Sub-regional course on:

Public Expenditure Tracking Surveys in Education

(Accra: 22-26 May 2006)

Ghana and Nigeria

THE WORLD BANK

United Nations
Educational, Scientific and
Cultural Organization

International Institute
for Educational Planning

A sub-regional course on *"Public expenditure tracking surveys (PETS) in education"* was organised jointly by the International Institute for Educational Planning (IIEP) and the World Bank Institute (WBI), from 22 to 26 March 2006 in Accra.

This course aimed at introducing participants to the methods of PETS; allowing them to practically implement a PETs through an exercise (Ruritania); and discussing how this methodology can be applied to the situation in their respective countries.

This report includes the various materials that were prepared and used for the course, in particular: the outlines of the presentations by the faculty and the Ruritania exercise. The appendices contain the list of participants as well as some bibliographical references.

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PETS IN EDUCATION – COURSE AGENDA
Ghana, 22 – 26 May, 2006

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	Lecture: Resource leakage and corruption in education	Jacques Hallak [JH] & [MP]
p.m.	*Lecture:* Structure of decision making and mechanisms of financing education in Ghana	National team
	Lecture: An overview of PETS – Rationale, design, data collection, analysis, dissemination, impact	[JH] & [MP]
Day Two	**INTRODUCTION (continued)**	
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	Group work # 1 on objectives and issues	[JH], [MP]
p.m.	*Lecture*: Sources of financing and flows of funds	[CW]
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Day Five	**Analysis, Reporting, and Dissemination**	
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International course on 'PETS in education'
Accra, Ghana – 22-26 May 2006

"Corruption is a major drain on the effective use of resources for education and should be drastically curbed".
(EFA Dakar, 2000)

RESOURCE LEAKAGE AND CORRUPTION IN EDUCATION

Jacques Hallak and Muriel Poisson

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Introduction: recent examples of corruption in education

- *Bangladesh:* many fictitious teachers
- *Cameroon:* students pay to get good grades
- *Ghana:* illegal school fees and ghost personnel (Ghana Education Service)
- *France:* violating tendering processes
- *Italy:* selling exam questions in advance
- *Pakistan:* fictitious schools, teachers, pupils
- *USA:* many bogus e-mail colleges

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Outline of the presentation

I. What is corruption?

II. Why tackle corruption now?

III. What are the opportunities for corruption?

IV. How to assess corruption?

I. What is corruption?

Definitions

Magnitude of corruption

1. General definition of corruption

- Definition used for all public sectors:

  "The use of public office for private gains"

  - *diversion of funds from govt accounts*
  - *favouritism in personnel appointments*

- Definition used for education:

  "*The systematic use of public office for private benefit whose impact is significant on access, quality or equity in education*"

- Where to draw the line between corrupt and honest behaviour?

2. Levels of Corruption

- Grand corruption: high-level officials and politicians
  - very large amounts of money
  - high economic impact

  Example: *Procurement of education facilities*

- Petty corruption: public officers at all levels
  - many small amounts of money
  - severe social impact, especially for the poor

  Example: *Undue fees charged*

- Continuum from grand to petty corruption

  Example: *Teaching profession in some Latin American countries*

3. Causes of corruption

- Low salaries of public officials/teachers
- Effort to extend status or power
- Complexity and lack of accessibility to rules
- Discretionary power/monopoly/*conflict of interests**
- Poor governance/supervision at all levels
- Lack of absorption/management capacity
- Poor public information on govt decisions
- Lack of transparency of stakeholders
- Weakening of ethical norms

Source: Ghana Centre for Democratic Development, 2003.

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4. Definitions of corrupt practices

Practices	***Summary definitions***
Bribe, Pay-off	*Undue payment given to get a favour*
Bypass of criteria	*Non-use of legal criteria*
Capture, Leakage	*Illegal use of public resources*
Diversion of funds	*Illegal use of public resources*
Embezzlement	*Theft of public resources*
Misappropriation	*Illegal use of public resources*
Favouritism	*Illegal preference given to someone*
Fraud	*Any kind of corrupt practice*
Ghost worker	*Draws salary but does not work*
Nepotism	*Illegal preference given to a relative*
Traffic of influence	*Influencing a public decision for a bribe*

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5. Magnitude of corruption

- World cost of corruption is estimated at US$ 1 trillion out of a 30 trillion economy
- Two nation level estimates of corruption:
  - *Mexico: around 15 percent of GNP today*
  - *India: around 20 percent of GDP in 1980*
- The magnitude of corruption is usually measured by the way it is perceived
  - *Corruption Perception Index (CPI) published annually by Transparency International*

II. Why tackle corruption now?

International setting

Growing awareness

Sectoral dimensions

1. International setting

- International conventions against corruption:
  - *OECD Convention on combating bribery of foreign public officials, 1997*
  - *UN Convention against corruption, 2003*
- NORAD "Good Governance and Anti-corruption Action Plan 2000-2001"
- Good governance and anti-corruption programmes developed by the World Bank
- Global Coalition for Africa: focus on corruption (http://www.gcacma.org/Corruption.htm)

2. Growing awareness

- Wide diffusion of Ti Index*
- Links between corruption / poverty (PRSP), development and democracy established
- Coalitions of NGOs against corruption (youth movements)
- Role of mass media

"Corruption is a major drain on the effective use of resources for education and should be drastically curbed".

EFA (Dakar, 2000)

* The 2005 Corruption Perceptions Index

Country	High-Low Range
Iceland	9.5 – 9.7
Finland	9.5 – 9.7
Denmark	9.3 – 9.6
USA	7.0 – 8.0
Botswana	5.1 – 6.7
South Africa	4.2 – 4.8
Namibia	3.8 – 4.9
Ghana	3.2 – 4.0
Burkina	3.7 – 3.9
Benin	2.1 – 4.0
Gabon	2.1 – 3.6
Mali	2.3 – 3.6
Tanzania	2.6 – 3.1
Cameroun	2.0 – 2.5
Congo DR	1.8 – 2.3
Chad	1.3 – 2.1

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3. Sectoral dimensions

- Priority given by donors to education / pressure exerted by taxpayers: public budget squeeze
- Growing share of private delivery services
- Development of ICTs
  - *Paper mills / diploma mills*
- High rate of return for investment in education
  - *Links between GNP per capita and criteria of access to managerial jobs*
- Competition for access to jobs
  - *Academic fraud*
  - *Private tutoring*

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III. What opportunities for corruption?

Some major practices
of corruption in education

1. Major practices of corruption in education

Areas	Corrupt practices	Impact on education
School building, rehabilitation	• Fraud in public tendering • Embezzlement • School mapping	• Access • Quality • Equity • Ethics • Policy priorities
Equipment, Textbooks, Food	• Fraud in public tendering • Embezzlement • Bypass of criteria	
Teacher appointment/management	• Favouritism • Nepotism • Bribes	
Personnel behaviour	• "Ghost teachers" • Bribes (for school entrance, exams, assessment, private tutoring, etc.)	
Examinations and diplomas	• Selling of information • Favouritism • Nepotism • Bribes • Academic fraud	
Information systems	• Manipulating data • Selecting/suppressing information	
Specific allowances (fellowships, subsidies, etc.)	• Favouritism • Nepotism • Bribes • Bypass of criteria	
Finance	• Transgressing rules/procedures • Inflation of costs and activities • Opacity of flow	

2. School building/equipment/food…

Areas	Corrupt practices
School building*, rehabilitation	Fraud in public tendering Embezzlement School mapping
Equipment, textbooks, food**	Fraud in public tendering Embezzlement Bypass of criteria

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* Procurement in Ghana

"This report highlights a broad array of poor procedures and practices throughout the tendering and management process, which have been the cause of many Ghana's public procurement problems, and where leakages in public procurement occur and substantial savings could be realized. More of the procedures have now been corrected by the Public Procurement Act (PPA) and the Standard Tender and Contract Documents".

In addition, recommendations include record keeping, putting in place an effective sanction system and enforcing codes of conduct for civil servants…

Source: World Bank, 2004.

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** Production and distribution of textbooks

Background	Forms of malpractice	Example (Philippines)
– Deterioration of quality (textbooks and teaching materials are critical determinants) – Non-salary expenditures affected by budget cuts (including textbooks availability) – Very low textbook/pupil ratio (sometimes less than 1/1 in Sub Saharan Africa) – IFIs concerns (including development banks) – Lack of national book policies	At each stage of the book production and distribution chain: – *raw materials (papers):* lack of transparency of purchase rules – *writing (authors):* lack of clear policy on copyright (particularly in the public sector) – *production/printing:* often supported by IFIs: distortion in procurement rules – *distribution and storage:* using public/ private (monopolistic or/and informal) networks; lack of transparent criteria for costing – *purchase:* different formulae of financing (free/non free ; collection of funds; multi-use of textbooks) Particular difficulties for imported textbooks.	– Payoffs eat up 20 to 65% of textbook funds – Of the P100-million pork barrel or Countrywide Development Fund legislators spent on supplementary materials in 1997, up to P65 million to bribes – That amount could have bought a million more textbooks

3. Teacher management and behaviour

Areas	Corrupt practices
Teacher appointment/ management	Favouritism Nepotism Bribes
Teacher behaviour*	Ghost teachers Bribes (for school entrance, exams, assessment, private tutoring, etc.)

* Sources of unethical behaviour in South Asia

Source of unethical behaviour	Very serious	Serious	Less serious	Not at all a source
Abuses in human resource management	India, Bangladesh, Nepal	X	X	X
Abuses in supply and purchase of materials	X	India, Bangladesh, Nepal	X	X
Conduct of school inspection	X	Nepal	India, Bangladesh	X
School admissions	X	Nepal	Bangladesh	India
School examinations and qualifications	X	Nepal	India, Bangladesh	X
Embezzlement/ mismanagement of school finance	Bangladesh, Nepal	India	X	X
Staff attendance/absenteeism	X	Bangladesh, Nepal	India	X
Poor human relations among staff in the school	X	Nepal	India, Bangladesh	X
Private tuition by teachers	India, Bangladesh	Nepal	X	X

Source: Khandelwal. 2004. IIEP (forthcoming)

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4. Examinations and information systems

Areas	Corrupt practices
Examinations and diplomas*	Selling information Favouritism Nepotism Bribes Academic fraud Accreditation fraud
Information systems	Manipulating data Selecting/suppressing information

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* Fighting academic fraud

Background	Forms of malpractice	Example
– Low salaries of examination officers – Assessment of teachers/schools linked to students' success – Development of ICTs (fax, computers, etc.) ⏩ Academic fraud*	Areas covered by academic fraud: exams, credentials, diploma mills, plagiarism, research, academic journals and publications Example of exams: – leakage – test preparation – impersonation – external assistance – smuggling of foreign materials – copying – collusion – intimidation – substitution of scripts – improper assignment – ghost centres – marker malpractices	– USA: 15 to 25% of candidates admitted having cheated – Bangladesh, India, Pakistan: Majority of candidates – In some countries, examination corruption has become a business (paper mills: www.cheathouse.com, diploma mills: www.fakedegrees.com)

5. Specific allowances / finance

Areas	Corrupt practices
Specific allowances (fellowships, subsidies, illegal fees, etc.)	Favouritism Nepotism Bribes Bypass of criteria
Finance*	Transgressing rules/procedures Inflation of costs and activities Opacity of flow

* Financial leakage

- *Bangladesh:* Illegal fees in eight districts amount to about BDT 20 million
- *State of Victoria (Australia):* $ 7.7 million of error in the financing of education, detected through audit in 2002
- *United Kingdom:* Embezzlement of a school budget by a headteacher amounting to £ 500 000 in one LEA in 2003

IV. How to assess corruption?

Collection of "subjective" data

Collection of "objective" data

1. Collection of "subjective" data

- Corruption Perception Index (CPI):
  - Degree to which corruption is perceived to exist among public officials and politicians
  - Reflects perception of business people, academics and risk analysts
  - Composite index, drawing on 17 different polls from 13 independent institutions
  - CPI=10: highly clean; 0: highly corrupt
- Participatory diagnosis (3 cities in Ukraine)
- Other perception surveys

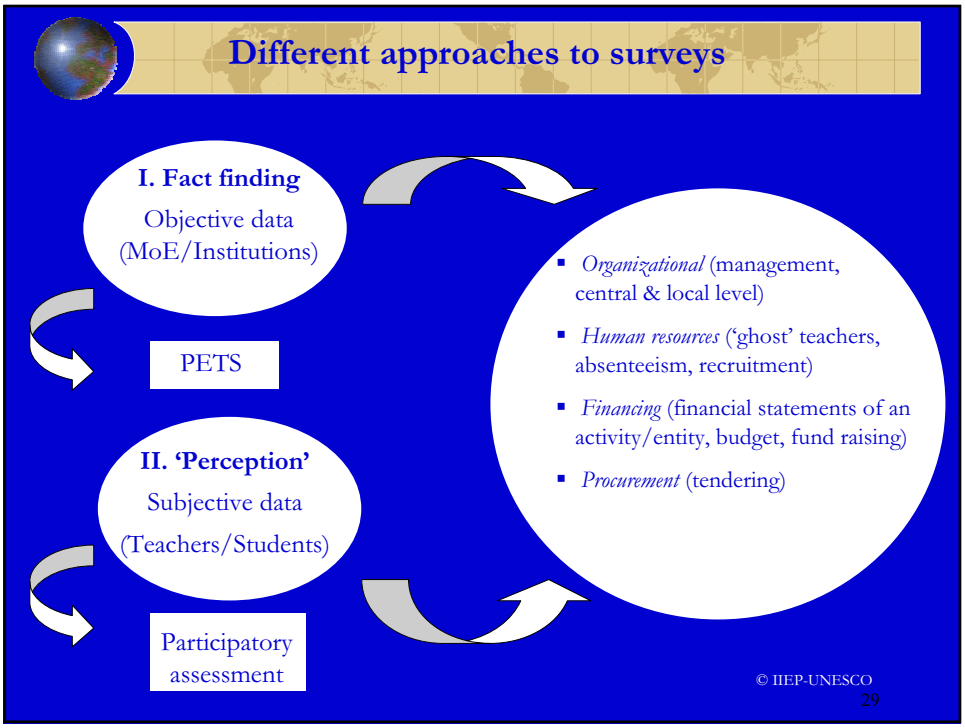
2. Collection of "objective" data

- Limit of "subjective" data
- Lack of "objective" data

Collection of quantified data through:

- School census
- Survey approaches
- Audits (sector/institutions/staff/financial)
- Risk analysis
- Public expenditure tracking surveys (PETS)
- Multiple indicators (QSDS)

➔ *Importance of this course…*


Different approaches to surveys
I. Fact finding
Objective data
(MoE/Institutions)
PETS
II. 'Perception'
Subjective data
(Teachers/Students)
Participatory assessment
Organizational (management, central & local level)
Human resources ('ghost' teachers, absenteeism, recruitment)
Financing (financial statements of an activity/entity, budget, fund raising)
Procurement (tendering)
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STRUCTURE OF EDUCATION IN GHANA

AND

CHALLENGES FACING EDUCATION IN GHANA

THE MINISTRY OF EDUCATION'S GOAL

The provision of relevant education to all Ghanaians, at all levels to enable them acquire skills, that will assist them to develop their potential, to be productive, to facilitate poverty reduction and to promote socio-economic growth and national development.

GOALS FOR THE EDUCATION SECTOR

The Ministry of Education will provide the ff:

- Facilities to ensure that all citizens, irrespective of age, gender and tribe, religion and political affiliation, are functionally literate and self-reliant
- Basic education for all
- Opportunities for open education for all
- Education and training for skill development with emphasis on science, technology and creativity
- Higher education for the development of middle and top-level manpower requirements.

VALUES

In providing these services, we will be guided by the following values:

- Quality Education
- Efficient management of resources
- Accountability and transparency
- Equity

POLICY GOALS

Equitable Access to Education

- Increase access to and participation in education and training
- Promote and extend pre-school education
- provide girls with equal opportunities to access the full cycle of education

POLICY GOALS

2. Quality of Education

- Improve quality of teaching and learning for enhanced pupil/ student achievement
- Promote good health and environmental sanitation in schools and institutions of higher learning
- Improve the quality of academic and research programmes
- Identify and promote education programmes that will assist in the prevention and management of HIV/AIDS.

POLICY GOALS

3. Educational Management
4. Science, Technology and TVET

- Strengthen and improve educational planning and management
- Extend and improve technical and vocational education and training
- Promote and extend the provision of science and technology education and training

☒DNG P☒

- Funding of education has been done principally by government since independent.
- Re-enforced by provisions in the 1992 constitution

ÑDNG PØ

"Constitutional Provision"

- Basic education shall be free, compulsory and available to all
- Secondary education in its different forms, including technical and vocational education, should be made generally available and accessible to all by every appropriate means, and in particular, by the progressive introduction of free education

ÑDNG PØ

"Constitutional Provision"

- Higher education shall be made equally accessible to all on the basis of capacity by every appropriate means, and in particular, by the progressive introduction of free education.

ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS

- The Education Reform Program of 1987
- The fCUBE Program
- The Growth and Poverty Reduction Strategy
- The Education Reform Program of 2002 – White Paper

THE EDUCATION REFORM PROGRAMME (1987)

Main objectives:

- To expand and make access more equitable at all levels of education
- To change the structure of the pre-tertiary education system (from 6-4-7 to 6-3-3)
- To improve pedagogic efficiency and effectiveness

THE EDUCATION REFORM PROGRAMME (1987) (contd.)

- To make education more relevant by increasing the attention paid to problem solving, environmental concerns, pre-vocational training, manual dexterity and general skills training
- To contain and partially recover educational costs and to enhance sector management and budgeting procedures

THE FCUBE PROGRAMME

Objectives were to improve by 2005,

- The quality of teaching and learning
- Access to and participation in basic education
- Community participation in the delivery of education
- Resource management and allocation

THE FCUBE PROGRAMME

- Tuition - free
- Textbooks - free
- Stationery - parents/guardians
- Equipment/Tools - free
- Meals/ Transportation - parents/guardian

(more resources to be moved to basic education)

THE GPE Update 2005

The programmes include activities geared towards:

- Increasing access to and participation in education and training
- Bridging gender gap in access to education
- Improving quality and efficiency in delivery of education service
- Promote and extend the provision of science, maths, tech and ICT education and training

GOVT'S WHITE PAPER ON REPORT

- A portfolio of reforms to be implemented from 2007
- Key objectives:
  - Ensure that all children are given the foundation of high quality free education
  - Second cycle education is more inclusive and demand driven and market responsive to meet the needs of the Ghanaian economy

GOVT'S WHITE PAPER ON REPORT

- Key issues:
- Basic education to be expanded to include 2yrs KG, 6 yrs primary, 3 yrs JHS. Entire basic education to be free.
- Second Cycle to last for 4yrs and serve as terminal point of entry to the world of work.

GOVERNANCE PAPER ON SHS

- Second cycle to comprise of apprenticeship programme, including work-based and academic training
- SHS will consist of general, vocational, technical and agricultural education

GOVERNANCE PAPER ON SHS

- Some of the proposed activities to include:
- Expansion of pre-school access to all basic schools
- Capitation grant to all public basic schools
- Basic level students to benefit from school feeding
- Targeted programmes to improve access in underserved areas

GOVERNMENT PAPER ON EDUCATION

- Access courses in training colleges
- Textbook and ICT development policies
- Widespread computer education, especially at training colleges
- Expansion of research and library facilities in tertiary institutions
- Strengthening linkages between the universities and industry

FUNDING SOURCES

- Central Government
  - Discretionary Budget
  - GETFund
  - HIPC
  - Social Impact Mitigation Levy
- Development Partners
- Internally Generated Funds
- District Assemblies Common Fund
- Other sources – PTA, Old Students, churches, others

CENTRAL GOVERNMENT FUNDS

Annual Budget Support to cover:

- Personal Emolument
- Admin Expenses
- Service Activity Expenses
- Investment Activity Expenses

GET Fund support, mainly in the area of Investment Activity Expenses

CENTRAL GOVERNMENT FUNDS

HIPC Fund support mainly in the area of Service and Investment Activity Expenses

Social Impact Mitigation Levy has been used mainly to support the payment of capitation Grant

DEVELOPMENT PARTNERS FUNDS

Supplementary to that of Government. Major donors are:

- IDA
- DFID
- EC
- AfDB
- JICA
- USAID

INTERNALLY GENERATED FUNDS

- Increasingly becoming a major source o funding especially at the Tertiary level

OTHERS

- DACF
- Scholarships and Educational Foundations

BUDGET CATEGORIES

- 140 - MOES
- 141 - GES HQ
- 142 - REGIONAL AND DISTRICT SERVICES
- 143 - SCHOOLS OF THE HANDICAPPED
- 145 - TERTIARY

BUDGET ALLOCATIONS

- Allocations based on:
- the priority areas
- Commitments
- Agreements with Development partners, etc

EXPENDITURE DISTRIBUTION SYSTEM

Education is financed and managed through these managerial offices:

- The MOES primarily oversees budget allocation and education policies.
- The GES as an agency with coverage at regional and district level, implements the budget and the policies.
- NCTE with coverage of the Universities, Polytechnics, etc

EXPENDITURE DISTRIBUTION SYSTEM

- Main channels for distribution of expenditures.
- CAGD receives budgets from the MOFEP and distributes payments through the banks directly to teachers and other staff for the payment of personal emoluments (salaries)
- GES District offices which receives its budget from headquarters and utilises it through the schools

EXPENDITURE DISTRIBUTION SYSTEM

- MOES/GES HQ which receives the allocations to procure textbooks and other TLMs ad these are distributed through the District offices to the schools.
- MOES/GES/GETFund which pays directly for investment expenditures

EGAL REFORM

- Using the three financial management laws
- Financial administration Act
- Public Procurement act
- Internal Audit Agency Act

DECENTRALIZATION OF RESOURCES

Fiscal decentralization pursued through:

- Budget Preparation/Implementation
- Introduction of Readiness Criteria
- Introduction of Capitation Grant

DECENTRALIZATION OF RESOURCES

- Budget Preparation/Implementation
  - Use of enrolment, number of schools and level of deprivation
- The MTEF process entails the consolidation of activities which has been selected by the cost centres for budget preparation.
- Releases are subsequently made to the same cost centres for implementation of activities

DECENTRALIZATION OF RESOURCES

- Readiness Check
- Three sets of districts
  - Ready
  - Partially Ready
  - Non-Ready

CAPITATION GRANT

- The allocation of resources direct to schools

Education discretionary budget as a % of total discretionary budget (¢ million)

YEAR	1999	2000	2001	2002	2003	2004	2005
GDP	20,580,000	27,152,000	38,014,000	47,764,000	65,262,000	77,620,000	97,619,000
National Discretionary Budget	3,838,820	5,318,798	6,329,456	7,455,801	10,442,100	13,005,379	18,528,000
Total Education Discretionary Budget	768,890	1,032,944	1,420,215	1,800,028	2,775,886	3,466,008	4,295,278
Actual Education Expenditure	1,020,877	1,198,789	1,821,979	2,652,306	3,625,760	4,338,544	-
Total Education Discretionary Budget as % of GDP	3.7%	3.8%	3.7%	3.8%	4.3%	4.5%	4.4%
% of national discretionary budget spent on education	20.0%	19.4%	22.4%	24.1%	26.6%	26.7%	23.2%
Actual Education Expenditure as % of GDP	4.96%	4.42%	4.79%	5.55%	5.56%	5.59%	-
Actual Education Expenditure as % of Total Discretionary Budget	27%	23%	29%	36%	35%	33%	-

Source: *Budget Statement & Economic Policy of the Government of Ghana 1999 - 2005*

MINISTRY OF EDUCATION AND SPORTS

EXPENDITURES AND ALLOCATIONS

	ACTUAL EXPENDITURES						BUDGET	
	2003		2004		2005(jan-sept)		2006	
SUB-SECTOR	Total	% allocation	Total	% allocation	Total	% allocation	Total	% allocation
PRE-SCHOOL	98,118	2.0	234,720	4.1	252,387	3.4	369,741	4.2
PRIMARY	1,645,995	33.8	1,833,930	31.7	2,164,873	29.5	2,751,316	31.3
JSS	912,718	18.7	929,197	16.0	1,298,708	17.7	1,303,615	14.8
SSS	638,250	13.1	1,151,954	19.9	1,516,445	20.6	1,803,720	20.5
NFED	46,051	0.9	65,532	1.1	29,454	0.4	63,535	0.7
SPED	37,939	0.8	92,898	1.6	146,359	2.0	108,528	1.2
TEACHER EDUCATION	166,882	3.4	215,020	3.7	85,964	1.2	100,130	1.1
TVET	14,991	0.3	21,745	0.4	290,722	4.0	349,863	4.0
TERTIARY	1,309,438	26.9	1,219,537	21.0	1,486,215	20.2	1,823,150	20.8
Other (Management, Subvented Agencies)	5,655	0.1	29,507	0.5	72,917	1.0	109,771	1.2
TOTAL	**4,876,037**	**100.0**	**5,794,040**	**100.0**	**7,344,044**	**100.0**	**8,783,369**	**100.0**

INTRODUCTION

International course on 'PETS in education'
Accra, Ghana – 22-26 May 2006

AN OVERVIEW OF PETS

Rationale, design, data collection, analysis, dissemination, and impact

Jacques Hallak and Muriel Poisson

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Outline of the presentation

I. Improving education service delivery
II. Scope of PETS
III. Design and implementation of PETS
IV. Use and impact of PETS

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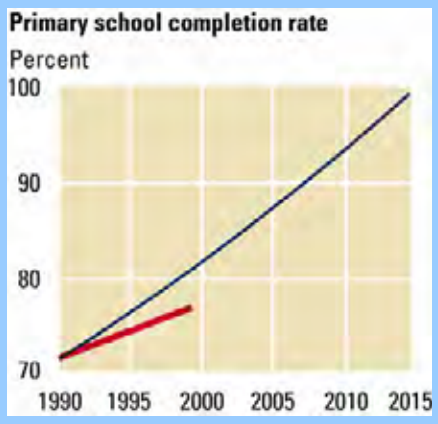
I. Improving education service delivery

Public spending and poverty
Public spending and outcomes
How services are failing the poor?

