Educational Costs and Cost Recovery in Developing Countries: The Case of Mali.

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EDUCATIONAL COSTS AND COST RECOVERY IN DEVELOPING COUNTRIES: 
THE CASE OF MALI

A Dissertation

Submitted to the Graduate Faculty of the 
Louisiana State University and 
Agricultural and Mechanical College 
in partial fulfillment of 
the requirements for the degree of 
Doctor of Philosophy 

in 
The Department of Administrative 
and  
Foundational Services

by 
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## Table of Contents

**Acknowledgements** ................................................................. ii

**List of Tables** ........................................................................... vii

**List of Figures** ......................................................................... xi

**Abstract** .................................................................................... xii

**Chapter I** ................................................................................ 1

**Introduction** ............................................................................. 1

- Background and Setting ......................................................... 6
- Statement of the Problem ....................................................... 10
- Purpose ..................................................................................... 11
- Research Questions ............................................................... 13
- Conceptual Framework of the Study ...................................... 14
  - Human Characteristics ....................................................... 19
  - Economic Factors .............................................................. 27
- Concept of Attitude ............................................................... 37
  - Layout of Cost Recovery Proposal .................................... 37
- Conceptual and Operational Definitions .............................. 37
- Significance of the Study ....................................................... 40
- Limitations ............................................................................. 42

**Chapter II** ................................................................................ 45

**The West African State of Mali** ............................................. 45

- Mali's Educational System .................................................... 48
- The System of Higher Education ........................................... 50
  - Governance and Administration ....................................... 52
  - Role and Scope ................................................................. 56
- The Demand for Higher Education ....................................... 57
  - Enrollment Growth in IHEs .............................................. 58
  - Faculty Growth in the IHEs .............................................. 59
- The Costs of Higher Education ............................................. 60
  - The Costs of Student Living ............................................. 62
  - The Costs of Instruction .................................................. 63
  - Forgone Earnings of Students ........................................... 65
- Poverty Profile in Mali .......................................................... 66

**Chapter III** ................................................................................ 68

**Review of the Literature** ....................................................... 68

- Costs of Education ............................................................... 69
  - Costs of Education Around the World ............................. 69
  - Costs of Education in Africa ............................................. 75

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
| Costs of Education in Mali | ............................................................. | 78 |
| Unit Cost | ............................................................. | 81 |
| Educational Efficiency | ............................................................. | 84 |
| Policy Options | ............................................................. | 88 |
| Cost Recovery in Education | ............................................................. | 89 |
| Internal Rates of Return | ............................................................. | 90 |
| Subsidization | ............................................................. | 91 |
| Introduction of User Charges | ............................................................. | 91 |
| Cost Recovery in Mali | ............................................................. | 96 |
| Attitude toward Cost Recovery | ............................................................. | 99 |
| Willingness and Ability to Pay For Education | ............................................................. | 99 |
| Summary | ............................................................. | 101 |

| CHAPTER IV | ............................................................. | 103 |
| RESEARCH DESIGN/METHODOLOGY/PROCEDURES | ............................................................. | 103 |
| Phase I: Educational Costs | ............................................................. | 103 |
| Research Design | ............................................................. | 103 |
| Cost Measurement | ............................................................. | 106 |
| Per-Student Cost Calculations | ............................................................. | 108 |
| Cost Data Collection Procedures | ............................................................. | 111 |
| Cost Data Analysis Procedures | ............................................................. | 112 |
| Phase II: Stakeholder Groups' Attitudes | ............................................................. | 114 |
| Part I: Quantitative Research Design | ............................................................. | 114 |
| Sample | ............................................................. | 115 |
| Administrators | ............................................................. | 116 |
| Faculty | ............................................................. | 116 |
| Students | ............................................................. | 117 |
| Parents | ............................................................. | 117 |
| Legislators | ............................................................. | 118 |
| Instrumentation and Measurements | ............................................................. | 118 |
| Higher Education Stakeholders' Survey/Student Attitude Opinionnaire (HESS/SAO) | ............................................................. | 121 |
| Higher Education Stakeholders' Survey: Parent/Administrator/Legislator/and Faculty Attitude Opinionnaire (HESS/PALFAO) | ............................................................. | 122 |
| Development of Ability to Pay Index (API) | ............................................................. | 122 |
| Willingness to Pay (WTP) | ............................................................. | 125 |
| Data Collection Procedures | ............................................................. | 126 |
| Data Analysis Procedures | ............................................................. | 127 |
| Part II: Qualitative Study | ............................................................. | 128 |
| Administrator Selection | ............................................................. | 128 |
| Instrumentation and Measurement | ............................................................. | 129 |
| Data Collection Procedures | ............................................................. | 131 |
| Data Analysis Procedures | ............................................................. | 131 |
CHAPTER V  ............................................................................................................................. 133
RESEARCH RESULTS  ...................................................................................................... 133

Analyses Pertinent to Research Questions  ................................................... 133
Basic Types of Costs  ........................................................................................ 134
Recurrent Costs  .......................................... 135
Capital Costs  ........................................... 137
Direct Costs  ........................................... 138
Indirect Costs  .......................................... 139
Hidden Costs  .......................................... 141

Major Determinants of Costs  ........................................................................ 141
Aggregate Demand Factors  ......................................................................... 142
Educational Revenues and Fiscal Policy  ...................................................... 146
Macroeconomic Factors  ....................................................... 152
Other Determinants  .................................................................................. 154

Behavioral Characteristics of Costs  ............................................................... 158
Steady Escalation in Recurrent Costs  ......................................................... 160
Dominance of Personnel Costs  ................................................................. 162
Faculty Salaries Before the Implementation of Faculty Ranking Policy  ........ 166
Change in Higher Education Faculty Ranking Policy  ................................ 168
Rise in Direct Costs  .................................................................................... 175
Rise in Indirect Costs  ............................................................... 179
Higher Educational Cost Per Student Unit  ................................................ 180
Proposals for Improving Efficiency of Operations in Mali’s IHEs  ............. 187
Graduation Rates Over Time  ....................................................................... 189
Improvement in Faculty/Student Ratio  ......................................................... 191
Cost Recovery Proposal  .............................................................................. 193
Tuition Payment as a Cost Recovery Mechanism ......................................... 194
Student Loan Program as a Cost Recovery Mechanism ........................... 197
Higher Education Package Plan as a Cost Recovery Mechanism  .......... 198

Summary of Survey Results  ................................................................. 199
Summary of Descriptive Statistics  ................................................................. 199
Students  ................................................................................................... 200
Administrators, Parents, Faculty and Legislators  ........................................ 203
Survey Return Rates  .................................................................................. 206
Responses to Survey  ................................................................. 208
Students  ................................................................................................... 208
Administrators, Parents, Faculty, and Legislators  ........................................ 208
Factor Analyses  ......................................................................................... 217
Descriptive Statistics for Factored Scales  ..................................................... 224
Reliability Analyses  .................................................................................... 226
Qualitative Interview Results  ................................................................. 240
Interview Procedures and Mechanics  ........................................................ 242
Cross-Case Analysis  ...................................................................................... 267
###CHAPTER V I

**CONCLUSIONS, DISCUSSION, AND IMPLICATIONS**

- **Major Findings and Conclusions**
- **Cost Recovery Proposal/Instrument Development and Refinement**
- **Research Questions**
- **Discussion of Findings**
  - Taxonomy of Educational Costs
  - Major Determinants of Higher Educational Costs
  - Behavioral Characteristics of Educational Costs
  - Per-Student Unit Cost
  - Efficiency
  - Cost Recovery
  - Development and Refinement of the HESS-SAO/PALFAO
- **Attitudes Toward Indices of Efficiency**
- **Qualitative Interviews of Top-Level Administrators**
- **Implications of Findings**
- **Directions for Future Research**
- **Summary**

###REFERENCES

- **APPENDIX A**
- **APPENDIX B**
- **APPENDIX C**
- **VITA**
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table 2.1</th>
<th>Enrollments, Faculty, Administration, and Staff in Institutions of Higher Education in Mali, 1991-1992</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.2</td>
<td>Total Expenditures of Institutions of Higher Education in Mali, 1991-1992 (in Millions of Francs CFA)</td>
<td>64</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>Cost Recovery in Higher Education, 1980 (User Fees as Percentage of Social Unit Costs)</td>
<td>93</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Number of Study Participants in Total Sampling Design by Each Key Stakeholder Group</td>
<td>119</td>
</tr>
<tr>
<td>Table 5.1</td>
<td>Classification of Recurrent Costs by Type and Purpose: Institutions of Higher Education in Mali, 1994-1995 Academic Year (in Millions of Current Francs CFA)</td>
<td>136</td>
</tr>
<tr>
<td>Table 5.2</td>
<td>Total Direct Costs of Institutions of Higher Education by Object and Institution in Mali, 1994/1995 (in Millions Francs CFA)</td>
<td>140</td>
</tr>
<tr>
<td>Table 5.3</td>
<td>Population and Enrollments in All Levels and Types of Public Education in Mali, Selected Years, 1960-1993</td>
<td>144</td>
</tr>
<tr>
<td>Table 5.4</td>
<td>Enrollment Trends in Institutions of Higher Education in Mali, Selected Years, 1967-1996</td>
<td>145</td>
</tr>
<tr>
<td>Table 5.5</td>
<td>Structures of Major Types of Taxes and Total Tax Revenues Generated, 1989 and 1995 Fiscal Years, in Mali (in Billions of Francs CFA)</td>
<td>149</td>
</tr>
<tr>
<td>Table 5.6</td>
<td>Education, Health, National Defense, and Agriculture Budgets as a Percentage of National Budgets in Mali, Selected Years, 1985-1996</td>
<td>157</td>
</tr>
<tr>
<td>Table 5.7</td>
<td>Total Expenditures by Types and Levels as a Percentage of Education Budget in Mali, Selected Years, 1985-1996</td>
<td>159</td>
</tr>
<tr>
<td>Table 5.8</td>
<td>Total Recurrent Costs for the Institutions of Higher Education of Mali, 1991/92-1995/96 (in Millions of Francs CFA)</td>
<td>161</td>
</tr>
<tr>
<td>Table 5.9</td>
<td>Costs of all Categories and Hierarchy of Personnel (Facility, Administrators, and Staff), Institutions of Higher Education in Mali, 1985-1994 (in Millions of Francs CFA)</td>
<td>163</td>
</tr>
<tr>
<td>Table 5.10</td>
<td>Average Monthly Salary of Full-Time Instructional Faculty in Institutions of Higher Education in Mali, 1985/86-1992/93 (in Thousands of Francs CFA)</td>
<td>167</td>
</tr>
<tr>
<td>Table 5.11</td>
<td>Rank and Size of Full-Time Faculty in Institutions of Higher Education in Mali, 1994-1995</td>
<td>169</td>
</tr>
<tr>
<td>Table 5.12</td>
<td>Average Monthly Salary of Full-Time Instructional Faculty in Institutions of Higher Education in Mali, by Academic Rank, 1992/93-1995/96 (in Thousands of Francs CFA)</td>
<td>171</td>
</tr>
<tr>
<td>Table 5.13</td>
<td>Composition, National Origin, and Size of Faculty in Institutions of Higher Education in Mali, 1986/87-1994/95</td>
<td>174</td>
</tr>
<tr>
<td>Table 5.14</td>
<td>Total Direct Costs of Institutions of Higher Education in Mali, 1985-1996 (Millions of Current Francs CFA)</td>
<td>177</td>
</tr>
<tr>
<td>Table 5.15</td>
<td>Overall Per-Student Unit Cost in Institutions of Higher Education in Mali, Selected Years, 1985-1996</td>
<td>183</td>
</tr>
<tr>
<td>Table 5.16</td>
<td>Comparisons of Per-Student Unit Cost and Enrollments Over Time and Across Institutions of Higher Education in Mali, 1987 and 1995</td>
<td>185</td>
</tr>
<tr>
<td>Table 5.17</td>
<td>Summary of Demographics and Personal Characteristics of Student Sample</td>
<td>201</td>
</tr>
<tr>
<td>Table 5.18</td>
<td>Summary of Demographics and Personal Characteristics of Parents and Faculty Sample, and Administrator and Legislator Population</td>
<td>204</td>
</tr>
<tr>
<td>Table 5.19</td>
<td>Profile of Sample of Institutions of Higher Education, National Directorate of Higher Education, and the National Legislature of Mali</td>
<td>207</td>
</tr>
<tr>
<td>Table 5.20</td>
<td>Student Responses to Some Key Study Variables (e.g., Funding Responsibility, Ability and Willingness to Pay, Economic Values, Efficiency, and Cost Recovery)</td>
<td>209</td>
</tr>
</tbody>
</table>
Table 5.21 Parents, Administrators, Legislators, and Faculty Responses to Some Key Study Variables, (e.g., Funding Responsibility, Ability and Willingness to Pay, Economic Values, Efficiency, and Cost Recovery) ................................................. 211

Table 5.22 Summary of Descriptive Statistics for Each Item of the HESS-SAO/PALFAO, (n=210) ........................................... 215

Table 5.23 Summary of Factor Pattern Loadings* for the HESS One-Factor and Four-Factor Solutions (n=210) ................................. 219

Table 5.24 Summary of Factor Pattern Loadings* for the HESS One-Factor and Three-Factor Solutions (n=210) ................................. 221

Table 5.25 Item Location Index for the Three-Factor Solution of the HESS-SA0/PALFAO .............................................................. 223

Table 5.26 Summary of Descriptive Statistics for Each Subscale of the Four-Factor Solution of (Part I) and the Three-Factor Solution of (Part II) for the Total Sample of Stakeholders (n=210) ........................................ 225

Table 5.27 Summary of the Cronbach Alpha Reliability Coefficient for HESS Subscales and for all the Stakeholders (n=210) ......................... 227

Table 5.28 Summary of Intercorrelations Among HESS-SA0/PALFAO Subscales for the Total Sample of Stakeholders (n=210) ........................................ 228

Table 5.29 Summary of Intercorrelations Among HESS-SA0/PALFAO Subscales of Indices of Efficiency for the Total Sample of Stakeholders (n=210) ........................................ 230

Table 5.30 Summary of Intercorrelations Among the HESS-SA0/PALFAO Subscales of Part I and Part II (Indices of Efficiency) for the Total Sample (n=210) ........................................ 231

Table 5.31 Summary of Stepwise Regression of AIE on Subscales of the HESS-SA0/PALFAO (n=210) ........................................ 233

Table 5.32 Summary of Stepwise Regression of CR on Subscales of the HESS-SA0/PALFAO (n=210) ........................................ 235
| Table 5.33 | Summary of Stepwise Regression of DM on Subscales of the HESS-SA0/PALFAO (n = 210) | 236 |
| Table 5.34 | Summary of Differences Among Groups (MANOVA) on Dependent Variables | 238 |
| Table 5.35 | Summary Table of Cross-Case Studies | 243 |
| Table 5.36 | Summary of Strength of IHEs Administrators’ Personal Characteristics, Attitudes and Attitudes Determinants toward Funding Structure, Efficiency, and Cost Recovery in Higher Education, Mali, 1996 | 269 |
| Table 5.37 | Partial Domain “Kinds of Cost Recovery Elements” | 287 |
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1.1</td>
<td>Relationships Among Human, Sociodemographic, and Economic Factors and Stakeholders' Attitudes Toward Cost Recovery Model</td>
<td>16</td>
</tr>
<tr>
<td>Figure 1.2</td>
<td>Higher Education Stakeholders in Mali</td>
<td>18</td>
</tr>
<tr>
<td>Figure 1.3</td>
<td>Ability, Willingness, and Attitude</td>
<td>22</td>
</tr>
<tr>
<td>Figure 2.1</td>
<td>The West African State of Mali</td>
<td>46</td>
</tr>
<tr>
<td>Figure 2.2</td>
<td>The Types of Costs of Higher Education in Mali</td>
<td>61</td>
</tr>
<tr>
<td>Figure 5.1</td>
<td>Administrators' Attitudes Toward Tuition Payment in Mali’s IHEs</td>
<td>273</td>
</tr>
<tr>
<td>Figure 5.2</td>
<td>Direction and Magnitude of Administrators' Attitudes Toward Cost Recovery and Efficiency in Mali’s IHEs</td>
<td>275</td>
</tr>
<tr>
<td>Figure 5.3</td>
<td>Various Types of Costs in Mali Institutions of Higher Education</td>
<td>276</td>
</tr>
<tr>
<td>Figure 5.4</td>
<td>Cause-Effect Relationship of Types of Costs With Enrollment Growth in IHEs</td>
<td>277</td>
</tr>
<tr>
<td>Figure 5.5</td>
<td>Rationale for Cost Recovery in Mali’s IHEs</td>
<td>278</td>
</tr>
<tr>
<td>Figure 5.6</td>
<td>Improvement of Organizational and Internal Efficiency of Mali’s IHEs</td>
<td>280</td>
</tr>
<tr>
<td>Figure 5.7</td>
<td>Administrators’ Attitudes Toward the Funding of Higher Education</td>
<td>281</td>
</tr>
<tr>
<td>Figure 5.8</td>
<td>Taxonomy of Attitudes Toward Various Funding Structures and Cost Recovery in Higher Education in Mali</td>
<td>283</td>
</tr>
<tr>
<td>Figure 5.9</td>
<td>Major Determinants of Administrators' Philosophy about Higher Education Funding</td>
<td>285</td>
</tr>
</tbody>
</table>
ABSTRACT

This study explores the basic types, major determinants, and behavioral characteristics of educational costs in developing countries in general, and higher education in particular in Mali for 1985-1996. A conceptual proposal of cost recovery in higher education consisting of three basic components--a tuition price, a student loan program, and a higher education payment package--is presented. Relationships among economic and human factors, and attitudes toward cost recovery are examined.

An instrument was developed to test the feasibility of the cost recovery proposal through the perspectives of several stakeholder groups--students, parents, administrators, faculty, and legislators. The quantitative part of the study was complemented with a qualitative field analysis of outlier high-level administrators identified from survey results.

The findings suggest four major categories of educational costs: recurrent, direct, indirect, and capital. Further, macroeconomic factors (rise in demand for education, amount of revenue generated, inflation), and policy decisions (faculty compensation and scholarships) were identified as basic determinants of educational costs. Costs for institutions of higher education in Mali have been characterized by periods of increase and decline, and by variations in both overall and institutional per-student unit costs from 1985 through 1996.

The cost recovery proposal was developed for the potential recovery from students of part of the direct costs. Multivariate correlational analyses suggest that willingness to pay is the most important predictor of stakeholders' attitudes toward cost recovery. Multivariate analyses suggest that there were significant differences among stakeholders in attitudes toward cost recovery. The qualitative interviews revealed that although top-level
administrators' attitudes were determined by selected variables such as family background and former political orientation of Mali, the study found no differences in attitudes related to gender, position, or rank.

