on education refers only to the Ministry of Education. In some countries, only GDP is calculated.

Public recurrent expenditure per pupil as % of GNP per capita

Definition: Public recurrent expenditure per pupil (or student) at each level of education, expressed as a percentage of GNP per capita in a given financial year.

Purpose: This indicator measures the share of per capita income that has been spent on each pupil or student. It helps in assessing a country’s level of investment in human capital development. When calculated by level of education, it also indicates the relative costs and emphasis placed by the country on a particular level of education.

Calculation Method: Divide per pupil public recurrent expenditure on each level of education in a given year by the GNP per capita for the same year and multiply by 100.
**Public recurrent expenditure per pupil as % of GNP per capita**

<table>
<thead>
<tr>
<th>Public recurrent expenditure per pupil</th>
<th>Total public recurrent expenditure at a specific level per pupil</th>
<th>Total enrolment at that education level</th>
</tr>
</thead>
</table>

**GNP per Capita** = \( \frac{\text{GNP}}{\text{Total population}} \)

**Public recurrent expenditure per pupil as % of GNP per capita** = \( \frac{\text{Public recurrent expenditure per pupil}}{\text{GNP per capita}} \)

**Data required:** Public recurrent expenditure by level of education; the number pupils enrolled in each level of education; GNP; population.

**Data sources:** Annual financial reports prepared by the Ministry of Finance; National accounts reports by the Government Statistics Office; Financial reports from various government departments engaged in educational activities especially the Ministry of Education; school register, school survey or census for data on enrolment; population census.
Public recurrent expenditure per pupil as % of GNP per capita

**Disaggregation:** This indicator can be disaggregated by level of education.

**Interpretation:** A high percentage figure for this indicator denotes a high share of per capita income being spent on each pupil/student in a specified level of education. It represents a measure of the financial cost per pupil/student in relation to average per capita income.

**Limitations:** This indicator may be distorted by inaccurate estimation of GNP, current population or enrolment by level of education. The fact that fiscal year and educational year budget periods may be different should also be taken into consideration.

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Public expenditure on education as percentage of total government expenditure

**Definition:** Total public expenditure on education (recurrent and capital) expressed as a percentage of total government expenditure in a given financial year.

**Purpose:**
- Allows to assess the government’s policy emphasis on education relative to the perceived value of other public investments.
- Reflects also the commitment of a government to invest in human capital development.

**Calculation Method:** Divide total public expenditure on education incurred by all government agencies/departments in a given financial year by the total government expenditure for the same financial year and multiply by 100.
Public expenditure on education as percentage of total government expenditure

\[
\text{Public expenditure on education as } \% \text{ of total government expenditure} = \frac{\text{Total public exp. on ed. in a financial year}}{\text{Total government expenditure in financial year}} \times 100
\]

Data required: Total public expenditure on education; and total government expenditure.

Data sources: Annual financial reports prepared by the Ministry of Finance; National accounts reports by the Government Statistical Office and financial reports from the various government departments engaged in education activities especially the Ministry of Education.

Disaggregation: disaggregated by level of administration, by geographical location (region, urban/rural), and by purpose of expenditure (emoluments, teaching material, etc.).

Interpretation: A higher percentage of government expenditure on education shows a high government policy priority for education relative to the perceived value of other public investments.

Limitations: Most cases, only the data from Ministry of Education are available.
Percentage distribution of public recurrent expenditure on education by level

**Definition:** Public recurrent expenditure for each level of education, expressed as a percentage of total public recurrent expenditure on education.

**Purpose:** How financial resources for education have been distributed across the different levels or stages of education. It measures the relative emphasis of government spending on a particular level of education within the overall educational expenditure.

**Calculation Method:** Divide public recurrent expenditure spent for each level of education by the total public recurrent expenditure on education, and multiply the result by 100.

**Data required:** Total public current expenditure on education; current public expenditures by level of education.

**Data sources:** Annual financial reports prepared by the Ministry of Finance; National accounts reports by the Government Statistical Office and financial reports from the various government departments engaged in education activities especially the Ministry of Education.
Disaggregation: This indicator can be disaggregated by level of administration, by geographical location (region, urban/rural) and by various purposes of recurrent expenditures (emoluments, teaching materials, scholarships, welfare services, etc.).

Interpretation: Relatively high percentage of recurrent expenditures devoted to a specific level of education denotes the priority given to that level in national educational policy and resource allocation. One may also take into account the corresponding distribution of enrolment by level and then assess the relative recurrent expenditure per student.