1. MDGs: global aggregates

Eradicate poverty and hunger

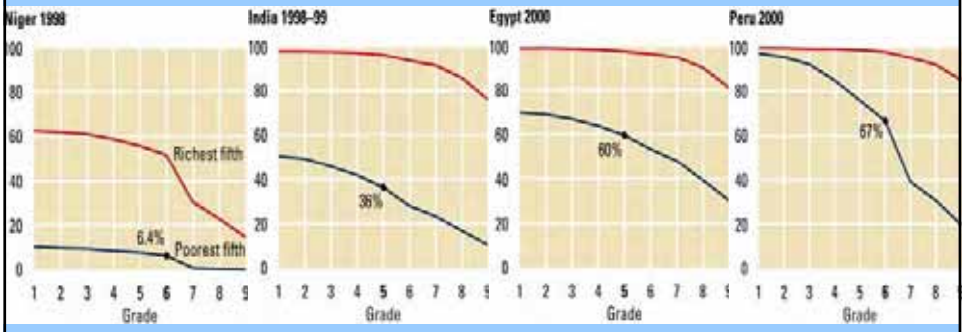
Universal primary education



Source: World Bank, 2004

2. Outcomes are worse for poor people

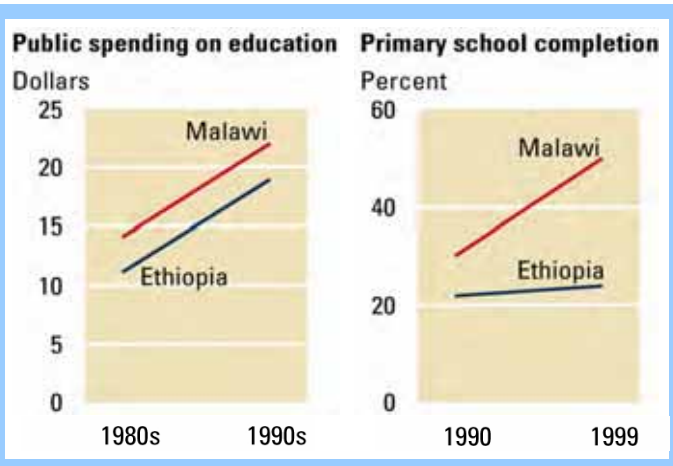
Percent aged 15 to 19 completing each grade or higher:



Source: Analysis of Demographic and Health Survey data

3. Public spending and outcomes

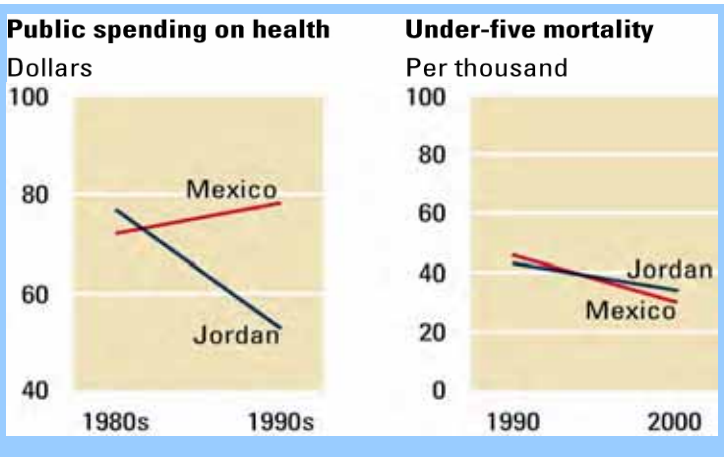
Similar changes in public spending can be associated with vastly different changes in outcomes…



Source: World Development Indicators database, 2003

3. Public spending and outcomes (ctd)

…and vastly different changes in spending can be associated with similar changes in outcomes.

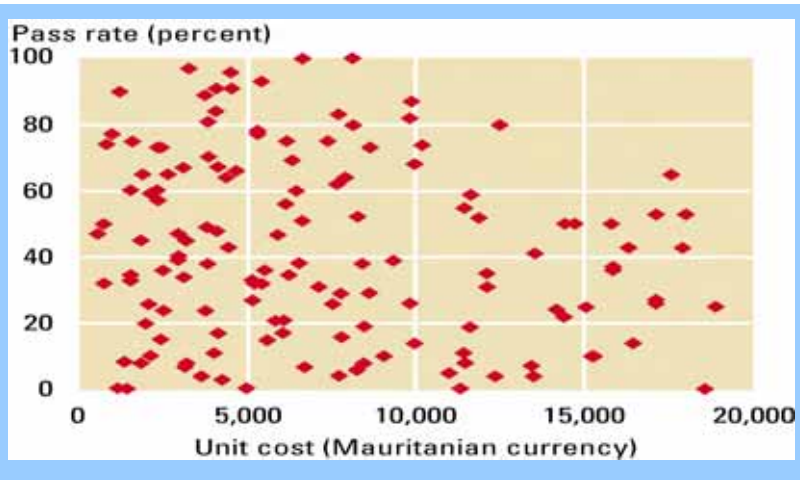


Source: World Development Indicators database, 2003

7

4. Unit cost and performance

Unit cost and performance in primary education: Mauritania



Source: World Development Indicators database, 2003

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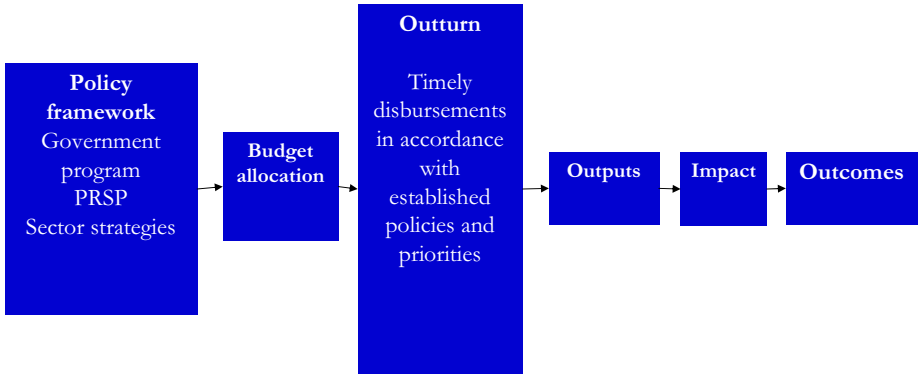
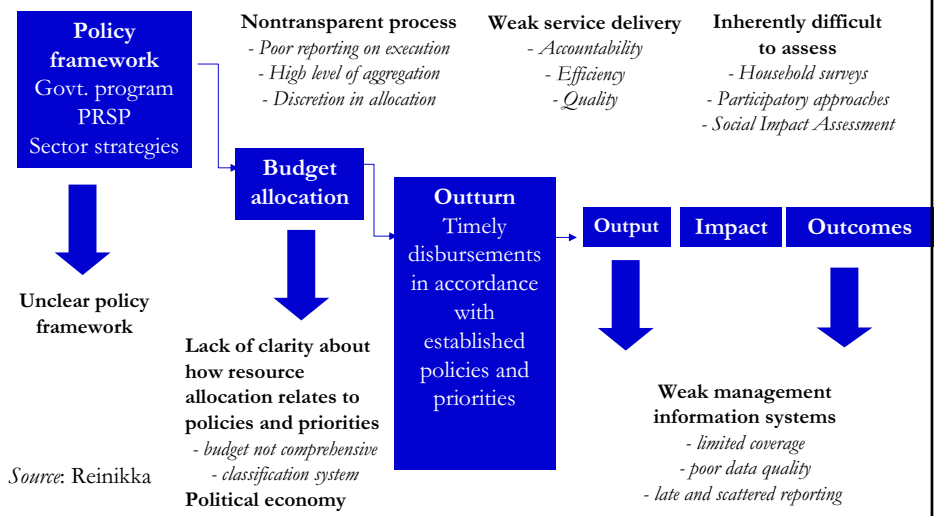
5. The ideal situation…



Source: Reinikka

9

6. A more typical situation…



Source: Reinikka

PUBLIC EXPENDITURE TRACKING SURVEY (PETS)
QUANTITATIVE SERVICE DELIVERY SURVEY (QSDS)

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Ghana's budget (% of GDP)

	2001	2002
Budget provision	5.4 %	6.7 %
Actual expenditure	8.4 %	8.5 %

Source: CDD Ghana, 2003.

7. How are services failing poor people?

- Public spending benefits the rich more than the poor
  - *Benefit incidence analysis of public spending for diagnosis*
- Money fails to reach frontline service providers
  - *Captured by administrative layers or politicians*
  - *Public expenditure tracking surveys (PETS)*
- Poor quality services
  - *Quantitative Service Delivery Survey (QSDS): e.g. absenteeism*
- Lack of demand by households

How are services failing poor people? Ghana

Education Characteristics by Poverty Quintile							
	NATIONAL	RURAL			URBAN		
	National	All Rural	Very Poor Rural	Non-Poor Rural	All Urban	Very Poor Urban	Non-Poor Urban
Literacy rate >15yrs	48	40	24	62	63	40	85
Time to reach the nearest primary school % greater than 30 minutes.							
	8	10	14	6	3	6	1
Time to reach the nearest secondary school % greater than 30 minutes.							
	65	77	86	69	42	57	27
Satisfaction with school attended							
Primary							
No Problem	39	30	18	43	61	49	76
Lack of books/supplies	37	42	45	36	25	36	14
Poor teaching	6	8	10	5	3	4	3
Lack of teachers & overcrowding	16	21	32	13	6	11	3
Facilities in bad condition	32	40	50	31	13	15	8

Source: World Bank, 2006

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II. Scope of PETS

Financial flows

Monitoring salary costs

Monitoring capital costs

School budgets

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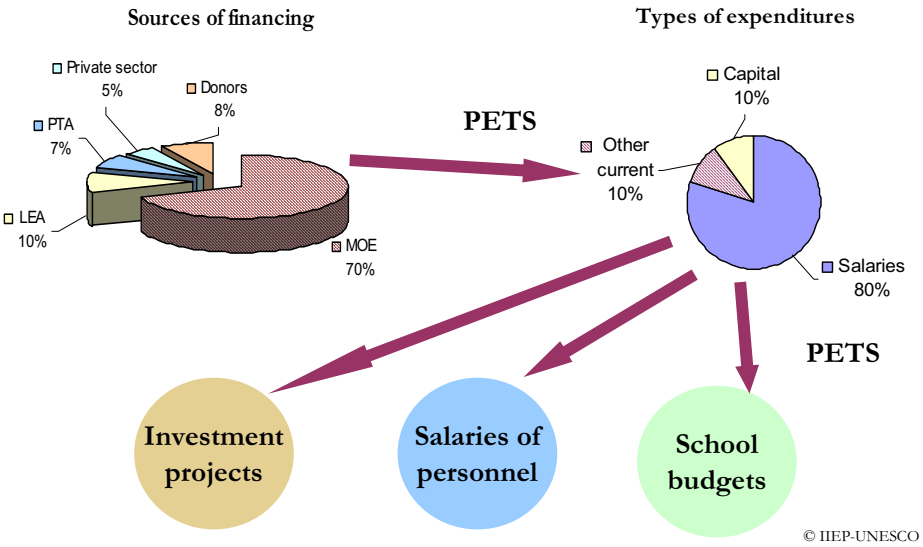
1. Scope of PETS: financial flows



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School income: results from Uganda

Table 11.4. Summary of School Income Data, 1991-95 (1991 prices in millions of U Sh)

Income	*1991*	*1992*	*1993*	*1994*	*1995*
Teachers' salary payments by government	213.9	214.7	381.3	748.6	914.6
Capitation grants received by schools	4.2	15.8	58.0	60.9	58.3
Other government funding	73.8	62.5	73.6	118.7	147.1
Total government contribution	291.9	293.0	512.9	928.2	1,120.0
Tuition collected	55.4	96.8	116.6	136.2	141.3
Amount of tuition retained by schools	2.2	7.4	10.6	23.7	50.3
PTA levies	591.1	609.6	775.2	934.9	1,032.7
PTA salary payments	125.8	134.1	196.0	300.7	475.9
Total parent contribution	772.3	840.5	1,087.8	1,371.8	1,649.9

Source: School survey.

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School income: results from Uganda

Table 11.5. Mean Parental and Government Contribution to School Income Per Student, 1991-95

(1991 prices in U Sh)

	Parents				*Government*			
Year	*Tuition fees collected*	*PTA levies*	*PTA salaries*	*Total*	*Capitation grant*	*Salaries*	*Other*	*Total*
1991	682	7,269	1,547	9,498	68	2,630	908	3,606
1992	1,072	6,749	1,484	9,305	118	2,377	692	3,187
1993	1,069	7,108	1,797	9,974	280	3,496	675	4,451
1994	1,136	7,796	2,507	11,439	352	6,243	990	7,585
1995	1,094	8,000	3,687	12,781	330	7,085	1,139	8,554

Source: School survey

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2. Scope of PETS: monitoring salary costs

- Experience demonstrates PETS' difficulties in tracking teacher salaries
  - *Peru: Wrongdoing is probably more serious in the area of payroll and personnel (> 90% of educational resources)*
- Other approaches (**QSDS**) being used, including surveys of absence of teachers
  - *Honduras: ghost teachers were estimated at 5% (2000)*
- When leakage in salaries take place at an intermediate stage: need for **perception surveys** (Brazil)
- Yet salary costs are closely linked to the management of teachers*

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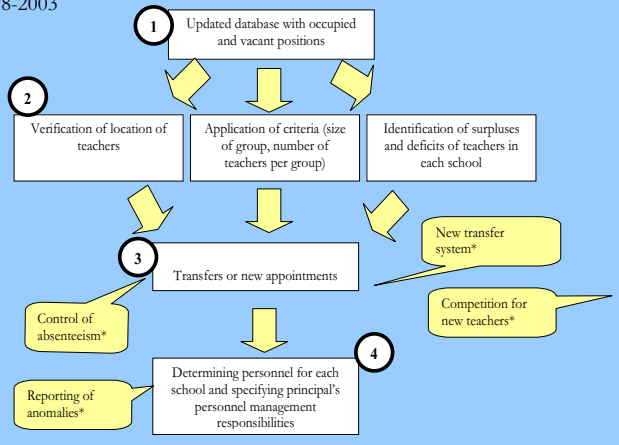
* Teacher management: Bogotá

- In Bogotá, 240 000 additional pupils (33% of total) enrolled with no additional recruitment of teachers for half of them, thanks to the redeployment of existing staff – 1998-2003



Source: Peña & Rodriguez. 2004. *Human resource management in Bogotá (1998-2003).* IIEP (forthcoming).

3. Scope of PETS: monitoring capital costs

- No tracking of expenditures on school building: beyond tracking transfer of funds (donors/MoF) to local authorities, the need for transparent procurement
- **Procurement** for buildings: need **for audit** of procedures, firms involved, agreements reached; as well as service and products delivered.
- Example: reform of school construction contracts by Lesotho:
  - *Design of clear guidelines with regard to the procurement of civil works*
  - *Opening of all school construction projects to public tender*
  - *Development of criteria for the evaluation of contractors*
  - *Establishment of specific building standards*
  - *Creation of a construction inspection team (qualitative standards)*
  - *Involvement of the entire community as "watchdogs"*

* Procurement of goods and services

- A variety of goods and services are purchased by the education system (land and construction, furniture and equipment, textbooks)
- Corruption materialises when:
  - *Officials involved in public procurement purchase from the highest briber rather than the lowest bidder*
  - *A public agency makes contracts with a list of privileged officials or providers*
  - *Authors/companies provide gifts or bribes to educational officials in return for their privilege to design materials*
  - *High-ranking officials list their name as author or editor of the textbooks to collect royalties*

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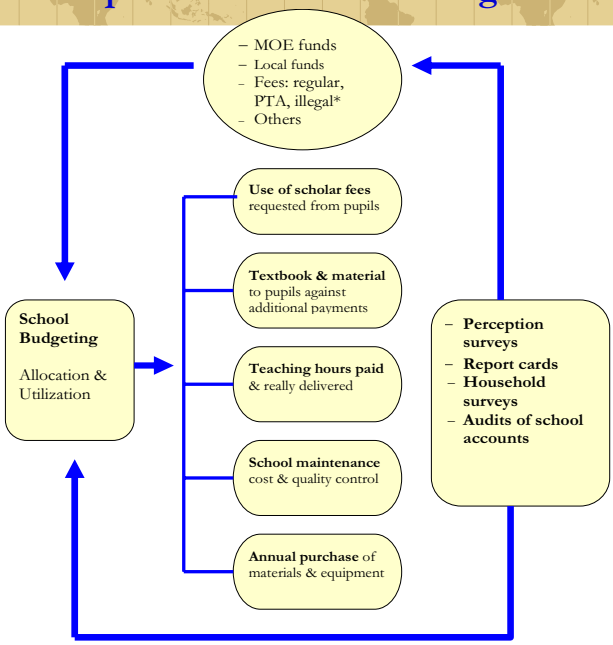
4. Scope of PETS: school budgets



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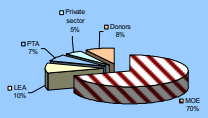
* Illegal fees in school budget

The case of illegal fees:



- There is a need for **household surveys** or **report card surveys**
- The merit of report card techniques using **participatory diagnosis**, involving pupils, students, and PTAs

Amount of illegal fees collected in 8 Upzillas in Bangladesh

Admission into primary schools	73 876 BDT
Entertaining government officers	435 049 BDT
First-term examination fees	6 102 893 BDT
Second-term examination	6 069 765 BDT
Annual examination	6 086 059 BDT
Total (including other fees)	19 849 000 BDT*

Source: IIEP

* US$ 350 000

III. Design and implementation of PETS

Characteristics of PETS
Preparation of PETS
Design of questionnaires
Survey implementation

1. Characteristics of PETS

- Diagnostic or monitoring tool to understand problems in budget execution
  - *Delays/predictability of public funding*
  - *Leakage / shortfalls in public funding*
  - *Discretion in allocation of resources*
- Data collected from different levels of government, including service delivery units
- Reliance on record reviews, but also head teacher/health facility manager interviews
- Variation in design depending on perceived problems, country, and sector

2. Preparation of PETS

- Stakeholder consultations and scope
  - *Purpose of the study*
  - *Who is in charge of what? How do resources flow?*
  - *Only 1 or 2 sectors at a time*
- Rapid data assessment
  - *Usually needed from frontline units (schools and clinics)*
  - *Simple questionnaire can be useful*
- Questionnaire design for PETS
  - *Each level needs its own instrument*
  - *Recorded data to be cross-checked against the same information from another source*
  - *Data kept by facilities for own use are typically most reliable*

3. Design of questionnaires

- Questionnaires for:
  - *School director / head teacher*
  - *Local governments*
  - *Relevant central government ministries*
- Data sheets for the same
- Training, field testing, and data entry:
  - *Requires significant time (several weeks each activity)*
  - *Local participation essential*
  - *Test instruments at each level separately as record-keeping differs*

4. Survey implementation

- After translation instruments need to be re-tested in the field
- Data management
- Important to reduce time required by data cleaning after the survey
- Take into account in the instrument design
- CSpro the preferred data entry program (http://www.census.gov/ipc/www/cspro)
- Survey implementation (1-3 months)
- Analysis, report, and dissemination

IV. Use and impact of PETS

Use of PETS by different stakeholders
PETS, hard data and transparency
Reduction of fund leakages

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1. Use of PETS for different stakeholders

Use of PETS for *policy-makers*:

- To understand how funds are actually spent
- To locate and quantify fund leakages
- To analyse the allocation of funds to different levels
- To initiate reforms aimed at fighting the leakage of funds and increasing the resources of schools

Use of PETS for *researchers*:

- To observe the results and activities of schools and teachers
- To inform policymakers and parents on how budgets are used to provide services
- To identify staff incentives and their consequences
- To demonstrate political aspects of education financing

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2. PETS, hard data and transparency

Evidence from PETS: non-wage funds

Country	Year	Fund	Sample	Leakage
Ghana	1998	Nonwage	126	49 p.c.
Peru	2001	Utilities	100	30 p.c.
Tanzania	1998	Nonwage	45	57 p.c.
Uganda	1995	Capit. grt	250	87 p.c.
Zambia	2001	Fixed grt	182	10 p.c.
Zambia	2001	Discr. grt	182	76 p.c.

3. Reduction of fund leakages

Table 1. Summary information on capture (in percent)

	Mean	Median	St. dev.	Max	Min	Obs
All schools						
1995	23.9	0	35.1	109.8	0	229
2001	81.8	82.3	24.6	177.5	9.0	217

	Mean (1995)	Mean (2001)
Regions		
Central	24.3	92.8
North	26.7	102.4
Northwest	11.2	90.3
West	24.0	71.6
Southwest	21.1	83.3
East	20.1	62.4
Northeast	36.0	73.4

a. Grants received as share of entitled grants.

Source: Reinikka and Svensson, 2004

Conclusion

PETS is a reliable tool for:

- Reducing leakage
- Curbing corruption in specific areas of public finance (*under appropriate requirements*)

Two principles should be kept in mind:

- Political commitment to improve ethics in education management
- Social ownership of PETS

INTRODUCTION

International course on 'PETS in education'
Accra, Ghana – 22-26 May 2006

OBJECTIVES AND ISSUES FOR THE PETS

Jacques Hallak and Muriel Poisson

1. Agree on purpose and objectives

- Identify:
  - *Key questions and tentative answers*
  - *Resource flow and rules for allocation*
  - *Roles of public and private schools*
- Assess:
  - *Data availability*
  - *Local capacity to carry out the survey*
- Agree on purpose and objectives

2. Prepare for the study through consultations

- Consult stakeholders on objectives
  - *Ministries: education, finance, planning, etc.*
  - *Donors*
  - *Civil society: PTA, teachers' unions, etc.*
- Why?
  - *To get useful inputs*
  - *To understand what they hope to find out*
  - *To motivate them and develop ownership*

Ex. 1 - Purpose and objectives: Uganda

- *Problem:* increase in primary school funding has not boosted enrolment rate
- *First objective:* measure leakage of funds on their way to schools, analyze causes
- *Second objective:* analyze equity of fund distribution

Ex. 2 - Purpose and objectives: Peru

- *Problem:* severe administrative disorder in educational financing
- *First objective:* measure leakage of funds on their way to schools
- *Second objective:* uncover corruption in teacher hiring and promotion

Ex. 3 - Purpose and objectives: Zambia

- *Problem:* decrease in enrolments, especially in poor communities
- *First objective:* measure extent to which earmarked resources actually reach schools
- *Second objective:* measure how much this funding improves equity in education
- *Third objective:* examine how interventions could reverse enrolment decrease

3. Identify research questions and tentative answers

- To collect data you should have in mind:
  - *one or more research questions*
  - *a tentative answer (hypothesis) to each question*
- Good tentative answer = successful study
- To develop a good tentative answer, use:
  - *evidence, anecdotes, experiences*
  - *sound concept*
  - *country's broad education goals*

Ex. 1 - Question and tentative answer: Uganda

- *Question:* why has increased primary school funding not boosted enrolment rate?
- *Tentative answer:* Funds provided by the central government are not reaching the schools

Ex. 2 - Question and tentative answers: Peru

- *Question:* why is educational financing in disorder?
- *Tentative answers* (not explicitly stated)
  - major leakage in teachers' salaries process
  - implementation units (IUs) capture a share of non-wage funds due to their discretionary power, e.g. they often omit to pay utilities
- Explicit tentative answers could have helped the study to yield concrete results

Ex. 3 - Question and tentative answers: Zambia

- *Question:* Why do school enrolments decrease, especially in poor communities, despite increased government funding?
- *Tentative answers:*
  - discretionary funds (major part of govt allocations) do not reach all schools
  - rule-based funds reach all schools
  - due to bargaining power, schools with wealthy parents get more discretionary funds per pupil

SOURCES OF FINANCE & FUNDING FLOWS

PETS in Education
May 21-26, 2006

Carolyn Winter

DECISION-MAKING IN EDUCATION

- Decision points are where resource allocations and resource deployments are made
- Decision-making, & decision points, may be concentrated in the national ministry, in other govt. levels, or be spread across different entities at different levels
  - National
  - Regional/Provincial
  - Local/District
  - Municipal
  - School
- Appearances are often deceiving

DECISION-MAKING IN EDUCATION

- Decision points are important – they provide opportunities for leakage, bottlenecks, poor decision-making, etc.
- A full understanding of the institutional/organizational context is necessary in undertaking a PETS
- It can be challenging to identify decision points in decentralized systems

KEY DECISION MAKING AREAS IN EDUCATION

- Key decision-making areas in education include:
  - Personnel (recurrent expenditures)
  - Curriculum
  - Textbooks
  - Facilities (capital expenditures)
  - Supplies
  - Financing
- Decisions on these areas may be made at various levels of govt./bureaucracy, & can differ considerably across countries.