Three major conclusions were reached: First, direct costs dominate higher educational costs. Second, Mali needs to rethink its higher education funding policies. Third, at this time, the study disclosed that partial cost recovery in the amount of ten percent of the per-student unit cost would be economically and politically feasible. Since sequencing and timing of the implementation are important, any cost recovery policy should be phased-in gradually.
CHAPTER I
INTRODUCTION

The economics of education and educational financing literature is replete with research about educational costs. Most cost studies focus on the breakdown of these costs by modes of delivery (distance learning, educational technology), types (public versus private), and levels (primary, secondary, and tertiary). Other studies have focused on the reason costs keep rising, the consequences of this increase, and the formidable tasks faced by educational planners, policymakers, administrators, and finance specialists in bringing those costs under control.

In recent years considerable attention has been paid to costing and cost analysis by researchers, policymakers, educational planners, financial experts, and administrators in developing countries. The basic underlying process in all cost analyses is to measure certain costs, and then compare them with other categories of costs. Hence, there is a variety of types of comparisons that can be made. Adams, Hankins, and Schroeder (1978), for instance, identified three principal methods of cost analysis: 1) Composition analysis—the sub-categorization of an aggregate cost; 2) relational analysis—the determination of the functional relationship between cost and an independent variable; and 3) direct comparison of two costs.

The flurry of scholarly works since the early 1970s has been supplemented by a continuing flow of research. Many researchers (Thias and Carnoy, 1972; Hallak and Coombs, 1972; the World Bank, 1975, 1980 & 1986; Schiefelbein 1983; Cohn and Geske, 1990; and the United Nations Educational, Scientific, and Cultural Organization UNESCO, 1991) have attempted to better understand the nature, determinants, and
behavioral characteristics (changes over time) of educational costs, and some experts have also suggested appropriate cost reduction strategies that are being implemented by some governments to contain these costs.

Furthermore, several researchers have conducted studies about the specification of cost objectives. Different researchers have identified different types of costs. For instance, Johnson's (1991) identification of three major categories of costs—costs of student living, instruction, and forgone earnings of students—appears to be somewhat limited in scope because the first two types of costs are an integral part of direct costs. Cohn and Geske's (1990) identification of educational costs is more comprehensive. They defined four broad categories of educational costs: 1) Direct costs, 2) indirect costs, 3) earnings forgone by students, 4) external and nonformal educational costs. Finally, Coombs and Hallak (1972) also identify four types of costs more specifically related to economic rather than educational costs: 1) Resource costs, 2) current costs, 3) capital costs, and 4) factor costs.

At another level, researchers (Coombs & Hallak, 1972; Cohn & Geske, 1990) and (UNESCO, 1991) have attempted to pinpoint the main causes of the unprecedented increase in educational costs. A major factor for increased educational costs has been the dramatic increase in the world population over the past three decades. A corollary of this population increase has been a rise in the social demand for education that has resulted in enrollment and faculty growth in all levels and types of education. Most researchers agree that these two major factors have acted as powerful determinants of educational costs over the past three decades.
In order to make comparisons of various educational costs between and across world regions more meaningful, UNESCO's (1991) classification of the world has served as a model. Two broad types of countries based on their level of economic development have been identified: developing and developed countries. Developing countries are divided into 5 major regions: Sub-Saharan Africa, Arab States, Latin America/Caribbean, Eastern Asia/Oceania, and Southern Asia, and developed countries into 3 major groups: Northern America, Asia/Oceania, and Europe.

In addition, UNESCO (1991) provides explanations about enrollment trends over time. They revealed that "total enrollment in formal education worldwide increased by 328 million between 1970 and 1988, with most the increase--315 million--being accounted for by the developing countries of Africa, Asia, Latin America and the Caribbean" (p.27). There are, of course, within and between region variations, as well as within and between level variations in enrollment growth. For instance, total school enrollment growth rates increased in sub-Saharan Africa from 5.9 percent in 1970-75 to 10.1 percent in 1975-80, then declined dramatically to 2.3 percent in the 1980-88 period. For Latin America/Caribbean, these figures were 5.2, 3.8, and 2.1 percent respectively over the same time period (UNESCO, 1991). With reference to the third level education, the growth rate was phenomenal. For instance, gross enrollment ratios in tertiary education in sub-Saharan Africa increased dramatically from .5 percent in 1970 to 1.9 percent in 1990, an increase of nearly 400 percent in just two decades. These ratios for Latin America/Caribbean were 6.3 percent and 18.7 percent, respectively, over the same time period (UNESCO, 1991).
The increase in enrollment ratios required the recruitment of increasingly significant proportions of teachers. UNESCO (1991) further reveals that between 1970 and 1988 the total number of teachers at all levels of education employed in formal education worldwide increased significantly from 25.5 to 44.1 million, an increase of nearly 58 percent. In addition, improvements in the provision of equal educational opportunities, inflation, costly technological innovations, and educational equipment and facilities across the world have also contributed to this increase in educational costs.

Higher education has now entered a fundamentally new era in developing countries that gained independence during the 1940s, 1950s, and early 1960s. The increasing demand for higher education has resulted in the establishment and rapid expansion of national systems of higher education in the newly independent countries of Africa, Asia, and Latin America. In addition, capital outlays in terms of construction costs of expensive facilities, and the purchase of numerous equipment, materials, and supplies for the operation of newly established institutions of higher education (IHEs) around the world have been among other things, major characteristics of systems of higher education in both developed and developing countries. This trend has had significant implications for the costs and funding patterns of higher education.

Most African countries, including Mali, share all of the aforementioned features about educational costs. In order to contain educational expenditures, the sharing of costs among the different beneficiaries of higher education, also known as cost recovery, is currently at the center of the political debate in developing countries as an educational finance policy issue of paramount importance. With regard to tuition payment or
exemption at various levels of public education, most countries around the world enforce one of the possible 6 different combination types:

1.) Tuition and/or fee exemption in all of the 3 levels; for example, most francophone African countries belong to this category.

2.) Tuition and/or fee payment at the primary level, but exemption at the secondary and tertiary levels; for instance, Mali belongs to this category.

3.) Tuition and/or fee payment at the tertiary level, but exemption at the primary and secondary levels; for instance, Britain and the United States are a good illustration of this type.

4.) Tuition and/or fee exemption at the primary level, but payment at the secondary and tertiary levels.

5.) Tuition and/or fee payment at all the levels.

6.) Tuition and/or fee payment at the primary and secondary levels, but exemption at the tertiary level.

In countries around the world enforcing a tuition and fee payment policy, tuition and fees recover very little of the costs of providing education. (Jimenez, 1983), after examining evidence from 36 developing countries for which data were available concluded that the amount of tuition and fees recovered as a percentage of publicly incurred unit costs was very low. It was estimated to be 7.9 percent for primary education, 14.7 percent for secondary education, and 8.2 percent for higher education. (Barr, 1993) revealed that, in the U.S. for instance, this percentage is about 39 percent.
Background and Setting

Over the past decade, the ever increasing cost of higher education and the need to develop a cost recovery proposal (CRP) for post-secondary education in particular, has raised a lot of controversy in Mali. Since the independence of Mali in 1960, school enrollments have expanded rapidly, reflecting the sustained increases in public expenditure on education (Diarra, 1992). By the late 1970's, for example, public expenditures on national education was already very high, about 25 percent of Mali's state budget--and it was increasingly difficult to compete for additional public resources, as other public services were also making a pressing and considerable demand on the scarce resources of the country.

At the same time, macroeconomic conditions such as the decline in export revenues, the slower rate of economic growth, budget deficit, inflation, and the increasing debt service have been major factors that have significantly restricted the availability of financial resources, not only for public education, but also for other social services such as public health, communication, infrastructures, housing, and so forth.

Beginning in the mid-1970s, patterns of inefficiencies including high unit costs and low faculty/student ratios in IHEs, high dropout and grade repetition rates in primary and secondary education, and dramatically increasing operational costs of the educational system emerged, raising serious questions about the way the scarce resources of Mali are allocated. For instance, in 1990-91, nationwide, the grade repetition rate was between 26-33 percent and the dropout rate was 70.4 in primary education (DNSI, 1991). Furthermore, (Hough, 1989) argues that two critical characteristics of the educational system of Mali are its inefficiency and ineffectiveness. In addition, he argues that in
primary education, for example, about 20,000 students out of 70,000 will have to repeat the first year, and some 16,000 students out of 120,000 will have to repeat a grade in each of the next two years. With specific reference to the dropout rate, Hough reported findings from a study conducted by Houghton (1989) that revealed that, "of the 70,000-odd children who enroll in the first year of basic education, currently some 10,000 drop out each year for the first three years, after which dropouts are much fewer" (p. 80). The financial cost of grade repetition in primary education was estimated to be francs CFA 2.2 billion in 1991 (MEN, 1992). Its total cost to the economy could be much higher if negative externalities are computed.

In terms of expenditures, interesting patterns have emerged over the past two decades. From 1971 to 1992, total expenditures on public education in Mali have shown significant variations. Mali's educational budget as a percentage of the state budget nearly doubled over a period of 8 years. It increased dramatically from only 12.5 percent in 1971, to about 24.7 percent in 1979. In 1983, the share of educational budget as a percentage of the state budget declined slightly, and accounted for 24 percent of the state budget. For instance, in absolute terms, total public expenditures on education increased from francs CFA 20.3 billion in 1987 to 24.2 billion in 1992, an average annual increase of 4 percent. In real terms, the share of education in total public expenditures, however, decreased from 30 percent in 1987 to 21 percent in 1992 (MEN, 1992).

There was a dramatic imbalance relative to resource allocation practices within the Ministry of National Education among various types and levels. For instance, in 1991, primary education (Cycle I), with enrollments accounting for 80 percent of total school enrollments in Mali, was allocated 36 percent of the total education budget; secondary
education with 5 percent of total enrollments was allocated 23 percent; and higher
education with 2 percent of total enrollments received 21 percent. Total investment in the
educational sector accounted for 11 percent of the total budget. The share of education as
a percentage of the GNP represented an average annual rate of 3.2 percent between 1987
and 1992. It was estimated to be 3.4 in 1987, declined to 2.9 in 1989, before rising to

Enrollment patterns, from 1970 to 1991, except for a couple of years, steadily
increased. Total enrollments for all levels and types of education more than doubled over
this same time period. They increased from 216,000 students in 1970, to 545,000
students in 1993. The two aforementioned declines were observed in 1985 and 1987
(Debat National de l’Education, 1992). In the face of declining resources and increasing
school enrollments, and based on the aforementioned crucial issues, perhaps the most
important step educational decision makers in Mali might want to consider, would be:
first, the introduction of some cost reduction strategies, and second, the adoption of
alternative policy options that could improve the efficiency of the system.

Mingat and Tan (1986) contend that, "an important reason for considering cost
recovery in higher education is that it allows public spending to be reallocated toward the
lower levels of education" (p. 284). Furthermore, after examining data from a dozen
African countries, Mingat and Tan (1985a) concluded that if the cost of higher education
could be fully recovered, the public funds thus freed would enable governments to expand
primary school places by 20 to 40 percent, depending on the specific situation of each
country. Similarly, the researchers contended that secondary education enrollments could
also be expanded by 35 to 75 percent. Similarly, Psacharopoulos (1986), addressing the
specific case of Mali, contended that if the cost of higher education could be fully
recovered, and the funds thus freed were used in primary education, the enrollment ratio
(the ratio between the actual elementary education enrollments and the 5-12 age group of
the school age population) could be increased from its current ratio of 25 percent to about
35 percent.

These different findings raise two major questions. First, can the cost of higher
education be fully or partially recovered in Mali? Second, how can the resources thus
freed be utilized? Three major decision making possibilities are worth careful
consideration for an alternative and efficient use of these resources: 1) expand primary
education; 2) improve the quality and quantity of higher education itself; and 3) put these
resources to their best alternative use outside of the educational system.

The research proposed here should increase understanding about which public
policy approaches might contribute to allocating or reallocating resources nationwide, but
especially at the IHEs' level. This increased understanding is important for the
educational system in general, especially in a time of diminishing government resources
and increasing public resistance to taxation. A major policy option at the tertiary level
only in Mali will be scrutinized. The focus will be on the potential effectiveness of a
specific instrument, that is, the development of a cost recovery proposal (CRP) in higher
education, and the testing of its potential feasibility.

A number of studies have considered the educational system of Mali to date.
These studies emanate from researchers and scholars in international organizations such as
the World Bank and UNESCO. Their focus has been primarily on K-12 public education
rather than on higher education. Very few studies have focused on educational costs of the Malian educational system in general, and the costs of IHEs in particular.

Statement of the Problem

The major problem posed in this study can be partitioned into three basic components. First, the major component of the study is an exploration of educational costs in developing countries in general, and higher educational costs in Mali in particular, in terms of major categories of costs, their determinants, and behavioral characteristics over time. Furthermore, the overall per-student unit costs and institutional per-student unit costs are examined.

Second, another important component of the study is the development of a cost recovery proposal for Mali’s IHEs. Since little research has been undertaken about the Malian higher education system to date in terms of input/output analysis, an attempt is made to identify and analyze various indices of efficiency such as the improvement in graduation rates, the faculty/student ratio, administrator-staff/student ratio, and the reduction in grade repetition in Mali’s IHEs to get to a better understanding of the per-graduate student unit cost. Most importantly, the central part of the second component is the development of a cost recovery proposal centered around the tuition payment by students, the implementation of a student loan program (SLP), and a Higher Education Package Plan (HEPP).

Third, the feasibility of this cost recovery proposal is tested. Since there has been limited exploration of the relationships between various higher education stakeholders’ attitudes toward the cost recovery proposal (CRP) with human and economic factors, this study seeks to merge two areas of inquiry—economics and attributional psychology—in an
effort to increase our understandings of costs and cost related issues in IHEs. To reach this objective, the economic theories of cost, choice, and income are utilized along with attributional psychology theories of motivation to investigate higher education major stakeholders' attitudes toward a CRP.

Furthermore, there are no known instruments to specifically measure the attitudes of the major stakeholders or higher education toward the formulation and implementation of a CRP, including their ability and willingness to pay for education in developing countries. Thus, the study addresses this second dimension of the problem through the development and refinement of a quantitative measure of the attitudes of the different constituents having a vested interest in higher education toward a cost recovery program.

Finally, not enough is known about the major dimensions of a CRP for higher education. The literature on cost recovery has generally focused on primary education and health, (Birdsall, Ainsworth, Orivel, & Chuchan, 1983; Thobani, 1983; Gertler & Glewwe, 1989; and Jimenez, 1987) and has usually only examined one dimension of a cost recovery plan, such as the payment of tuition and fees, or the improvement in the internal efficiency of schools and IHEs. Very few proposals integrating all the dimensions of a CRP have been developed and implemented for IHEs in any African country to date. Therefore, this study will provide a more comprehensive and integrated proposal of cost recovery that might serve as an example for many other African, as well as non-African, developing countries.

Purpose

First, the overall purpose of this study is to utilize the economic perspectives of cost, efficiency, and cost recovery, as well as human perspectives of ability and
willingness to pay, in order to explore the nature, determinants, and changes over time of these costs, and provide an analysis of the various facets of ability and willingness to pay. The design of a cost recovery plan and the testing of the feasibility of this plan among various higher education constituents are also purposes of this study.

A second purpose of this study is to bridge the gap in knowledge that exists in the exploration of the nature of the relationship which might exist between higher education stakeholders’ attitudes toward various indices of efficiency in IHEs and their ability and willingness to pay, the economic values and returns, and the cost/benefit beliefs about higher education. If a wealth of knowledge base has been constituted about these different concepts, only a few studies have considered the interplay of various aspects of these variables altogether in an organizational setting such as an IHE.

Third, this study is an attempt to expand the nomological networks (Cronbach and Meehl, 1955) for attitudes toward indices of efficiency (internal efficiency, cost recovery proposal, downsizing, and monitoring) along with ability and willingness to pay, economic values and returns, and cost/benefit beliefs. Finally, the study will attempt to test the feasibility of such a CRP in the context of a developing country such as Mali, through empirical research, using an integration of both quantitative and qualitative methodologies from the higher educational cost perspectives, along with those of major higher education stakeholders’ groups in Mali: students, parents, faculty, administrators, and legislators at the 1992/1997 Malian National Assembly in Bamako.
Research Questions

Because of the exploratory nature of the study, research questions rather than formal hypotheses will be utilized to guide the research. Thus, the section that follows includes the basic research questions guiding this study.

- Cost Questions

1. What were the basic types, major determinants, and behavioral characteristics of higher education costs in Mali between 1985 and 1996?

2. What major factors determined per-student unit costs in Mali's institutions of higher education (IHEs) and were there significant variations in per-student unit costs over time and across these institutions between 1985 and 1996?

3. Can the internal and organizational efficiency in Mali's IHEs be improved?

4. What should be the major components of a cost recovery proposal (CRP) and what percentage of the overall per-student unit cost could possibly be recovered in Mali's IHEs?

- Attitude Survey Questions

5. What are the multivariate relationships among the set of independent variables and the attitudinal measures of the different stakeholder groups toward the CRP for Mali's IHEs?

6. Are there significant differences among the various stakeholder groups in attitudes toward the CRP for Mali's IHEs?
• Qualitative Research Questions

7. What are the philosophies and attitudes of the high-level administrators in Mali's IHEs toward the funding structures, efficiency measures, and elements of the CRP, and what are the major determinants of these attitudes?

8. Are there differences in the philosophies and attitudes of the top-level administrators in Mali's IHEs based on gender, rank, and position?

Conceptual Framework of the Study

This study develops a cost recovery proposal (CRP) and attempts to explain the rationale for the proposal, its various components, and the relationships among the study variables. For the CRP developed in this study, human and sociodemographic factors, along with economic factors, such as costs, price, income, and various efficiency dimensions are conceptualized as forming a multidimensional template, each one being related to and influenced by the other.

This section has three major purposes: 1) examine the economic concept of costs and related concepts, 2) analyze human and sociodemographic factors affecting attitudes of various stakeholders toward the proposed CRP in terms of support and/or opposition (mainly ability and willingness to pay and their various components), and 3) set the layout of the CRP for higher education in Mali. The purpose of this dissertation is not to attempt to empirically validate the model proposed here, but to design a study for an initial exploration of the costs of higher education, and the relationships among the variables, e.g., attitudes toward the proposal along with willingness and ability to pay for education, and indices of efficiency such as internal efficiency, cost recovery, and monitoring and downsizing.
Figure 1.1 identifies the key variables of the study and how they relate to each other. In essence, Figure 1.1 indicates that stakeholders' attitudes toward a proposed CRP in higher education in Mali relate to various factors, including human and sociodemographic characteristics (ability and willingness to pay), and economic factors (price, cost, economic values and returns, and efficiency measures). Moreover, Figure 1.1 presents a schematic representation of the basic components of the framework guiding the organization and development of variables and variable relationships to be investigated in this study. The model illustrates the multiple reciprocal relationships existing among stakeholders' attitudes toward the proposal, along with human factors such as ability and willingness to pay for education and the major economic dimension of the proposal, that is, cost recovery.

First, there is a two-way relationship between the human and demographic factors of ability and willingness to pay because they influence each other. As a human component of the figure, it should be noted that individuals make economic choices, given their preferences, their incomes, and the prices of goods and services that they desire to purchase. Moreover, the economic factors are affected by subdimensions of ability to pay such as family size, and expenses, and subdimensions of willingness to pay such as values, beliefs, and interests. These factors are depicted as being important elements influencing stakeholders' attitudes toward the proposed CRP.