Limitations: In some instances data on recurrent public expenditure on education refers only to the Ministry of Education, excluding other ministries that spend a part of their budget on educational activities.

Definition: Public recurrent expenditure on education expressed as a percentage of total public expenditure on education (recurrent and capital) in a given financial year.

Purpose: This indicator shows the share of recurrent expenditure within total public expenditure, thereby indicating the pattern of government spending on education in terms of the relative weight between recurrent and capital expenditure.

Calculation Method: Divide public recurrent expenditure on education in a given financial year by the total public expenditure on education for the same financial year and multiply by 100.
Public recurrent expenditure on education as percentage of total public expenditure on Education

\[
\frac{\text{Total public recurrent expenditure on education in a financial year}}{\text{Total public expenditure in the financial year}} \times 100
\]

**Data required:** Total public recurrent expenditure on education and total public expenditure on education (recurrent plus capital)

**Data sources:** Annual financial reports prepared by the Ministry of Finance; National accounts reports by the Government Statistical Office and financial reports from the various government departments engaged in education activities especially the Ministry of Education

**Disaggregation:** This indicator is usually calculated at the national level only. It can be disaggregated by level of administration (central, regional, local government).

**Interpretation:** A high percentage of public recurrent expenditure on education reflects the need to devote a large share of public funding to maintain the education system operations, taking into account current and projected changes in enrolment, in the salary levels of educational personnel and in other operational costs. The difference between this percentage and 100 reflects the proportion of public expenditure on education devoted to capital expenditure.

**Limitations:** In many instances data on total public recurrent expenditure on education cover only the Ministry of Education, excluding other ministries that spend a sizeable part of their budget on educational activities.
Teachers’ emoluments as percentage of public recurrent expenditure on education

**Definition:** Public expenditure devoted to teachers’ emoluments expressed as a percentage of total public recurrent expenditure on education.

**Purpose:** This indicator measures the share of teachers’ emoluments within public recurrent expenditure on education, in relation to spending on administration, teaching materials, scholarships, etc.

**Calculation Method:** Divide public recurrent expenditure devoted to teachers’ emoluments in a given financial year by the total public recurrent expenditure on education for the same financial year and multiply by 100.

\[
\frac{\text{Total public recurrent expenditure on Teachers' emolument in a financial year}}{\text{Total current expenditure on education in the financial year}} \times 100
\]

**Data required:** Total public recurrent expenditure on education and public recurrent expenditure on teachers’ emoluments.

**Data sources:** Annual financial reports prepared by the Ministry of Finance; National Accounts reports by the Central Statistical Office and financial reports from the various government departments engaged in education activities especially the Ministry of Education.

**Disaggregation:** This indicator can be disaggregated by level of education and by level of administration (central, regional, local government).
Teachers’ emoluments as percentage of public recurrent expenditure on education

**Interpretation:** A higher percentage of public recurrent expenditure devoted to teachers’ emoluments denotes the preponderance of spending on teachers' compensation to the detriment spending on administration, teaching materials scholarships, etc. The way in which educational spending is allocated between these different purposes i.e. teachers salaries and the condition of education facilities (e.g. expenditure on teaching materials, etc) can affect the quality of education.

**Limitations:** In many instances data on total public recurrent expenditure on education covers only the Ministry of Education, excluding other ministries that spend a part of their budget on educational activities. It may, sometimes, be difficult to account for the share of emoluments of educational personnel who work on both teaching and other tasks.

Sources of information on educational expenditure

- Budgets of government departments, including Ministry of Education, are particularly important sources of information
- Accounts of local authorities - documents can be found at the Ministry of Finance or the Ministry responsible for local authorities
- Expenditure financed by external donors can be obtained from aid agencies themselves or from project documents
- Accounts kept by schools themselves, where exist, can be a worthwhile source on origin of the resources (public or private)
- Apart from administrative reports, it is preferable (or necessary) to conduct a survey on costs from selected sample schools to identify all resources brought into for the operation of the schools
- Surveys can provide information on contributions made by families and parents’ associations, and on the fees charged by private schools, purchase of books and school supplies
Issues on education finance data

- Most of them cover only Ministry of Education (sometimes only at the central level) excluding other ministries that spend a part of their budget on educational activities
- Providing expenditure forecasts (or budget) rather than the expenditure actually incurred
- Availability of information on the allocation of expenditure at different levels of education
- Expenditure incurred at one line of budget may not correspond exactly to the real allotment of resources
- Information on education expenditure exists, but it is segmented in many different documents and in disparate forms which require systematic mechanism and procedure to compile and collate