THE DISTRIBUTION OF DECISION-MAKING

Country	Payment of Teachers	Teacher Recruitment	Textbooks	School Maintenance
Chile	Municipal	Municipal	Municipal	School Council
New Zealand	Central	School	School	School Council
Bangladesh	Provincial	National	National & District	National
Yemen	Provincial	National	National	National
Brazil	Municipal	Municipal	School	School

DECISIONS ABOUT SPECIFIC FUNCTIONS

Decisions about a specific function can be spread across several different administrative levels

Teachers:

- Teacher pay scale/level
- Certification
- Recruitment & selection
- Transfers & promotions
- Pre-service training provision
- In-service training provision
- Performance evaluation

SOURCES OF EDUCATION FINANCE

- Public Sector [% GDP]
  - By level of government (national, regional, local)
- Private Sector [% GDP]
  - By households
  - By NGOs and/or private firms
- Nb. to know Total and Unit Cost of education (by level – basic, secondary)

SOURCES OF FINANCE -PUBLIC SECTOR

- Governments: national, regional, local
- Ministries: Education, Finance, Planning, Social Welfare, Health

SOURCES OF FINANCE-PUBLIC SECTOR

Ministry	National	Regional	Local
Education			
Finance			
Planning			
Social Welfare			
Health			

EXPENDITURE CATEGORIES BY NATIONAL MINISTRY

- Education Ministry: teachers, textbooks, supplies, supervision, school grants
- Finance Ministry: intergovernmental transfers, school grants
- Social Welfare Ministry: school lunch, pensions, income contingent scholarships
- Health Ministry: helminth & iron medications
- Labor, Religion, Defense Ministries: specialized schools

SOURCES OF FINANCE- PRIVATE SECTOR

- Households
  - Tuition & fees (PTA fees, sports fees)
  - Textbooks, supplies, transportation
  - In-kind contributions
  - (Private tutoring)
- NGOs, Firms
  - In-kind contributions – supplies, internet
  - Cash donations
  - Employee time

FUNDING FLOWS - BY CATEGORY

- Sources of finance for teacher compensation (salaries & benefits)
  - National ministries - salaries, benefits
  - Local administrations – supplemental salaries, salaries to contract teachers, housing
  - Households – school fees, tutoring fees
  - NGOs & Firms – employee time, in-kind

FLOW OF FUNDS FOR AN EXPENDITURE CATEGORY

- School Lunch, for example:
  - National Ministry of Social Welfare sends cash transfers based on enrollment to
  - Provincial Dept. of Ministry of Education which procures foodstuffs, and
  - Contracts private firms to transport foodstuffs to eligible schools, and
  - PTA uses foodstuff to prepare meals

OPPORTUNITIES FOR LEAKAGE IN SCHOOL LUNCH FINANCE

- Provincial Depts. Of Ed. overstate enrollment of eligible students
- Provincial education officials "overpay" for foodstuffs and/or its transport
- Private firms "lose" foodstuff en route or fail to deliver food before it spoils
- Non-eligible schools "convince" Provincial officials they are "eligible"
- Food "disappears" from school storage rooms or "spoils" before it is used
- Meals are "sold" to school children

FLOW OF FUNDS FOR AN EXPENDITURE CATEGORY

- School Textbooks
  - MOE contracts out printing of textbooks
  - Textbooks delivered to MOE
  - MOE delivers textbooks to Regional storage
  - Regional storage delivers to local administrations
  - Local offices deliver to schools
  - Schools distribute to teachers & classes

BOTTLENECKS & LEAKAGES

- MOE warehouse slow to deliver / wastage
- Provincial Depts. Of Ed. overstate/understate enrollment of eligible students
- Regional education officials "overpay"
- Regional administrations slow to deliver
- Regional administrations sell textbooks
- Local administrations slow to deliver
- Local administrations sell textbooks
- Schools fail to distribute textbooks or sell textbooks

TURNING OUR ATTENTION TO RURITANIA

- Map the government's resource flow for education, paying specific attention to the funds concerning textbooks
- Identify what opportunities for leakage, wastage & corruption exist in this resource flow, and specifically for textbooks
- Write a one-page paper summarizing the views of your group on the opportunities for leakage & corruption in Ruritanian primary education

PUBLIC EXPENDITURE TRACKING SURVEYS

Sampling

Dr Khangelani Zuma, PhD

Human Sciences Research Council

Pretoria, South Africa

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22 May - 26 May 2006

Chapter 1

Surveys

1.1 Introduction

- A very common instrument used in human research is the so-called *survey interview*.
- Important to understand usefulness of surveys.
- and areas of application.

1.2 Aspects Involved in Surveys

- Sample selection
- Other design aspects
- Questionnaire design
- Interviewing methods.
- Impact of these aspects
  - Precision -*inverse of the variance of survey estimate*
  - Accuracy-*inverse of the total error, including bias as well as the variance*
  - Reliability

1.3 The Survey Concept

- The survey concept is very common.
- It is used for a wide variety of measurement process and methods of data collection.
- Increasingly used in M&E programs, investigative studies e.g. PETS
- Allows one to obtain unbiased results.
- Usually only a small portion of the population is questioned.
- This portion is called a *sample*.

1.4 Part of a Survey Design

The major parts:

- Sample design
- Sample selection.
- Questionnaire design.
- Interviewing.

Chapter 2

Sampling

2.1 What is a Sample

- In a census, the entire population is studied:

$$sample = population$$

- This is theoretically simple but practically complicated and expensive.
- A lot of resources are needed.

2.2 Key Questions

- A key question: how do we select a small sample portion of the population which is nevertheless representative for the entire population.
- The population does not have to be the entire Ghanaian population of schools, nor the population of the region in Ruritania.
- For example, research about after shave will be directed towards men in their late teens and older.

2.3 Sample Design

- Define the target population
- Prepare a comprehensive sample (sampling) frame
- Specify the strata.
- Establish the required sampling precision.
- Establish the required sample size.
- Application of mechanical selection procedure with known probabilities.
- Calculation of sampling weights and sampling errors.

2.4 What is Often Implemented?

- Unclear definition of target population.
  - Researchers unable (do not bother) to provide size and nature of population.
  - Generalization made to desired population.
- Sampling frame out of date.
- Incomplete sampling frame.
- Sampling frame with duplicate entries.

2.5 Do we Always Need a Probabilistic Sample?

- Sometimes, no probabilistic sample is required.
- E.g. when only a global picture about opinions is required.
- examples
  - press reports (*perception about the sacking of JZ due to corruption*
  - product development
  - politicians
- A **pilot study** is then sufficient.

2.6 Pilot Before Main Survey

- Conducted on a small scale.
- Aimed at testing the instrument, logistics, selection process.
- Basically informs the main study.

2.7 Preparing a Sample Frame

Sample Frame: consists of a set of subjects who have non-zero probability to be selected.

- the sample is representative for the sample frame, if taken properly.
- sample frame is not representative of the population.
- one has to ensure that the sample frame is as close as possible to the population.

2.8 Critical Questions in Preparing a Sample Frame

- Who has a positive chance of being selected?
- Who is excluded from selection?

2.9 Types of Sample Frames

- Exhaustive list.

May require combination of data from different sources.

- Multi-stage procedures (conducted in the field).

2.10 Exhaustive Lists

Sample taken from people who perform a certain action, go someplace, etc.

- list of schools from DOE.
- patients of a general practitioner, clients of a clinic or of a company.
- people who attend a meeting, a manifestation, etc.

The list of potential subjects is created in conjunction with the actual selection.

2.11 Multi-Stage Procedures

Several steps are taken sequentially

- first, higher level units are generated.
- out of those, lower-level units are listed
- at the final stage subjects (respondents) are selected.

Often difficult to get all of them 'a priori'.

2.12 Example of Multi-Stage Procedure

- Primary sampling units: Region (health & education).
- Secondary sampling units: district.
- Tertiary sampling units: Schools.

A challenge to get a clean and comprehensive list of schools listed by district and region, other relevant criteria.

2.13 Characteristics of a Sample Frame

- **Probability Sampling:** each individual has a known probability to be selected.
- If external factors, such as initiatives by respondents influence the chance of being included, statistical methods become invalid.
- Includes as much information about the target population as possible.
- Up-to data and reliable.

2.14 Some Issues in Sample Frame

Often the population one wants to study is slightly larger than the available sample frame.
Example:

- if a selection is based on households, then domitories, prison, elderly homes, and homeless people have no chance of being selected.
- phone directories and internet surveys exclude those without phones or internet.
- If the study is about public schools, private schools are excluded even though they are schools in Ruritania.

2.15 Consider the Following

It is important to answer such questions as:

- What percentage of the population is excluded from selection?
- How different are these groups from the eligible?
- What is the possibility of this population introducing bias in the results?
- What are the measures that will be used to correct for potential bias?

2.16 Consider the Following . . .

If selection is based on a list (e.g. list of schools), one has to consider:

- How has the list been composed?
- How does the updating take place (incomplete or duplicate entries)?
- Is there missing crucial information? (how do you deal with?)

2.17 Probability Sampling

We will consider the following sampling techniques:

- Simple random sampling
- Systematic sampling
- Stratified sampling
- Multi-stage sampling

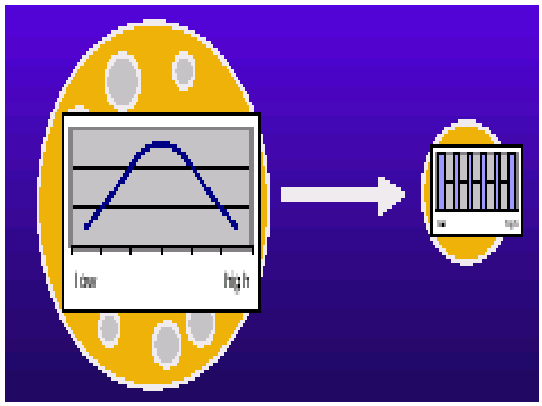
2.18 What is Often Implemented

Some studies often implement

- Judgement sampling
- Convenience sampling
- Quota sampling

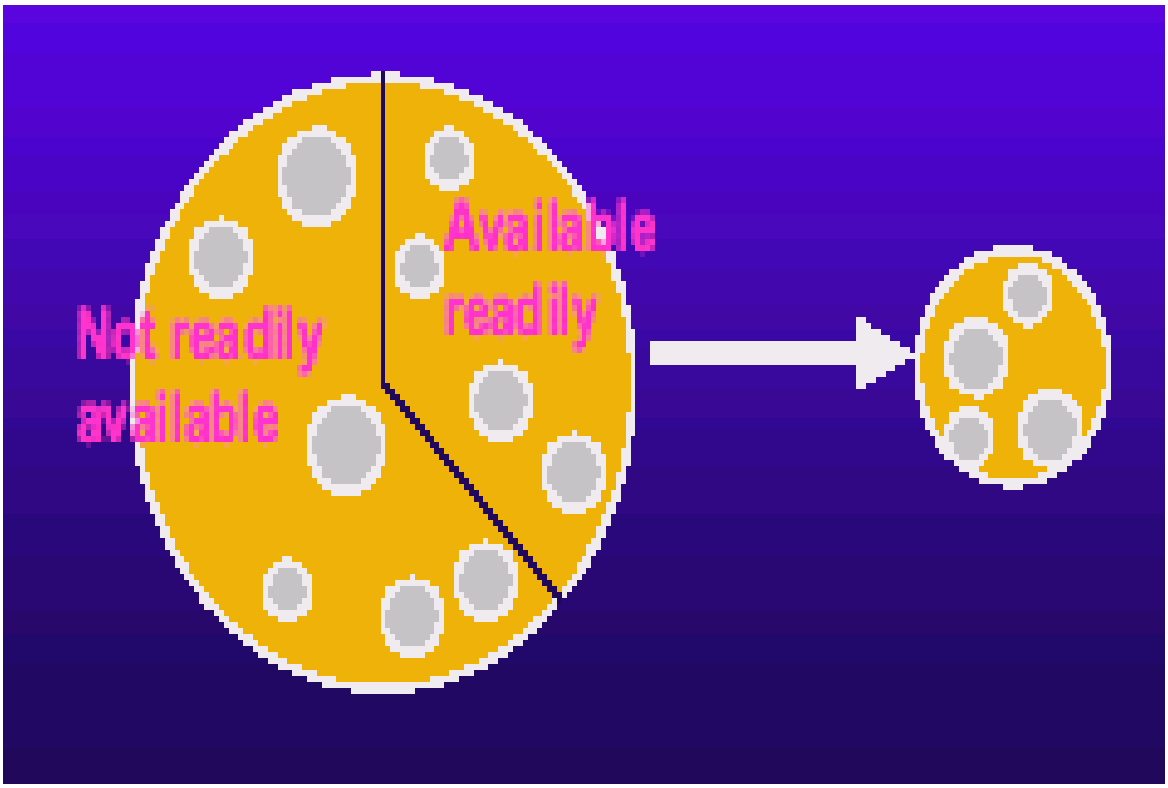
2.19 Judgement Sampling

- Researchers pick "typical sample".
- Depends on the subject interpretation of "typical"



2.20 Convenience Sampling

- Respondents are selected on the basis of accessibility or convenience to the researcher.
- Likely to introduce a substantial degree of bias.



2.21 School Sample Frame

Population of 24 schools in six districts.

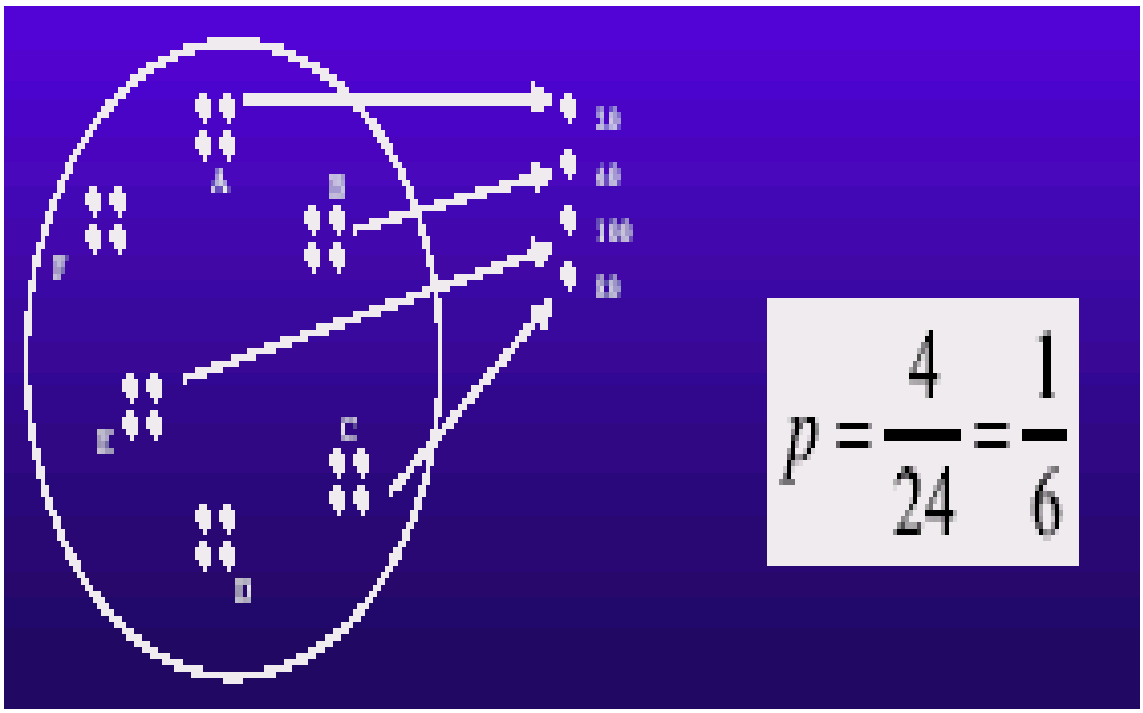
Districs	School	Region	Geographical area
A	1	1	Coast
A	2	1	Coast
A	3	1	Coast
A	4	1	Coast
B	5	1	Inland
B	6	1	Inland
B	7	1	Inland
B	8	1	Inland
C	9	1	Coast
C	10	1	Coast
C	11	1	Coast
C	12	1	Coast

Districts	School	Region	Geographical area
D	13	2	Inland
D	14	2	Inland
D	15	2	Inland
D	16	2	Inland
E	17	2	Inland
E	18	2	Inland
E	19	2	Inland
E	20	2	Inland
F	21	2	Coast
F	22	2	Coast
F	23	2	Coast
F	24	2	Coast

Take a sample of 4 schools.

2.22 Simple Random Sampling

- The most basic form
- Comparable to selecting balls from urns.



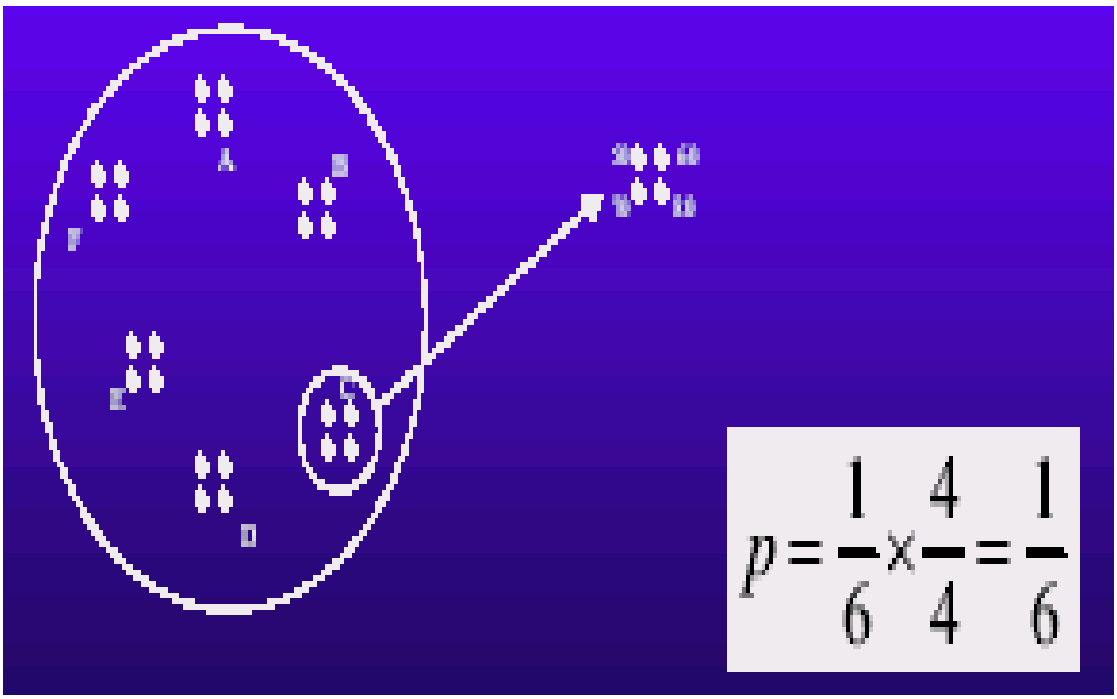
- Select a simple random sample of 4 schools.

2.23 Single/Multi-Stage Sampling

- It is not always possible to have direct access to the subjects in the population/sample frame.
- Individuals are then linked to certain units
- Schools in districts.

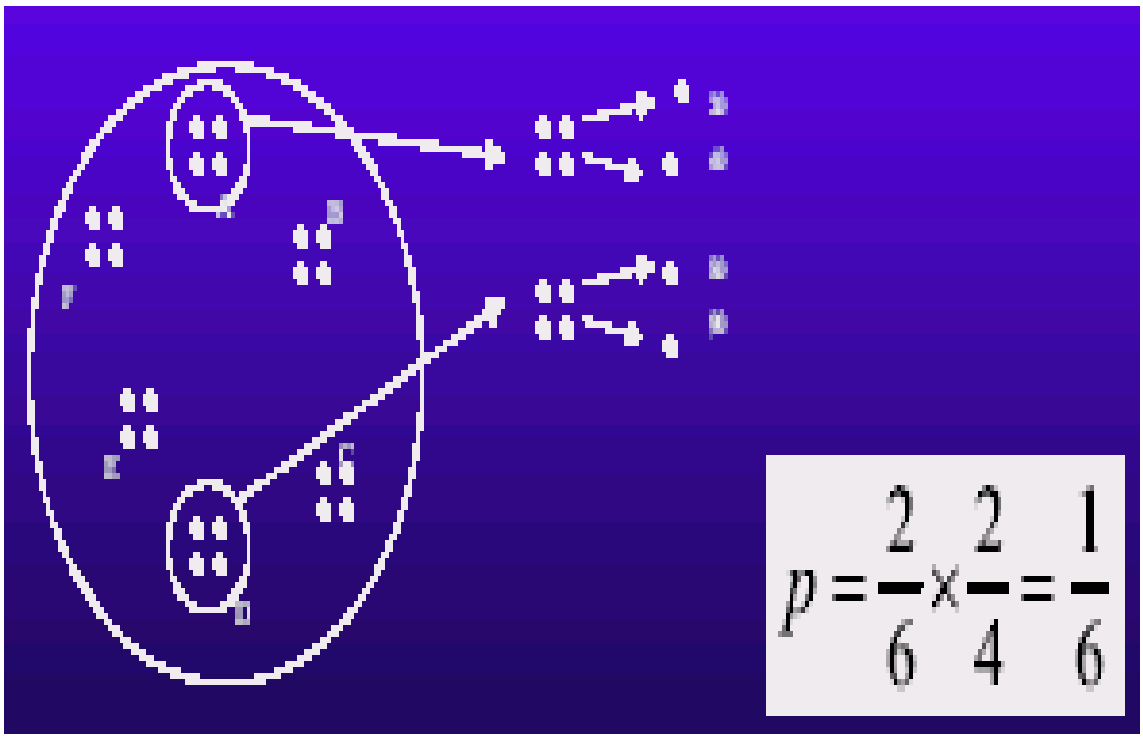
2.24 Single Stage Intact Cluster Sampling

- Select a simple random sample of one district.
- Accept all schools in the selected district.



2.25 Two Stage Cluster Sampling

- Select a simple random sample of two district.
- Select a simple random sample of two schools in each district.



2.26 Stratification

- Population units are distributed over two or more groups: **strata**.
- These groups are distinct subpopulations.
- Sample size for each stratum is determined a priori.
- Estimators are calculated for each stratum.
- Afterwards they are combined into a single estimator.

2.27 Homogeneity Within Strata

- For large reduction in variance, we need stratifying variables closely related to the main survey objectives.
- Aim to form strata within which the sampling units are relatively *homogeneous* in the survey variables.
- Strive to increase homogeneity of sampling units within strata.
- For a given population this is equivalent to increasing the differences among the means of the strata.

2.28 Stratified Sampling

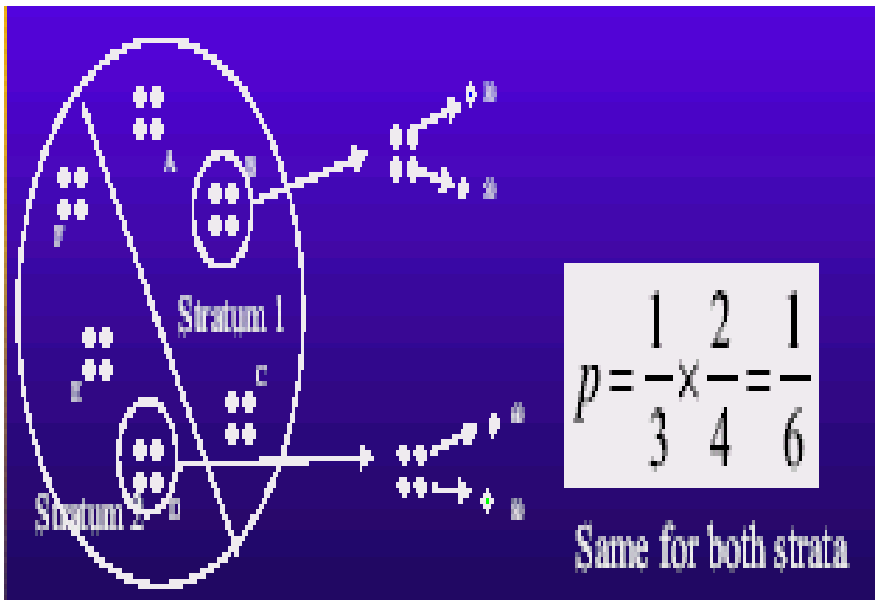
- In a standard sample, all subjects are drawn at random and totally independent.
- Due to chance, its is possible to have samples who differ in crucial characteristics from the population.
- Such characteristics (e.g. Urban-Rural, Province) are typically known when the sampling process starts.
- They can be used to *stratify* the sample.

2.29 Stratified Sampling...

- Within each stratum a separate sample is selected from the sampling units composing that stratum.
- This reduces variability in the sample estimates, while maintaining unbiasedness.
- Efficiency (precision) increases when units within strata are more homogeneous than between strata.
- In *proportionate* sampling, sample size selected from each stratum is made proportionate to the population size of the stratum.

2.30 Stratified (Region) Two-Stage Cluster Sampling

- First stratify the population by region (1 and 2).
- Select a simple random sample of one district in the first stratum followed by a simple random sample of two schools within the selected district.



- Repeat for the second stratum.

2.31 Systematic Sampling

- Simple random sampling is labour-intensive (especially for long lists).
- We want an equivalent but simpler method.
- Systematic sampling is perhaps the most widely known selection procedure.
- It is commonly used and simple to apply.
- It consists of taking every kth sampling unit after a random start. Sometimes called *pseudo-random selection*.

It is often used jointly with stratification and with cluster sampling.

2.32 Example of Systematic Sampling

- Determine
  - N: population size
  - n: sample size
- Determine the sample fraction

$$f = \frac{n}{N} = \frac{100}{8500} = \frac{1}{85}$$

  One out of 85 subjects will be selected.
- Draw a random number between 1 and 85.
  This number will be used as a **random start**.
- Next we select every 85th name on the list, starting from the random start.

E.g., $17, 17 + 1X85, 17 + 2X85, 17 + 3X85, \cdots$

2.33 Selection of Respondents

- Once a district or school has been selected, it remains to be decided which person(s) will be selected.
  - If everyone is eligible to provide information, then any adult can be chosen.
  - It is good idea to select the member which is best positioned to provide a certain piece of information (e.g. District managers, school head).
  - Opinions, feelings, knowledge: usually seen as personal matter

  In the latter case a further selection is required.
- In many cases a single respondent is chosen to reduce correlation.
- Use Kish Grid table.