Second, economic factors encompass cost, price, efficiency, and economic values and returns. At this level, costs refer primarily to social costs since they are almost entirely incurred by society and the government is the major provider of higher educational services. Because the provider bears the costs internally rather than sharing
Figure 1.1—Relationships among Human, Sociodemographic, and Economic Factors, and Stakeholders' Attitudes toward the Cost Recovery Model
them with the users of higher education, some of the benefits may accrue not only to the individual user, but also to society at large in the form of externalities. Further, a two-way relationship exists between various pairs of the proposal. For instance, social costs are high and individual costs are low in that an across-the-board zero pricing policy does not allow the government to recover a certain amount of the costs of higher education in Mali. A rational pricing policy and various measures may lead to greater efficiency that might result in a significant amount of the costs of higher education being recovered.

Third, both human and demographic factors along with the economic factors might affect various stakeholder groups’ attitudes toward the cost recovery proposal in various ways. In other terms, various factors separately or in combination might affect in specific ways, with different levels of intensity stakeholders’ attitudes toward the proposal.

Finally, several stakeholder groups have a vested interest in any system of higher education. Figure 1.2 represents the range of both the internal and external stakeholders having a vested interest in the Malian system of higher education. Universities and/or institutions of higher education are usually concerned with the demands of students, staff, and faculty, and those of outside funding sources. The primary stakeholder is the government which provides the major funding source for higher education. Of all the internal groups of stakeholders, students constitute the core group because they are the powerful force in defining and protecting the status quo. Faculty, administration, and staff are also important internal groups of stakeholders. These groups primarily react to economic policies affecting the well-being of these institutions or campuses, but have just as often been linked to broader demands for greater academic freedom and institutional
Figure 1.2—Higher Education Stakeholders in Mali
reforms (Johnson, 1991). The external group—parents, community, alumni, and industry—appear to be less affected by higher education issues, and therefore play a more passive role in higher education in Mali. The governmental and non-governmental international organizations, because they are important contributors to the funding of higher education exert some influence on the operations of the IHEs.

Human Characteristics

The major human characteristics considered in this study were ability and willingness to pay for education that might affect the cost of the system as well as its efficiency level in a developing country. This section will attempt to examine the different subdimensions of ability and willingness to pay and the ways they might be related to the concepts of costs and efficiency.

Concept of Ability to Pay

The concept of ability to pay either at a state, country, or an individual level has been extensively researched by economists of education. Norton (1926) is one of the first scholars to conduct a study in order to measure the economic power and size of the educational obligation of each state of the United States. He based the measure of each state's economic power upon the value of tangible wealth and the amount of average annual income of the state and the number of children aged 6 to 13 as a measure of the size of the educational obligations faced by each state. He computed the ability of a state to support education by dividing the various measures of a state's economic power by its number of children aged 6 to 13. Therefore, he defined the ability to support schools as the number of units of economic power behind each unit of educational undertaking to be performed.
If one applies Norton’s definition to an individual, one can speculate that the ability to pay for education is a function of an individual’s net wealth, that is, an indication of his/her economic power that can be used to purchase each unit of educational undertaking to be performed. Therefore, a family’s ability to pay for education can be defined as what a family is expected to pay given a certain level of sacrifice. The level of sacrifice goes hand in hand with the family size and its debt, and liabilities along with its total expenditures during a given time period. Thus, people’s ability to pay might be determined by their wealth, average annual total income, average annual current income along with their annual disposable income and their total annual expenses Norton (1926). For example, people may have different attitudes toward a CRP depending on their income brackets, and the price tag of the service provided.

In addition, economic theory of choice (Johnson, 1991; McEachern, 1991) suggests that individuals rationally select choices they perceive to be in their best interest, and that these choices are influenced by changes in people’s incomes or prices. In other terms, rational self-interest guides individual choice. McEachern concludes that “Choice involves a comparison of the marginal costs and marginal benefits of alternative actions” (p. 8). People also have preferences and tastes. Thus, their choices along with their preferences and tastes tend to affect their ability to pay for education. This might be the case if people, for example, prefer other things to higher education, and are ready to spend money on these things rather than on higher education. For instance, they may tend to spend more money on durable consumer goods, i.e., a brand new car, or a new home, at the expense of a contribution to the funding of higher education. Finally, in most developing countries including Mali, the government is the only major provider and
major funder of higher education. Therefore, people are leaning more toward maintaining the status quo, because the provision of free higher education is usually viewed as a goal in itself, and they believe that education should be totally or partially funded by the government, as part of the goals of the welfare state. Further, they believe that free provision of higher education is more a right than a privilege.

In Mali, specific factors tend to influence students’ and their parents’ ability to pay for higher education. Everything being equal in terms of the amount of financial aid received by all the IHEs students (monthly stipend, thesis allowance for graduating seniors, free tuition and transportation), various factors may now affect differently students’ ability to pay for higher education.

One important factor in determining students’ ability to pay for education is the amount of their net wealth and personal disposable annual income. Another important factor is the family status of the student. Is the student the major family support or wage earner? Many Malian students who come from low income families utilize part or all of their stipends to support their families. Another important issue concerns who covers the direct costs of college. For example, do the student’s family or relatives bear the costs of student living, such as room and board, or are these costs covered by the students themselves? If the students themselves cover these costs, then, this may limit their ability to pay for tuition and fees. Finally, expenses incurred by students should be considered when determining the ability to pay for education index. In the final analysis, students’ ability to pay index will constitute an integration of these components.

Figure 1.3 suggests that willingness to pay might be a mediating factor between ability to pay and major stakeholders’ attitude toward a CRP. In other words, people’s
Figure 1.3—Ability, Willingness, and Attitude
attitude toward the CRP might be affected by their willingness to pay, which in turn might be affected by their ability to pay for education. For example, the ability and willingness to pay for education may shift in the same direction or opposite direction depending on the category of stakeholders under consideration. Overall, students may show little variation in their ability and willingness to pay for education, all things being equal. However, an examination of various levels of ability and willingness to pay for education should help governments and IHEs to better understand the relationship among these two variables, and many others, along with stakeholder groups' attitudes toward the CRP.

**Concept of Willingness to Pay**

The concept of willingness to pay is grounded in attributional psychology and theories of motivation (Hoy and Miskel, 1991; Owens, 1991; Pintrich and Schunk, 1996). These theories suggest that one's willingness to pay for education is an indication of one's commitment to the values and benefits of education. Thus, the concept of willingness relates to one's values, beliefs, and interests. Although there is no well-integrated theory of willingness to pay for education, one may want to explore willingness to better understand motivational elements of values, beliefs, and interests in the proposal. In addition, a solid understanding of motivation (willingness) is valuable for explaining behavior in various higher education stakeholders' groups in Mali, and the causes of their favorable or unfavorable attitudes toward a cost recovery plan. So willingness to pay varies from person to person and is influenced by a variety of factors.

**Research evidence suggests that motivation is primarily grounded in the expectancy theory highlighted in Lewin (1935), Vroom (1964), Porter and Lawler (1968).**
and Hoy and Miskel (1991). For example, Lewin (1935) argues that one of the most common and intuitive notions of motivation (willingness) involves values. He also uses the term valence that signifies the value a person attaches to an object or something. In Lewin’s theory an object acquires valence because it satisfies a need of the person. Hoy and Miskel (1991) argue that the basic postulate of cognitive theories is that a fundamental determinant of human behavior is the beliefs, expectations, and anticipations individuals have about future events. As Hoy and Miskel (1991) put it, "cognitive theories are formulations that view behavior as purposeful, goal directed, and based on conscious intentions" (p. 169).

Owens (1991) points out that, although the close relationship between motivation and behavior is understandable in a general, global way, the nature of the precise relationship between needs and motivation is not at all clear. Value is defined as the worth or importance an object or something has for an individual. In general, people will only be motivated when they are interested in or care about something or believe it is important to them. Furthermore, future incomes and other benefits associated with additional years of schooling will induce people to invest part of their incomes in higher education, if they perceive it to have value.

First, people’s values might influence their attitudes toward education in general, and a CRP in higher education in particular. These values are basically determined by their perceptions of the goals and objectives of the educational system, the resource allocation and utilization policies being enforced, along with their own level of educational attainment, family backgrounds and other variables.
Second, interest is a major subdimension of motivation (willingness). Pintrich and Schunk (1996) argue that intuitive views of motivation and general folk psychology usually view interest as an important aspect of motivation that casually influences attention, attitudes, learning, thinking, and performance. Krapp, Hidi, and Renninger (1992) defined interest as a personality trait or a personal characteristic of the individual that is a relatively stable, enduring disposition of the individual. For example, an individual may show some interest for sports, movies, and higher education. Thus, an individual interest for higher education might most likely be determined, at least to some extent, by the acquisition of knowledge that take place in the IHEs, the tremendous amount of research they conduct, their public service mission. This may induce this person to invest some of his/her income in higher education, knowing that in years to come his/her earning capacity and social status may be increased as a result of this investment.

Furthermore, modern economic theory known as the rational self-interest theory identifies self-interest as one major subdimension of interest (McEachern, 1991). McEachern argues that a key economic assumption is that individuals rationally select choices they perceive to be in their best interest. Kajubi (1992) echoed this assertion and revealed that in Uganda, low socioeconomic status people, such as farmers and cattle breeders would sell their crops or cattle to generate incomes that were ultimately used to cover the cost of their children's education.

Third, people's beliefs are also important in understanding the various aspects of their willingness to pay. Fishbein and Ajzen (1975) define belief as the information an individual has about an object. If people believe that education, for example, provides
skills, imparts knowledge, and contributes to the economic development of the country. then they might be more motivated to invest in education, depending on the level of their net wealth. In a developing country such as Mali, people have different beliefs about the objectives and outcomes of the educational system.

Various variables reflecting cultural differences among various Malian groups tend to influence these beliefs. These variables include: 1) Ethnicity: Many ethnic groups have developed resistance to formal schooling (a legacy of European colonization) that they perceive mainly as "the burden of acting white." 2) Religion: Very conservative Moslem families have also developed resistance to formal schooling because it is perceived to be associated with social perversion. 3) Cultural traditions: Traditions in many ethnic groups have been and still are a major deterrent to formal schooling; they show strong opposition to sending their children to school, particularly girls. 4) Economic loss: Sending a child to school is a loss of manpower on the farm, and therefore a loss of income since schooling has an opportunity cost for farmers; and also the high unemployment rate especially among college graduates is acting as a deterrent to schooling. In general terms, one can conclude that the variables of values, interests, and beliefs tend only not to influence each other, but also influence the willingness and ability to pay for education.

Higher incomes in developing countries do not always necessarily correlate with higher degrees of willingness to pay. Nor do lower incomes mean lower degrees of willingness to pay for education. Therefore, one can argue, a number of wealthy people in developing countries may not be willing to pay for education, because of their values, beliefs, and interests. In fact, many people have amassed considerable wealth, but have
achieved little educational attainment; therefore, they do not value schooling. So, their
degree of willingness to pay for education may be low.

So one can hypothesize that in a country where the degree of willingness to pay
for education is high, a tremendous portion of the costs of education might be recovered.
Then, the degree of willingness to pay for education may be high if the investment in
higher education is perceived to yield expected future social and private returns. The
prospect of valuing knowledge acquisition, learning, higher earnings, along with the hope
of social promotion, may be a powerful incentive for people to invest in higher education.

Economic Factors

Several different ways of expressing and measuring costs will be used in this
study. It is interesting to note that the concept of cost encompasses a variety of costs
which are worth delineating. Six major categories of educational costs identified by
Coombs and Hallak (1972), will be examined in this section.

1. Resource costs vs. money costs. Educational inputs are expressed in resource
costs when they are measured in physical units (e.g., number of faculty members, number
of students, square feet of floor space). When educational costs are measured in
monetary value, they are expressed as financial or money costs (e.g., compensation of
faculty and staff, maintenance stipends of students).

2. Total expenditures. Total expenditures refer to the real resource inputs used by
an educational system over a given period of time (fiscal year) and subdivided into
categories of inputs (e.g., personnel compensation, student maintenance stipends, costs of
supplies and materials).
3. Current vs. constant prices. Total expenditures are usually expressed in current or constant prices. This way of expressing total expenditures gives the lay person a better understanding of the real meaning of costs over time. Coombs and Hallak (1972) further argued that:

In periods of inflation, total expenditures expressed in the current prices and wage of each year convey an exaggerated impression of the increase in real resources going into education (p. 85-86).

A good example to illustrate the aforementioned assertion will be a comparison between the educational budgets of two different fiscal years. For example, the 1991 budget may be twice as large as that of the 1970's in financial terms, but if inflation and salary increases have been 50 percent, then, real resources have actually increased by only one third.

4. Capital vs. current costs. Capital costs refer to the costs of durable goods, such as land, building, equipment, whereas current costs, such as faculty and staff salaries, refer to the costs of inputs consumed during one fiscal year. Capital costs are fixed costs while current or recurrent costs are variable costs.

5. Unit Costs. Unit cost is the cost of one unit of a good or service (e.g., unit cost per student or per faculty, unit cost of one credit hour). They are obtained by dividing total expenditures by the total amount of the physical unit, e.g., number of students.

6. Factor Costs. Factor costs refer to the costs paid by education for its various factors of production, such as faculty, supplies and materials, equipment, facilities, and so forth.
Further, Coombs and Hallak (1972) reveal other minor subcategories of costs. For example, they define opportunity cost as the real cost to the economy, that is, the value which the resources used in education would have in the best alternative use. Another subcategory of cost identified is that of full costs, that is, the total costs of higher education to the economy. In addition, they argued that financial costs, in strictly economic terms, are the real economic costs to the whole economy.

Most human enterprises have social costs as well as individual costs. Social costs are those borne by the society in general, whereas individual costs are those borne by the individual. For example, education is an enterprise that has both social and individual costs. Depending on the political orientation of a country or the type and level of education, social costs may outweigh individual costs, or individual costs may be greater than social costs.

In fact, economists claim that the term cost can be defined in a number of different ways, and that the "correct" definition varies from situation to situation depending upon how cost data are to be used. Therefore, it becomes imperative to specifically pinpoint what cost definition to use for a particular purpose. Costs are commonly defined as expenditures of money. In other terms, they are payments made to acquire goods and services; e.g., costs of supplies and materials, salaries of personnel, and scholarships.

One can argue that costs as they relate to different actions such as production, education and the like, can have different meanings. Educational costs may differ from production costs in many respects. Further, costs are characterized by a wide range of variations. For instance, Coombs and Hallak (1972) argue that
Educational costs vary greatly not only from one country to another but within the same country, between formal and nonformal education, and in formal education, among different types, levels, and geographic areas, among similar institutions and programs (p. 109).

Cohn and Geske (1990) identify various types of educational costs in the United States, and argued that they include both direct costs (the costs incurred by the school, the student, and/or the student’s family), and indirect costs (such as the earnings foregone by the students when attending school). In addition, they identify implicit rent (such as the foregone opportunities of renting the school or university physical assets, i.e., buildings), and depreciation (such as the wear and tear of the physical assets) as being an integral part of educational costs.

Psacharopoulos (1980) examined a sample of 18 developed countries and 58 developing countries (including 7 oil-producing countries) and computed a number of educational costs, such as the cost per student, the cost per student in per capita income terms, and the marginal cost (the cost of educating one additional student). His findings revealed that in 1975 the average per-student cost in developed countries was $3,449, whereas in developing countries, this average was only $1,138. Further, he revealed that whereas the cost per student represented .8 percent of the per-capita income in developed countries, this ratio was about 5.6 in developing countries. That implies that developing countries spend a more significant amount of their per-capita income on higher education than do developed countries.

Hoenack (1990) contends that economists identify two basic types of costs as they relate to higher education. These costs are the opportunity cost and the fee/price a supplier may charge clients more than his/her own cost. However, Johnstone (1991)
reveals that there are three broad categories of higher educational costs. First are the costs of instruction which include but are not limited to the costs of faculty, staff, equipment, books, buildings, and utilities. Second are the costs of student living that include, but are not limited to, the costs of room and board, scholarships, gym equipment costs, and travel. Third are students' forgone earnings.

Economists also refer to unit costs in higher education. The unit cost is important because it can help us better understand the behavior and determinants of other types of costs (e.g., the cost of a college, department, faculty member, program, and student). Many economists have conducted studies that have attempted to examine the major characteristics, determinants, and behavior of unit costs in IHEs in both developed and developing countries. Bowen (1980) identified a wide range of unit costs among IHEs in the U.S., and revealed that the major explanatory variable is not the size of the campus, but merely the revenue available. Hinchcliffe (1987) focused on the levels and components of unit costs in higher education across African countries and underscored the necessity to reduce both costs and wastage. Psacharopoulos (1980) identified the major categories of unit costs in the IHEs of a number of developing countries. He further revealed that in 1975, Mali had a per-student unit cost of $1,793, and an enrollment ratio of only .6 percent (the ratio between the total enrollments in IHEs relative to the 19-30 age group population for higher education).

In fact, it is the unit cost of higher education relative to per-capita income, or to the unit cost of primary education, that higher education becomes so dramatically expensive in Mali. The three major factors that account for the high level of unit cost in
higher education in Mali are faculty compensation, high cost of student living, and low enrollments in some of the IHEs and inflation.

**Concept of Efficiency**

At a time when huge amounts of resources are being invested in higher education around the world, economists refer more and more to the concept of efficiency. Most economists identify the major type of efficiency as Pareto efficiency. McMahon (1982) defines Pareto efficiency as improvements in how resources are used to embody knowledge, skills, and values in persons or to provide education in the kinds of amounts needed by society. In the former case, there is what he calls production efficiency; and in the latter case, there is what he terms as exchange efficiency. McMahon further argues that efficiency basically means a potential for increases in the desired outcomes of education without increases in the quantities of resources used.

Barr (1993) examined alternative funding sources for higher education in Australia, Sweden, the United Kingdom, and the United States. He identified and expanded on concepts of macro efficiency and micro efficiency. He defined macro efficiency as the total quantity of resources devoted to higher education, and micro efficiency as the division of total higher education resources between teaching, administration, research, different colleges and institutes, as well as the students. He reviewed the basic funding structures of higher education in the above mentioned four countries, and identified two models of funding. The first model is common in Europe and depends on revenues channelled directly to institutions, with low or no tuition for students. The second model depends on diverse sources of funding, with resources via students and other demanders of higher education services, i.e., the U.S.
Tsang (1988) conducted a comprehensive summary of the related literature in which, for the most part, the educational production function was utilized as a tool of analysis to establish the relationship between educational inputs and outputs. He identifies various types of efficiency as they relate to education: (1) Internal efficiency of education (a comparison between the costs of education to the outputs or effects within education); (2) External efficiency (a comparison between the costs of education to the benefits that are external to education, i.e., higher productivity and earnings); (3) Technical efficiency (production of maximum amount of school outcome given a combination of inputs and technology); and (4) Economic efficiency (production of maximum amount of school outcome by selecting the right combination of inputs, given prices, technology, and financial resources).