2.34 Probability Proportional to Size

- Often used if elements have unequal sizes or chances of selection.
- PPS means chance of PSU being selected depends upon its **measure of size** (MOS).
- The larger the PSU the higher the likelihood of being selected.
- Compensates for the fact that an individual from a larger PSU has less chance of selection than one from a small PSU.
- Using PPS a school that has 100 teachers will be twice as likely to be selected than a schools with 50 teachers.
- If number of teachers selected in each school is the same, each individual has the same selection probability (most efficient two stage).

2.35 Use of PPS

- Number of individuals (schools) associated with each PSU should be known in advance.
- An approximation to the MOS is sufficient.
- Number of PSUs listed in a sampling frame is often large.
- Recommended to chose sample clusters through **systematic sampling**.
- If PSUs are selected with probability weighted according to their size and an equal number of individuals is chosen per PSU at the second stage of sample selection, the end result is a **self-weighted sample**.

2.36 Advantages of PPS

- Every person in the universe described by sampling frame has the same probability of being included into then sample.
- This design eliminates the need to weight the data during analysis.

2.37 Example on PPS_sys

- Prepare a list of primary sampling unit with a corresponding MOS for each.
- Starting at the top of the list, calculate cumulative MOS and enter these figures in a column next the MOS for each unit.
- Calculate the sampling interval (SI) by dividing the total cumulative MOS for the stratum (M) by the number of units to be selected (n)- that is $SI = M/n$.
- Select a random number (RS) between 1 and SI. Compare this number with the cumulated MOS column. The unit within whose cumulated MOS the number RS falls is the first sample unit.
- Subsequent units are chosen by adding the sampling interval (SI) to the number identified in step (4): $RS + SI, RS + 2SI, RS + 3SI$, etc.

2.38 Table Example

PSU no	MOS target group members	Cumulative size	Sample selection no.	PSU Selected
001	120	120	73	X
002	105	225		
003	132	357		
004	96	453		
005	110	563	503.47	X
006	102	665		
007	165	839		
008	98	937	933.94	X
009	115	1052		
-	-			
-	-			
-	-			
170(last)	196	17 219		
Total	17 219			

- Planned number of PSU$= 40$
- Sampling intervel$= 17219/40 = 430.47$.
- Random start between 1 and 430.47$= 73$.
- PSU selected 001, 005, 008, $\cdots$

2.39 SAS Example

- Many software can do sampling.
- Some are easier to implement than others.

```
proc sort data=mssample_1;
by provk geok;
run;

proc surveyselect data=mssample_1 METHOD=pps_sys
sampsize=(62,7,8,40,9,7,23,34,3,8,25,6,8,6,73,9,9,
20,20,2,7,15,82,15,2,22,5,7,12,16,2,6,30) seed=1953 out=thetas
stats;
 strata provk geok;
 size age50mk;
 id eanumber;
 run;
```

2.40 School example with Different MOS

- Take a random sample of two districts and then take a random sample of two schools at each each district.

Sample selection no.	PSU Selected
A	2
B	2
C	2
D	2
E	6
F	10

- probability for school $\#1$ in district A to be selected $p(1) = \frac{2}{6} \times \frac{2}{2} = \frac{1}{3}$
- probability for school $\#24$ in district A to be selected $p(24) = \frac{2}{6} \times \frac{2}{10} = \frac{1}{15}$

BIASED

2.41 School example with Different MOS

- Take a random sample of two districts and then take a random sample of two schools at each each district.

Sample selection no.	PSU Selected
A	2
B	2
C	2
D	2
E	6
F	10
Sum	24

- probability for school $\#1$ in district A to be selected $p(1) = \frac{2}{24} \times 2 \times \frac{2}{2} = \frac{1}{6}$
- probability for school $\#24$ in district A to be selected $p(24) = \frac{10}{24} \times 2 \times \frac{2}{10} = \frac{1}{6}$

UNBIASED

2.42 MOS not available for Each PSU

- Not possible to use PPS
- Each PSU should have an equal probability of selection.
- If a fixed number of respondent group members were to be chosen from each PSU selected, this would lead to individuals having different overall probabilities of selection, and the final sample would be **non-self-weighting**.

2.43 MOS not Available for Each PSU

Example

- Schools with 100 and 50 teachers have the same probability of selection. But because there are twice as many teachers in the large school each teacher is half as likely to be selected.
- Since teachers in small school might have different characteristics than teachers in large school, this unequal probability of selection might bias the results.
- Weight the data at analysis.

2.44 Any Questions?

PUBLIC EXPENDITURE TRACKING SURVEYS

Questionnaire Design for Data Management

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22 May - 26 May 2006

Chapter 1

Questionnaire Design for Data Management

1.1 Objective

To help design a questionnaire that will facilitate the data capturing and computerization of the PETS data.

1.2 Why is It Important?

- When the questionnaire design is done correctly you have:
  - Neatly filled questionnaires.
  - Consistency in response codes.
  - Easy-to-read questionnaire for data entry agents.
  - Consistency in the overall analysis.

1.3 Questionnaire Design and Data Management

- Data processing is always the 'bottleneck' in all surveys.
- Typical PETS fieldwork takes about 2-3 months.
- Primary data entry about 3-4 months.
- Data cleaning about 6 months more, yet 'unclean' data.
- Bad questionnaire design, the main course.

1.4 Elements of Clean Data

- Consistent and logical.
  - Frequency of units of analysis and all other variables consistent.
  - Range of continuous variables realistic.
  - Consistency in coding.
  - All missing values justified and documented.

1.5 Challenges of Designing PETS Questionnaires

- PETS not 'standardized', number of local adaptations.
- PETS is a diagnostic tool .
  - Investigative in nature.
  - Flow of financial or non-financial resources through disparate government functional systems.
  - No two systems (government) alike.
- It is important to pre-test and adapt the survey instruments for every local setting.

1.6 Consequent to This

- Questionnaire logical design different for each country.
- The data structure unique.
- However, ensure internal consistency to maximize comparability between surveys within country.
- Questionnaire design to reflect the structure of the country (see presentation by Carolyn Winter)

1.7 Benefits of Good Questionnaire Design

- Good questionnaire design facilitates the data entry design (database design).
- Also facilitates data entry and cleaning.
- Always involve a Data Management Specialist from the beginning.

Remember *GIGO*

1.8 Divide the Questionnaire into Section

- Makes it easier to collect information.
- Easier to manage the files.
- Leads to a well designed database (entry screen).

1.9 Relate Questionnaire to Hypothesis

- Ensure that the questions asked answer your hypothesis.
- Have sections on the questionnaire that are tapping on the information related to your hypothesis, e.g.
  - Do schools in well-off neighbourhood more likely to prevent leakages?
- It is important for PETS to establish information about resources provided 'in kind'.
  - Put items that can help cost these resources.

1.10 Pre-code all Variable Values

- Avoid at all cost non-numeric values.
- Use phrases like "Other", "Don't know", "Don't remember", "Refuse to answer".
- The questionnaire workshop and pilot will help identify problem variables.

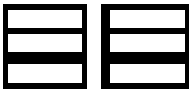
1.11 Clearly Number the items

- The variables should be clearly numbered.
- Show clearly the sections and variable numbers.
- Facilitates the naming convention for database designer.
- Integrate logical skips and test them during pilot.

1.12 Clearly Number Each Questionnaire

- Each questionnaire should be given a unique ID number.
- This facilitates tracking and queries during data management.
- Questionnaires maybe archived and sorted using the unique ID number.

1.13 Questionnaire

No	Questions	CODES	Skip to	
1	Head teacher last year?	1 Yes 2 No	 >>q3	
2	Position last year	1 Gov. official 2 Private 3 Other	>>q7 >>q7 >>q7	
3	How many teachers are in this school?	Number		
4	How many males	Number		
5	How many are females	Number		
6	What is your salary	Enter "-1" for refuse to answer	>>q10	
7	Number of tests performed last year	1 Aids 2 Malaria 3 Cancer		

1.14 Local Adaptations

Among the many items that can help ensure quality, the following check list can be used to improve the instrument:

- Qualitative research before the survey to learn about the characteristics of the sub-populations and how best to approach them.
- Comprehensive adaptation and pre-testing of the questionnaires that are suited to the local context.
- Verification that the language in the questionnaires is clear to the people being interviewed, and that the questions are answerable.
- Take time to do translation and back-translation, to make sure that the complex concepts are interpretable in a commonly understood manner.
- Use of self-administered questionnaires when surveying literate population.

1.15 Conclusion

- Involve a Data Management Specialist early and throughout the process.
- Responses should be clear in all circumstances.
- Responses anticipated should be pre-coded.
- Communicate with data management specialist.

PUBLIC EXPENDITURE TRACKING SURVEYS

Organizing and Implementing the Surveys Including Data Entry and Data Cleaning

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22 May - 26 May 2006

Chapter 1

Organizing and Implementing the Survey

1.1 Organization of the Survey

- Requires a dedicated project manager.
- Prepare a flow-chart of events.
- Identify the core-project team.
- Identify the core responsibilities of each project team member.
- Clearly indicate the person responsible for each activity on the flow chart.

.

1.2 Internal Processes:Developments Towards Project Roll-out

- Arrange for regular project team meetings for updates and report backs on assignments.
- Identify stakeholders of the project and ensure.
- Inform the stakeholders about the project (get their buy-in).
- This helps improve participation.
- E.g. teachers are more likely to participate if the directive is from their union than from the school principal.

1.3 Organizing and managing Fieldwork

- Define the scope of the fieldwork: school, district, provinces or regions.
- Estimate the time to spend at each level.
- Incorporate possibilities of return visits.
- Effect of field sampling of those to be interviewed.
- Thoroughly establish the cost of work: staff, transport, communication, data analysis, reporting and dissemination.

1.4 Selection of Fieldworkers

- Set out possible criteria for selection e.g.
  - language
  - previous experience
  - communication skills
  - willingness to work for long hours
  - ability to drive.
- Recruit more fieldworkers than you may need to avoid problem of turnover.
- Explain what is expected of each staff and terms of service.

1.5 Preparation for Training

- Ensure that the questionnaires are complete to the best of ability.
- Develop a guide (fieldwork manual) for interviewers and supervisors.
- The manual goes through the questionnaire one question at a time.
- The manual explains the rational behind each question and its intended meaning.
- The manual can be used in the training and in the field to clarify ambiguities.

1.6 Fieldwork Training

- Clarify the duration of training and what is to be expected.
- Prepare (preferably in files) the training material.
  - questionnaires (opportunity to revise)
  - fieldwork manual
  - introductory letter
  - informed consents
- Training should be in the form of lectures, participatory and group work.

1.7 Workshop or Pilot

- Involve the whole core project team members in the training.
- Work with each individual/pair.
- Access the capability of each staff and discuss. their individual weaknesses.
- Go through pilot work done and discuss with each individual or pair.
- Test all the aspects of the survey: duration, staff, sampling, supervisory work, communication network.
- Organize one day review training and determine modification of the questionnaire required.
- Give certificates to fieldworkers (improves morale).

1.8 Implementing Fieldwork

- Set out clear criteria for working: minimum coverage; procedures to be followed; contracts; payment of field allowances; questionnaires required; reconciliations.
- Explain clear the collection and delivery processes.
- Check completed questionnaires.
- Motivate field staff (avoid us and them!).
- Ensure communication with field teams and supervisors.

1.9 Implementation of Surveys

- Make sure appointments are made before arrival unless if by design.
- Letter of authorization from superiors.
- Questionnaires and manuals for each level.
- Letter of consent of participation.
- Wear fieldwork name tag.
- Have contacts of the PI or any person that can be contacted by the respondent if need be.
- Conduct the interviews.

1.10 Handling Completed Questionnaires

- Weekly or bi-weekly submission of completed questionnaires.
- Review each received questionnaires for errors and inconsistencies.
- Pass the questionnaire to data manager for data entry.
- Handle questionnaires returned by data manager and re-submit.

1.11 Data Entry

- Good questionnaire design facilitates the database design and subsequent data entry.
- Design an effective data entry program.
- MS Access, Visual basics, CsPro, and many others.

1.12 Database- Data Entry Screen

- Data entry screen must match the questionnaire.
- Number the variables as they are numbered on the questionnaire.
- This helps data capturers follow the flow.

1.13 Concurrent Controls

- Include concurrent controls on the database.
- These checks are done at the data entry time.
- These are build in skip patterns and ensure consistencies in the data.
- E.g. If $S1Q1 = 2$ then skip to $S1Q3$.
- See example of the data base.

1.14 Integrate Range Checks

- Limits all out of range values.
- Most out of range values come from carelessness from data entry.
- Ensure the database does not enter an out of range value.
- Include simple consistency checks on the questionnaire e.g.
  - Q1: When did you start teaching in this school=2000.
  - Q2: When did you start teaching=2002.
- Include a message e.g. (S1Q1 must be >=S4Q2).

1.15 Conclusion

- Data entry screens must match questionnaire.
- Incorporate concurrent controls.
- Integrate range checks.
- Communicate with the data capturing unit.

IMPLEMENTING DATA COLLECTION

International course on 'PETS in education'
Accra, Ghana – 22-26 May 2006

DATA ANALYSIS OF PETS

Jacques Hallak and Muriel Poisson

1

Introduction

Where PETS Analysis should lead us?

- Leakages and understanding public spending on education
- Delivery systems of resources and relation to leakages
- Ability to change policies and procedures to reduce leakages and improve school effectiveness to realize better social outcomes

The value of QSDS

2

Outline of the presentation

1. Contacts with government
2. Analysis of leakage
3. Analysis of causes

- Examples: Uganda, Peru, Zambia

1. Contacts with Government

- Renew contacts as soon as analysis begins
  - *to align analysis with govt concerns*
  - *to involve govt personnel*
- This will:
  - *help to build govt ownership of the study*
  - *increase chances that recommendations following the analysis will suit govt's goals*

2. Analysis of leakage

- Done by study team or by survey consultant
- Two complementary tasks
  - *analysis of leakage: locating and measuring*
  - *analysis of causes to propose remedies*
- Other analyses according to objectives (equity in the Zambia survey)

3. Locating and measuring leakages

- Comparing resources disbursed at various levels: central, region, district, schools
- Calculating average differences between levels
- Determining how these differences vary over time and space
- Can they be explained by cheating?

4. Analysis of causes

- Analysis of variations between schools, between districts, etc.
- Why is leakage or teacher attendance higher in some schools than in others?
- Look for correlation between factor observed and other variables (QSDS + other sources)
- Answer research questions and test hypotheses (developed during preparation)

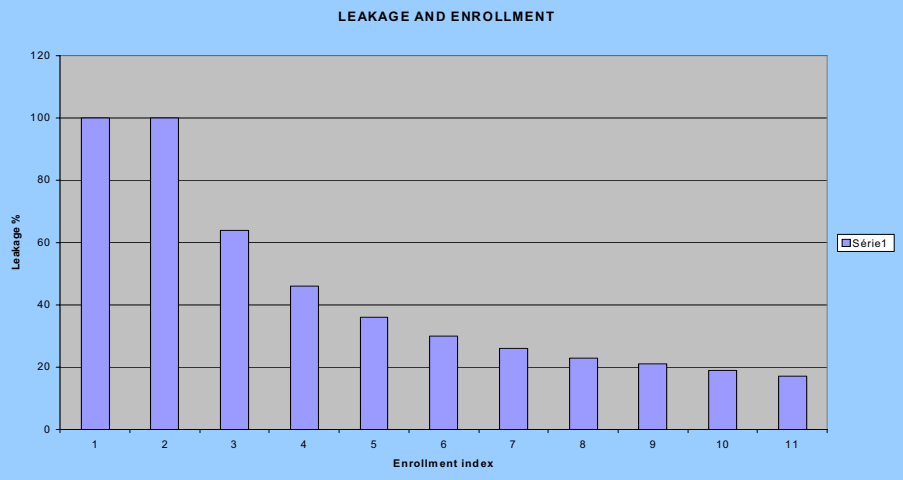
Ex. 1 - Analysis of leakage: Uganda

- PETS found an average 87 percent leakage of funds between districts and schools
- Large differences among schools:
  - *73 percent of schools: more than 95% leakage*
  - *10 percent of schools: less than 50%*
- Major cheating: prices of in-kind items
  - *increasing unit prices with assent of suppliers*
  - *corrupt procurement practices*

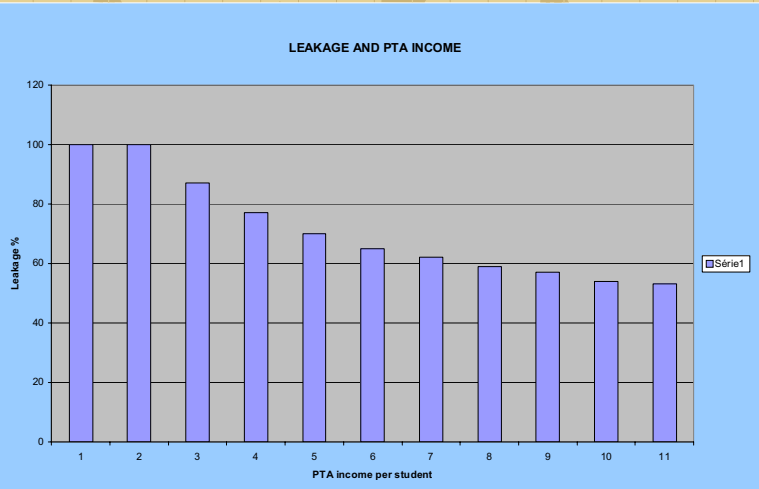
Ex 1 - Analysis of leakage: Uganda (*ctd*)

- Analysis of variations: leakage is lower in schools that can bargain with districts
  - *schools with large number of students, better-off parents, more qualified staff (see graphs*)*
- Tentative explanation:
  - *only district officials know amounts transferred*
  - *they keep part of school grants for other uses*
  - *only large, rich, well-staffed schools can compel district officials to give them more*

*Uganda: leakage and enrolment



*Uganda: leakage and PTA income



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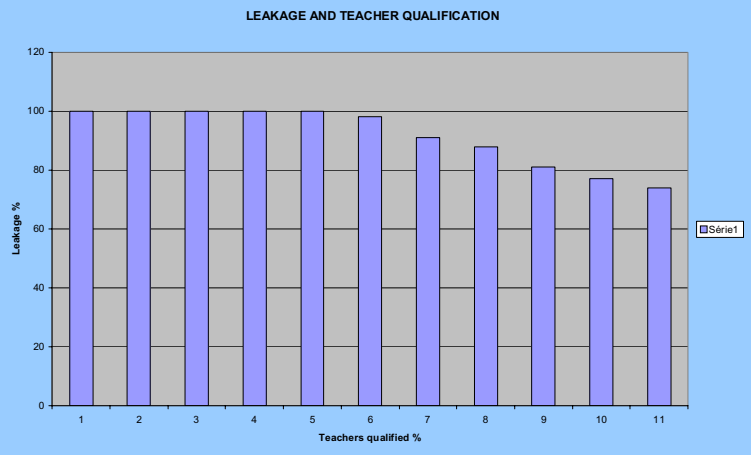
*Uganda: leakage and qualified teachers



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Ex. 2 - Analysis of leakage: Peru

- A high proportion of funds sent by central level were spent for IU administrative costs
- 50% of non-wage funds reach the schools
- PETS found that in 25 percent of schools the IU had not paid electricity as it should
- For consumption goods the average leakage was small (2.5 percent)

Ex. 2 - Analysis of causes: Peru (*ctd*)

- Why is non-wage fund leakage much lower in Peru than in Uganda?
- SIAF system renders budget disbursement process quite transparent
  - *Each IU expense must be registered through SIAF before the resource is transferred*
  - *These amounts are immediately known and can be accessed by the general public*

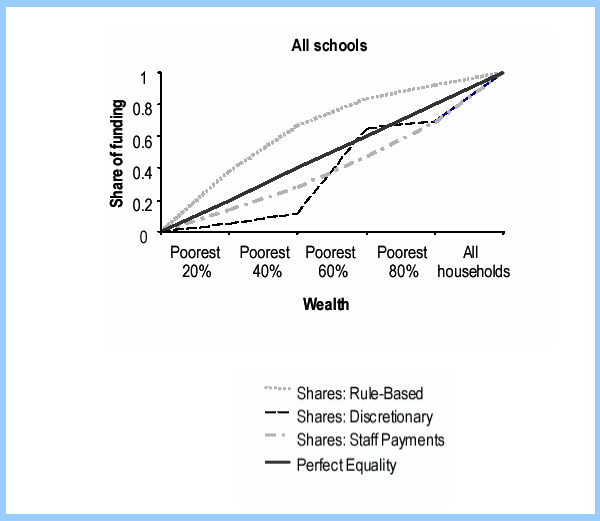
Ex. 3 - Analysis of leakage: Zambia

- PETS found major difference in leakage
  - *90% schools received rule-based allocations*
  - *20% only received any discretionary fund*
- Discretionary funds are released in very large amounts
  - *are they provided for school building projects?*
  - *or have schools receiving these funds greater bargaining power with district administration?*
  - *study is not conclusive on this point*

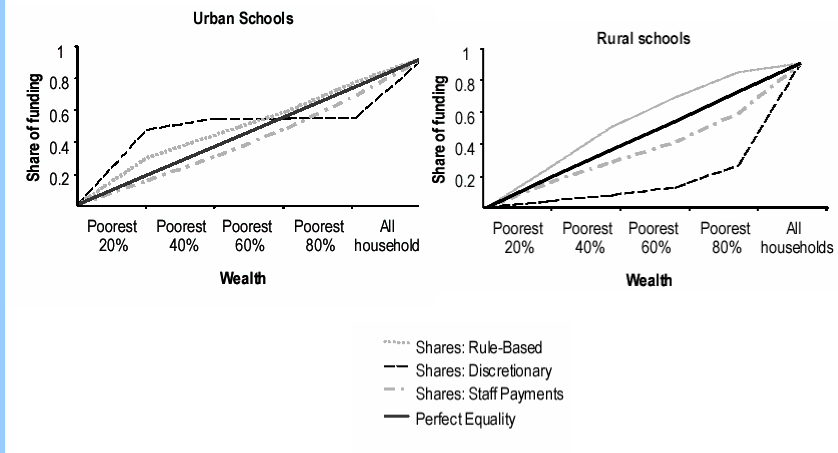
Ex. 3 - Analysis of equity: Zambia (*ctd*)

- Relate to other analysis such as **benefit Incidence Analysis** based on household data on consumption and cost of providing.
- Rule-based funds favour poorer schools
  - *no leakage, $600 per school*
  - *schools in poor, rural areas (small enrolments) receive higher rule-based funds per pupil*
- Discretionary funds favour richer schools
  - *go to wealthier schools in rural districts*
  - *wealth neutral in urban districts*
- Rule-based = 30% Discretionary = 70%
- All in all, the system does not help the poor*

* Inequalities in public funding, Zambia



* Inequalities in public funding, Zambia



ANALYSIS, REPORTING AND DISSEMINATION

International course on 'PETS in education'
Accra, Ghana – 22-26 May 2006

INFORMATION REPORTING AND DISSEMINATION

Jacques Hallak and Muriel Poisson

1. Information strategy plan

- Building anticipation of surveys information during planning and survey work stages
- Selection of Task Force and likely consumers of the findings (preparation of a mailing list)
- Sharing all aspects of surveys at appropriate stages in a progressive manner
- Preparation of a report clearly explaining results and recommendations and present to Task Force and other consumers
- Avoid personal and institution specific findings
- Renew contacts with govt. as soon as first results are available

2. Reporting

- Produce summary report as soon as possible:
  - Main findings of the survey
  - Initial policy recommendations
- Later, produce full report:
  - Findings of the survey
  - Detailed analysis of cause and effect
  - Final policy recommendations

3

2. Reporting (ctd)

While other members of the team continue data analysis, the coordinator for public relations would:

- Prepare interim summary Report
- Organize press conference and meetings with politicians, decision-makers, PTA representatives, Teachers Union leader
- Encourage the writing of articles on the first results of the survey in newspapers and other printed media, or write them
- Stimulate and/or organize radio/TV broadcasts to popularize the first results of the survey

4

3. Synthesis and dissemination

- Publish findings as early as possible
  - Official communications, speeches, conferences
  - Mass media: press, radio, TV, etc.*
- Experience shows this can mobilize people
  - Set off government action as in Uganda
  - Later result in decrease of corruption

5

* Newspaper campaign in Uganda

- Main national newspapers and their local language editions
- Monthly transfers of capitation grants to districts published in newspapers since 1996
  - Parents will know what there entitlements are
- Posters required at district HQs announcing the date and amount funds received
- Schools required to maintain public notice boards/posters displaying receipts
  - Parents will know what the actual receipts are
- Subsequently expanded to other sectors

6

4. Public targeted

Dissemination activities should essentially address three different publics:

- The consumers-clients of the education system, i.e. parents of school children and the PTA's that represent them
- Decision-makers, politicians and government officials
- Teachers and Teachers' Unions

7

5. Why information campaigns matter?

- Government:
  - by using newspaper advertisements to inform the users of their entitlement, government signaled that it considered primary education important
  - it also signaled strengthened oversight
- Communities:
  - by giving users access to information on the grant program, head teachers and parents could themselves monitor the local administration and voice complaints if funds did not reach the schools.

8

* Lessons from Uganda

- Through an inexpensive policy action, mass information through the press, Uganda has managed dramatically to reduce capture of a public program aimed at increasing primary education
- Because the poor were less able than others to claim their entitlement from district officials before the campaign, but just as likely in 2001, they benefited most from it
- Public access to information is a powerful deterrent of local capture

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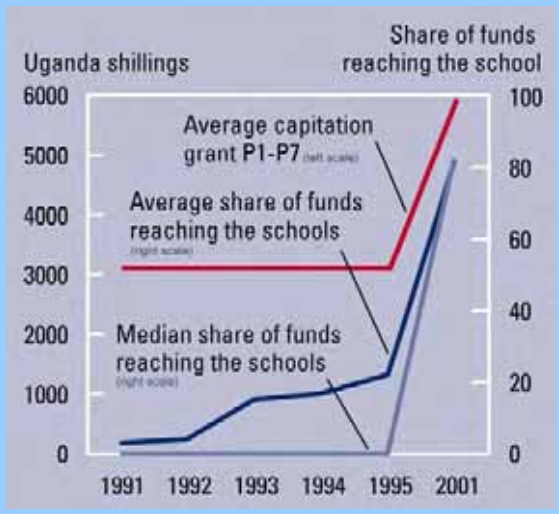
* Schools received more after the campaign



Source: Reinikka and Svensson (2001), Reinikka and Svensson (2003a)

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6. Evidence based on district averages*

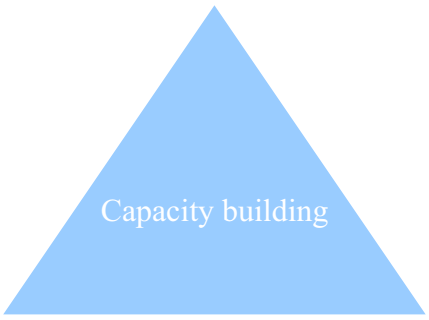
- Student enrollment increased significantly faster in districts with high newspaper circulation
- The newspaper campaign had a large effect on student performance
- On average, pupils in districts that were highly exposed to the campaign scored 6 percent higher in the Primary Leavers' Exam than pupils in districts that were less exposed

* Difference-in-differences estimate

Group	Year		
Panel A: Campaign experiment (no. observations: 444)	1995	2001	2001-1995 difference
Access to newspapers	24.5***	83.7***	59.2***
	(2.87)	(1.94)	(3.46)
No access to newspapers	29.6***	75.0***	45.4***
	(5.40)	(3.11)	(6.22)
Access-no access difference	-5.12	8.68**	13.8**
	(6.10)	(3.66)	(7.13)

7. Follow-up action: capacity building

Institution development



Human resource development

Conducive environment

13

7. Follow-up action: capacity building

1. *Institution development*

- Transfers to primary education displayed on public notice boards in each school and district centre (monitored by the MOE)
- Central supply of construction and other materials replaced by the school-based procurement
- Effort made to institute basic public accounting systems that include districts
- Detailed data on spending on teacher salaries available at central level

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7. Follow-up action: capacity building

2. Human resource development

Training in:

- Survey methods
- Financial audit
- Researchers

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7. Follow-up action: capacity building

3. Conducive environment

- Accountability and information dissemination legally provisioned
- Monthly transfers of public funds to districts reported in the main newspapers and broadcast on radio
- Penalties for distorted behaviours

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Concluding remarks

Need to integrate PETS:

- In the overall administrative process
- In the public communication policy
- Crucial role to be played by the "social control" exerted by communities

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IIEP/ITC 271 – Exercise
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International Institute for Educational Planning
7-9, rue Eugène Delacroix, 75116 Paris, France

International course on:
"*Public Expenditure Tracking Surveys in Education*"

Accra: 22-26 May 2006

Ruritania exercise

IIEP Project on:
"Ethics and corruption in education"

GROUP WORK OVERVIEW

LEARNING OBJECTIVES

1. To develop awareness of the magnitude and harmful consequences of corruption in education.

2. To train participants in the design and implementation of *Public Expenditure Tracking Surveys* (PETS) aimed at measuring the magnitude and analyzing the causes of public fund leakage.

3. To call attention on the benefits of organizing such surveys and disseminating their results to fight corruption.

At the end of the course, participants should be able to participate meaningfully in all the steps of a PETS.

COURSE CONTENT

This will be a hands-on, practical course, which will consist mainly of group work. Groups of 5-9 participants will be assigned exercises to train them in the major tasks involved in the preparation, design, implementation and analysis of a PETS on pre-university education, as well as in using its results to alleviate corruption. The country concerned will be Ruritania, a fictitious country.

The tasks assigned will be divided into four sections:

- *Section 1:* Preparing the PETS
- *Section 2:* Designing the PETS
- *Section 3:* Implementing the PETS
- *Section 4:* Analysis and follow-up.

Group work on each section will be preceded by a lecture presenting the methods used by PETS, giving concrete examples, and describing the tasks to be performed by the working groups. At the end of group work on each section, a plenary meeting will discuss the papers produced by each group and present other possible solutions to the exercises.

SOURCES

Participants will receive the following documents:

- Public Expenditure Tracking Surveys in Education by Ritva Reinikka and Nathaniel Smith, IIEP UNESCO 2004;
- Information on Ruritania and its educational system, including educational financing;
- Sample Questionnaire, PETS, Primary School Survey, IIEP, The World Bank.

Group work 1
Objectives and issues

LEARNING OBJECTIVES

To apply the approach recommended in the course documents (especially in 'Public Expenditures Tracking Surveys' by R. Reinikka and N. Smith) on a concrete example.

EXPECTED RESULTS

At the end of the exercise, participants will be familiar with the methods used to define the objectives of and the major issues to be examined by a PETS in the field of education.

EXERCISE

Suppose your group is preparing a PETS concerning primary education in Ruritania and has been asked to write a *preliminary paper* justifying and briefly describing the survey. As a first contribution to this paper, your group will define the objectives and main issues of the PETS by answering the questions below.

1. Formulate the objective(s) of the PETS. (Of course this formulation might be changed after in-country consultations). Your formulation should justify the PETS, i.e. explain why the survey is needed and why it would benefit the country and the people of Ruritania. This justification should be supported by country data.

2. Formulate two key research questions that the PETS will have to explore concerning the funding and delivery of educational services in Ruritania.

3. Formulate your tentative answers to the research questions.

4. Briefly describe the various investigations the survey will have to conduct in order to meet these objectives.

SOURCES

Before discussing the group's response with your colleagues, please read attentively:

- the document "Information on Ruritania and its educational system", and
- point 1 a and b of Chapter 4 in the book "Public Expenditure Tracking Surveys in Education" by Reinikka and Smith (p.p. 47-50).

Also reflect about your experience in your country or other countries.

Group work 2
Resource flows for primary education

LEARNING OBJECTIVES

To make a preliminary analysis of the flow of government resources for education on a concrete example, and to discuss the opportunities such a structure offers for corruption.

EXPECTED RESULTS

At the end of the exercise, trainees will be able to analyze the flow of public funds for education in a country and detect the opportunities it offers for corruption.

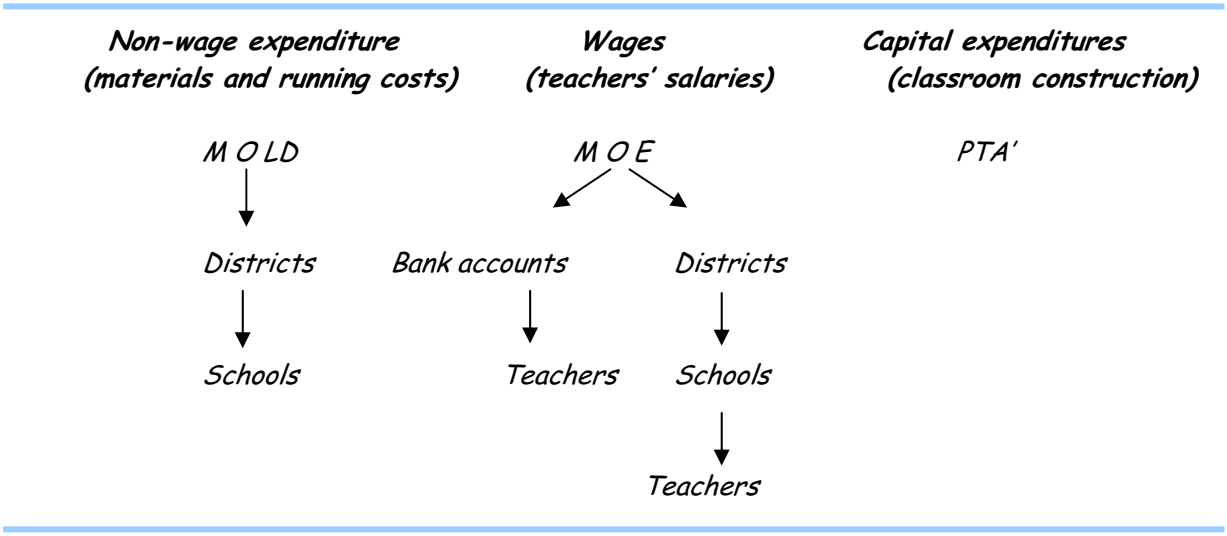
EXERCISE

In this second exercise, your group will contribute to the PETS *preliminary paper* for Ruritania by analyzing the structure of the government's resource flow for primary education, as it is described in the document "Information on Ruritania and its educational system". Your analysis could, among others, include the following points:

1. Draw up a provisional graph of the government's resource flow for primary education, including the funds concerning textbooks. An example of a similar graph is shown below.

2. On the basis of your experience, discuss the opportunities for corruption offered by this pattern of resource flow. What corrupt practices could arise from such opportunities?

3. Write a one-page paper summarizing the views of your group about opportunities for corruption in Ruritanian primary education.


Non-wage expenditure
(materials and running costs)
Wages
(teachers' salaries)
Capital expenditures
(classroom construction)
M O LD
M O E
PTA'
Districts
Bank accounts
Districts
Schools
Teachers
Schools
Teachers

Group work 3
Sampling

LEARNING OBJECTIVES

To train participants in the design and selection of a scientific national probability sample with stratification.

EXPECTED RESULTS

At the end of the exercise, participants will be able to design and select a scientific national representative probability sample of schools (and teachers), and to provide training for other staff.

EXERCICE

Your group will contribute to the preliminary paper concerning the Ruritania PETS by preparing a provisional sampling strategy for the survey.

Specifically, you are given an example of a sampling frame of the list of schools from Ruritania with some information. In this study, you are a statistician in the team tasked with selecting a stratified probability representative sample of schools. Your team is tasked with:

1. Describing the target population of the study.

2. Identify the levels where (policy) decisions are made (strata).

3. Explore the sampling frame and identify anomalies. Document these anomalies.

4. Explain clear how you dealt with these anomalies.

5. Are these anomalies likely to impact on you final sample, why or why not?

6. Select a representative probability sample of 200 schools (*use stratified systematic random sampling*).

7. Present a table showing population percentages and sample percentages in each strata.

8. Explain clearly how your sampling was done, such that someone else can do the same study.

9. Explain, if any, sampling method that will be done in the field.

SOURCES

- For guidelines on sampling and stratification, see point 2 of Chapter 4 in the book "Public Expenditure Tracking Surveys in Education" by Reinikka and Smith (p.p. 54-57).

Group 4
School questionnaire

LEARNING OBJECTIVES

To give participants an opportunity to study a PETS school questionnaire in depth, and learn how to adjust it to a different education system.

EXPECTED RESULTS

At the end of the exercise, trainees will be able to participate meaningfully in the preparation of a PETS school questionnaire.

EXERCISE

In this exercise, as part of the *preliminary paper*, your group will propose an adaptation of the *Sample questionnaire* to be used for the Ruritania PETS.

First read attentively the Sample questionnaire. Then your group will meet and do the following tasks:

1. Delete redundant questions:
   - either because they are not applicable to Ruritania (e.g. Section I, question 6: there is no private education in Ruritania),
   - or because they would be unnecessary given the PETS's objectives and key research questions as defined in Exercise 1.
2. Modify questions to adapt them to Ruritania as required.
3. Add questions that you consider important for the PETS and have been overlooked in the sample questionnaire.
4. Write a short paper explaining what you have done and why.

SOURCES

- As a reference, a *Sample questionnaire* has been distributed to you.

- For guidelines on questionnaire design, see point 2 of Chapter 4 in the book "Public Expenditure Tracking Surveys in Education" by Reinikka and Smith (p.p. 57-62).

Group work 5
Implementation and Monitoring

LEARNING OBJECTIVES

1. To train participants in making appropriate plans for hiring the staff necessary to implement a PETS.

2. To train participants in planning the activities of a PETS, as a first step in planning the resources required.

EXPECTED RESULTS

After the exercise, trainees will be able to contribute usefully to the recruitment of staff for a PETS, and to participate meaningfully in the planning of a PETS.

EXERCISE

Your group will continue its work on the Ruritania PETS *preliminary paper* by estimating the staff required for the PETS. Your estimate will be based on:

1. the data available about Ruritania;
2. the objectives, sampling strategy and questionnaires you have proposed in the previous exercises; and
3. a sample which covers 250 schools and 20 districts.

- The survey will presumably be supervised by a Government Task Force composed of high-level officials. Do not include them in your estimates.

- Your estimates should as far as possible be supported by arguments, e.g. the experience of previous PETS. Make a realistic estimate of the staff needed to perform the various tasks involved, add a contingency allowance for unforeseen difficulties, but avoid wasting the scarce resources allocated for the survey.

- Do not forget that the staff will have not only to prepare and implement the survey, but also to monitor its implementation, enter, compile and analyze the data, prepare the report and make arrangements to disseminate the results.

1. Think about the kind of people you want as staff members: researchers from the University (e.g. sociologists), from the statistical institute, private consultants, students, others? Remember that officials of ministries of education are not acceptable in a PETS because they are part of the education hierarchy. Please list the staff required as in the example below:

Category	**Tasks**	**Education/ experience**	**Numbers**
Researchers	Preparing, organizing, supervising survey	College degree, Experience of surveys	8
Enumerators	Data collection Data entry/compilation	Senior teachers Students	38

Note: This table is not a model but just an example showing how you could present your estimates.

2. Please list these activities in order of time from the earliest to the last. The list should include the number of institutions to be visited, the staff involved, and an estimate of the time required, allowing extra time for unforeseen difficulties. Do not forget to include staff and time for monitoring. The implementation period should not exceed 18 months.

Activity/ level	**N° institut. visited**	**Staff involved**	**Time required**
Data coll/ Central	20	4 researchers	4 weeks
Data coll/ Regions	20	4 researchers	4 weeks
Data coll/ Districts	40	4 researchers 4 enumerators	8 weeks
Data coll/ Schools	200	4 researchers + 40 enumerators	16 weeks
Data compilation		4 researchers + 40 enumerators	4 weeks

3. Draw up a bar graph of the time schedule showing the distribution of activities over time.

Activity/ level	2006						2007					
	July	Aug.	Sep	Oct	Nov	Dec	Jan.	Feb.	Mar.	Apr.	May	Jun.
Data coll/ Central	XXX											
Data coll/ Regions		XXX										
Data coll/ Districts			XXX	XXX								
Data coll/Schools		XXX	XXX	XXX	XXX							
Data compilation						XXX						

Notes:

1. *The above table and graph are not models but just examples showing how you could present your proposals.*
2. *In the above graph, the researchers in charge of a regional survey team is supposed to divide his/her time between the collection of region and district data and the monitoring of school visits by enumerators.*

SOURCES

For guidelines on PETS implementation, see point 3 of Chapter 4 in the book "Public Expenditure Tracking Surveys in Education" by Reinikka and Smith (p.p. 62-65).

Group work 6
Data analysis 1

LEARNING OBJECTIVES

1. To give trainees a first hand experience of how to calculate the leakage of funds on a spreadsheet.

2. To teach those who have never worked on a spreadsheet the basic calculation formulas.

EXPECTED RESULTS

At the end of the exercise, trainees will be able to participate meaningfully in the estimation of leakage from a set of data collected from questionnaires.

EXERCISE

In this exercise, you will make a first analysis of data from 77 questionnaires. Your group will calculate the average difference between the government subsidy received by schools and the subsidy they were supposed to receive, in other words the subsidy leakage. Then you will learn how to calculate the standard deviation, which measures the degree of dispersion of a set of data. You will do these calculations using the EXCEL mathematical formulas: e.g. the formula used to add up figures contained in cells A2 to M2 is: =SUM(A2:M2).

Meet together in the group to prepare a short paper to present your conclusions about the Exercise, what you have learned and the difficulties met, at the Plenary discussion.

ⓘ HELP

Open the EXCEL file entitled "*Group work 6.1*". The file contains a Table with the following data from 77 school questionnaires (a row for each school):

Column A	School number (the names of schools have been omitted)
Column B	Province
Column D	District
Columns E-T	Enrolments by grade and sex for last year
Column U	Total enrolment; e.g. U2=SUM(E2:T2)
Columns V-Y	Govt. subsidy received in quarters 1, 2, 3 and 4 last year
Column Z	Total Govt. subsidy received; e.g. Z2=SUM(V2:Y2)
Column AA	Govt. subsidy received per pupil; AA2=Z2/U2
Column AB	Official Govt. subsidy per pupil (40 currency units)
Column AC	Official amount of Govt. subsidy for the school
Column AD	Leakage (Official subsidy minus subsidy actually received)
Column AE	Leakage percent of the official amount of Govt. subsidy
Column AF	School fees
Column AG	Project fees
Column AH	Other fees
Column AI	Total fees charged to parents
Column AJ	Total fees per pupil
Column AK	Percentage qualified teachers

1. Your first task is to fill columns AC, AD and AE, which have been left blank, by manipulating data in the previous columns with EXCEL arithmetic operators (+, -, /) and formulas (e.g. SUM). AC2 is evidently equal to the school enrolment U2 multiplied by 40, so AC2 =U2*40; etc. You will quickly learn by practice how to use these formulas and copy them from cell to cell.

2. Also fill the bottom cell (80) of columns AC and AD to get the total of each column, e.g. AC80 =SUM(AC2:AC78).

3. Calculate the standard deviation of the set of data on leakage percent in column AE. The standard deviation is an algebraic expression that tells you how tightly the various data in a normally distributed set are clustered around their average. If the standard deviation is small in relation to the range covered by the data, it means that the data are tightly bunched together; if the S.D. is large, then the data are dispersed. The S.D. is particularly useful to compare the distributions of two or more sets of data. In the EXCEL spreadsheet, you will calculate the S.D. for the data in column AE by using the function = STDEV(AE2:AE78).

Group work 6
Data analysis 2

LEARNING OBJECTIVES

To analyze the possible causes of fund leakage by exploring the variations observed among the schools and looking for correlations.

EXPECTED RESULTS

At the end of the exercise, trainees will be able to understand better and help in the data analyses undertaken by researchers to explore the causes of variations in leakage.

EXERCISE

In this second exercise on data analysis, your group will explore, within the sample of 77 schools, possible causes for the variations in subsidy leakage per pupil.

Our initial hypothesis is the following: in the school system represented by the sample, as in Uganda, the bargaining power of schools vis-à-vis their District Education Officers is the root cause of the major variations in leakage per pupil. In other words, larger schools (generally urban), schools where many students have wealthy parents, schools with a high proportion of qualified teachers, stand a greater chance of receiving a fair share of their govt. subsidy than small, poor, generally rural schools, whose students are poor and teachers unqualified.

You will examine how leakage per student varies according to:

- total number of students; and if you have time according to
- the wealth of parents, and/or
- the percentage of qualified teachers.

You will further examine whether and how strongly these pairs of variables are related by studying the statistical correlation existing between them. Here again you will use the EXCEL spreadsheet to draw the graphs and calculate the coefficients currently used in this kind of analysis.

Write a short paper to explain your conclusions from the above analysis.

ⓘ HELP

1. EXCEL enables you to produce a graph showing how the percentage of leakage varies with enrolment. To do this, first select column U in the spreadsheet you have worked on in the previous exercise. Then click AZ on the Menu bar. The schools in the whole spreadsheet are now ranked from the smallest to the biggest. Column AE shows the percent leakages of these schools ranked according to the size of the schools. To produce a graph showing the variations of leakages according to school size, select column AE, then click the button "graph" on the Menu bar, choose the type of graph you want, and follow the instructions.

2. Look at the graph and at the data carefully. How would you interpret the variations detected by the analysis? Do they fit with our initial hypothesis?

3. If you have time you can do the same analysis for the variations in leakage according to the wealth of parents, or according to the percentage of qualified teachers (column AK). We shall consider total school fees per pupil (column AJ) as a proxy for the average wealth of parents in the school. To get the leakage figures ranked according to total school fees per pupil, select column AJ, then click the AZ↓ button in the Menu bar. Then you can also produce a graph showing the variations of leakage according to wealth of parents by clicking on the "graph" button of the Menu bar.

4. You could also calculate the correlation coefficients (or "r") measuring the strength of the relations existing between Enrolments and Leakage, etc. Correlation coefficients vary between –1.00 and 1.00. If the coefficient is close to 0, there is no relationship between the two variables; if it is close to +1 or –1 the correlation is strong. If r is positive, as one variable get larger the other also gets larger. If r is negative, as one gets larger the other gets smaller.

5. Look at the graph and analyze the data in column AJ carefully. Do they support our initial hypothesis?

SOURCES

Before discussing the group's response with your colleagues, you can read the analysis of the PETS results in Zambia, points 3 to 5 of Chapter 7 in the book "Public Expenditure Tracking Surveys in Education" by Reinikka and Smith (p.p. 93-99).

Group work 7
Dissemination of PETS results

LEARNING OBJECTIVES

To increase the participants' conviction of the need for concerted efforts to disseminate the results of the PETS. To review and discuss the various means available for this purpose.

EXPECTED RESULTS

At the end of the exercise, participants will be more convinced of the need to ensure the dissemination of PETS results and better prepared to plan and implement this essential phase of the survey.

EXERCISE

Your group will prepare a section of the Ruritania *preliminary paper* presenting a plan for the dissemination of the survey's results for a period of two months.

To start with, the following questions should be examined when preparing your plan:

- Who will be involved in the dissemination of the survey's results?
- Who should dissemination activities be addressed to?
- When will the dissemination activities begin? Should one wait until the summary report is published?
- Which activities would be the most beneficial and should get the preference given budget limitations?

Your plan could include such activities as:

- meetings with political leaders, government officials, particularly from the Ministries of Education and Finance, etc.;

- meetings with representatives of the civil society, such as teachers' unions, PTA's, NGO's, journalists, influential people;
- articles in newspapers and other printed media;
- radio and TV broadcasts and interviews;
- publication of excerpts of the summary survey report, or of its main conclusions, subject to the Government's agreement; etc.

Do not forget that the preparation of such activities takes time, particularly if audio-visual media or aids are to be used.

Finally, you should try to establish an accurate budget for the implementation of your plan.

SOURCES

Before discussing the group's response with your colleagues, you can read the experience of Uganda's information campaign, point 4 of Chapter 5 in the book "Public Expenditure Tracking Surveys in Education" by Reinikka and Smith (p.p. 76-78).

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Ruritania sources

IIEP Project on:
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CONTENTS

INFORMATION ON RURITANIA AND ITS EDUCATIONAL SYSTEM

BASIC DATA (2001)

Area	285 000 km2
Climate	Tropical; one rainy season June to October
Sanitary conditions:	Malaria and AIDS endemic
Regional administration:	8 Regions:

- *North:* A sparsely populated, dry pastoral area, its main resources are cattle raising, agriculture and tourism.
- *East:* Also a dry pastoral area, but fisheries, coconut plantations, industries and the economic activities around the main harbour of the country provide additional resources.
- *North central:* Main resources are provided by irrigated farming, mining and industries.
- *Central:* Urban and peri-urban areas around the national capital. Main resources come from commerce, public services and industries.
- *Southeast:* A densely populated, fertile plateau, where a variety of food and commercial crops are grown. Tourism is developing along the beaches.
- *South central:* Irrigated farming, mining and industries provide the main resources of this densely populated area.
- *Southwest:* A mountainous region, with small farms; subsistence agriculture, coffee plantations and tourism provide the main resources.
- *Northwest:* Resources similar to those in the Southwest Region.

Table 1 below shows the main statistical data concerning the Regions. The annexed Map outlines the lay-out and boundaries of the 8 Regions and 45 Districts.

Regions	Area (sq. km 000's)	Population 000's	Pop. Density per sq km	Urban pop. 000's	N° Primary Schools	N° Districts
North	45	720	16	100	518	6
East	40	960	24	200	657	7
N. central	45	2,700	60	100	1,467	7
Central	21	4,200	200	3,500	2,338	5
Southeast	35	3,500	100	700	1,931	5
S. central	32	3,200	100	600	1,757	5
Southwest	42	1,680	40	100	1,074	6
Northwest	25	1,000	40	100	580	4
Totals	285	17,960	63	5,400	10,422	45

Average distance Capital to District Headquarters: 400 Km

Average distance District Headquarters to Schools: 50 Km

Road conditions: - capital-districts: tarmac roads
- districts-schools: earth roads or tracks

Total population 18 million

Population in urban areas: 30%

Average population growth rate: 2.5% (cities 5.1%; rural areas 1.8%)

Age structure of population: 0-6 25.6%
7-12 17.4%
13 and over 57.0%

Life expectancy at birth: 53 years

Adult illiteracy rate: 39%

Languages: One major national language used in daily life and radio broadcasts; English second official language, taught in primary school, used in courts and major newspapers.

Total working population: 7.2 million
in agriculture 66%
in mining and industry 12% (including informal activities)
in services 22% (including informal activities)

GDP per capita : US$ 310 at current exchange rates, US $ 1,200 at purchasing power parity

TABLE 2 Enrolments and gross enrolment rates (2000/01)

Level of schooling	Enrolments	Gross enrolment rates
Primary	3,032,000	97%
Secondary	982,000	42%
general	920,000	
technical	62,000	
Teacher training	1,250	
Higher	30,000	1,8%

THE ECONOMY

1. The chief economic resources of Ruritania are agriculture (rice, other foodcrops, cotton, cattle, hogs), fisheries, mining and some industry. Ruritania is almost self-sufficient for food.