Many researchers (Hanushek, 1979; Lau, 1979) have drawn an analogy between educational production and economic production. Simply stated, the concept says that, given production objectives, prices, and technology, inputs are transformed into desired outputs. Educational inputs are all of the ingredients used in producing outputs that include, but are not limited to, students, teachers, instructional materials, equipment, and physical facilities. Educational outputs refer to the cognitive and noncognitive skills acquired by the students, graduation rates, and the different types of benefits—monetary, nonmonetary, investment, and consumption.

**Concept of Cost Recovery**

The concept of cost recovery relates to the broader concept of educational costs. Research evidence shows that there are major differences within and between country as to how the costs of higher education are apportioned among the various beneficiaries of
the system. For instance, in some countries such as the U.S., the costs of higher education are borne by the society, students and/or their parents, whereas in others, such as Mali, the costs of higher education are borne basically by the central government. In a case such as Mali, because of the shortage of financial resources on the one hand, and the high private rates of return of higher education on the other, it is necessary to review the possibility of passing back to the students and their parents a portion of the financial responsibility for higher education. This can be done either through recovery of costs by means of tuition and fees, or through cost sharing in which students or their parents pay directly for items such as books, transportation, and the like.

Cost recovery suggests that all or some of the cost of higher education should be shifted to the beneficiaries of the system. In economic terms, assuming that the unit cost of a service (e.g., a credit hour or per-student expenditure in a college) provided by the government is priced, cost recovery per unit of this service will then be the proportion of its unit cost that is covered by price (Jimenez, 1986). The pricing of a unit of the service provided, e.g., the payment of a credit hour in the form of tuition by the student; and 2) the adoption of various efficiency measures to reduce the costs of the system will be among other things included in this proposal.

In general, the cost recovery literature suggests that in most developing African countries, prices have played very little role in generating additional revenues for the educational systems. In a free market economic system, the price of goods and services are basically determined by the law of supply and demand, and the costs of production. Assuming that a course credit hour in higher education is considered a good, it can be priced in order to partially or totally cover the factor costs. In fact, the relationship
between prices and cost recovery can be fairly complex. One credit hour, viewed as a unit of service or good, has a cost. Jimenez (1987) reveals that unit cost is the sum (per unit) of the recurrent costs (rc), the annualized capital costs (cc), that is, the total costs of the major sources of funds entering higher education, and any direct transfers (t) to the users, such as maintenance stipends, minus price (p). The net unit cost for the government (or unit subsidy, s) is expressed in the following formula:

\[ s = rc + cc + t - p \]  

(1-1)

In Mali, for example, recurrent costs, capital costs, and transfers are major costs that include personnel and nonpersonnel costs, costs of buildings and land, and student maintenance cost. The price of higher education to students is virtually equal to zero in Mali, because it is provided completely free. In fact, given the various prices of higher education in different contexts, it becomes quite easy to compute the unit subsidy.

Furthermore, a cost recovery ratio for the government (rg) is computed as

\[ rg = \frac{p}{rc + cc + t} \]

(1-2)

When p = 0, then rg = 0 in the case of Mali where higher education is provided free of charge by the government. In fact, the unit private cost and the unit social cost can also easily be computed. Jimenez (1987) argues that users of a service may incur consumption costs that might include opportunity costs (oc), and any direct private costs (dpc), and net of any transfers paid to the user of the service (t). The unit private cost (pc) is computed as follows:

\[ pc = p + oc + dpc - t \]

(1-3)

In the case of Mali, we know that p = 0; oc = 0; and dpc include travel costs to and from school, cost of student living, and the like; then pc = dpc - t. So when we estimate
dpc, it becomes easy to compute pc; therefore, pc = dpc - 1. Hence, the unit social cost (sc) is the sum of government and private net unit costs.

$$sc = s + pc = rc + cc + dpc + oc.$$  \hspace{1cm} (1-4)

Jimenez (1986) concludes that first, a cost recovery ratio for society (rs) can be defined as the portion of unit social cost that is recovered from the user:

$$rs = \frac{pc}{sc}.$$  \hspace{1cm} (1-5)

Second, a number of measures can be introduced to improve all the efficiency aspects of the system, for example, increasing the student/teacher ratio, improving the graduation rates, reducing the number of both administrative and support staff where necessary (the so called downsizing and retrenchment), and so forth. Another alternative policy option may be the testing of the feasibility of a student loan scheme as a means of financing higher education (Woodhall, 1983).

Johnson (1980) argues that a macro-issue is how the costs of higher education should be apportioned among the four parties--taxpayers, parents, students, and philanthropists. Echoing the same concerns, Wolff (1984) argues that cost sharing and cost recovery permit a government to extend its financial resources further so as to improve quality or more likely so as to provide services to those who were not previously served. The provision of additional services pertaining to higher education, the improvement in the internal efficiency of the system, along with the improvement in the quality of instruction in higher education, make experimentation with some form of cost recovery a major educational policy option for several developing countries.
Concept of Attitude

Several conceptual definitions have been given about attitude. In this proposed study, Thurstone's (1931) definition of attitude in Fishbein and Ajzen (1975) appears to be a less controversial and a more comprehensive definition. Thurstone argues that attitude may be conceptualized as the amount of affect for or against an object, a person, an event, and so forth. Several researchers pointed out that affect is the most important component of attitude. They further revealed that affect refers to a person's feelings toward and evaluation of some object, person, issue, or event. They conclude that attitudes should be measured by a procedure which locates the subject on a bipolar affective or evaluative dimension vis-a-vis a given object. The attitudes of higher education stakeholders toward the various indices of efficiency and the CRP are the dependent variables.

Layout of Cost Recovery Proposal

Based on the components of the aforementioned human demographic and economic concepts, a comprehensive cost recovery proposal should encompass the following components: various efficiency measures, price, and a student loan program.

Conceptual and Operational Definitions

This section presents conceptual definitions of the dependent variables and the four independent variables, along with other components of the conceptual framework. In this study, the four major independent variables that will be under scrutiny are: 1) Ability to pay (income), 2) Willingness to pay, 3) Economic values and returns, and 4) Cost/benefit beliefs.
1. Ability to pay: The ability of a family to pay for education will be conceptualized in this study as the expected family contribution to the cost of college given a certain level of sacrifice. It will be expressed by a ratio and operationalized as the sum of the total wealth and annual income earned by a person or a family during a given period of time, minus their total expenses divided by the number of dependent persons in the family.

2. Willingness to pay: Willingness to pay will be conceptualized as the degree of learned predisposition including beliefs, values, and interests various stakeholder groups of higher education will have toward the payment of a certain amount of tuition and fees. Willingness to pay will be operationalized in this study by each stakeholder group mean score on the respective subscales of the Higher Education Stakeholders' Survey (HESS).

3. Economic values and returns: The economic values and returns are defined as stakeholders' perceptions of four basic ways to estimate the monetary yields of a college education. They are earnings differentials, net present value, internal rates of returns, and the contribution of higher education to economic growth. EVR will be operationalized by the stakeholder group mean scores on subscales of the Higher Education Stakeholders' Survey (HESS) instrument developed in this study.

4. Cost/benefit beliefs: Cost/benefit beliefs are defined as stakeholders' assessment of the cost that has to be incurred for higher education and the benefits higher education bring in Mali. CBB will be operationalized by stakeholder group mean scores on subscales of the Higher Education Stakeholders' Survey (HESS) developed in this study.
In this study, efficiency is operationalized by three measures: A) Internal Efficiency, B) Cost Recovery, and C) Downsizing and Monitoring.

A. Internal Efficiency: The following conceptual definition of efficiency given by McEachern (1991) may be appropriate. McEachern argues that resources are used with efficiency when no change in the way the resources are combined could increase the production of one good without decreasing the production of some other good. According to McEachern, efficiency may conceptually be defined as the process of getting the maximum possible output from available resources. In this study, the internal efficiency is operationalized using stakeholder group mean scores on the Higher Education Stakeholder Survey (HESS).

B. Cost Recovery and Price: In this study, first costs are defined as the expenditures by a government, an IHE to acquire the services of land, (e.g., facilities, buildings, and equipment), labor (e.g., salaries of administrators, support staff and faculty), capital (e.g., to purchase books, equipment, laboratories, materials and supplies, transportation), and student financial aid (e.g., the maintenance stipend). So costs are synonymous with expenditures, outlay, or payment. Cost also refers to the opportunities sacrificed by reason of such expenditures. Unit cost will be defined as the total annual franc cost of operating the IHEs divided by the student full time equivalent (FTE) of the IHEs. In the same way, other unit costs for faculty, and other components are also computed. Cost recovery is defined in this study as movement away from across-the-board zero pricing to the payment by students and their families of a certain proportion of the unit cost of a service in order to recover a definite amount of cost. Cost recovery is
operationalized in this study using stakeholders groups mean scores on the Higher Education Stakeholders’ Survey (HESS).

The price may be conceptualized as the compensation that is given or demanded in return for a good or service that is offered for sale or for barter. In this study, the price of college will be the amount of tuition and fees paid by a student during a given period of time, e.g., a semester, a term, or a year.

C. Downsizing and Monitoring: Downsizing and monitoring is defined as the action taken to consolidate components of an institution of higher education and to exercise a permanent control over the way resources are utilized for more efficient purposes. Downsizing and monitoring in this study is operationalized by stakeholder groups mean scores on the Higher Education Stakeholders’ Survey (HESS).

Attitude

Fishbein et al. (1975) argues that attitude is viewed as affective and evaluative in nature, and that it is determined by the person’s beliefs about the attitude object. Therefore, attitude will conceptually be defined as the total affect (negative or positive) associated with an individual’s beliefs, values, and interests. In other words, a subject’s attitude can be expressed by the acceptance or rejection of opinions. Attitude will be operationalized by the IHE student, faculty, administrator, student parent, and legislators mean scores on subscales of the Higher Education Stakeholders’ Survey (HESS).

Significance of the Study

This study is important for several reasons. First, the study will contribute to the building of a systematic knowledge base of education which can be used by educational
planners, administrators, and decision makers for improved decision making in managing the Malian's system of higher education.

Secondly, the conceptual framework used in this study suggests a CRP in higher education in Mali. By doing so, it will also provide a clear understanding of variables and variable relationships, as well as clarifying the nature and extent of variable linkages among attitude toward the model, willingness and ability to pay, level of educational attainment, family size, and number of siblings attending a fee paying institution. Moreover, cost, efficiency, and pricing variables are also major components of the conceptual framework for a CRP.

Thirdly, the study is significant in testing the economic and social feasibility of such a proposal by developing and refining an instrument that will measure the attitudes of major stakeholders of higher education--parents, students, faculty, educational decision makers, and the legislators toward the CRP.

The development and refinement of the Higher Education Stakeholders’ Survey (HESS) is important for several reasons: 1) it provides a multi-dimensional inventory of the major stakeholders’ attitudes toward cost recovery; 2) it generates a useful empirical means for clarifying the relationships between stakeholders’ attitude toward a CRP and various aspects of ability and willingness to pay, level of educational attainment, family size, and so forth; 3) it constitutes a practically administered means that can be used in future research in other developing countries to test higher education stakeholders’ attitude toward cost recovery proposal.

Finally, this study about cost recovery is significant for two major practical reasons. First, a better understanding of the mechanisms of cost recovery in higher education
education may contribute to the improvement in resource generation and allocation in this level of education, and in resource reallocation for K-12 education, health and social services. Second, if the share of the GNP allocated to higher education is dramatically high, as compared, for instance, to the per-capita income, then this will provide the rationale for designing a model of cost recovery and making the students and their families more financially responsible for part of the costs of these students' college education.

Limitations

The study investigated educational costs, including their basic determinants and changes over time, along with concepts of unit costs, efficiency, and cost recovery in Mali. Cost recovery was examined through the receptivity to the CRP in terms of stakeholders' willingness and ability to pay for higher education. The following limitations and delimitations were acknowledged:

1. Central budgets and financial records have serious limitations and pitfalls, in that they deal in broad aggregates which hide cost and expenditure differentials. Most often they show expenditures by object (e.g., salaries, supplies, and travel) but not by function or program objective. For instance, the "Charges Communes" (e.g., the discretionary funds of the Ministry of Secondary Education, Higher Education, and Scientific Research where aggregate costs are shown but not presented by institution) is a good illustration.

At a macrolevel, capital outlays constitute a budget item for the entire nation, but not the Ministry of Higher Education, or even less, each individual IHE. Hidden costs such as faculty and administrator's housing costs were not available and were not included
in the cost computations. These costs appear under housing cost items for the entire state budget. Finally, since student travel costs to and from their home towns were also aggregate costs, they had to be estimated for each institution.

2. Enrollment data were not always well kept. There was sometime a discrepancy between the central office data and the data reported by individual IHEs. There are a lot of student transfers from one institution to another well after the beginning of the academic year, resulting sometime in inaccurate head counts and double counting.

3. As far as the Higher Education Stakeholders Survey (HESS) is concerned, there were limitations associated with accessibility of certain categories of stakeholders: first, parents and/or guardians outside of the Bamako area; second, the entire faculty of the National Medical School--ENMP--did not participate because of accessibility problem; third, the entire faculty and students of the National Institute for Agronomy--IPR--did not participate because this institution was not in session during the field trip.

4. The lack of survey culture in Mali was a major limitation. Most stakeholders had no prior experience in survey research and this resulted in a lot of resistance. Moreover, there were some other deterrents to participate such as the length of the instrument; this might be one of the reasons why some of the recipients of the survey simply did not take the time to read and answer the questions. So, there were problems associated with low response rates and refusals to participate among the faculty, students, and administrators of several IHEs, along with the majority of the legislators.

5. Low response rates and the way the parent sample was obtained will result in generalizibility problems.
6. There was also the problem of missing information as some of the respondents would not reveal some types of information about themselves sought in the questionnaires. For example, there was reluctance to provide information about income, wealth, and age.

These limitations have had some impact on the study. Most of these shortcomings could have been overcome, had the researcher had a longer time frame for the field trip in Mali. In addition, the low response rates and the refusal to participate issues would have been overcome, had a more sustained follow-up been undertaken.
Mali is a landlocked country in the semiarid interior of West Africa (Figure 2.1). It covers a surface area of 478,767 square miles (1,240,000 square kilometers)—more than the size of California, Louisiana, and Texas combined. Mali shares common borders with seven other former French colonies: Guinea and Ivory Coast to the south and southwest, Burkina Faso and Niger to the east, Senegal and Mauritania to the west and northwest, and Algeria to the north. During the colonial period (1885-1960), the name of the colony changed four times (Imperato, 1989). These name changes included Soudan Francais (French Sudan, 1890-1899), Senegambia et Niger (Senegambia and Niger, 1902-1904), Haut Senegal et Niger (Upper Senegal and Niger, 1904-1920), and again Soudan Francais (French Sudan, 1920-1959).

The population of Mali was estimated to be 10.1 million in 1993, with 75 percent living in rural areas. According to Imperato (1989), "overall, the country is sparsely populated with densities ranging from 70 per square mile in the central areas to fewer than 5 per square mile in the north" (p. 8). The annual population increase for Mali is estimated to be about 3 percent, and it is projected that Mali's population will reach 12 million by the year 2000. About 20 percent of this population is below 4 years of age, and 40 percent is less than 8 years of age. In 1993, the capital city, Bamako, had a population of about 900,000 people.

Mali has been the seat of three great empires--Ghana, Mali, and Songhay--and many kingdoms. It achieved its independence in 1960 under the leadership of Modibo Keita, whose regime--l'Union Soudanaise du Rassemblement Democratique Africain--
Figure 2.1—The West African State of Mali
(U.S.R.D.A.), a radical left-wing government (1960-1968), encouraged the creation of a state-run economy. A national currency, the Malian franc, was issued in 1962 and was legal tender until 1984 when it was replaced by the African Financial Community franc (CFA) on the basis of 1 CFA franc for 2 Malian francs. In 1994, the CFA franc, a currency linked to the French franc (FF) was devalued by 50 percent.

The first paramount educational policy decision made by the new regime, that has had far-reaching implications for Mali's educational system several decades later, was the formulation and implementation of a top-down school reform commonly known as the 1962 Malian Educational Reform (MER), that overhauled the foundations of the educational system inherited from the French colonial power.

The socialist regime was overthrown in 1968 in a military coup d'etat orchestrated by Lt. Moussa Traore. The military regime--the Military Committee for National Liberation (CMLN)--ruled the country until 1979, when a one-party system was installed. This period from 1979 through 1991 was characterized by the return to civilian rule under a military-sponsored political party, the Democratic Union of the Malian People (UDPM). The rise of pro-democracy movements led to a second coup d'etat in March 1991 under the leadership of Lt. Colonel Ahmadou Toumani Toure. A transitional government ruled the country from March 1991 through May 1992, when multi-party democracy was recognized. During the first half of 1992, a new constitution was approved, and free and fair elections (municipal, legislative, and presidential) were conducted. Alpha Oumar Konare was elected the President of the Third Republic of Mali in April 1992.
Mali is currently divided into eight administrative regions (Kayes, Koulikoro, Sikasso, Segou, Mopti, Timbuktu, Gao, and Kidal) and the District or Metropolitan area of the capital city of Bamako. The regions comprise 50 "cercles" (administrative districts), whereas the District of Bamako is divided into six communes. The "cercles" are composed of about 290 "arrondissements" (the smallest administrative unit) in Mali, which in turn, are divided into villages.

Mali's Educational System

After Mali became a sovereign state, the government of the new republic faced the formidable task of designing an educational system responsive to the needs of an independent African state. This task resulted basically in the design and implementation of the 1962 Educational Reform that constitutes the major cornerstone of the current educational system of Mali on the one hand, and marks the beginning of a dramatic change from the French colonial system of education on the other hand.

In essence, the reform focused on the following five major objectives:

1) The provision of a quality education accessible to the masses; 2) the design of a public educational system that meets the manpower requirements of the country within a limited time span and at the minimum cost possible; 3) the identification and implementation of educational standards that guarantee recognition by other countries of the Malian educational credentials; 4) the promotion of a new curriculum content that integrates universal values but that is foremost Afro-centered; and 5) the implementation of the concept of education for liberation and emancipation, that is, an education that decolonizes the minds of the people.
This restructuring movement and organizational change provided a new framework and impetus aimed at encouraging the equality of educational opportunities and expanding dramatically the educational system. Haidara (1977) points out that to ensure a total educational decolonization, the reform also included an adult literacy program known as Functional Literacy Project whose major objective was to teach adults who did not attend formal schooling reading, writing and arithmetic in their native languages.

Structurally, the educational system of Mali consists of kindergarten or preschool, primary or fundamental education, secondary education, higher education, and graduate education. First, elementary or fundamental education consists of the following two cycles: Cycle I consists of grades 1 through 6. Students take an entrance exam into grade 7 known as the Certificat de Fin d'Etudes du Premier Cycle (C.E.P.); Cycle II consists of grades 7 through 9, leading to the Diplome d'Etudes Fondamentales (D.E.F) which gives students access to secondary education. After completion of fundamental education, students may attend vocational schools that offer a two-year or a four-year program and that confer their graduates low and medium level technical degrees. Second, secondary education includes technical, vocational, normal, and academic general tracks, i.e., the Lycee--high school--is a three-year track institution from grades 10 through 12. At the end of the 12th grade, high school seniors take an entrance examination into higher education called the "Bacalaureat."