2. Ruritania undertook a major economic reform programme in 1993 to shift from a strategy of heavy Government involvement and regulations to a process of liberalization and privatization, following an economic downturn in the 1985-1990 period. This approach, which includes a decrease in public spending and a freeze on the hiring of civil servants, has the backing of several bilateral and international aid agencies. The successful implementation of the reform programme during the 1990's has allowed the country to return to a situation of positive economic growth.

3. The Government's policy is to develop a market economy, facilitate the establishment and growth of private, including foreign, enterprises and stop the previous expansion of the public sector. Under the 2001-05 plan, it is expected that the real growth rate will reach 4.5% per annum, and will stabilize at that level in the medium term. This trend should allow consumer purchasing power to increase after 2005. Agricultural production will be the main engine of economic growth in the medium term. Although light industry makes a relatively small contribution to overall GDP, it will play an important role because it enjoys a high annual growth rate, as high as 10% in some branches.

4. Because of expected constraints, restrictions on public spending will be continued until 2005. However, human resources development will have priority, and major social services will be maintained, authorizing the appointment of new teachers.

5. Whether or not growth targets are actually reached will depend to a large extent on the amount of investment in private industry. Ruritania enjoys a

certain number of advantages in this regard, making it an attractive place for investors. In particular, it offers cheap labour and a well developed infrastructure. Nevertheless, the average productivity of Ruritatian manpower is still low since there is a shortage of educated manpower in general, and of skilled workers in many branches. That weakness causes many companies to hesitate to invest in Ruritania. Firms needing critical skills have to turn to qualified foreign workers, and this increases the cost of labour per unit.

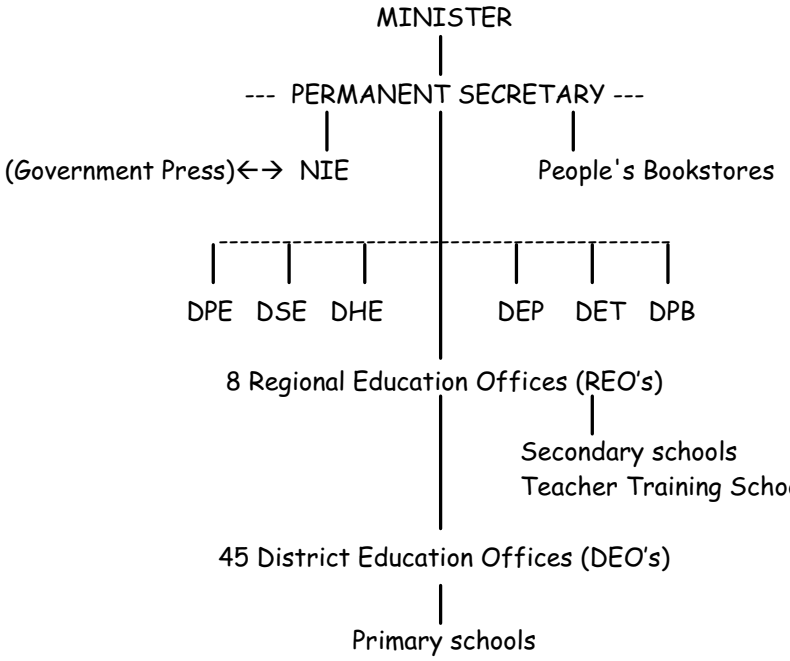
STRUCTURE AND ADMINISTRATION OF THE EDUCATION SYSTEM

6. The educational system in Ruritania involves six years of primary school, followed by three years of lower secondary, three years of upper secondary, and finally higher education available in three Universities. A few primary schools (called "special schools") do not comply with the official curriculum. The language of instruction, which is also the official language of the country, is generally the mother tongue of most children entering primary school. In principle, primary school teachers should be trained for three years in specialised upper secondary schools called Teacher Training Schools (TTS); however many of them have not been trained for teaching. Teachers in secondary schools are university-trained. Separate institutions provide technical and vocational training at both lower and upper secondary levels. Boarding exists only in upper secondary, technical and teacher training schools.

7. All levels of the educational system are administered by the Ministry of Education, except for technical and vocational training which is the responsibility of a separate Ministry of Technical and Vocational Training (MTVT). There is no private education in Ruritania. The public sector includes both government and community schools: both are funded following the same pattern; but community schools are managed with the involvement of local communities. Training in agriculture is offered by the Ministry of Agriculture. Other Ministries (Health, Defence, Social Affairs) also run special schools in their fields. Under the Minister's authority, the Permanent Secretary of the MOE co-ordinates the action of six Directorates: Primary Education (DPE); Secondary Education (DSE); Higher Education (DHE); Educational Planning (DEP); Examinations and Testing (DET); Personnel and Budget (DPB); and of the National Institute of Education (NIE), which is in charge of curriculum development and textbook production. Primary Teacher Training is under the Directorate for Secondary Education. There are 8 Regional Education Offices (REO's), and 45 District Education Offices (DEO's).

8. Educational administration in Ruritania is suffering from excessive centralization, cumbersome procedures, ill-defined responsibilities, and weak co-ordination between departments.

MINISTRY OF EDUCATION
SIMPLIFIED ORGANIZATION CHART



9. Outside the Ministry of Education, several institutions undertake research and training in the field of education. The Faculty of Human and Social Sciences of the Central National University does a lot of research on education, and its staff has experience in sample surveys. The Institute of Management Studies of the same University is unfortunately weak and unable to organize appropriate training for educational administrators. The Statistical Institute of the Ministry of Finance is responsible for the national census and has considerable experience in all kinds of surveys, including those concerning education.

EDUCATIONAL FINANCING

10. Due to the priority given to human resource development, the Government of Ruritania increased expenditures in education during the late 90s. In 2001, it devoted the equivalent of $154.1 million to education, which amounted to 10.7% of the government's operating budget and 2.76% of GDP. Of that total, $147.8 million went to the MOE and the MTVT. Table 3 (page 6) shows the distribution of these funds by level and category of expenditure and the unit costs.

11. In principle parents do not pay any school fees. However the schools charge them with contributions for school insurance, examination fees etc. In

addition, parents support a levy for the schools' Parent-Teacher Associations (PTAs), which finance a substantial part of the schools' expenses for school buildings, educational aids (other than textbooks), and school feeding programs. Since 1990 the PTA levy per pupil has approximately doubled. It is now officially estimated, on average, at $9.00 for primary schools, bringing the average annual cost supported by parents to $11.3 per primary pupil, and the real amounts are said to be sometimes much higher. There are no Boards of Management in Ruritania's primary schools.

TABLE 3 Government Spending for Education in 2001 (MOE and MTVT combined) and Unit Cost per Student

	Government spending on education (in millions of US $)					Unit costs (in US $) a/
	Personnel	Others	Scholarships	Total	% a/	
Primary	52.9	20.0 b/	-	72.9	51.8	25.3
General secondary	20.2	12.2	2.2	34.6	24.6	39.5
Tech. and voc. secondary	1.6	2.1	0.3	4.0	2.8	67.7
Higher Education	12.7	4.5	12.0	29.2	20.8	1023.3
Central Administration	5.2	1.0	-	6.2		
Miscellaneous	0.5	-	0.4	0.9		
Totals	93.1	39.8	14.9	147.8	100	

Notes: a/ In the calculation of the percentage allocation of public education expenditure (Column 6) and the unit costs (Column 7) per level of education, expenditures for the central administration and miscellaneous items were distributed among the various levels of education in proportion to their direct expenses.
b/ of which 9.2 for educational materials, textbooks and supplies.

12. Primary and secondary education staff, including teachers, are paid directly by the MOE, either by transfer to their bank accounts, or in cash at District Treasury Offices.

13. Allocations for material expenses in primary and secondary schools (including those for classroom construction) are transferred, on a monthly basis, by the Ministry of Education to the relevant Regional Education Offices. These allocations are supposedly based upon those of the previous year, taking into account (a) changes in the Ministry's budget and (b) expected increases in regional enrolments. REO's manage and distribute the funds allocated to secondary schools and transfer those allocated to primary schools to the District Education Offices. DEO's manage and distribute these funds to primary schools, in kind or in money. The schools' financial records are not

submitted to the central government.

PRIMARY EDUCATION

OVERVIEW

14. In 1992/93 Ruritania's primary education system featured a gross enrolment rate of 106 per cent and a net enrolment rate of 85 per cent. All of the nation's children would be currently going to school had enrolment continued to climb at the previous rate. Unfortunately, as Table 4 below shows, the situation deteriorated as from 1994/95. Not only enrolment is not going up, but indeed the number of children entering the first grade is stagnating whereas the school age population continues to increase. Although the number of new admissions is still about equal to the seven years old population, this phenomenon is causing considerable concern because one third of new entrants are older than seven.

TABLE 4 The Main Indicators for Primary Schooling in Ruritania (Enrolment figures given in thousands of students)

	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Student enrolment	2,500	2,719	2,873	3,007	2,958	2,922	2,714	2,695	2,746	3,032 a/
Gross enrolment rate (%)	100.0	106.0	109.2	111.6	107.0	103.2	93.5	90.6	90.0	97.0
Net enrolment rate (%)	79.8	84.6	87.1	89.0	82.4	82.4	74.6	72.3	71.9	77.4
Students entering 1st grade	563	547	578	605	595	588	546	542	552	610
Children age 7 b/	485	497	510	523	536	549	563	577	591	606
Schools	7,194	8,324	8,984	9,335	9,960	10,450	10,261	10,245	10,092	10,422 c/
Teachers	61,867	70,569	76,171	78,570	82,140	87,221	86,631	87,571	85,812	86,828
Average repetition rate (%)	16.3	16.5	19.1	18.1	17.6	16.8	18.6	18.1	19.8	
Average dropout rate (%)	5.3	5.9	8.8	13.9	14.8	22.8	17.9	16.5	11.2	
Average n° of pupils per teacher	40.3	38.4	37.6	38.2	35.9	33.4	31.3	30.7	32.0	34.9
% of primary education government budget spent on education materials	5.4	5.3	6.2	7.1	9.3	9.4	10.6	10.6	11.6	12.6

a/ of which 1,163 in cities b/ the official age of admission to primary schools is 7 c/ of which 814 in cities

TABLE 5 Enrolment Figures by Grade and by Sex (2000/01)

	1st grade	2nd grade	3rd grade	4th grade	5th grade	6th grade	Total
Boys	389,418	290,521	254,515	229,422	223,058	173,777	1,560,711
Girls	380,766	288,653	245,601	216,314	204,485	135,509	1,471,328
TOTAL	770,184	579,174	500,316	445,736	427,543	309,286	3,032,039

15. The stagnation in admissions to primary education is partly due to the fact that education is now less popular than it was formerly in Ruritania. There are three main reasons for this:

- The cost of education is unaffordable for many parents, as PTA levies have increased (paragraph 11) and disposable family incomes dropped.
- The civil service has put a freeze on all job hiring (paragraph 2), giving parents the feeling that education no longer guarantees their offspring a job in the modern sector.
- The quality of education has declined, owing to the scarcity of instructional materials, despite an increase in government funding and a marked drop in the number of pupils per teacher (Table 4, page 7).

16. The decline in educational quality despite an increase in the costs of education for parents and government make some people suspect that some of the government funds earmarked for schools' materials are not reaching their final destination.

GOVERNMENT PRIMARY EDUCATION POLICY

17. According to official statements the objectives of primary education are:

- To provide all children, free of charge, with the minimum learning required to enter working life or to continue their education at the secondary level;
- To base the content of education on national as well as universal values;
- To use the maximum thrift in managing the human and financial resources allocated for this purpose.

QUALITY OF EDUCATION

18. The quality of primary education is measured by the proportion of students who acquire, before they finish school, that minimum amount of knowledge, which prepares them for working or continuing their education. Basically that means learning the "Three R's". This measure actually combines two factors:

    - *Internal efficiency*, i.e. the proportion of entering students who end up finishing primary school;

    - *Scholastic achievement*, i.e. the proportion of students who actually learn the minimum amount expected of them. Scholastic achievement will obviously be influenced by the inputs into the school system, i.e. the number and quality of teachers, their supervision, textbooks, school buildings and equipment, etc.

19. The following paragraphs present those data on the above aspects of primary education quality that are available for Ruritania, and relate these inputs to scholastic achievement.

Internal efficiency

20. Ruritania's primary school system has low internal efficiency, as shown by the repetition and dropout rates. In 1999/2000, 20 per cent of students were repeaters, and 44% dropped out or were excluded at some point during the cycle. On the average, including wastage due to drop-out/exclusion and repetition, the system spends 11.6 student-years instead of 6 to complete the training of one primary school leaver. A number of experienced Ruritanian teachers maintain that, under the present conditions, without repetitions and exclusions the quality standards in primary education would drop dramatically because students would have no incentive to work.

Scholastic achievement

21. Recently, on the Government's request, an evaluation survey of primary students' scholastic achievement was undertaken, using language and mathematics tests administered at both the beginning and end of the school year in a sample of classes representing the diversity of school conditions in the country. The survey found that, at the end of the school year, only 50% of second graders passed the achievement tests established by the NIE.

Teachers

22. As can be seen from Table 4, during the last ten years the Government has made steady efforts to decrease the number of students per teacher in order to increase the quality of education. In 2000, the average was 34.9 against 40.3 in 1991.

23. All primary school teachers are members of the civil service. As such they can be dismissed only by decision of the Minister of Education, and for very serious misconduct. Teachers' Unions are powerful and watch carefully for possible transgressions of the Civil Service statutes. The standards of teachers have improved over the past decade. Nevertheless, their educational background is still low (Table 6). Only 10 per cent of them received pre-service training, because there was only one Teacher Training School before 1996.

TABLE 6 Educational Background of Primary School Teachers (% distribution by educational level) 1989-2001

Educational background	1989/90	1994/95	1998/99	2000/01
Upper secondary	11.8	12.0	18.4	22.2
Lower secondary	44.0	48.0	54.0	52.5
Primary	44.2	40.0	27.6	25.3

24. Average teacher annual salaries are as follows:

Teachers with higher education	$ 892
Teachers with upper secondary education	$ 699
Teachers with lower secondary education	$ 552
Teachers with primary school education	$ 433

Teacher Supervision

25. There are 45 District Education Offices (DEO's), each with an average staff of 10 inspectors and education officers. In actual fact they do mostly administrative work because the DEO's are short of vehicles, and DEO staff have not been properly trained for their supervision function. As a result of this lack of supervision, it is suspected that there are numerous "ghost teachers". Moreover, teacher attendance is often irregular, particularly in villages, and teaching methods tend to stick to ineffective rote learning.

Curriculum

26. The present primary education curriculum devotes 37 % of available instructional time to language skills --including reading and writing--, 18 % to mathematics, 20% to science, social studies and moral education, and the rest to music, art, physical education and manual work. The average instructional time is in principle 30 hours per week, although in practice it may be much lower for the reasons mentioned in paragraph 25.

Textbooks and school supplies

27. In principle textbooks are provided free of charge to primary school students, and the Government allocation for teaching materials is sufficient to cover the minimum needs of textbooks and school supplies to all pupils. This is the result of a deliberate policy by the government as can be seen from the bottom line of Table 4: during the last ten years, the percentage of the government's primary education budget spent on education materials has increased from 5.4 % to 12.6%. Despite this considerable effort, many children have no book. On average only 35% of the children have a reader, and other kinds of schoolbooks are even rarer. In the countryside, often 10 children have to share a single book. Similarly, teachers have few instructional manuals. School supplies on the other hand are generally available: 85% of primary school pupils have exercise books and pencils.

28. School supplies are generally purchased in bulk and distributed in kind to schools by District Education Officers using the allocations sent to them for this purpose by the MOE.

29. Textbooks raise more complex problems. In Ruritania their writing, publication and distribution are undertaken entirely by Government. The writing of primary education textbooks is the responsibility of the National Institute of Education (NIE) textbook committees, who entrust the task to selected DPE staff under their supervision. Printing is done by the Government Press under contracts with the NIE. The Government Press is working much below its capacity due to worn out equipment and poor management.

30. Storage and distribution are handled by People's Bookstores, an agency created by the MOE to supply schools. They run a network of 400 bookstores-warehouses staffed with people seconded from the MOE and retired schoolteachers. People's Bookstores is not really equipped to distribute textbooks to all primary school children, and its staff does not have much experience in this field. There are rumours that many of the books never reach the schools but end up in the private market.

31. In addition to their scarcity, the present primary education textbooks are of poor quality: written ten years ago, they are not adapted to the present curricula, the teaching methods they use are outdated, and their physical

quality (legibility, durability of paper and cover) is also poor. Schoolbooks are also relatively expensive in Ruritania. The average cost charged by the Government Press for primary education textbooks is $2.4 per copy. An expert's report argued that the cost of books could be slashed by 50 percent if they were ordered in large batches through competitive bidding procedures.

School buildings and furniture

32. Schools are located in buildings not conducive to study. 36 per cent of primary school classrooms are in temporary shelters, and many of those that were built by rural communities are in a woeful state of disrepair. 30% of children have no desk to work on, and 54% of classes have no table and chair for the teacher. By far, the largest contribution to the maintenance and construction of primary school buildings is, in fact, provided by the PTAs (see para 11).

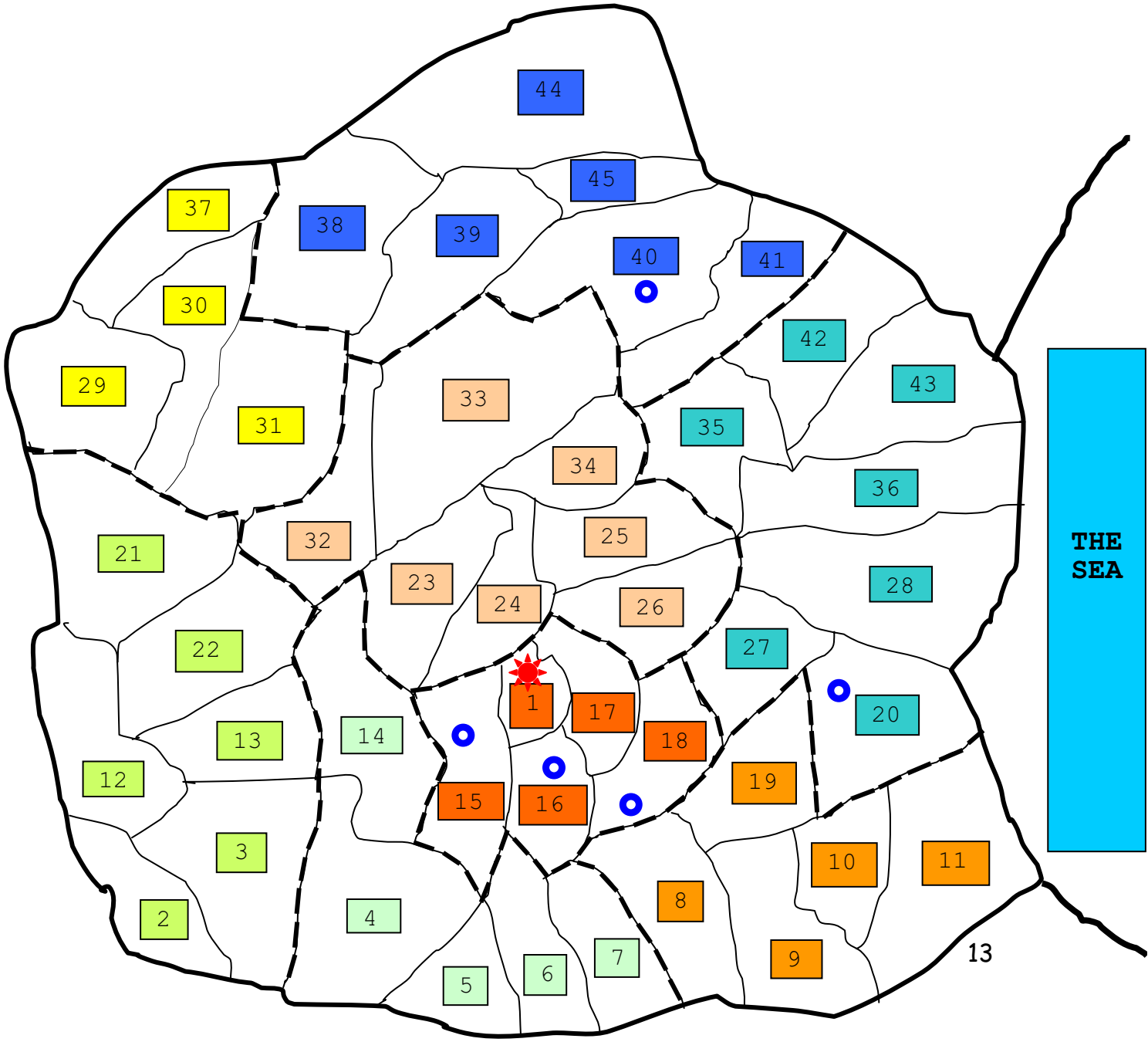
APPENDIX
MAP OF RURITANIA

International boundaries
District boundaries

Region boundaries
1, 2, 3,... District numbers

National capital (population 500,000)
Major cities (population around 100,000 each)

Northwest and Southwest Regions: mountain areas
Central Region: densely populated peri-urban areas
Other Regions are shown by different colours



APPENDIX 1.
SAMPLE QUESTIONNAIRE

PUBLIC EXPENDITURE TRACKING SURVEY

PRIMARY SCHOOL SURVEY

International Institute for Educational Planning

World Bank

Section I. Identification

Question		*Unit*	*Value*
1. Sample code		Code	
2. Name of school		name	
3. Province		name	
4. District		name	
5. Day or boarding		1=Day, 2=Boarding 3=Mixed	
6. Private, public, religious		1=Public (Government) 2=Private 3=Religious, 4=Community 5=Other	
7. How long is the school day?	a. for grades 1-3	Number of hours	
	b. for grades 4-5		
	c. for grades 6-7		
8. Boys or girls		1=Boys, 2=Girls, 3=Mixed	
9. Date of interview		day, month, year (dd,mm,yyyy)	
10. Starting time of interview		(e.g., 14.00)	
11. Telephone Number		Telephone number 0=No phone	

Section II: Number of students in the school

(to be obtained from the school records)

Question	*Unit*	*Value*		
At this school, what is, or was, the number of…		…at the start of 2003?	…at the end of 2003?	…at the start of 2004?
1a. …students in grade 1…	no. students			
1b. Of these, how many were girls?	no. students			
2a. …students in grade 2…	no. students			
2b. Of these, how many were girls?	no. students			
3a. …students in grade 3…	no. students			
3b. Of these, how many were girls?	no. students			
4a. …students in grade 4…	no. students			
4b. Of these, how many were girls?	no. students			
5a. …students in grade 5…	no. students			
5b. Of these, how many were girls?	no. students			
6a. …students in grade 6…	no. students			
6b. Of these, how many were girls?	no. students			
7a. …students in grade 7…	no. students			
7b. Of these, how many were girls?	no. students			
8. …total students in class today…	no. students			
9a. Total number of students participating in primary leaving exam in 2003	no. students			
9b. Of these, how many were girls?	no. students			
10a. How many students received a passing mark on the primary leaving exam in 2003?	no. students			
10b. Of these, how many were girls?	no. students			

Section III: Personal information about head teacher

(to be obtained from the school records)

Question	*Unit*	*Value*
1. Name		
2. Gender	1=Male 2=Female	
3. Age	Years	
4. Are you the head teacher?	1=Yes 2=No	
5. If not, what is your position?	1= Deputy Head Teacher 2= Teacher 3= Other	
If respondent is not head teacher, fill in questions 6-9 *about the head teacher,* or leave them blank if the information is not known for certain.		
6. Number of years teaching	Years	
7. Number of years as head teacher	Years	
8. Number of years as a head teacher at this school?	Years	
9. Highest level of education completed?	1 = high school 2 = 1-yr teacher diploma 3 = 2-yr teacher diploma 4 = some university 5 = university degree 6 = post-graduate work	

Section IV: Teachers

(to be obtained in consultation with the head teacher with access to school records)

Question		*Unit*	*Value*
1. How many teaching positions are officially allocated to this school?		Number	
2. How many of the official positions are actually filled?		Number	
3. How many teachers are present and teaching in this school *today?*		Number persent	
4a. Have any teachers been fired or laid off in the past twelve months? How many?		Number fired	
4b-d. For each of the teachers most recently fired (up to three, from the past twelve months as stated in 4a), what was the reason for firing the teacher?	4b	1= Absenteeism 2= Abuse of children 3= Bad teaching 4= Services no longer needed / redundant 5= Conflicts with staff 6= Other	
	4c		
	4d		

5. Please fill out the table below for all the school's teachers.

	5a#	5b#	5c#	5d#	5e#	5f#	5g#	5h#	5i#
ID	Name	What grade does he/she teach?	Gender	Age	Position	Years em-ployed at this school	In-depth interview	At school today?	If no, why is the teacher away?
		Grade	1=M 2=F	Yrs	1= Senior teacher 2= Teacher 3= Trainee 4=Othe r	Years	1=Yes Others blank.	1=Y 2=N	1=Sick 2=Training 3=Adminis-trative duties 4=Approved leave 5=Don't know 6=Other
1	(Head teacher)								
2									
3									
4									
5									
6									
7									
8									
9									
10									

Continuation of Question 4 if necessary

	5a#	5b#	5c#	5d#	5e#	5f#	5g#	5h#	5i#
ID	Name	What grade does he/she teach?	Gender	Age	Position	Years em-ployed at this school	In-depth interview	At school today?	If no, why is the teacher away?
		Grade	1=M 2=F	Years	1= Senior teacher 2= Teacher 3= Trainee 4=Other	Years	1=Yes Others blank.	1=Yes 2=No	1=Sick 2=Training 3=Adminis-trative duties 4=Approved leave 5=Don't know 6=Other
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

From the teacher list above, select *two* teachers if your school has *less than ten teachers* altogether, *three* teachers if your school has *between ten and twenty* teachers, and *four* teachers if your school has *more than twenty* teachers. We want to select teachers randomly but also to get a sample that covers different grade levels. Start with the teachers that appear *last* in an alphabetical list. Select the number specified by the size of your school, but do not select two teachers that fall into the same column in the table below. For example, if the last two teachers in the alphabet teach in grades 5 and 6, drop the second one and select the next teacher. Thus in large schools, all four columns will be filled in, but in smaller schools one or two at random will be left blank.
IF THE DESIGNATED TEACHER IS NOT PRESENT, PLEASE DO *NOT* SELECT ANOTHER TEACHER INSTEAD. This interferes with the study's techniques of statistical randomization.

			a	b	c	d
		Units	Grade 1 or 2 teacher	Grade 3 or 4 teacher	Grade 5 or 6 teacher	Grade 7 teacher
6. Born in this province?		1= Yes 2= No				
7. Born in this district?		1= Yes 2= No				
8. What is the highest level of education completed by each of these teachers?		1= Less than high school 2=High school diploma 3= Some college 4= College degree 5= Beyond college				
9. Is this teacher present today?		1= Yes 2= No				
If no:	10. How long has the teacher been away?	Number of days				
	11. Why is the teacher away?	1= Sick 2= Training 3= Administrative duties 3= Approved leave 4= Don't know 5= Other				
	12. How is the school covering classes?	1= Use relief teacher 2= Combine classes 3= Set the students unsupervised work 4= Set the students work and visit now and then 5= Let them play sports 6=Send students home				
13. How many days has this teacher been absent this year?		Number of days				
14a. How much does the teacher receive in salary each month?		Currency figure				

14b. How much does the teacher receive in allowance each month?	Currency figure				
14c. How much is deducted from each payslip automatically?	Currency figure				
14d. So the total amount is [add 14a and 14b, then subtract 14c]	Currency figure				
15. How is the teacher paid?	1= Check 2= Direct deposit 3= Cash				
16. Who pays the teacher's salary?	1= Natl. govt. 2= School 3= Community 4= Other				
17. Who pays the teacher's allowance?	1= Natl. govt. 2= School 3= Community 4= Other				
18. Prices and wages vary considerably across different parts of this country? What is a typical hourly wage for a manual laborer in this area?	Currency figure				
19. Do you think it is possible to support a family only on the salary that this teacher earns?	1=Yes 2=No				
20. Does the teacher live in school-provided housing?	1= Yes 2= No				
If yes: 21. What is the rental value of the house per month?	Currency per month				
22. In your estimate, how many hours per week does this teacher work *at this school*?	Number of hours				
23. How many hours per week is this teacher supposed to work *in the classroom*?	Number of hours				
24. Does this teacher have another job outside of school?	1= Yes 2= No				

Section V: Facilities

(to be obtained in consultation with the head teacher)

Question			*Unit*	*Value*
1. How many classrooms made of high-quality materials are there in this school?			Number	
2. How many classrooms made of low-quality materials are there in this school?			Number	
3. How many classrooms have a blackboard?			Number	
4. How many classrooms have a roof that leaks when it rains?			Number	
5. How many classrooms have a chair *and* a table for the teacher?			Number	
6. How many classrooms have storage space that can be locked at night?			Number	
7. Does this school have a library?			1=Yes 2=No	
If yes	8. Estimate the number of books.		Number	
9. Who owns the land used by the school?		1=Customary 2=State 3=Church 4=Board of Management member 5=School 6=Other		
Utilities				
10. Are there enough working toilets for the students to use?			Number	
11. Are there separate toilet facilities for girls?			Number	
12. How many of the classrooms in this school have electricity?			Number	
13. How many days last month did you experience some kind of power shortage?		1= None 2= One 3= Two to eight 4= About half the time 5= Most of the time 6= No power at all		
14. What is the main source of drinking water at this school?		0=None 1=Rain water tank 2=Spring / lake / river 3=Well / Bore hole 4=Piped 5=Other		
15. Are the students able to drink water from that source today?			1=Yes 2=No	

16. Was water available all year round from that source in 2002?	1=Yes 2=No	
17. Does the school have a playground or a sports area?	1=Yes 2=No	
18. Is the school surrounded by a wall or fence?	1=Yes 2=No	
19. Does the school have a specialist science classroom?	1=Yes 2=No	
20. Does the school have a kitchen or a cafeteria?	1=Yes 2=No	
21. How do the students each lunch? (NOTE: If the answer differs by grade level, answer for students in grade 5.)	1= Free school lunch provided at cafeteria 2= Students may pay for school lunch or bring their own 3= Students bring their own lunch and eat at school 4= Students are sent home for lunch and then come back 5= School day ends before lunch time 6= Other	
22. Does the school have a staff-room?	1=Yes 2=No	
23. Does the school receive a newspaper?	1=Yes 2=No	

Section VI. Location, Distance and School Choice

(to be obtained in consultation with the head teacher)

Question		*Unit*	*Value*
1. Is this school located in an urban or a rural area?		1=Urban 2=Rural	
2. What is the population of the village or town in which this school is located?	1=Not in village or town / Less than 100 2=Between 100 and 500 3=Between 500 and 2,000 4=Between 2,000 and 5,000 5=Between 5,000 and 20,000 6=More than 20,000		
3. What other villages or towns do students at this school come from? (List up to three, ranked according to which send the largest number of students to this school.)		Town name	a. b. c.
4. About how many students come from each of the villages listed in question 3?		Number	a. b. c.
5. How far away is each of the villages listed in question 3?		Kilometers	a. b. c.
6. How would you get to each of the villages listed in question 3?		1=Walk 2=Bus 3=Train 4=Car 5=Animal 6=Other	a. b. c.
7. Using the mode of transportation chosen in question 6, about how long would it take to get to each of the villages listed in question 3 from this school?		Hours and minutes	a. b. c.
How far from this school is the nearest of each of the follo-wing:	8. high school or secondary school	Kilometers	
	9. public transport	Kilometers	
	10. health post / clinic	Kilometers	
	11. public transport	Kilometers	
	12. paved road	Kilometers	
	13. bank	Kilometers	

13. Are there any schools that local children could go to instead of this one?		1=Yes 2=No 99=Don't know	
If yes	14. Please list the nearest ones (up to three)	School name	a.
			b.
			c.
	15. What kind of school is each of these three schools, day or boarding?	1=Day 2=Boarding 3=Mixed	a.
			b.
			c.
	16. What kind of school is each of these three schools, private, public, or religious?	1=Public (Government) 2=Community 3=Private 4=Religious 5=Other	a.
			b.
			c.
	17. How far away is each of these three schools?	Kilometers	a.
			b.
			c.
	18. What are the main reasons that parents or children choose this school?	1=Proximity 2=Academic reputation 3=Ethnicity or religion 4=Cost 5=Other (specify)	

Section VII. Organization and Governance

(to be obtained in consultation with the head teacher)

Question			*Unit*	*Value*
1. Does the school have a Board of Management (BOM)?			1=Yes 2=No	
If yes	2. How many times did the BOM meet in 2002?		Number of meetings	
	3. How many times had the BOM met in 2003?		Number of meetings	
	4. When was the last BOM meeting?		Day, month, year (dd,mm,yyyy)	
	5. How many people are on the BOM?		Number	
	6. Which of these are represented on the BOM?	a. Teachers	1=Represented 2=Not represen-ted	a.
		b. Other staff		b.
		c. District representative		c.
		d. Parent representative		d.
		e. Churches / NGOs		e.
		f. Local politicians		f.
	7. What were the top two issues discussed at the *most recent* BOM meeting?		1=Discipline 2=Finance issues 3=Fees 4=School budget 5=Staff issues 6=Curriculum matters 7=Fundraising 8=Projects 9=Maintenance 10=Other	# 1 Issue
				# 2 Issue
8. Does the school have a Parent Teacher Association (PTA)?			1=Yes 2=No	
If yes	9. How many times did the PTA meet in 2002?		Number of meetings	
	10. How many times has the PTA met in 2003		Number of meetings	
	11. When was the last PTA meeting?		Day, month, year (dd,mm,yyyy)	

	12. What percentage of the parents attend?	0=Very few 1=Less than half 2=About half 3=More than half 4=About all	
School decision making			
Who has the most say in:			
13. Approving the budget		1=Head Teacher 2=Other Teacher 3=Other Staff 4=DEO or PEO 5=BOM 6=PTA 7=Local politician 8=Community 9=Other	
14. Designing the curriculum			
15. Setting the level of fees at this school			
16. Choosing the teachers to hire			
17. Assessing teachers			
18. Deciding on maintenance work at this school			

Section VIII. Supervision and Accountability

(to be obtained in consultation with the head teacher with access to the school records if necessary)

Question			*Unit*	*Value*
1. How many visits were made to this school by outside officials?	a. 2002		Number of visits	a.
	b. 2003			b.
	c. 2004			c.
2. What outside officials made visits to this school?	MULTIPLE ANSWERS ALLOWED			
	a. 2002		1=District educational officer 2=Provincial educational officer 3=Representative of national education inspectorate 4=Other	a.
	b. 2003			b.
	c. 2004			c.
Consider only visits by the representative of the inspectorate:				
3. How many times did the inspector visit in:	a. 2002?		Number of times	a.
	b. 2003?			b.
	c. 2004?			c.
4. What was the purpose of the inspector's last visit?			1=Personal inspection 2=Advisory visit 3=Compulsory inspection 4=Other	
5. At that time, did the inspector:	a. Meet with the head teacher?		1=Yes 2=No	a.
	b. Meet with teachers?			b.
	c. Meet with the BOM?			c.
	d. Meet with parents, the PTA or the community?			d.
	e. Observe classes?			e.
	f. Check school records?			f.
6. What kind of feedback was given at the end of that visit?		4a	0=None 1=Verbal report at staff meeting 2=Verbal report to head teacher only 3=Verbal reports to individual teachers 4=Written report for head teacher 5=Written reports to individual teachers	a.
		4b		b.
		4c		c.
7. Did you get any feedback in writing that was sent to the school at a later time?			1=Yes 2=No	
If yes	8. How long did it take to receive the written report?		Number of weeks after visit	

DATA SHEET

Section IX. School's Sources of Funding (to be completed in consultation with head teacher and school records)

Source	Were funds received from this source?		How much was the school *entitled to* from this source		How much did the school *actually receive* from this source		g. On what schedule were the funds from this source disbursed?	h. How much delay was there in receipt of these funds?	i. What procedure did the school go through to get this kind of funds?	j. Did this funding come ear-marked for certain categories of spending?	k. If so, what category or categories of spending was this source of funding intended for? (multiple answers permitted)
	a. (1) in 2003	b. (2) in 2004	c. (1) in 2003	d. (2) in 2004	e. (1) in 2003	f. (2) in 2004					
	1=Y 2=N	1=Y 2=N	Curren-cy figure	Curren-cy figure	Currency figure	Currency figure	1=All at once 2=Two or more tranches 3=Monthly 4=More often than monthly	1=None / On time 2=Less than two weeks 3=Between two weeks and two months 4=More than two months	1=Automatic (sent by mail or direct deposit) 2=School responsible for pick-up 3=Significant paperwork burden	1=Yes 2=No	1=Paying staff 2=Scholastic materials 3=Maintenance 4=Administration 5=Special programs 6=Construction or expansion of facilities 7=Other
1. National govt. capitation grants											
2. Other national govt. programs											
3. Local govt. support											
4. PTA Fees											

Source	Were funds received from this source?		How much was the school *entitled to* from this source		How much did the school *actually receive* from this source		g On what schedule were the funds from this source disbursed?	h. How much delay was there in receipt of these funds?	i. What procedure did the school go through to get this kind of funds?	j. Did this funding come ear-marked for certain categories of spending?	k. If so, what category or categories of spending was this source of funding intended for? (multiple answers permitted)
	a. (1) in 2003	b. (2) in 2004	c. (1) in 2003	d. (2) in 2004				1=Automatic (sent by mail or direct deposit) 2=School responsible for pick-up 3=Significant paperwork burden	1=Yes 2=No	1=None / On time 2=Less than 2 weeks 3=Between 2 weeks and 2 months 4=More than 2 months	1=Paying staff 2=Scholastic materials 3=Maintenance 4=Administration 5=Special programs 6=Construction or expansion of facilities 7=Other
	1=Y 2=N	1=Y 2=N	Currency figure	Currency figure	Currency figure	Currency figure					
5. Other fees											
6. Churches / NGOs / donors											
7. Fundraising											
8. Other sources											

Section X. What did the school spend its money on?

	In 2003				In 2004			
	a. How much was spent *in the school budget* on the item on the left?	b. Was money spent on this item that was not included in the budget?	c. If so, how much?	d. Did school receive any of this item *in kind* from outside sources?	e. How much was spent *in the school budget* on the item on the left?	f. Was money spent on this item that was not included in the budget?	g. If so, how much?	h. Did school receive any of this item *in kind* from outside sources?
	Currency figure	1= Yes 2=No	Currency figure	1= Yes 2= No	Currency figure	1= Yes 2=No	Currency figure	1= Yes 2= No
1. Administrative costs								
Facilities-related expenses								
2. rent on property								
3. maintenance of school building								
4. janitorial staff								
5. security staff								
6. utilities								
7. scholastic materials (textbooks, pens, etc.)								
Staff-related expenses								
8. teachers' salaries								
9. teachers' bonuses								
10. teacher training								

Section XI
Data sheet to calculate the value of in-kind support

From Central Government

Subject	*Number*
1. Textbooks	
a. English	
b. Science	
c. Social studies	
d. Mathematics	
2. Stationary	
a. Pens	
b. Chalk	
c. Notebooks	
d. Uniforms	
e. Other	

From Local Government

Subject	*Number*
3. Textbooks	
a. English	
b. Science	
c. Social studies	
d. Mathematics	
4. Stationary	
a. Pens	
b. Chalk	
c. Notebooks	
d. Uniforms	
e. Other	

Section XII. Quality of records (To be completed after the rest of the interview has been conducted.)

Question		*Unit*	*Value*
1. Does the school keep detailed records of receipts from its spending?		1=Yes 2=No	
If yes	2. Are these available for both 2003 and 2004?	1=Yes 2=No	
3. Does the school keep records of its receipts of income and subsidies from other sources?		1=Yes 2=No	
If yes	4. Are these available for both 2003 and 2004?	1=Yes 2=No	
5a. Did the records kept at this school enable you to answer the questions in Section IX confidently and accurately?		1=Completely confidently and accurately 2=Figures may be approximate, but generally I am quite confident 3=There may be some holes in the records which compromise the figures' accuracy 4=Not confident of the accuracy of figures: specify problems with providing the requested data in part b of this question (in the space below)	
6a. Did the records kept at this school enable you to answer the questions in Section X confidently and accurately?			
7a. Did the records kept at this school enable you to answer the questions in Section XI confidently and accurately?			
5b. If you answered "4" to question 5a, specify problems with records:			
6b. If you answered "4" to question 6a, specify problems with records:			
7b. If you answered "4" to question 7a, specify problems with records:			

Notes

About adapting the survey to your country: This sample questionnaire is designed to be rather abstract and general. Some of the specifics have been drawn from particular country experiences. In other cases, it used an abstract, general formulation of a question at the expense, perhaps of clarity. It is important that the questions be as clear as possible to respondents. Substitute local terminology as much as possible, to dispel any difficulty or ambiguity of interpretation that the questions as asked here may have in your country's context. The notes below give suggestions of specific ways in which the survey might be adapted to your country. They are not necessarily exhaustive.

I. (1) Sample codes for each school should be created centrally at the time the school sample is being prepared. They help analysts organize the data.
(6) The "types" of schools listed here draw from the experience of PETS in Uganda and Papua New Guinea. What are the main types of schools in your country? Adapt the answer choices so that they capture the major, clear distinctions in school types.

II. (8) and (15) Schools in your country may not include grades 1-7. This section should be adapted, so that the grade levels it asks about correspond to those represented in primary schools (or secondary schools if that is the PETS's focus).
(16) Questions like this one are best answered while the school day is going on, so that students can be counted.
(17) We assume here that there is a more or less standardized practice of offering a leaving exam at the end of grade 7. The general goal is to measure a "graduation rate" from primary school. In your country, leaving exams may not exist, or they may be highly standardized in which case it would be useful to get more detailed results in order to compare academic achievement across the country. There may be other tests that are worth asking about. Adapt the questionnaire to your own circumstances.

III. (6)-(8) These measure the head teacher's experience level. If there are other useful local ways to ascertain the head teacher's quality, adapt the questionnaire accordingly.
(9) Vocational and higher education differs markedly across countries. Adapt the answer choices so that they will make sense to respondents in your country.

IV. (1) and (2) These questions assume that the central government allocates a certain number of "posts" to schools, which may or may not correspond at any given time to actual teachers teaching and getting paid. This system exists in many developing countries. If it exists in your country, there may be a way to use local terminology and make the question clearer. If it does not exist, these questions may not make sense, and information about the number of teachers will have to be requested in a different way.
(3) and (4) Can teachers be fired? What for? A key part of an accountability system.
(5) This is one of the most elaborately structured questions in the questionnaire as presented here. The answer to a single question within section IV consists of an entire matrix. We use this here to lead into our selection of two to four teachers for a more in-depth analysis in questions 6-23.
(6) The process of selecting teachers offered here is rather complex and could be simplified. The advantage it offers is that analysts will be able to sort teachers by grade level, while it does not impose too large a burden on smaller schools participating in the survey. It also generates a natural "weighting" scheme, with larger schools more heavily represented, but this weighting scheme is a rough one and may not be adequate for many purposes.

V. Picture the buildings and grounds of a typical school in your country. What features would you expect to see? What features might vary? What would be the marks of a prosperous school? Of a disadvantaged school? Adapt the questionnaire accordingly.
(1) and (2) "High-quality materials" and "low-quality materials" are stand-ins for local materials: for example, "concrete" may be a high-quality material in your country context, and "bush material" a low-quality material. It is necessary to substitute specific physical materials here because the present categories are subjective.

VI. (3)-(5) If you want to investigate the effects of school location more thoroughly, you might create village and town ID numbers, which would then help analysts explore the effect of distance and possibly of school choice more thoroughly.
Sections VII-XII: Issues of school governance and patterns of funding differ enough among countries that the sample questionnaire can only give general guidelines. This part of the question will require especially thorough and thoughtful adaptation.

VII. (13)-(18) These questions make an effort to get a clear picture of the decision-making process within your school. However, in current form they remain somewhat "subjective." You can do better for your own country by coming to the process of questionnaire design with some knowledge of local procedures and practices. School governance is at the heart of issues of accountability, and go far to determine how many opportunities for corruption there are, and who gets them, so this question should be designed carefully to make sure the data generated are reliable and forceful.

IX. After collecting the number of each of the items listed here, the price of these goods at the national level should be found out. The number of books purchased should be multiplied by the price to get a figure for the value of books purchased.

Public Expenditure Tracking Surveys course
Accra, Ghana
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Using Micro-Surveys to Measure and Explain Corruption

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Summary. — This paper discusses survey techniques aimed at a better measurement of corruption at the micro-level and argues that with appropriate survey methods and interview techniques, it is possible to collect quantitative micro-level data on corruption. Public expenditure tracking surveys, service provider surveys, and enterprise surveys are highlighted with several applications. These surveys permit measurement of corruption at the level of individual agents, such as schools, health clinics, or firms. They also permit the study of mechanisms responsible for corruption, including capture of public funds and bribery.

Key words — corruption, public services, firms

1. INTRODUCTION

The past decade has witnessed a boom in the empirical economic literature on corruption.With few exemptions, the existing literature has three common features. [1] First, it is based on cross-country analyses. [2] Second, the literature exploits data on corruption derived from perception indices, typically constructed from foreign experts' assessments of overall corruption in the country. Finally, it explains corruption as a function of countries' policy and institutional environment. The research on corruption and the media exemplifies this approach. Although the literature has provided important insights on the aggregate determinants of corruption, it has drawbacks. In particular, perception indices raise concerns about perception biases and causation. [3] Also, the aggregate nature of the data tells us little about the relationship between corruption and individual agents, such as service providers or firms. Conceptually macro-level determinants cannot satisfactorily explain the within-country variation of corruption; service providers and firms facing similar institutions and policies may still end up paying or demanding different amounts in bribes.

The quantitative measurement of corruption at the micro-level is difficult, but not impossible. We show this using three different data collection approaches: public expenditure tracking surveys, service provider surveys, and firm surveys. Although each approach has a more general focus, corruption—broadly defined—is often identified as a key issue.

The rest of the paper is organized as follows. Section 2 discusses the key features and findings of the expenditure tracking surveys (PETS) where the focus is on capture of public funds. Section 3 looks at the recent experience with

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service provider surveys to explore broader incentive and performance issues, such as teacher and health worker absenteeism. Section 4 presents the firm-level approach and discusses key findings on the incidence, level, and effects of corruption on enterprise performance. Section 5 concludes with a discussion on policy implications.

2. PUBLIC EXPENDITURE TRACKING SURVEYS

Government resources allocated for particular uses flow within a legally defined institutional framework. Funds often pass through several layers of government bureaucracy on the way to service facilities, which are charged with the responsibility of exercising the spending. Policymakers in developing countries seldom have information on actual public spending at the provider or facility level or by activity. A public expenditure tracking survey (PETS) tracks the flow of resources through these strata, on a sample survey basis, in order to determine how much of the originally allocated resources reach each level. It is therefore useful as a method for locating and quantifying political and bureaucratic capture, leakage of funds, and problems in the deployment of human and in-kind resources, such as staff, textbooks, and drugs. A typical PETS consists of a survey of frontline providers (schools and clinics and their staff) and local governments (politicians and public officials), complemented by central government financial and other data. [4]

The PETS explicitly recognizes that an agent may have an incentive to misreport. These incentives derive from the fact that information provided, for example, by a school or a health facility to local governments (at least partly) determines its entitlement to public support. In cases where resources (staff time) are used for corruption (shirking), the agent involved in the activity will most likely not report it truthfully. Likewise, official charges may only partly capture what the survey intends to measure, for example, the user's cost of service. The PETS deals with these data issues by (i) using a multiangular data collection strategy (a combination of information from different sources including users); and (ii) carefully considering which sources and respondents have incentives to misreport, and identifying data sources that are the least contaminated by such incentives. This data collection strategy serves to cross-validate the information obtained separately from each source.

The PETS allows us to observe the outputs and performance of service providers (the agent), and thereby provide new information to policymakers and beneficiaries (the principals) on the complex transformation of budgets to public services. When tailored to the specific circumstances, these tools can help identify incentives and shed light on the interactions which these incentives give rise to, such as collusion and bribery. The novelty of the PETS approach lies not so much in the development of new methods *per se*, but the application proven methods (micro-surveys) to service providers and governments, where administrative data and official records are typically used.

(a) *Using PETS to measure corruption*

Uganda was the first country to do a PETS in 1996. The study was motivated by the observation that despite a substantial increase in public spending on education, the official reports showed no increase in primary enrollment. The hypothesis was that actual service delivery, proxied by primary enrollment, was worse than budgetary allocations implied because public funds were subject to capture (by local politicians and public officials) and did not reach the intended facilities (schools). To test this hypothesis, a PETS was conducted to compare budget allocations to actual spending through various tiers of government, including frontline service delivery points, that is, primary schools (Ablo & Reinikka, 1998; Reinikka, 2001).

The survey collected five years of data on spending (including in-kind transfers), service outputs, and provider characteristics in 250 government primary schools, 18 local governments (districts), and three central government ministries. The initial objective of the PETS was purely diagnostic, that is, to measure leakage in school funding. As Sections 2(b) and 2(c) show, a PETS can also provide quantitative data to explain variation in the leakage, as well as serve as a tool to obtain data for impact evaluation.

The first Ugandan school survey provides a stark picture of public funding on the frontlines. On average, only 13% of the annual capitation grant (per student) from the central government reached the school in 1991–95 (Table 1). Eighty-seven percent was captured by local officials for purposes unrelated to

Table 1. *Leakage of nonwage funds in primary education in Uganda, 1991–95 and 2001 (%)*

	Mean	Median
1991	97	100
1992	96	100
1993	85	100
1994	84	100
1995	78	100
2001	18	18

Source: Reinikka (2001) and Reinikka and Svensson (2004b).

education, yet there was no evidence of increased spending in other sectors (Jeppson, 2001). Most schools received nothing. Based on yearly data, 73% of the schools received less than 5%, while only 10% received more than 50% of the intended funds. The picture looks slightly better when constraining the sample to the last year of the survey period. Still, only 22% of the total capitation grant from the central government reached the schools in 1995 (Reinikka & Svensson, 2004a). As discussed in Section 2(c), there was a major improvement subsequently, following a public information campaign. As a result, in 2001, the average leakage was only 18%. Even more importantly, the median leakage was reduced from 100% in 1995 to 18% in 2001 (Table 1).

Although there is indirect evidence that part of the observed leakage was theft, as indicated by numerous newspaper articles about indictments of district education officers after the survey findings went public, anecdotal evidence suggests that funds were largely used for patronage politics and the funding of political activities. For example, information collected during the survey suggests that funds were used to increase allowances for councilors and local officers and that on the day funds actually arrived in the district, well-connected citizens and local politicians got together with the district officials to decide how these should be used. While the PETS data can usefully quantify capture of funds in a public program and shed light on where in the hierarchy such capture takes place, the data do not, however, allow us to determine what actually happened to the funds after they had been captured.