Whereas various fees are charged in elementary public schools in Mali, secondary and tertiary education are provided free of charge. Diarra (1992) points out that systems of taxation and revenues for the financing of education in Mali involve the central government, regional authorities, and local communities. The central government is
primarily responsible for the funding of education. This trend is a legacy of the colonial period during which the federal government was entirely responsible for the financing of some public services, including education.

Hall, Magassa, Ba, & Hodson (1991) argue that of the three major sources of funding for education in Mali, the most important by far, is the central government financing through national and regional allocations. The second source of funding is local tax monies, such as the Fonds de Developement Regional et Local (FDRL), local communities, and tax revenues from the Association des Parents d'Eleves (APE) parents' associations tax; the APE tax rate represented 3,000 CFA francs per student in urban areas, and 2,000 CFA francs in rural areas in 1988 ($1 was equal to 250 CFA francs). The third source of funding is external assistance through bilateral and multilateral cooperation, consisting of loans, grants, technical assistance, and scholarships for studies or training abroad provided by foreign governments, international governmental organizations, and/or nongovernmental organizations (NGOs).

The System of Higher Education

Many scholars (Yesufu, 1973; Adams, Bah-Lalya & Mukweso, 1991; and Diakite, 1992) pointed out that Mali has an ancient tradition of scholarship and higher learning. This academic scholarship flourished during the rule of the Empire of Mali from the twelfth through fifteenth centuries, but more specifically during the rule of the Songhoi Empire (1492-1591). Furthermore, Diakite (1992) reveals that two of the world's most active and famous centers of higher learning in those days were the cities of Timbuktu (where the prestigious Sankore University was established around 1515) and Djenne (a renowned Islamic center of higher learning).
The modern history of higher education in Mali begins with the 1962 Malian Educational Reform. Prior to this significant reform, Mali had no institutions of higher education (IHEs). Knowles (1977) reveals that under colonial rule, students seeking higher education were forced to study abroad, since no IHEs had been established by the French in Mali. Traore (1991) posits that the 1962 Malian Educational Reform made a dramatic change relative to higher education by purposefully implementing a system of professional schools (grandes ecoles), a utilitarian model of institution of higher learning over the traditional and classical type of university education.

Until 1993, the current system of higher education in Mali consisted of seven Colleges and one Institute. These IHEs included two 2-year institutions (community college-type): Ecole des Hautes Etudes Pratiques (EHEP), the School of Business Administration and Secretarial Studies--established in 1974, and Ecole Nationale des Postes et Telecommunications--the National School for Postal and Telecommunications Studies--(ENPT) established in 1970. In 1993, the ownership and operation of this college was shifted to the Malian Postal Service; two 4-year institutions: Higher Teacher Training College (ENSUP) established in 1962, and Ecole Nationale d'Administration--the National School of Public Administration (ENA)--that was established in 1963; two 5-year institutions: Ecole Nationale d'Ingenieurs--the National School of Engineering (ENI)--established in 1963, and l'Institut Polytechnique Rural--the National Institute for Agronomy and Veterinary Medicine (IPR)--established in 1969;--the National School of Medicine, Pharmacy, and Dentistry, Ecole Nationale de Medecine et de Pharmacie (ENMP)--was established in 1968; and one graduate school: l'Institut Superieur de
Formation et de Recherche Appliquée—(ISFRA) that was an outgrowth of ENSUP, was established in 1966.

The overwhelming majority of these institutions were established in the 1960s, with specific missions assigned to each of them. Their geographic distribution has been remarkably favorable to Bamako, the capital city, with seven out of the eight institutions located there. The location of the majority of the IHEs in the capital, is the result of a post independence policy based on the centralization of a significant proportion of public services in the capital city of most francophone African countries. The only IHE located outside of Bamako, in a rural area at Katibougou, is the School for Agronomy and Veterinary Medicine.

The IHEs are open admissions institutions offering a range of basic degree programs in the liberal arts and sciences, business, postal, and secretarial studies, law, agriculture and veterinary medicine, modern languages, engineering and technologies, and graduate degree programs in medicine, pharmacy, dentistry, linguistics, and the Sciences. Higher education is accredited by—the Conseil Africain et Malgache de l’Enseignement Supérieur (CAMES), the African and Malagasy Council for Higher Education—a supranational institution supervising and coordinating the systems of higher education of 15 francophone sub-Saharan African countries.

Governance and Administration

All the institutions of higher education in Mali are publicly funded, and operated by the central government. The Ministry of Secondary Education, Higher Education, and Scientific Research has established a central structure, the National Directorate for Higher Education—Direction Nationale des Enseignements Supérieurs —(DNES). The chief
administrative officer of the system is the National Director for higher education appointed by a presidential decree. Directly responsible to him are the Assistant Director, the heads of Divisions for Training and Scholarships, Academic Affairs and Research, the General Directors of the IHEs along with the Dean of the Medical School. Diakite (1992) argues that the mission of the Malian National Directorate for Higher Education is that of coordination and supervision of teaching and research activities, along with the formulation and implementation of policies.

The administration of each IHE except the Medical School, consists of a General Director appointed by the Minister of Secondary Education, Higher Education, and Scientific Research, an Assistant Director and a General Secretary, both appointed by the National Director, and a financial officer in charge of Bursar Operations appointed by the Director of the Office of Finance and Administration in the Ministry of Secondary Education, Higher Education, and Scientific Research. The Assistant Director is in charge of Academic Affairs, whereas the General Secretary is responsible for students’ services. The governance of the Medical School is similar to that of a French faculty. The Medical School is run by a Dean, two Assistant Deans, a General Secretary, (all elected by their peers) and a Financial Officer. The institutions are divided into departments headed by department chairs elected by the department’s full-time faculty members.

The administrators run each institution with the assistance of several councils. First, the Scientific and Educational Council (Conseil National de la Recherche Scientifique), which consists of the department chairs, is responsible for all teaching and research issues, as well as the coordination of all the activities of individual departments.
Second, the Faculty Council (Conseil des Professeurs) coordinates teaching between the various areas of study, oversees examinations, evaluates students' performance, and deals with student disciplinary matters and extracurricular activities. Third, each institution has a Curriculum Council (Conseil de Perfectionnement) that makes suggestions for developing new programs of studies and also ensures that the IHEs are responsive to labor market requirements.

The rapid growth in student enrollments in the last three decades has resulted in a significant increase in the number of IHEs along with the number of faculty members and staff. Table 2.1 indicates enrollments, the number of faculty, administrators, and staff for six of the eight IHEs for which data were available in 1991-1992. First, total enrollments increased to nearly 6,000 full time equivalent students (FTE) with almost one third of the total enrollments recorded at the National School of Public Administration and Economics. Higher Teachers' Training College (ENSUP) ranked second, whereas the School of Business Administration and Secretarial Studies ranked last. Second, there were 635 faculty members of various categories, ranks, and national origins. Although ranking second in terms of enrollments, Higher Teachers' Training College has the largest number of faculty that accounts for nearly one fifth of the total faculty members. Third, the IHEs were governed by 118 administrators of various ranks and qualifications. The School of Engineering appears to be over-administered with 30 administrators while ranking only third in importance with regard to enrollments. Fourth, there were 173 staff members for all the institutions combined. It should be noted that the School for Agronomy and Veterinary Medicine accounted for more than 50 percent of the total number of staff while ranking only fifth in terms of total enrollments. The reason is
Table 2.1. Enrollments, Faculty, Administration, and Staff in Institutions of Higher Education in Mali, 1991-1992

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Enrollments</th>
<th>Faculty</th>
<th>Administration</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENSUP</td>
<td>994</td>
<td>147</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td>ENA</td>
<td>1801</td>
<td>124</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>ENI</td>
<td>978</td>
<td>73</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>EHEP</td>
<td>613</td>
<td>49</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>ENMP</td>
<td>845</td>
<td>117</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td>ENPT</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>IPR</td>
<td>750</td>
<td>125</td>
<td>26</td>
<td>95</td>
</tr>
<tr>
<td>ISFRA</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>5981</strong></td>
<td><strong>635</strong></td>
<td><strong>118</strong></td>
<td><strong>173</strong></td>
</tr>
</tbody>
</table>

ENSUP: Ecole Normale Superieure/Higher Teacher Training College.  
ENA: Ecole Nationale d'Administration/National School of Public Administration.  
ENI: Ecole Nationale d'Ingenieurs/National College of Engineering.  
EHEP: Ecole des Hautes Études Pratiques/School of Business Administration and Secretarial Studies.  
ENMP: Ecole Nationale de Medecine et de Pharmacie/National School of Medicine and Pharmacy.  
ENPT: Ecole Nationale des Postes et Telecommunications/National School of Telecommunications and Postal Studies.  
IPR: Institut Polytechnique Rural/School of Agronomy and Veterinary Medicine.  

because the school has several laboratories that are run by ancillary staff. Furthermore, the School of Business Administration and Secretarial Studies, and the National School of Administration because of their nature as professionals school have a lot of difficulty retaining full-time faculty members. The School of Business Administration has the lowest number of faculty members.

Role and Scope

The mission of higher education is to create and maintain an environment conducive to learning and growth and to promote upward mobility to all people by preparing them to enter into new as well as traditional careers. In support of its stated mission, higher education in Mali embraces four basic objectives that are in line with the economic development strategies of a newly independent developing country: (1) To meet the manpower requirements through the training of middle and high level manpower, and to ensure a shift in degree programs away from the purely academic to the practical and professional; (2) to pursue, promote, and disseminate knowledge through research and scholarly activities, but with a special emphasis on practical locally oriented knowledge; (3) to ensure the ongoing adaptation of higher education to scientific progress and the dramatic social change taking place in the country, and (4) to disseminate culture.

Higher education in Mali has been in existence for just over three decades. Since its inception in 1962, higher education has been provided completely free of charge by the government. There are both political and economic justifications for this free provision of higher education in Mali. On political grounds, a major policy decision made by the radical left-wing government was to institute free access to higher education for all regular high school graduates and to make it easy for them to attend their first choice
institution provided that they satisfy all the admissions requirements. The primary objective of this policy was to meet the country's crucial and urgent manpower requirements, and to promote equity among all of the high school graduates of Mali. Free access and choice were granted to all students regardless of their parents' socioeconomic backgrounds. On economic grounds, with regard to low enrollments in IHEs, and the relative availability of enough financial resources, no means test, that is, the determination of students need, was undertaken. Free tuition and free provision of higher education was granted to all of the high school graduates of Mali.

The Demand for Higher Education

The rapid population increase of Mali and the expansion of educational opportunities has resulted in an increased social demand for education over the past three decades. The demand function for higher education can be defined in terms of many different services: undergraduate or graduate instruction, basic or applied research, and the public service mission of an IHE. Hoenack (1990) posits that administrators and researchers alike tend to place much emphasis on the enrollment aspects of higher education demand. By and large, the demand for higher education is a function of high school graduation rates, which in turn, are influenced by variables such as the quality of instruction, students' family background, the availability and quantity of teaching materials and equipment, the democratization of educational opportunities, the per-pupil expenditure and other resource allocation policy, the quality of educational facilities, faculty salary scales, along with population size.
Enrollment Growth in IHEs

Enrollment patterns over the past three decades in the IHEs of Mali have persistently shown various behaviors characterized by periods of growth, followed by periods of decline or stagnation. For instance, enrollments increased from only a few hundred students in 1966-1967, reached a peak of about 7,500 students in 1984-1985, and declined to about 5,600 students in 1986-1987, before rising again to nearly 6,000 in 1991-1992. In 1995 enrollments topped nearly 10,300. Several factors might provide an explanation for this change in enrollments over the years. The major contributing factor is most likely related to the graduation rates of various exams along years of schooling, e.g., (CEP, DEF, and BACCALAUREAT). Between 1980 and 1995, high school graduation rates have varied considerably. In 1982-1983, for instance, 2,464 students graduated from high school. This figure fell dramatically to about 980 in 1985-1986 before rising again to about 1150 in 1986-1987. The following year in 1987-1988, there was a slight improvement, with 1430 students graduating from high school. In 1995, over 2500 students graduated from high school. The rise and fall in the number of high school graduates have consequently influenced enrollment patterns in individual IHEs across Mali, over the same period of time, in many respects.

Within 15 years of its establishment, the system of higher education in Mali experienced significant growth. The enrollment patterns in individual institutions have been characterized by periods of growth followed by periods of decline such as at the Teachers' Training College (ENSUP), the College of Engineering (ENI), and the School of Business and Secretarial Studies (EHEP) on the one hand, and periods of consistent
growth such as at the College of Administration (ENA), and the Medical School (ENMP) on the other.

Faculty Growth in the IHEs

Similarly, and over the same period of time, the faculty increase was dramatic. The faculty increased from just a dozen in 1962 to over 892 (including both full-time equivalent as well as part-time faculty members) in 1985-1986. About 82 percent of the faculty members were Malian citizens, 11 percent were French, and the remaining came from the former Soviet Union, the United States, and several other countries. It must be pointed out, however, that in 1991-1992, the faculty number fell to 635, a significant decrease over a 6-year time period. Between 1986 and 1991, the overall percentage of the Malian faculty slightly increased from 82 to about 85 percent, whereas the percentage of the non-Malian faculty declined from 11 to 6.5. In other words, the number of Malian faculty declined as compared to the 1985-1986 figures. This is indicative of a high faculty attrition and mobility.

Furthermore, the faculty appears to be heterogeneous in its characteristics in terms of its level of education (terminal degree holders versus other types of degree holders), status (full-time versus part-time), and national origin (Malian versus non-Malian). There were 342 full-time equivalent Malian faculty members in six of the eight IHEs, of which 230 representing 76.25 percent held a Doctorate degree, whereas 112 faculty members representing 32.75 percent did not hold a Doctorate degree according to the Ministry of Secondary Education, Higher Education and Scientific Research Administrative and Financial Directorate (1994). So, with the dramatic increase in IHEs total enrollments and faculty members resulting in additional facilities, materials and supplies, scholarships.
equipment, and the like, the cost of higher education in Mali, began to increase significantly in the early 1970s.

The Costs of Higher Education

Higher education in any society is a costly enterprise. It is highly labor intensive; that is, a significant number of highly qualified and expensive faculty and staff is required to operate the higher education machinery. Furthermore, it also requires for its operation very expensive equipment along with enormous quantities of materials and supplies. Mali is no exception. For instance, in 1987, about 20 percent of the total budget of the Ministry of National Education of Mali was devoted to higher education.

Figure 2.2 provides a useful frame of reference about the range of the different categories and components of the costs of higher education in Mali. Three major observations can be made. First, and perhaps most importantly, society bears almost entirely the total cost of higher education in Mali. This cost includes the costs of student living, the costs of instruction, and the forgone earnings of students. Second, the gross cost or monetary cost of higher education includes the costs of student living and the costs of instruction. Whereas, the first category of these costs is entirely covered by the government in the form of annual stipend payment to students, the second category is jointly covered by the Malian government, international organizations, and foreign governments, but with the bulk being covered by the Malian government. These costs include personnel costs, along with the costs of materials, supplies and equipment. Three, the students and their families do not incur any direct or indirect costs.
<table>
<thead>
<tr>
<th>Costs of student living</th>
<th>Costs of Instruction</th>
<th>Foregone earnings of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room, board and living expense covered by scholarship</td>
<td>Books, supplies, and educational expense</td>
<td>Personnel, materials and supplies, equipment covered by public and international funds</td>
</tr>
<tr>
<td>Transportation and Health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. Theoretical total cost to society

B. Total gross, net, or monetary cost of higher education covered by Government and International Donors

C. Total student costs covered entirely by Government

Figure 2.2—The Types of Costs of Higher Education in Mali

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The Costs of Student Living

Higher education is totally free for students and their families in Mali because it is fully funded by the government. Thus, students do not incur any direct costs, and scholarships are awarded to all high school graduates who want to go to college, in the form of full tuition waivers, and a generous monthly stipend of about US$ 110 in 1993, and US$55 after the devaluation of the CFA franc (the per-capita income in Mali was about $300). Full tuition waivers cost an estimated 1 billion CFA francs to the Malian government in 1991-1992. Furthermore, although the IHEs in Mali are closed during summer vacation (July through September), scholarships are, nonetheless, paid to students for this period. Also included in the direct costs are travel expenses to and from students’ home towns. Student travel expenses cost the government annually an estimated CFA francs 250 million (Mali State Budget, 1994).

The scholarship provided by the government covers the students’ expenditures for room, board, and other additional living costs. In 1987, each Malian student received about 200,000 CFA francs for the annual maintenance stipend. In addition, each graduating senior received an additional sum of CFA francs 50,000 for thesis allowances, and each other student about CFA francs 37500. In 1991, the monthly maintenance stipend was increased by 75 percent and is currently CFA francs 26250 which represents more than half of the starting salary of a college graduate--currently about CFA francs 52,000. Total direct costs in 1991 was estimated to be francs CFA 1.5 billion. It increased dramatically to an estimated 2.7 billion CFA francs in 1996. Table 2.2 provides a breakdown of the various types of costs incurred by the government for
five of the eight IHEs for which data were available. Furthermore, scholarships and grants represented one of the dominant category of the costs of higher education in Mali.

The Costs of Instruction

They include both fixed costs such as those for physical assets, and variable costs such as those for personnel (administration, faculty, and staff), materials and supplies. Because of the fact that higher education is labor intensive, the personnel costs constitute a significant portion of the costs of higher education. In 1991-1992, all the instructional costs of the IHEs represented nearly one billion CFA francs. Table 2.2 further indicates total expenditures and major categories of expenditures for five of the eight IHEs of Mali for which data were available in 1991-1992.