The anecdotes collected during the survey are consistent with case study evidence of (local) political financing and corruption in Uganda, as reported in Thomas (1998, 1999). Thomas argues that the power in local governments is concentrated to a small pool of elites interconnected by common schooling, marriage, friendships, shared ethnicities, or religion. Sustaining this power balance is costly and public funds are fueling a system of patronage politics, where patrons give clients material rewards for their political loyalty and services. The patronage system takes different forms, including government actors diverting public resources for their own campaigns and those of friends and family, and financing of local and private causes, including distribution of private goods such as salt, sugar, and beer to neutralize voter dissatisfaction. Political parties, in the case of Uganda "the Movement," must also supply patronage goods to their workers and members. In a rural setting, an important way of maintaining an effective political organization is through personal presence, which means a well-staffed institutional hierarchy all the way down to the village level. This model assumes substantial resources, and diversion of public resources is often the only source of funding available.

Subsequently, several other countries have implemented public expenditure tracking surveys in education and health care. In primary education, these studies include Ghana, Peru, Tanzania, and Zambia. Leakage of nonwage funds—defined as the share of resources intended for but not received by the frontline service facility—is found to be a major issue in all cases (Table 2).

According to a recent PETS in Zambia—unlike in Uganda in the mid-1990s—rule-based allocations seemed to reach the intended beneficiaries: more than 90% of all schools received their rule-based (fixed) nonwage allocations. In the case of salaries, 95% of teachers had no outstanding amounts (Das, Dercon, Habyarimana, & Krishnan, 2004). Since smaller

Table 2. *Leakage of nonwage funds in primary education: evidence from public expenditure tracking surveys (%)*

Country	Mean
Ghana 1998	49
Peru 2001[a]	30
Tanzania 1998	57
Zambia 2001	76

Source: Ye and Canagarajah (2002) for Ghana; Instituto Apoyo and the World Bank (2002) for Peru; Price Waterhouse Coopers (1999) for Tanzania; and Das *et al.* (2004) for Zambia.
[a] Utilities only.

schools tend to have students from poorer families, the rule-based allocation (e.g., a fixed amount per school) translates to more funding for poorer students. But rule-based funding accounts only for 30% of all funding. In discretionary allocations (70% of the total spending), the positive results no longer hold: less than 25% of schools receive *any* funding from discretionary sources. The rest is spent at the provincial and district level. Similarly, in the case of overtime allowances (which must be claimed every term) or other discretionary allowances, over a half was overdue by six months or more.

A few studies also quantify the share of ghosts on the payroll, that is, teachers or health workers who continue to receive a salary but who no longer are in the government service, or who have been included in the payroll without ever being in the service. In a PETS survey in Honduras, for example, 5% of teachers on the payroll were found to be ghosts, while in health care, the percentage was 8.3 for general practitioners in 2000 (World Bank, 2001). In Papua New Guinea, a recent survey showed that 15% of teachers on the payroll were ghosts (World Bank, 2004). In Africa, the comparable figures are even higher: 20% in Uganda in 1993 (Table 3).

Taken together, the PETS carried out in Africa found capture of nonwage funds on a large scale. Salaries and allowances also suffer from leakage but to a lesser extent. In Latin America, capture of funds occurs too, but at a considerably lower level. Given that availability of books and other instructional materials are key to improving the quality of schooling, the fact that between 87% (Uganda) and 49% (Ghana) of the funding for these inputs never reach the schools makes capture of funds a major policy concern in the education sector. Instead of instituting general public sector reforms, the PETS in Uganda shows that it may be more efficient to target reforms and interventions at specific problem spots. For example, the PETS in 1996 pointed to the fact that nonwage expenditures are much more prone to leakage than salary expenditures (although the absolute amounts involved may be higher in salaries). They also demonstrate that leakage occurs at specific tiers within the government hierarchy (typically at the level of local government in Tanzania, Uganda, and Zambia). This knowledge can be exploited to implement more focused and hence more efficient interventions.

Table 3. *Ghost workers on payroll (%)*

Country	Ghosts workers	
	Education	Health
Honduras 2000	5.0	8.3
Papua New Guinea 2002	15.0	–
Uganda 1993	20.0	–

Source: World Bank (2001) for Honduras; World Bank (2004) for Papua New Guinea; and Reinikka (2001) for Uganda.
– Not available.

(b) *Explaining capture of public funds*

A striking feature of the Uganda PETS data is that, although a majority of schools did not receive funding (in a given year), there was a large variation in leakage across schools. Reinikka and Svensson (2004a) show that a large part of this variation can be explained by studying the interaction between local officials and schools as a bargaining game. The district was supposed to pass the grant on to schools. But, in the absence of central government oversight, district officials had a considerable degree of discretion over these funds, as only they knew the amount of monthly transfers (which varied from month to month, given cash-based budget management). In principle, a school could obtain information on disbursements of the capitation grant, but in practice contacting the central government is costly.

Even if the school decides to obtain the necessary information, exercising their voice (see Hirschman, 1970) is also costly. It would require organizing the parents and teachers and lodging a complaint with higher authorities. An important consequence is that resources are not allocated according to the rules underlying the central government's budget decisions, with obvious equity and efficiency implications.

The PETS data showed that resource flows are endogenous to a school's socioeconomic endowment. Rather than being passive recipients of flows from the government, schools use their bargaining power *vis-à-vis* other parts of the government to secure larger shares of funding. Combining the PETS data with household survey data, Reinikka and Svensson (2004a) demonstrate that poor students suffer disproportionately due to local capture because schools catering for them received even less than others. A 1% increase in income increases

the amount of public funding reaching the average school by 0.3% points. This result is in contrast to benefit incidence studies that use budget data: these had found that public spending in primary education was distributionally neutral (World Bank, 1996). Using the PETS data, it is evident that at least nonwage public spending was highly regressive due to capture.

Overall, the findings from the PETS provide new insights into an area almost exclusively studied using cross-country data. They show that a large part of the variation in capture of public funds at the local level can be explained by studying the interaction between local officials and end users (schools in this case). From an analytical point of view, this approach differs from much of the existing literature on corruption, since it focuses on the principal's (schools and parents) rather than the agent's (the district officials) incentives and constraints.

(c) *Evaluating impact of a public information campaign*

Following publication of the findings from the first PETS in 1996, the Ugandan central government made a swift attempt to remedy the situation. It began publishing the monthly intergovernmental transfers of capitation grants in the main newspaper and requiring primary schools to post information on inflows of funds for all to see. This not only made information available to parent–teacher associations, but also signaled local governments that the center had resumed its oversight function. As discussed above, an evaluation of the information campaign—using a repeat PETS—reveals a great improvement. While schools on average are still not receiving the entire grant (and there are delays), capture has been reduced from on average 78% in 1995 to 18% in 2001 (Table 1).

A key component in the information campaign was making monthly transfers of public funds to the districts public in newspapers. Thus, schools with access to newspapers have been more extensively exposed to the information campaign. Interestingly, in 1995, schools with and without access to newspapers suffered just as much from local capture. From 1995 to 2001, both groups experienced a large drop in leakage. However, the reduction in capture is significantly higher for the schools with newspapers; these schools on average increased their funding by 14% points more than the schools that lacked newspapers (Reinikka & Svensson, 2004b). The results hold also when controlling for differences in income.

Using distance to the nearest newspaper outlet as an instrument, Reinikka and Svensson (2004b) show that a strong relationship exists between proximity to a newspaper outlet and reduction in capture of funds since the newspaper campaign started.

In sum, with a relatively inexpensive policy action—provision of mass information through the press—Uganda has dramatically reduced capture of a public program to increase primary education. Poor schools, being less able to claim their entitlement from the district officials before the information campaign, benefited most from it. This improvement coincided with a massive increase in primary enrollment (and hence a large increase in total capitation spending) thanks to a universal primary education initiative in 1997 (Stasavage, 2003).

3. FRONTLINE PROVIDER SURVEYS

Service provider surveys are increasingly used to examine the efficiency of public spending, incentives, corrupt behavior, and various other dimensions of service delivery in provider organizations, especially those on the front lines. The quantitative service delivery survey (QSDS) is a variant of these provider surveys, with an emphasis on systematic quantitative data on finances, inputs, outputs, pricing, quality, oversight, and other aspects of service provision. It can be applied to government, private for-profit, and not-for-profit providers. The facility or frontline service provider is typically the main unit of observation in a QSDS in much the same way as the firm is in enterprise surveys and the household is in household surveys. A QSDS requires considerable effort, cost, and time compared to some of its alternatives, especially surveying perceptions of users.

A QSDS-type survey conducted in Bangladesh made unannounced visits to health clinics with the intention of discovering what fraction of medical professionals were present at their assigned post (Chaudhury & Hammer, 2003). The survey quantified the extent of this problem on a nationally representative scale and collected other information as well. Absentee rates for medical providers in general were found to be quite high (35%), and higher for doctors (40% and 74% at lower-level health facilities). [5] The average absence rate is roughly

the same in Ugandan health facilities (37%), but even higher (40%) in India and Indonesia (Table 4). [6] Teacher absence rates are generally lower than those found in health care.

Honduras, for example, used a combination of PETS and QSDS to diagnose the moral hazard with respect to frontline health and education staff (World Bank, 2001). The study demonstrated that even when salaries and nonwage funds reach frontline providers, certain staff behaviors and incentives in public service have an adverse effect on service delivery, particularly absenteeism and job capture by employees. Migration of posts, due to capture by employees, was considered a major problem. The Honduran system of staffing in the education and health sectors assigns posts to the central ministry, not individual facilities. Because the central ministry has discretion over the geographic distribution of posts, frontline staff have an incentive to lobby for having their posts transferred to more attractive locations, most often to urban areas. The implication is that posts migrate over time from the rural and primary level to cities and higher levels of health care/schooling. This is neither efficient nor equitable.

The PETS/QSDS in Honduras set out to quantify the incongruity between budgetary and real staff assignments and determine the degree of attendance at work. It used central government information sources and a nationally representative sample of frontline facilities in health and education. Central government payroll data indicated each employee's place of work. The unit of observation was both the facility and the staff member, both operational and administrative, and the study included all levels of the two sectors from the ministry down to the service facility level.

In health, the study found absenteeism to be common in Honduras, with an average attendance rate of 73% across all staff categories (Table 4). Thirty-nine percent of absences were without justifiable reason (such as sick leave, vacations, and compensation for extra hours worked). This amounts to 10% of total staff work time. Multiple jobs were prevalent, especially for general practitioners and specialists. Fifty-four percent of specialist physicians had two or more jobs, and 60% of these were in a related field. Five percent of sampled staff members had migrated to posts other than the one assigned to them in the central database, while 40% had moved since their first assignment. The highest proportions of migrators were found among general practitioners. Migration was always from lower- to higher-level institutions, although there was also some lateral migration. Job migration was found to reflect a combination of employee capture and budget inflexibility.

In education, staff migration was highest among nonteaching staff and secondary teachers. Multiple jobs in education were twice as prevalent as in health, with 23% of all teachers doing two or more jobs. Furthermore, 40% of the educational staff worked in administrative jobs suggesting a preference for nonfrontline service employment.

The QSDS is still a relatively new tool but the results of the first surveys indicate that it can generate very useful information on performance in service delivery as well as corrupt practices in service delivery. It also provides information on incentives more broadly. There are ongoing attempts—for which published results are not yet available—to use the QSDS to measure other aspects of corruption and inefficiencies across service providers, including drug leakage and informal user fees.

Table 4. *Absence rates among teachers and health-care workers in the public sector (%)*

Country	Primary schools	Primary health facilities
Bangladesh	16	35
Ecuador	14	–
Honduras	14	27
India[a]	25	40
Indonesia	19	40
Papua New Guinea	15	19
Peru	11	23
Uganda 2002	27	37
Zambia 2002	17	–

Source: Chaudhury and Hammer (2003) for Bangladesh, Chaudhury *et al.* (2004) for Ecuador, India, Indonesia, Peru, and Uganda; World Bank (2001) for Honduras; World Bank (2004) for Papua New Guinea; and Habyarimana *et al.* (2003) for Zambia.
– Not available.
[a] Average for 19 states.

4. MEASURING AND UNDERSTANDING CORRUPTION AT THE FIRM LEVEL

Given the secretive nature of corrupt activities, the common view has been that it is virtually impossible to collect reliable quantitative information on corruption from firm managers.

Kaufmann (1997) argues that this presumption is incorrect. With appropriate survey methods and interview techniques, managers are willing to discuss corruption with remarkable candor. At the same time, in order to collect reliable information on graft at the firm level, it is crucial to design an empirical strategy that gives the manager an incentive to cooperate and truthfully report their experiences with corruption.

One such attempt was carried out in the late 1990s in Uganda (Reinikka & Svensson, 2001). The idea was to expand a standard firm-level survey with a module on corruption and revise the survey implementation design to increase the firm managers' incentive to cooperate. In the end, a unique data set, with detailed financial and structural information from firms combined with quantitative graft data, was collected.

The empirical strategy to collect information on bribe payments across firms in Uganda had the following four key components. First, a local industry association, Uganda Manufactures' Association Consultancy and Information Service, implemented the survey. In Uganda, as in many other countries, there is a deep-rooted distrust of the government. To avoid suspicion of the overall objective of the data collection effort, it was therefore decided that a body in which most firms had confidence should implement the survey. Second, the questions on corruption were phrased in an indirect manner to avoid implicating the respondent of wrongdoing. Third, the corruption-related questions were asked at the end of the interview, when the enumerators had had enough time to establish the necessary credibility and trust. Finally, to enhance the reliability of the corruption data, multiple questions were asked on corruption in different sections of the questionnaire. Consistent findings across measures significantly increase the reliability of the data. [7] The data collection effort was also aided by the fact that corruption had, to a large extent, been desensitized in Uganda. Prior to the survey, several awareness-raising campaigns had been implemented on the consequences of corruption. [8]

A striking finding of the survey was the large variation in reported graft across firms (Svensson, 2003a). Since the Uganda firm-level survey was designed to be representative of the population of firms that had five or more employees, this suggests that the second moment (i.e., variation) may be very important. In other words, the country-specific average (i.e., the first moment) may not be that informative, given the large variation. This finding points to a critical shortcoming with the cross-country literature on corruption. By construction, the variation in graft within countries cannot be studied using cross-country data.

Why would some firms need to pay bribes while others do not? Clearly, there might be several reasons. For instance, firms deal with public officials who differ on the personal (moral) cost of demanding bribes. Public officials' perception of the likelihood of getting caught, if being corrupt, and the perceived punishment if found guilty, may also differ. However, the most likely explanation is that officials' opportunity to extract bribes, that is, their opportunity to influence the firms' business decisions and cash flows, differ across sectors and locations. With private firms, these control rights stem from the existing regulatory system and the discretion public officials have over implementing, executing, and enforcing rules and benefits that affect firms, such as business regulations, licensing requirements, permissions, taxes, exemptions, and public-goods provision.

How much must graft-paying firms then pay? As discussed in Svensson (2003a), if the firms face the same set of rules and regulations and there are no differences in the number (or the extent) of interactions with the public sector, the answer must be firm specific. Consider a firm forced to pay bribes to continue its operations and that is bargaining with a rent-maximizing public official. The official will try to extort as high a bribe as possible, subject to the constraints that he or she might get caught and punished and that the firm might exit. Two firm-specific features would influence the magnitude of the graft demand according to this bargaining hypothesis: the firm's ability to pay the bribe and the firm's refusal power, that is, the cost of not paying.

In line with the control right hypothesis, the survey data reveal that there are statistical differences between the group of firms that pay graft and the group of firms that do not. Firms that do not pay graft tend to have characteristics suggesting that they operate in sectors with little or no contact with the public sector, that is, in the informal sector. They receive significantly less public services, are less involved in foreign trade, and pay fewer types of taxes, particularly when controlling for tax exemptions. This interpretation is further supported by the finding that firms reporting positive bribe

payments spend significantly more time dealing with government regulations and more money on accountants and specialized service providers to deal with regulations and taxes. In other respects, the two groups of firms are similar.

Consistent with the bargaining hypothesis, Svensson (2003a) finds that firms' "ability to pay," proxied by firms' current and expected future profitability, and firms' "ability to refuse to pay," proxied by the expected cost of reallocation, can explain a large part of the variation in bribes across graft-reporting firms. The results are statistically robust and remained intact when instrumenting for profits. These results suggest that public officials act as price (bribe) discriminators, demanding higher bribes (for a given public service) from firms that can afford to pay, and demanding lower bribes from those that can credibly threaten to exit the market or use other means of acquiring the service.

These results have stark implications. As analyzed in Harstad and Svensson (2004), if public officials cannot commit to a given bribe level, this might create a hold-up problem that influences firms' investment and adjustment decisions. By investing in a more cost-effective production technology, the firm also subjects itself to higher bribe demands. The end result may be that firms choose not to enter the market or choose a technology based on minimizing bribe demands at the expense of profits or productivity.

Do bribe payments constitute a heavy burden on firms? The evidence suggests that they do. For the firms reporting positive bribes, the average amount of corrupt payments was equivalent to US$8,280, with a median payment of US$1,820. These are large amounts, on average corresponding to US$88 per worker, or roughly 8% of the total costs (1% in the median). Including firms reporting zero bribe payments, the average payment is US$6,730, with a median payment of US$450.

Approximately 50% of the firms reporting positive bribe payments paid more in grafts (annually) than for security (including guards and investment in security-related equipment). Almost 50% of the firms reported larger bribe payments than total investment. [9]

When assessing these data, it should be stressed that despite the data collection strategy, there are likely to be cases of misreporting in the sample. The average graft numbers may be sensitive to such misreporting. The strategy used to collect information on graft, however, has minimized any obvious systematic biases in the correlation between reported graft and the set of explanatory variables discussed above.

Fisman and Svensson (2000) use the same firm-level data set to study the effects of corruption on firm performance. Evaluating the effects of corruption (for instance on firm growth) using firm-level data is difficult. The problem is identification, since both growth and corruption are likely to be jointly determined. A simple example illustrates the point. Consider two firms in a given sector of similar size and age. One of the firms is producing a good/brand perceived to have a very favorable demand forecast, while the other firm is producing a good with much less favorable demand growth. Assume furthermore that the firms need to clear a certain number of business regulations and licensing requirements, or require some public infrastructure services. Moreover, assume that public servants have discretion in implementing and enforcing these regulations and services. A rational rent-extracting public official would try to extract as high a bribe as possible. In this setup, one would expect a public official to demand higher bribes from the firm producing the good with a favorable demand forecast, simply because this firm's expected profits are higher and, thus, its ability to pay is larger. If the forecasts also influence the firms' willingness to invest and expand, we would expect (comparing these two firms) a positive (observed) relationship between corruption and growth.

Fisman and Svensson (2000) try to overcome this simultaneity problem by using industry-location averages as instruments. They argue that if the simultaneity problem is specific for firms, but not industries or locations, then netting out this firm-specific component yields a bribe measure that only depends on the underlying characteristics inherent to particular industries and/or locations.

Fisman and Svensson (2000) find the rate of bribery to be negatively correlated with firm growth. For the full data set, a 1 percentage point increase in the bribery rate is associated with a reduction in firm growth of 3 percentage points, an effect that is about three times greater than that of taxation on firm growth. Moreover, after outliers have been excluded, they find a much greater negative impact of bribery on growth, while the effect of taxation is considerably reduced.

Despite these strong results, it should once more be stressed that in reality, some firms

may still benefit (and possibly a great deal) from corruption. What this type of econometric work identifies is what is true on average, or in general. The data suggest that there is a strong negative relationship between bribery payments and firm growth, on average.

In the firm survey work discussed above, the graft data measure the aggregate (for an individual firm) graft paid by firms. A complementary approach is to indirectly estimate subcomponents of this firm-specific aggregate, using cost information on provision of homogeneous public services. In the Ugandan enterprise survey, information on two variables related to the delivery of public services was collected (Reinikka & Svensson, 2001; Svensson, 2001). The respondents were asked about the total costs (including informal payments to speed up the process) of getting connected to the public grid and the total cost (including informal payments to speed up the process) of acquiring a telephone line. The fee for a telephone connection (around US$100) was supposed to be fixed. Thus, deviations from the set price typically reflect graft. Connection costs to the public electricity grid is more problematic. In fact, the cost of connection to the public grid is a complex function of load requirements, necessary upgrades, and distance to existing voltage connection. The complexity in determining the price of connection implies that the public electricity company in reality had large discretion over the cost. To the extent that the other determinants of connection costs to the public grid can be controlled for, deviations typically reflect graft.

Most firms acquiring a telephone line had to pay more than the official price (Svensson, 2003b). On average, the additional cost was around US$130, which, given that the official price was around US$100, implies that the average firm had to pay more than twice the stated cost to acquire a telephone line. The results are similar when analyzing the cost of connecting to the public grid. Interestingly, there is no clear relationship between the excess price and the time it takes for firms to get access to the services they paid for.

Preliminary evidence suggests that the price firms need to pay is correlated with the firm's "ability to pay," proxied by firms' current and expected future profits, a result consistent with the bargaining hypothesis in Svensson (2003a). Interestingly, there are patterns also in the delay data, that is, the time it takes for firms to get access to the services they paid for (Svensson, 2003b). Firms in sectors with a higher variation in reported profits, that is, for which the return is less predictable, suffer from longer delays. This finding is consistent with the hypothesis that delays serve as a learning process which enables the official to infer a firm's willingness to pay. [10] Since a firm cannot credibly communicate its profit, it will be forced to signal lower willingness to pay by enduring delays. With higher uncertainty *ex ante*, the signaling becomes less informative and the probability of agreeing on a price of the public service without delay falls. An increase in the firm's expected profitability raises the expected relative return of agreeing, since the official can ask for a higher price, holding the probability of delay constant. This effect strengthens the incentives to agree, and results in a lower probability of delay. When firms are less dependent on the service being provided, their bargaining strength improves, leading to lower bribe demands and thereby lower probability of delay.

A similar approach to collect quantitative data on corruption is used in the di Tella and Schargrodsky (2003) study. [11] They collect procurement data (prices paid) on basic, homogeneous inputs for public hospitals in Buenos Aires, Argentina, during a crackdown on corruption in public hospitals. They find large effects. The price initially fell by 15% on average. In hospitals with relatively well-paid procurement officers, the price fell significantly more than in hospitals with relatively low-paid procurement officers. This result is consistent with the efficiency-wage hypothesis. Higher wages and monitoring can be an effective way to combat corruption.

5. CONCLUSION

The paper has argued that with appropriate survey methods and interview techniques, it is possible to collect quantitative data on corruption at the micro-level. In particular, the PETS and QSDSs are promising new micro-economic tools for diagnosing corruption and other problems in basic service provision in developing countries. Until recently, the analysis of service delivery has focused almost entirely on financing services, while provision, particularly issues related to institutions, incentives, and provider behavior, has received less attention. The PETS and QSDS can address this omission.

From a policy perspective it should be noted that the extent (or variation across firms and service providers) of corruption and capture seem to have less to do with conventional audit and supervision mechanisms, and more to do with the schools' or clinics' opportunity to voice their claims for the funds, and firms' bargaining positions. Traditionally, it has been left to the government and a country's legal institutions to devise and enforce public accountability. The findings reviewed in this paper question this one-sided approach. As the government's role and services have expanded considerably during the past decades, it has become apparent that conventional mechanisms, such as audit and legislative reviews, may not be enough. Collusion, organizational deficiencies, abuse, and lack of responsiveness to citizens' needs cannot easily be detected and rectified even with the best of supervision. When the institutions are weak, as is common in many developing countries, the government's potential role as auditor and supervisor is even more constrained.

The positive impact of the information campaign to reduce capture in Uganda further suggests that corruption can be effectively tackled only when the reform of the political process and the restructuring of the regulatory systems are complemented by a systematic effort to increase the citizens' ability to monitor and challenge abuses of the system, and inform the citizens about their rights and entitlements. [12] Breaking the culture of secrecy that pervades the functioning of the government and empowering people to demand public accountability are two important components in such an effort.

Recent reviews of growth performance in Sub-Saharan Africa have identified a number of recurring features of African politics likely to undermine the results of traditional institutional reforms. These features include restricted civil society involvement, the state perceived as a vehicle of wealth accumulation, the prevalence of patronage politics, and a small elite with close political connections. Although each feature may not be applicable to every country, a successful national anticorruption program must also tackle these fundamental determinants of corruption—corruption that can be measured at the level of an individual agent by using the new micro-level survey tools.

NOTES

1. See Svensson (2003a).

2. Recent contributions on the determinants of corruption include Ades and di Tella (1997, 1999), Persson, Tabellini, and Trebbi (2003), Svensson (2000a), and Treisman (2000). On the effects of corruption, see Johnson, Kaufmann, and Shleifer (1997), Mauro (1995), and Wei (1997).

3. Brunetti and Weder (2003) and Ahrend (2002), for example, use a corruption perception index compiled by the International Country Risk Guide (ICRG). Perception biases may occur if, say, improved protection of journalists reporting on corruption is perceived as lowering the cost of doing business due to corruption. In this case, there would be a direct link between freedom of media and the risk rating score published by ICRG. Establishing a correlation between freedom of the media and corruption does not provide strong evidence of a causal link since both measures are highly correlated with several other institutional characteristics that may explain the level of corruption in a country.

4. See also Dehn, Reinikka, and Svensson (2003).

5. These rates do not separate excused and unexcused absences, but compare the staff roster to those who were physically present at the time of the survey.

6. See also Jaffré and Olivier de Sardan (2003).

7. The firm survey had a more general focus. The survey data have been used to evaluate the effects of trade liberalization on firm productivity (Gauthier, 2001), assess the bad news principle (Svensson, 2000b), and study the effects of, and coping with, poor public service provision (Reinikka & Svensson, 2002a, 2002b). Reinikka and Collier (2001) summarize several of the findings from the firm survey.

8. See Ruzindana, Langseth, and Gakwandi (1998) and World Bank (1998).

9. Part of the explanation to this striking finding is that a considerable number of firms invested very little or nothing in any given year.

10. See also Banerjee (1997).

11. See also Fisman and Wei (2004).

12. Paul (1998) makes the same argument.

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