The scholarship costs represent the most important category of higher education expenditures. Scholarship costs are followed by personnel costs, including both administrators and faculty salaries, coupled with other types of financial advantages and incentives gained by the faculty, such as fringe benefits and payments for overtime. Thus, the basic determinant of instructional costs in an IHE is faculty salaries. Given total enrollments in the IHEs, instructional expenditures are in turn determined by the costs of equipment, materials and supplies. Table 2.2 also indicates that the costs of materials and supplies represented only a small proportion of the costs of higher education and were estimated to be 11 Million CFA francs for five of the eight IHEs for which data were available. In 1991, this represented less than 5 percent of the total budgetary allocation of higher education. Moreover, most of the IHEs receive donations of supplies, materials and equipment from international donor agencies and organizations. Finally, most faculty salaries are directly related to faculty ranks determined by faculty
Table 2.2. Total Expenditures of Institutions of Higher Education -Mali, 1991-1992 (in Millions of Francs CFA)

<table>
<thead>
<tr>
<th>Types of Costs</th>
<th>Ensup</th>
<th>Ena</th>
<th>Eni</th>
<th>Ipr</th>
<th>Isfra</th>
<th>Enmp</th>
<th>Ehep</th>
<th>Enpt</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prsnnl</td>
<td>260.9</td>
<td>47.3</td>
<td>77.0</td>
<td>159.8</td>
<td>n/a</td>
<td>57.1</td>
<td>n/a</td>
<td>n/a</td>
<td>601.8</td>
</tr>
<tr>
<td>Ope/Mat</td>
<td>1.2</td>
<td>83.0</td>
<td>3.0</td>
<td>4.5</td>
<td>n/a</td>
<td>1.4</td>
<td>n/a</td>
<td>n/a</td>
<td>10.8</td>
</tr>
<tr>
<td>Other Expendit</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>174.1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>174.1</td>
</tr>
<tr>
<td>Travel</td>
<td>1.1</td>
<td>53.0</td>
<td>2.1</td>
<td>3.2</td>
<td>n/a</td>
<td>1.3</td>
<td>n/a</td>
<td>n/a</td>
<td>8.3</td>
</tr>
<tr>
<td>Schlrshp</td>
<td>172.4</td>
<td>341.0</td>
<td>125.0</td>
<td>n/a</td>
<td>n/a</td>
<td>229.4</td>
<td>n/a</td>
<td>n/a</td>
<td>868.2</td>
</tr>
<tr>
<td>Ovr/Tim</td>
<td>38.5</td>
<td>30.6</td>
<td>33.0</td>
<td>48.2</td>
<td>n/a</td>
<td>30.8</td>
<td>n/a</td>
<td>n/a</td>
<td>181.1</td>
</tr>
<tr>
<td>P/Tim. Instruct</td>
<td>1.1</td>
<td>9.5</td>
<td>8.4</td>
<td>5.8</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>24.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>475.2</td>
<td>429.9</td>
<td>248.0</td>
<td>395.6</td>
<td>n/a</td>
<td>320.0</td>
<td>n/a</td>
<td>n/a</td>
<td>1,870.1</td>
</tr>
</tbody>
</table>

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ENPT : Ecole Nationale des Postes et Telecommunications/National School of Telecommunications and Postal Studies.

level of education, as well as their years of experience along with their family status.

Forgone Earnings of Students

Since cost is also a measure of alternatives forgone, it is at least theoretically appropriate to count as a cost of higher education the forgone earnings of the students. Cohn and Geske (1990) argue that:

Time spent by students in school or in preparation for school is not costless. So long as jobs are available for individuals with no or relatively little education, some income could have been earned had the student chosen to work rather than go to school (p. 76).

In Mali, although estimating the earnings to a student because of school attendance would be a formidable task, observations made at the community level do permit some generalizations about the opportunity costs to students (Birdsall et al. 1983). It must be pointed out that the forgone real production is presumably measured by those potential earnings of students. The Malian students do not forego any earnings for two reasons. First, using data from the Malian Bureau of the 1987 Population Census, researchers at the National Directorate for Statistics (DNSI, 1991) estimated the national unemployment rate to be .8 percent in the primary sector in 1987. Overall unemployment is severe among college graduates, coupled with an overeducation problem, since the supply of college-educated workers in Mali labor force has dramatically increased over the past 15 years. The national unemployment rate in the modern sector--tertiary sector--was estimated to be 13.2 percent in 1987. Moreover, a more recent study conducted by the World Bank in 1993 estimated the rate of unemployment among college graduates to be even higher at about 20 percent. Second, based on the free tuition and generous maintenance grant they enjoy and the fact that the scholarship represents more than half
of the starting salary of a college graduate, Malian students actually forego little in terms of jobs and earnings by attending college instead of working.

Poverty Profile in Mali

The formulation and implementation of any cost recovery plan for higher education must fit into the general economic context of Mali. In essence, one major issue has to be addressed: the determination of the poor through the identification of various income groups in the country. According to Bigsten (1983) two alternative methods can be used to determine a suitable poverty line: either a relative or an absolute norm. Two absolute measures of poverty are households' total annual income and total annual expenditures on certain basic needs such as food items.

With reference to Mali, in 1993, a group of researchers at the DNSI in Bamako conducted a study to measure poverty in Mali. Their approach consisted of specifying a certain minimum living standard in terms of minimum levels of consumption for certain basic needs to derive an absolute measure of poverty. The level of income required to sustain that level of consumption was then derived by calculating the cost of the minimum acceptable food basket. The researchers divided Mali into 6 areas (4 rural and 2 urban). The urban areas were comprised of the Bamako Metropolitan area and the rest of the malian Communes. Mali was then divided into 8374 "Sections d'Enumeration"--SE--, a geographic area of 800 - 1000 subjects in rural areas, and 1000 - 1500 in urban areas from which a sample of 434 was randomly selected. Then from this SE sample, a national sample of 2816 Food Units (a functional entity comprising a number of households that prepare and take their meals together) was also randomly selected. Then the monetary value of their annual amount of food consumption was calculated.
Based on a worldwide study conducted by the World Bank in 1985, whose findings estimated the poverty and extreme poverty lines to be at current 1985 US $370 and US $275 respectively. Researchers selected these 2 dollar amounts as the basis for the determination of both poverty and extreme poverty lines for Mali which were equivalent to francs CFA 150,000 and f CFA 110,000, respectively, in 1988. (US $ was equivalent to f CFA 250). Furthermore, the researchers believed that the amount of daily energetic calories, below which basic food needs cannot be satisfied, was also a valid measure of poverty line. This was estimated to be 2450 per year and per person. The proportion of expenditure necessary to purchase this quantity of food items was estimated to be about f CFA 136,754 annually. Based on these findings, the researchers identified 3 poverty groups: 1) the extremely poor who accounted for 72 percent of Mali’s total population; 2) the poor that accounted for 18 percent of the country’s population; and 3) the nonpoor that represented 10 percent of Mali’s total population.
CHAPTER III

REVIEW OF THE LITERATURE

The literature regarding the costs of education, and more specifically the costs of higher education, is extensive. The conquest of independence by most developing countries, coupled with dramatic population increases, along with the diversification of the training needs of increasingly significant numbers of traditional and nontraditional students, have resulted in rapidly growing systems of higher education. This growth has had serious implications for the costs of these systems of higher education as expenditures have increased dramatically relative to the recruitment of academic staff, the construction of appropriate facilities, and the provision of expensive teaching materials and laboratory equipment. As a result, this unprecedented growth has caused an escalation in the costs of higher education around the world, particularly in the newly independent countries of Africa, Asia, and Latin America. Thus, scholars from different backgrounds, such as economics, sociology, and education have written extensively about the costs of higher education, and the willingness and ability of students and their parents to pay for education.

This chapter reviews the related literature and provides the basis for understanding the topics and concepts related to educational costs, efficiency, cost recovery, and higher education stakeholders' attitudes toward a cost recovery proposal (CRP). Human and economic factors such as willingness and ability to pay for education have been described and utilized in recent literature and research. A major element of any CRP is the use of user charges as a potential alternative funding source for higher education. This chapter is divided into the following four sections: 1) Costs of education, 2) Educational
efficiency, 3) Related literature on cost recovery, and 4) Higher education stakeholder
groups' attitudes toward the CRP.

Costs of Education

Theory and research in the field of the economics of education and finance since
the 1960s have followed movements in economics and the management sciences (Vaizey,
1958; Schultz, 1963; Leslie and Brinkman, 1988; Cohn and Geske, 1990; Hoenack and
Collins, 1990). In particular, theory in the economics of education has been guided by
strong influences from classical economic thought, such as the theory of supply and
demand, income distribution, production function analysis, cost analysis, and cost-benefit
analysis. In the past 30 years, there has been a number of advances in the economics of
education because many educational funding issues have been amenable to economic
analysis. According to Cohn and Geske (1990), Schultz's (1963) seminal study on "the
importance of the relationships among investment in education, human capital formation,
and the economic development and well-being of nations" (p. 20) can be considered the
beginning of serious attempts to understand how the theoretical tools of economics and
finance could be applied to the analysis of cost issues in educational systems around the
world.

Costs of Education Around the World

It is widely recognized that education is an extremely costly enterprise and a
major contributor to a nation's economic growth. Therefore, many countries across the
world devote a significant portion of their national resources to education. Three basic
measures have generally been used to examine the magnitude of educational costs over
time: First, total public expenditures on education; second, the share of the Gross
National Product (GNP) devoted to education; and third, total public educational budgets as a percent of the state budget. Over the past three decades, significant portions of national resources across the world have been allocated to education. This trend has been a major feature of educational funding in both developed and developing countries. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) reported that in 1991 the total public world expenditure on education was about $1.03 trillion. In fact, the real figure could be twice as much.

After conducting several country related studies, researchers revealed that the share of the GNP allocated to education in various countries around the world ranges between 3 and 8 percent. For instance, Schiefelbein (1983) reveals that in developed countries, public expenditure on education as a percentage of the GNP ranged from 4.0 to 6.4 percent between 1960 and 1977, while in developing countries the variation was between 2.3 and 4.1 percent during the same period of time. Furthermore, total educational budgets as a percent of state budgets vary between 9 and 30 percent. With specific reference to national budgets, these percentages varied between 11.3 and 21.3 percent in developed countries versus 11.7 and 36.3 percent in developing countries during the same time period.

In general terms, the rise in the costs of higher education around the world has been dramatic. Psacharopoulos (1991) estimated the cost of higher education to be about $500 billion. In fact, the real costs of higher education may be much higher if students' forgone earnings and other types of direct costs such as students' travel expenses, and various hidden costs of higher education are taken into account.
Psacharopoulos (1986) reveals that there are dramatic differences and commonalities between developed and developing regions in the distribution of public educational expenditures. Whereas developing countries spent 3.9 percent of their GNP on education, the developed countries' share represented 5.7 percent. Furthermore, the World Development Report (1991) examined a sample of 66 low-income and middle-income economies around the world, and concluded that in 1989, in 25 out of 30 countries for which data were available, the share of the central government total expenditures on education accounted for more than 10 percent of national budget allocations. For instance, in Mali, for this same year, this share represented 22 percent of Mali's state budget, whereas Ghana ranked first in the group of countries studied with a share of 25.7 percent of this country's national budget.

Moreover, the development of the theory of expenditures on education has inspired mainly economists and educational planners to conduct a significant amount of research on the concept of human capital, that is, investment in education. All types of educational costs, particularly their behavior, characteristics, and determinants have been scrutinized by researchers. A number of researchers (Vaizey, 1958; Schultz, 1963; Coombs and Hallak, 1972; Psacharopoulos, 1980 & 1986; Cohn and Geske, 1990), whose studies have focused on specific developed and developing countries around the world, have contributed to this field.

Following Schultz's pioneering efforts in underscoring the importance and implications of investing in human capital, subsequent analyses have approached the study of educational costs in general, and higher education costs in particular, from a variety of perspectives. Various conceptualizations in the literature have focused on particular
aspects of educational costs around the world, such as the economics of universities (Hoenack and Collins, 1990), economics of education (Psacharopoulos, 1987), efficiency and equity issues in financing education (McMahon and Geske, 1982), theory of investment in higher education (McMahon, 1974), and cost-benefit analysis in education (Thias and Carnoy, 1972).

Recent interest among the economics of education theorists reflects the comprehensive treatment given to the various concepts and categories of costs within the general economics of education literature, e.g., finance challenges in higher education (Breneman, Leslie & Anderson, 1993), theory of the development of university education in sub-Saharan Africa (Court, 1992), costs of higher education (Johnstone, 1991), control over the costs of education in Eastern Africa (Wolff, 1984), theory of educational financing in developing countries (Schiefelbein, 1983), and higher education and development in Eastern Africa (Maliyamkono, Ishumi & Wells, 1982).

Studies by these scholars relative to the costs of education are numerous and extensive. Vaizey (1958) was one of the first economists to pioneer a comprehensive study about the costs of education in the United Kingdom between 1920 and 1958. After examining data for the costs of the educational systems of England, Northern Ireland, Scotland, and Wales, he concluded that "at current prices the total outlays on public education rose from 85 million pounds sterling in 1921 to more than 410 million pounds sterling in 1955" (p. 21). In addition, and with specific regard to higher education, he asserted that British universities doubled their student population between 1920 and 1955 and that their expenditure at 1948 prices increased dramatically from 5.2 million pounds sterling to 25.4 million over the same period of time.
Coombs and Hallak (1972) applied a systems analysis approach to education. The concept of systems analysis states that any educational system can be seen to have five major features: a) the objectives, b) the input, c) the output, d) the benefits, and e) the internal process. These five components are then used to examine educational efficiency—"the relationship between a system's outputs and the corresponding inputs that went into producing them" (p. 82), and productivity—"the relationship between the cumulative benefits derived from it over a given period of time and the corresponding inputs used earlier, e.g., the costs incurred in producing these benefits" (p. 83).

Coombs and Hallak (1972) focused on the utilization of cost analysis to test the economic feasibility of educational plans, and they identified the major determinants and characteristics of educational costs in both developed and developing countries. They also underscored the application of cost-analysis tools to the problems of educational finance in order to significantly improve the efficiency of the systems of education. Their study includes specific country based case studies, such as France, the former Soviet Union, Norway, Hungary, and the United Kingdom in Europe; Sri Lanka, India, and Thailand in Asia; Chile in South America; Barbados in Central America; Canada in North America; Uganda, Tanzania, and Madagascar in Africa.

Cohn and Geske (1990) identified the major types of educational costs in the United States and revealed that the costs of both public and private elementary and secondary education increased from $6.2 billion in 1950 to $184.8 billion in 1988. Over the same period of time, total expenditures on higher education, both public and private, increased from only $2.7 billion in 1950 to an unprecedented amount of $251 billion in 1988. Furthermore, they concluded that total expenditures for all levels and types of
education increased from $8.9 billion in 1950 to over $308.8 billion in 1988—an 3,574 percent increase in just over 38 years. Expenditures on higher education have increased faster than expenditures on elementary and secondary education, both public and private, presumably because of the very costly nature of higher education and the dramatic increase in the student population.

With specific reference to the costs of higher education in the U.S., McMahon (1974) argues that expenditures on higher education can be considered as an investment in human capital, with returns of various kinds expected at future dates. In addition, he designed and applied the economic theory of choice to the problem of analyzing family and student decisions to invest in higher education in the U.S. McMahon examined total investment by families between 1946 and 1968 at U.S. public institutions. He applied multiple regression analysis to determine the investment decisions of U.S. families. His major conclusion was that family and student decisions to invest in higher education are determined primarily "by current disposable personal income, the number of college-age young adults as a percent of the population, an index of the average price of tuition, fees, room, and board per student at public institutions" (p. 60).

Building on Hanushek's (1979) concept viewing education as a production system, Tsang (1988) identified three major categories of educational cost studies: first, educational costing and cost-feasibility studies; second, studies analyzing the behavioral characteristics of educational costs; and third, cost-benefit and cost-effectiveness studies. These cost studies relate specifically to elementary, secondary, and/or higher education, or any combination of these three levels of schooling. Most of these studies reveal the fact that in a significant number of developing countries around the world, higher
education is provided free of charge by governments, especially in sub-Saharan Africa, both anglophone and francophone.

Costs of Education in Africa

Educational costs in Africa entered a new era with the conquest of independence by most African countries in the 1960s. Current cost literature reveals that the size, types, and behavior of educational expenditures in all post-independence African countries have undergone a dramatic change characterized by patterns of rise, stagnation, and decline. In most African countries, rapid population increases, expansion of educational opportunities, and chronic inflationary trends, among other major factors, have significantly affected educational costs in various ways. These periods of increase, stagnation, and decline have, for the most part, been attributable to the unstable behavior of aggregate economic forces.

Given the within and between region and country variability, educational cost studies in Africa have specifically targeted the two major geographic entities within the continent: Northern Africa and/or sub-Saharan Africa. Furthermore, sub-Saharan Africa has been broken down along geographic lines between Eastern Africa and Western Africa; along former colonial partition lines, between Francophone Africa and Anglophone Africa. In addition, single countries within regions, or levels and types of education within countries, or universities, colleges, and departments, have also been the focal point of several educational studies.

In general terms, public expenditure on education in Africa has been characterized by periods of rise and fall over the past three decades. Thus two major trends characterized the behavior of public expenditure on education in sub-Saharan Africa
between 1970 and 1988; a steady rise between 1970 and 1980, followed by a steady decline between 1980 and 1988. UNESCO (1991) reveals that total public expenditure on education in sub-Saharan Africa rose significantly from $1.3 billion in 1970 to $4 billion in 1975, before reaching a peak of $11 billion in 1980. Between 1980 and 1988, economic downturns brought a dramatic decline in public expenditure on education. Therefore, total public expenditure on education declined to $8 billion in 1985, then fell to $7.1 billion in 1988, and this amount accounted approximately for 2 percent of the world total public expenditures on education. It was further revealed that this total public expenditure on education also accounted for about 4.5 percent of the African Gross National Product the same year, an increase from 3.1 percent in 1970.

Wolff (1984) conducted a comprehensive study on the ways to control for the costs of education in Eastern Africa. His sample consisted of the following nineteen Eastern African countries--Botswana, Burundi, Comoro Islands, Djibouti, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Rwanda, Somalia, Sudan, Swaziland, Tanzania, Uganda, Zaire, Zambia, and Zimbabwe. He identified major costs by levels of education--primary, secondary, and tertiary, and by types of costs--instruction, non-teaching, personnel, and students. Wolff's major conclusion was that:

Governments in the region have continued to make major efforts to increase their support of education. The percentage of overall government recurrent expenditures devoted to education and training in both 1970 and 1980 was 18 percent, and in most countries education accounted for the highest percentage of the recurrent budget (p. 1).

He further argued that the percentage of the total public expenditure on education ranged between a low of 11 percent in Ethiopia and Malawi, for example, and a high of 21 percent in Kenya and Madagascar. Similarly, he contended that the share of the GNP...
devoted to education averaged about 4.6 percent in 1980. Based on these figures, he suggested the need for a cost savings strategy in Eastern Africa. He concluded that the unit costs of education in Eastern Africa as a share of GNP per capita were higher than in all other regions, with the exception of francophone Africa.

Adams, Bah-Lalya & Mukweso (1991) revealed that higher education grew very rapidly in the francophone zone of West Africa (a group of countries consisting of Benin, Burkina Faso, Cameroon, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, and Togo) over the past three decades. Moreover, they contended that the share of national budgets allocated to education in general has varied between 18 and 30 percent—a share that is among the highest in the world. They further revealed that the share of total education budget allocated to higher education in the francophone zone was much higher than relative allocations for higher education in Europe, Latin America, and Asia. In addition, with regard to higher education in the francophone zone, these researchers posited that the structure of the costs of higher education is characterized by a high allocation of expenditures to "social" costs (those costs that are borne by central governments) such as students' costs, e.g., tuition, room and board, transportation, and medical care at the expense of investments in other educational inputs. They concluded that francophone countries, in the 1970s, spent as much as 43 percent of higher education costs on social subsidies, such as stipends paid to students. Hinchliffe (1987) echoed this conclusion and revealed that for all sub-Saharan African countries (about 45 countries) combined, the share of educational expenditure as a percentage of the GNP rose from 3.2 percent in 1965 to 4.1 percent in 1980.
Costs of Education in Mali

The structure, nature, and determinants of educational costs in Mali are not basically different from the features of educational costs in other African countries. In fact, these costs share several commonalities. Two major trends characterized educational costs in Mali over the past three decades: a steady rise between 1970 and 1987 followed by a short decline between 1987 and 1990, and a steady rise again after 1990. Periods of economic growth followed by periods of dramatic economic decline or slow growth, and/or periods of rampant inflation have negatively affected the total budgetary allocation to education in Mali.

Total public expenditure on education rose steadily over the past two decades. From only CFA francs 1.8 billion in 1971, total public expenditure increased to CFA francs 9.9 billion in 1980—a six-fold increase, (Legum, 1971) and then to CFA francs 12.5 billion in 1985 (Mali State Budget, 1985). After an increase to CFA francs 20.3 billion in 1987, total public expenditure declined slightly to CFA francs 19.5 billion in 1989, before rising to CFA francs 24.2 in 1992, and to CFA francs 25 billion in 1995. In real terms, when adjusted for inflation which was running at a cumulative rate of 117 percent according to the World Development Report (1989), the increase was about 280 percent.

In 1987, the breakdown of expenditures by level and type of education in Mali was as follows: 36 percent of total expenditures was devoted to primary education, Grades 1-6 (Cycle I) and 16 percent to Grades 7-9 (Cycle II), 18 percent to secondary and normal education, and 19 percent to higher education. Only 5 percent of the total budget was devoted to the purchase of materials and supplies. Finally, in 1995, the latest
year for which data are available, the total budget allocated to the Ministry of National Education represented 22.6 percent of Mali's state budget; the portion allocated to higher education increased to about 20 percent. There are four major explanations for the increase in educational costs in Mali over time: the new faculty ranking policy, the reestablishment of scholarship awards for secondary students, the 75 percent across-the-board increase in college students' scholarships, and inflation.

Since education is labor intensive, personnel costs in general, and teachers' costs in particular, dominate total educational costs in Mali. In 1987, for example, teachers' compensation alone accounted for 65.4 percent of the total education budget (Union Democratique du Peuple Malien, 1989), and in 1995, it slightly increased to 68 percent (Direction Administrative et Fianciere, 1995).

In IHEs, faculty costs also increased in 1993. Effective Spring 1993, based on an African and Malagasy Council for Higher Education (CAMES) recommendation, the Malian government introduced a new ranking policy based on faculty qualifications (terminal degree held) and seniority. This new ranking was structured as follows: Professor, Associate Professor, Assistant Professor, and Teaching Assistant. The implementation of the faculty ranking policy resulted in the institution of substantial monthly allowances for the faculty based on their ranks. These monthly allowances are CFA francs 20,000 for a Teaching Assistant, CFA francs 45,000 for an Assistant Professor, CFA francs 55,000 for an Associate Professor, and CFA francs 65,000 for a Professor. These two policy decisions have undoubtedly contributed in raising significantly the per-student and faculty unit cost in Mali over the last three years.
Scholarship costs are also an important component of educational costs in Mali. The monthly rate of the scholarship increased to CFA francs 11,250 for high school students and CFA francs 13,000 for professional and vocational school students. The recent rise in scholarship costs has been caused by a significant increase in student enrollments, especially at the secondary level. In nominal terms, scholarship costs increased slightly from CFA francs 3.5 billion in 1985 fiscal year (FY), to CFA francs 3.9 billion in 1995 FY (Mali State Budget, 1985 and 1995).

Since the beginning of the 1970s, due to the dramatic growth in student enrollments and the increase in the number of faculty members, the total share of the budget for higher education as a percentage of Mali State Budget has significantly increased. For example, in 1971, the total budget of the Ministry of National Education accounted for 12.5 percent of the state budget, and the budget allocated to higher education represented only 7 percent of this amount (Legum, 1971). In 1995, this share significantly increased. It nearly tripled and was 21 percent.

The costs of higher education in Mali have been the focal point of many researchers. For example, Birdsall et al. (1983) reveal that in 1978, scholarships—the free monthly stipend paid to all students of the IHEs—were equal to 45 percent of the total educational budget. However, by 1982 the percentage had fallen to 29 percent. Other types of costs, such as travel expenses from students' home towns to the locations of the different colleges, are also borne by the government, coupled with student health care costs and costs of books and supplies.

Moreover, Adams et al. (1991) revealed that in Mali, total educational expenditures increased by 5 percent a year between 1982 and 1988, a rate which has not
kept pace with inflation. They contended that in real terms the educational budget has been constant at current 1988 prices or has even declined in specific years. With regard to the costs of higher education, they further revealed that total expenditures for this level of education have declined over the same period of time from 29 percent to 25 percent "but remain relatively high when compared to the African average of 20 percent and a world average of 15 percent" (p. 361).

Unit Cost

Several researchers (Coombs and Hallak, 1972; Bowen, 1980; World Bank, 1980; Schiefelbein, 1983; Wolff, 1984; Psacharopoulos, 1986; Hinchliffe, 1987; Johnstone, 1991; and Adams et al., 1991) have identified different types of unit costs, as well as their characteristics and determinants in both developed and developing countries. Various conceptualizations relative to unit costs are also presented in the general educational cost literature. Although all researchers underscore the direct relationship between unit costs and total enrollments in any given IHE, they disagree on the behavior of these unit costs as enrollments increase or decline. For example, some economists, such as Psacharopoulos (1980), argue that there is an inverse relationship between per-student unit cost and enrollments; in other words, per-student unit costs decrease as enrollments increase. Others, such as Adams et al. (1991), argue that unit costs increase as enrollments grow.

The educational cost literature also reveals major trends of unit costs and draws comparisons between unit costs in developed and developing countries. To make this comparison more meaningful, unit costs are expressed as a percentage of both GNP and per-capita income in the two categories of countries (Psacharopoulos, 1980; Schiefelbein.
1983; and Hinchliffe, 1987). These unit costs are also computed for different types and levels of education e.g., primary education, secondary education, higher education, and vocational education. Most research findings relative to both developed and developing countries identify three major patterns: 1) Unit costs are rapidly escalating in developed, as well as developing countries; 2) unit costs are higher in developing countries than in developed countries when expressed as a percentage of GNP or per-capita income; 3) in the second case, developing countries shoulder a heavier burden than do developed countries.

With regard to higher education, researchers such as Schiefelbein (1980) argue that less developed countries tend to have lower costs per university student the larger the proportion of students enrolled in universities. This issue refers specifically to the economic concept of economies of scale. Researchers, however, do not always agree that economies of scale are achieved whenever enrollments increase. In addition, Johnstone (1991) points out that "countries with national systems can be expected to exhibit much less variation in unit costs" (p. 63). He further argues that the principal determinants of per-student instructional costs are the average faculty salaries, the faculty-student ratio, the plenitude or scarcity of support staff, the extent and quality of facilities and equipment, and the proportion of costs appropriately charged to teaching and to other aspects of student life as opposed to basic and applied research.

Coombs and Hallak (1972) argued that a common pattern is the long-term rising trend of unit costs. They further revealed that the real costs per-student unit costs "appear to have been on the upswing in most nations for years" (p. 111). Echoing the same concern, Wolff (1984) in his study about the costs of education in Eastern Africa
reached very important conclusions about the unit costs in primary, secondary, and higher education. He revealed that the per-student unit costs of primary education in Eastern Africa were about U.S.$71. "As a percentage of the GNP per-capita, these unit costs varied from 3 percent to 63 percent, with an average of 16 percent" (p. ix). As far as secondary education is concerned, per-student unit costs averaged U.S.$340 equivalent, and they represented an average of 85 percent of the GNP per-capita. In higher education, the unit costs were very high. They averaged U.S.$4,100 and ranged from U.S.$4,895 to U.S.$11,081. This is equivalent to 10 times the per-capita income. In essence, there are differential unit costs between different types and levels of education. As a general rule, unit costs rise with each successive education level, and scientific and technical training at whatever level is more costly than general education (Coombs & Hallak, 1972). The costs of teachers (who are higher paid in secondary and higher education than in primary education), expensive equipment and materials, and direct costs are major factors accounting for these cost differentials.

With regard to the francophone zone of West Africa, Adams et al. (1991) revealed that unit costs surpass per-capita GNP by 1,000 percent, compared to a factor of 370 for "all developing countries". Their findings also reveal that in francophone West Africa, unit costs are the lowest in Mali, at CFA francs 366,800 (due primarily to the lower salaries of IHEs faculty and staff) and highest in Senegal at CFA francs 811,000. (The official exchange rate was U.S.$1 to CFA francs 300 in 1991). Psacharopoulos (1980) estimated the per-student unit cost in higher education in Mali to be $1,793. Given the fact that the per capita income in Mali was estimated to be $270, the per-student unit cost was about 7 times the per-capita income in 1980.
Other researchers have also underscored the importance of unit costs, recurrent costs, and real unit costs in IHEs across the world (Thompson and Fogel, 1921; Bowen, 1980; Psacharopoulos, 1980; and Tsang, 1988). Psacharopoulos (1980) examined the cost and benefit of higher education in developing countries at two levels. First, he examined costs at the aggregate university level, and second, he broke these costs down by field of study, e.g., engineering, law, medicine, agriculture, and humanities. His findings provide an interesting explanation about the behavior of unit costs as enrollments keep rising and clarify cost differentials between various university faculties and programs. The findings revealed that unit costs, for instance, in science and medicine are much higher than unit costs in law and humanities.

Educational Efficiency

Efficiency is increasingly attracting a lot of attention in the economics of education and education finance literature at a time when significant quantities of resources are being utilized in educational systems around the world. Thus, a significant number of studies continue to highlight the cardinal virtues of efficiency and what it can accomplish in terms of resource allocation and utilization. This new surge of increasing interest in both the theoretical and practical perspective of the concept of efficiency has been manifested by the work of several economists and researchers (Coombs and Hallak, 1972; Hanushek, 1979; Lau, 1979; McMahon and Geske, 1982; McMahon, 1982; Psacharopoulos, 1986; Tsang, 1988; Johnstone, 1991; Adams, et al. 1991; and Barr, 1993). The various practical applications of the concept of efficiency to education have significantly contributed to improved resource utilization in education. Scholars and advocates of such an initiative think that efficiency, if well conceived and appropriately
applied, can help educational systems across the world make the most out of the scarce resources allocated to them.

Various categories of efficiency are identified in the economics of education literature. Psacharopoulos (1986) and McMahon (1982) argue that inefficiency and inequity currently permeate much of primary, secondary, and higher education. Many researchers have specifically underlined the magnitude and manifestation of inefficiency in education. McMahon (1982) identified various types of educational efficiency and suggested ways to improve education quality and productivity. The major type of efficiency identified by McMahon is social efficiency, that is, maintaining the input constant and increasing the desired output from a society's point of view. He further argues that efficiency has two major aspects:

Production efficiency that refers to the efficiency with which inputs of time and resources are combined in the educational process to secure desired outcomes, and exchange efficiency that refers to the efficiency with which appropriate educational outcomes are matched with the citizens' educational needs (p. 8).

Tsang (1988) also identified different categories of efficiency and underlined their specific contextual and temporal applications in order to improve resource allocation and utilization in the educational process around the world. Education is viewed as a process where inputs are utilized in order to produce outputs. He identified the inputs to education as the various ingredients used, such as teachers, students, instructional materials, equipment, and physical facilities. The outputs of education include education effects such as the cognitive and noncognitive skills learned by students, graduation rates, graduate employment rates, and the like. The technology of education includes the internal process, curriculum, pedagogical methods, school organization, management and
monitoring procedure. This process known as educational production was utilized by Tsang as a conceptual framework to highlight several concepts of efficiency in education, such as internal efficiency, external efficiency, technical efficiency, and economic efficiency.

These different categories of efficiency underline the relationship between the inputs used and the outputs obtained from an educational system. Tsang posits that the internal efficiency of education compares the costs of education to the outputs or effects within education, such as the acquisition of skills and knowledge and other quantifiable or nonquantifiable objectives. He further argues that an educational system is said to be internally efficient if it can produce more desired outputs while maintaining constant levels of input. Tsang refers to the external efficiency of education as the comparison between the costs of education to the benefits of education, such as higher productivity and earnings in the job market. In basic terms, the external efficiency of education is a cost-benefit analysis of the educational system. If the ratio between the costs and the benefits of education is greater than 1, then the system is said to be effective; if it is less than 1, then, it is said to be ineffective.

The third category of efficiency identified by Tsang (1988) is termed as technical efficiency, that is, the maximum amount of school outcome possible, taking into account a given amount of financial resources that can be used to purchase a certain mix of inputs at prevailing prices. This is a concept that is crucial in understanding the ways resources are allocated and utilized in our educational system. The last category of efficiency considered in Tsang's 1988 study is economic efficiency. Tsang argues that "given prices of inputs, the same amount of financial resources can be used to purchase different
combinations of inputs, for example, more or fewer teachers as opposed to textbooks or physical facilities" (p. 5). He further argues that "educational production is economically efficient when, given prices, technology, and financial resources, the maximum amount of school outcome is produced by selecting the right combination of inputs" (p. 5).

Considering efficiency from a different perspective, Johnstone (1991) asserts that this concept is a public policy issue, particularly to the extent that the costs of higher education are borne by the taxpayer, rather than by parents or students, especially in developing countries. He pinpoints the methodological problems and difficulty involved in measuring efficiency. He concludes that the favorable attitudes shown by many political group leaders and other decision makers, according to which higher education could be made more efficient, just by increasing the teacher/student ratio, the faculty teaching load, or by laying off faculty and staff "could do long-lasting damage to both teaching and research, and are hard to measure and impossible either to prove or to disprove" (p. 68).

Adams et al. (1991) specifically underscored the importance of internal efficiency in the systems of higher education of francophone African countries and identified two major aspects of internal efficiency—the student-faculty ratio and wastage. With regard to the student-faculty ratio, they contended that it was generally very low. For example, the mean ratio for all francophone countries, in 1983, was 13.1. The average for Mali, about 8.1 the same year, was among one of the lowest of the region. As far as wastage is concerned, they identified two crucial issues, dropouts and repetition rates, that are a costly drain on resources. They revealed that between 50 and 66 percent of those who enter universities in the francophone zone graduate. The completion rate in Mali is
slightly higher than the regional average at between 50 and 70 percent. Jimenez (1987) examined the pricing policy in the social sectors of education and health, particularly in developing countries, and argued that current pricing policy has dramatically contributed to inefficiency within the social services. He advocates the introduction of a pricing policy (the institution of the payment of tuition and fees) in these sectors in order to reduce the financial burden on the government, and to generate more resources from the users of these services, especially students in the institutions of higher education.

Policy Options

The economics of education literature suggests a variety of alternative policy options in order to improve the internal efficiency of IHEs and recover full or part of the costs incurred by governments in providing educational and other types of services. Psacharopoulos (1986) argues that the government could adopt a policy option where fees could be introduced or increased for higher education. Woodhall (1983), Mingat and Tan (1986), and Simpson (1987) consider the policy option of the introduction of a student loan scheme as a means of financing higher education in developing countries.

In addition, a number of other alternative policy options might be considered as a positive step toward the full or partial recovery of the costs of higher education. Psacharopoulos (1986) further argues that a reasonable policy option would be to devise and implement for higher education a cost reduction strategy based on two steps. A first step would be to reduce the monthly scholarships and to restrict them to low-income students, and a second step would be to charge tuition to recover at least part of the cost of providing higher education. Other alternative policy options would be to increase the
faculty/student ratio, consolidate academic programs, merge departments, and cancel low enrollment courses.

Another area where cost reduction could be introduced is staff. Overstaffing has been a major concern for IHEs in Mali. By identifying the exact number of nonteaching staff required for IHEs, and by analyzing their roles and functions, staff members whose contribution to the system is minimal, could be terminated. This should make possible a considerable amount of savings. Administration is also another area to critically review. Its growth should be kept in line with the growth in students' enrollments.

Cost Recovery in Education

Recommendations in the literature concerning steps that governments can take to introduce cost recovery measures in developing countries are frequently based on research regarding costs, their nature and behavioral characteristics in higher education, as well as the concepts of macro efficiency and micro efficiency in higher education around the world (Hallak and Coombs, 1972; Maliyamkono, Ishumi & Wells, 1982; Keller 1983; Schiefelbein, 1983; Johnstone, 1991; Saha, 1991; Van Den Bor and Shute, 1991; Court, 1992; Kajubi, 1992; Mokgawathi, 1992; Rapple, 1992; and Weidman, 1995). The strategy which consists of making these individuals contribute to the cost of their education has come to be known as cost sharing or cost recovery. In countries around the world where the bulk of educational costs is borne by the government, there are increasing pressures to reduce the government's share of these costs for goods and services with high payoffs to individuals—high individual rates of return, so that the limited available public funds can be used for other needs (Weidman, 1995).
Internal Rates of Return

There is a direct relationship between internal rates of return and the costs of education in developing countries. Economists argue that the economic effectiveness of schooling can be judged by social rates of return. Many scholars (Psacharopoulos, 1973; Cohn and Geske, 1990) argue that in a system where higher education is provided completely free of charge, the social rates of return are low, whereas the individual rates of return are significantly high. Other researchers (Becker, 1975; and Leslie and Brinkman, 1988) have also underscored the significance of the individual rates of return in both developed and developing countries. Hinchliffe (1987), referring to Psacharopoulos (1986) who examined data for 15 developed and 45 developing countries around the world, including 16 African countries, concluded that in the most recent compilation of these rates of return, the average social rates of return were 27 percent for primary education, 17 percent for secondary education, and 12 percent for higher education, whereas the private rates of return were 45 percent for primary education, 26 percent for secondary education, and 32 percent for higher education.

These findings are similar to those of Cohn and Geske (1990) who document that private rates of return are dramatically high in developing countries. In such a specific context, should the individual student bear part of the cost of his/her higher education? The answer to this question may be positive if one considers the fact that many governments in developing countries have struggled under very harsh economic conditions to steadily provide funds for the operation of the countries' universities at a time when there is an increasing unemployment rate among college graduates in these countries.
Subsidization

Subsidization, by and large, seems to be one of the most dominant features of the funding system of African IHEs. In the last decade, there has been a tendency for African countries to rethink the concept of subsidization and suggest ways which could help governments recover part of the high cost of higher education. When discussing issues and perspectives in the subsidization of higher education, Barr (1993) argues that three very important questions come to mind: 1.) Should higher education be subsidized? Should funding be entirely and primarily public, as in France, the United Kingdom or/and some other western European countries, or a combination of public and private funding, as is more the case in the United States? 2.) Should higher education be centrally planned? Should funds be allocated to institutions by government (the main channel in Europe), or via students and other consumers of higher education services, and the central government, as in the United States? 3.) How should student loans be designed and implemented? If student loans as a partial means of financing higher education have to be introduced, (as in an increasing majority of Organization for Economic Cooperation and Development--OECD--countries) what is their optimal design to fit the specific context of a developing country such as Mali?

Introduction of User Charges

Jimenez (1987) examined a sample of 36 developing countries in Africa, Asia, and Latin America. He found that 39 percent of the sample surveyed charged no fees for public primary education, 25 percent charged no fees for public secondary education, and 30 percent charged no fees for public higher education. His findings further revealed that of the 19 African countries in the sample, fees tended to be lower for higher education
than for education at other levels. This is presumably because of the post independence major policy decision that instituted the free provision of higher education for all high school graduates in order to address the drastic shortage of college graduates. Finally, the results revealed that, whereas 42 percent of African countries charged no fees at the primary level, and 26 percent charged no fees at the secondary level, 69 percent charged no fees at the higher education level. It is worth noting that of those countries where fees were charged at higher levels of education, the proportion of unit costs recovered was lower than that recovered at primary and secondary levels.

Cohn and Geske (1990) address the same issue and reveal that students in developing countries of Africa, Asia, and Latin America are generally paying a very small percentage of the social costs of higher education. In a number of cases they are paying virtually nothing relative to the direct costs of their college education. Table 3.1. indicates the proportion of the social costs of higher education recovered in some specific developing countries of Africa, Asia, and Latin America in 1980. Thus, the institutionalization of a pricing system, along with the determination of a Cost of Living Index (CLI) for higher education, might be a first step to consider for a CRP in Mali.

Drake (1981) contended that the imposition of user charges has three major advantages. First, user charges can promote efficiency in resource allocation. Second, they will force the students to pay for the private benefits they realize by enjoying a completely free provision of higher education. Third, user charges yield revenues that might permit higher education services to remain at current levels or even to be increased when government budgets are tight. In addition, they may provide more stable revenues and contribute significantly to the improvement of the quality of higher education.
Table 3.1. Cost Recovery in Higher Education, 1980 (User Fees as Percentage of Social Unit Costs)

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<td>Guinea</td>
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<tr>
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<td>Solomon Islands</td>
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<tr>
<td>Turkey</td>
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Source: Reproduced by permission from Cohn and Geske (1990): Table 12.4, p. 378; based on Psacharopoulos et al. (1986: 55).

* Indonesia doubled the tuition charged at public institutions during 1986. This would raise the percent shown here, but by less than 13%, given that all prices have risen during this period.
Jimenez (1987) argued that introducing fee paying in higher education raises, in
the final analysis, the paramount issue of "the desirability of increasing the role of prices
in financing and allocating educational and health services, usually the largest components
of the social sector budget" (p. 1). It is worth noting that prices have really played a
minor role in generating resources for educational services in developing countries. In
addition, Jimenez (1986) contends that most of the fees charged for education are
uniform, and thus there is little attempt to discriminate among users according to their
socioeconomic characteristics. Ainsworth (1983) agrees and contends that Indonesia was
the only country, in 1983, where prices were primarily based on people's ability to pay
for educational services.

In Latin America, the trend is also for the implementation of cost recovery plans
in IHEs. For instance, Balan (1993) reveals that in Argentina:

The key legal instrument to change the national universities currently being
debated in Congress is the proposed law regulating university finances.
The most publicized item in this law is the rejection of the current
regulation which forbids all national universities to charge fees. If
approved, universities will have to decide for themselves whether they will
charge fees or not (p. 58).

In African countries, the institution of a pricing system for a social service such as
education is a very crucial decision to make. However, for governments of the 69
percent of the countries where no tuition and fees are paid in higher education, a major
policy option may be to institute a fair and equitable pricing system for the partial
recovery of the cost of education. Nonetheless, for equity considerations K-12 education
may basically remain free.

Thobani (1983) and Mingat and Tan (1986) found that with regard to increasing
social demand for education and decreasing government revenues, Malawi introduced user
charges as a means of generating additional financial resources for education. This limited form of pricing that discriminates between rural and urban areas has, to some extent, introduced some rationalization and improvement in the quality of the system of education along with the provision of more instructional materials and supplies.

Most cost recovery studies examine the relationships between variables such as the effects of the amount of increase in tuition and fees at the primary and/or secondary school levels on the demand for schooling. This concept, known as demand elasticity, focuses on the impact that a tuition increase is likely to have on an institution's enrollment. In other terms, it examines the correlation between tuition increase and enrollment increase or decline. Thobani (1983) uses a partial equilibrium economic framework for analyzing the optimal level of user charges for education in Malawi. He also examines equity aspects in raising user charges, coupled with efficiency issues related to the increase in school fees. He points out that wherever there is excess demand for a social service, such as education, prices should be raised, and he further argues that the increase in school fees can both improve the quality of the service and also hurt the low socioeconomic status people. At the university level in Malawi where no fees are charged, and where students enjoy free housing, board, and a monthly stipend, he suggests charging students for room and board, as well as imposing a tuition fee while simultaneously introducing a student loan scheme.

Mokgawathi (1992) describes the financing of higher education in Botswana. He revealed that the post-independence free provision policy of higher education has instituted the bursary, (the maintenance stipend paid to university students in Botswana). This bursary covers tuition and fees, room and board, books and supplies, and also
includes allowance for personal expenses. Based on these findings, he recommends the implementation of some form of cost recovery, including the introduction of a student loan scheme.

Other African scholars, particularly in Central and Southern Africa, have also underscored the necessity and importance of the introduction of a cost recovery plan in higher education. With regard to Uganda, Kajubi (1992) argues that with declining governmental revenues for higher education, it is paramount for the government to find some alternative funding sources for the university system of the country. He further reveals that currently all tuition costs and the costs of students living are financed from public funds, whereas families must bear a substantial share of the costs of primary and secondary education. Finally, he contends that the current funding formula of education in Uganda is inequitable and underscores the necessity of the introduction of a cost recovery plan for higher education. These findings across various African countries relative to the funding of education are consistent with the funding patterns of the Malian educational system.

Cost Recovery in Mali

In Mali, K-12 education is not completely free. Fees are paid for elementary education and there is some discrimination between fees paid in urban and rural areas. Secondary and higher education are provided completely free of charge. The free provision of higher education in Mali is a legacy of the French colonial system of education. Moreover, political, economic, social, and cultural factors have contributed to its maintenance in many developing countries around the world in general, and in Africa in particular. In addition, the public sector has been the only provider of higher
education in Mali and the imposition of fees did not seem to be appropriate in a context when the government was the only provider of higher education.

Studies have also been conducted about cost recovery in education in Mali. Their focus, however, has been primarily on elementary education rather than on secondary or higher education. Nonetheless, they may be quite useful and relevant for this current study on higher education. Their major focus has been on the willingness and ability of the rural communities to pay for health, water projects, and education, mainly primary education. To date, very few studies have been conducted on cost reduction in the institutions of higher education in Mali.

Ainsworth (1983) surveyed a number of households in rural western Mali in order to test their willingness and ability to pay for health and schooling. The sample consisted of 186 households obtained from 38 villages. Data were also collected on agricultural production, cash expenditures, income, demographic characteristics of households and some other issues related to the project design. The results suggest that these villages had some previous experiences in mobilizing financial resources for specific projects. The researcher concluded that "successful mobilization of community resources for financing the investment and recurrent costs of the water and health projects will rely not only on the ability and willingness of households to pay, but also on the capacity at the village level to collect and manage these funds" (p. 13).

Another study conducted by Birdsall et al. (1983) concentrated more specifically on the institution of user charges in rural Mali to pay for social services such as health and primary education. The researchers used the same sample as in the previous study, that is, 186 households in 38 villages, and surveyed a number of school and health
employees serving in these villages. Their study is significant in that it provides an appropriate framework for better understanding the introduction of user charges as an effective cost recovery strategy in Mali. The researchers utilized an economic framework based on the theory of supply and demand, coupled with multiple regression analysis, to analyze the presumed effects of school fees on the demand for schooling in rural western Mali. They also examined the effects of a number of independent variables, such as the fees, distance to school, and school quality on the dependent variable of school enrollment. The results indicate that the imposition of and/or increase in school fees would, all other things being equal, reduce demand. These findings, to some extent, are consistent with the conclusion reached in the study conducted by Thobani (1983) about the imposition of and/or increase in school fees in the Southern African country of Malawi.

Many studies have been conducted on cost recovery in education in developing countries. As stated earlier, the focus of a significant number of these studies has been primary and/or secondary education. By and large, they all examined the ways to conduct cost recovery strategies in the educational systems, although higher education is somewhat overlooked. Many governments around the world, faced with more and more severe budgetary constraints, turn toward developing and implementing cost recovery strategies for a more efficient use of the scarce resources available for the different competing sectors of their countries, including education.
Attitude toward Cost Recovery Proposal

People's attitudes toward a CRP in education are likely to be influenced by both human and economic factors. Human factors including cognitive and noncognitive variables, such as values, motivation, interests, and beliefs may be major determinants of people's receptivity to a CRP. In addition, sociodemographic factors, along with economic factors such as wealth, price, and efficiency measures are also major factors determining people's attitudes toward a proposal.

Willingness and Ability to Pay For Education

Once a CRP is designed, it is worth testing the attitudes of various stakeholders' groups of higher education toward its desirability and applicability. Therefore, these attitudes can basically be characterized in terms of whether or not students and their families are willing to pay for part of the cost of education and, if yes, how much they are willing and able to pay. A cost recovery policy, and particularly the introduction of the payment of tuition and fees for a system of higher education that have always been free of such charges is a very controversial issue. There are a number of countries where the introduction of the payment of tuition and fees in the IHEs in the face of dwindling government resources and rising costs of education has been an unavoidable policy decision. The studies conducted on these countries typically focus primarily on household willingness and ability to pay for the user charges. The literature further reveals that because of the controversial nature of the debate, two camps—the advocates and proponents of the introduction of the payment of tuition and fees—have come into being.

Overall, critics such as Jackson (1980) do not believe that households are able to pay for tuition and fees regardless of their amount, and contend that access to higher
education, a public good, ought to be distributed across the population without regard to parental willingness or ability to pay. On the other hand, advocates suggest that the high rates of return to individuals is the major reason these beneficiaries have to contribute to the cost of their education. In addition, the prospect of higher future earnings, and social mobility in developing countries in particular, will induce many persons to invest a certain amount of their incomes in higher education.

Nonetheless, many economic factors may limit the students’ and their parents’ decision to invest in education. For example, these factors include, but are not limited to, the students’ and their families’ wealth and aggregate annual disposable income, including the contribution to the family income by other relatives, the number of siblings attending a fee paying institution, and the size of the family, specifically in the context of African countries.

Various theories relative to the willingness and ability to pay for education have been developed in both developed and developing countries. With specific reference to the U.S., McMahon (1974), developed and applied the economic theory of college choice to the problem of analyzing family and student decisions to invest in higher education. Using a combination of economic theory and multiple regression analysis, he concluded that the U.S. students’ and families’ decision to invest in higher education are determined by a number of variables, such as the aggregate real disposable income of the family, the parents’ educational attainment, the expected per capita earnings attributable to college, as well as the number of children of college age as a percent of the population among other variables.
Gertler and Glewwe (1989) examined data selected from the 1985-86 Peru Living Standards Survey (PLSS). The sample that consisted of rural children between the ages of 10 and 18 who lived away from home was selected to test the effect of increased school fees on enrollment and the willingness to pay for education in rural Peru. In addition, the study provides detailed information about the education of all household members, including expenditures on education and information about the school attended for all household members presently attending school. The findings suggest that a given increase in user fees will correlate, but not significantly, with a reduction in school attendance among the poorest 75 percent of the population, but a much smaller proportionate reduction for the wealthiest 25 percent.

There are a very limited number of studies about student willingness and ability to pay for part of their education in Mali. Although, Birdsall's (1983) work focuses on the willingness and ability of a sample of western rural Malian families to pay for part of the cost of the primary education of their children, her research findings can easily be generalized to other parts of Mali similar to the setting of the study, in many respects. However, as far as higher education is concerned, the framework provided here, may be very useful for a possible replication of the study, but the findings may not be generalized to this level of education, that shows significant differences with the context of the Birdsall's study in terms of variables such as distance to school, incomes, and so forth.

Summary

This chapter has provided some useful features about educational costs around the world, in Africa, and Mali. A comprehensive coverage was also given to concepts such as unit costs, along with educational efficiency, policy options, and perhaps most
importantly, cost recovery. The studies surveyed in this chapter are mainly cost analysis studies. These studies utilize three principal methods of analysis: composition, relational and direct comparison. In addition, they indicate that, there are a variety of educational costs and a variety of factors--mainly macroeconomic and policy--that act as powerful determinants and change agents of these costs. There is an intricate underlying relationship between educational costs and derivative concepts such as unit costs, efficiency, and cost recovery. Educational costs worldwide, have been characterized by a steady increase between 1970 and 1988, except for sub-Saharan Africa where educational costs have slightly declined, presumably due to economic downturns Africa experienced in the 1980s.

This cost increase phenomenon has compelled many regions across the world to consider ways and means of obtaining support from sources other than public funds. Cost escalation has induced governments around the world to implement measures to improve both the internal and organizational efficiency of their educational systems, and in those countries where student participation in higher education is heavily subsidized, the idea of cost recovery is gaining ground rapidly. These measures have two basic objectives: 1) reduce financial and human resource wastage; and 2) make the major beneficiaries, those who enjoy high private payoffs, contribute to the cost of their college education through the payment of tuition and/or fees or user charges.
CHAPTER IV
RESEARCH DESIGN/METHODOLOGY/PROCEDURES

Chapter IV describes the methodology and procedures used to collect and analyze the data for this study. The study was conducted in two distinct phases. The first phase focused on higher education costs and related concepts. The second phase comprises two parts, with Part I focusing on a survey of the higher education stakeholder attitudes toward the CRP and with Part II further clarifying the survey results through qualitative research. Each phase is structured around four major components: 1) Research design, 2) Instrumentation and measurements, 3) Data collection procedures, and 4) Data analyses techniques.

Phase I: Educational Costs

The first phase of the study focused on higher educational expenditures and costs. Higher educational expenditures are part of those educational and general expenditures connected with the instruction and welfare of the students. These recurrent costs include expenditures for compensation, instructional materials, supplies and equipment, and utilities, and also direct costs for scholarships, travel expenses, and the like. Costs of academic support such as those that enhance the instructional program--libraries, media centers, and computer centers, and those for institutional support such as public relations and development are also part of educational costs.

Research Design

This study utilized multiple design elements. First, this study is both a historical and cross-sectional study of higher education costs in Mali. It is historical in that it covers the entire post-independence period (1960-1996), but focuses more specifically on
the period from 1985-1986 because most of the data needed for this period were available. It is cross-sectional in that it focuses on major categories of higher education costs at a specific period.

Furthermore, the study addresses the cost descriptors identified by Adams et al. (1978) in terms of the following four major categories: 1) The primary descriptors indicate the type of cost objective associated with a cost and the basis for relating expenditures to a cost objective; 2) the secondary descriptors indicate the type of assignability, variability, and relation to fiscal period of a cost; 3) various methods of cost determination are used; and 4) units of measure including type of francs or dollars are used (past, current, future) and the appropriate time period covered is specified (annual and monthly).

Four broad categories relative to the object of the cost were considered with regard to the primary descriptors: specific categories of input such as objects of expense that include, but are not limited to, compensation, travel and utilities, as well as resource costs such as student enrollments and number of faculty employed; specific categories of output such as student graduation rates, number of repeaters, and number of degrees granted annually; categories of activity or function or purpose such as personnel, scholarships, and materials; and finally organizational units such as IHEs, departments, and the entire system of higher education. Furthermore, five bases have been utilized for relating costs to a cost object: first, in the historical (actual) base, the cost relationship is derived directly from past expenditure records; second, in the projected (estimated) base, the cost relationship is not actual; it is based on judgment about future costs whenever past costs were not available; third, in the standard (target) base, the cost relationship is
normative because it expresses a judgment as to what the cost should be; fourth, in the imputed base, there is a cost relationship where the cost is estimated for the cost objective assuming alternative actions; and fifth, in the replacement base, a cost relationship exists where the cost for the cost objective is estimated assuming current price levels for previously acquired goods and services.

Secondary descriptors deal with characteristics such as cost assignability: direct--cost incurred by the institution, students and their families; indirect--the opportunities forgone by students while attending college; recurrent--costs related to the current fiscal period; full--the sum of all of the costs used during a specific time period. Another secondary descriptor that is characteristic of cost is its variability with the changes taking place in the activity level. Three major costs were identified in this category: fixed cost, variable cost, and semi-variable cost. A third and last characteristic of cost is the relationship of the cost with the activity level of the cost object, such as total--the cost is the aggregate cost that relates to a particular object; average or unit--obtained by dividing the total cost by the number of units associated with the cost object; and marginal--the cost is associated with a specific change (increase or decrease in a cost object). In other words, the additional cost for achieving a cost object. A distinction is also made between operating costs (the impact of the costs is within the current fiscal period) and capital costs (the impact of the costs affects more than just the current fiscal period). Finally units of measure have been identified in order to describe costs, along with the time period associated with incurring the cost, such as annual and monthly. The computation of all costs were consistent with the general procedures outlined in Psacharopoulos (1986), and Gonzales (1993), to obtain mainly recurrent, direct, and unit costs.
Second, the study developed a cost recovery proposal for Mali which includes the following two basic components: 1) Price, that is, the introduction of the payment of tuition and fees in IHEs; and 2) the implementation of various efficiency measures in order to make the system of higher education more efficient and effective. A student loan scheme, an increase in internal efficiency of IHEs (e.g., improved faculty/student ratio, graduation rates), and other various aspects of a retrenchment policy are efficiency components of this proposal.

Cost Measurement

The major yardstick used to measure various categories of costs is the franc CFA, occasionally converted into a U.S. dollar amount. Furthermore, these measures are expressed in constant, current francs CFA or price adjusted francs CFA that are specifically related to francs at a base point in time. The time period associated with incurring the cost is also part of the cost measure. It is also specified whether a cost is annual, monthly, or determined on an accrual or non-accrual basis, that is, whether a cost is actual, estimated, targeted, or imputed. Then the appropriate measures are used to determine five major categories of costs: 1) recurrent costs, 2) direct costs, 3) capital costs, 4) indirect costs, and 5) hidden costs.

Recurrent costs refer to both variable costs (costs that do not vary with the activity level of the category of cost being considered) and factor costs (costs of resources used in the production process of educational output). Both these two varieties of costs include personnel costs and non-personnel costs. The vast majority of recurrent costs are actual, that is, derived directly from past expenditure records and aggregate for the entire system.
Some recurrent costs had to be estimated for each separate IHE, e.g., utilities, phone, and travel expenses.

Direct costs refer to costs borne by the government, students, and their families. The vast majority of direct costs, however, are borne by the government. These costs include major students' costs such as scholarships, travel from home towns to the location of the IHEs, health care costs, and sport activity and gym costs. Tuition cost, if estimated, is also an integral part of direct cost, although Mali's students are exempt from tuition payment. In the final analysis, the per-student unit cost was also computed, both at the aggregate level for selected years 1985-1995, and at the institutional level for 1987 and 1995 only.

Capital costs refer to the cost of durable goods such as land, buildings, and equipment. They are basically fixed costs because they do not vary with the activity level of the category of cost being considered. Capital costs, because of data limitations, were not computed and were not included in total expenditures of Mali's IHEs. Indirect costs refer to the earnings forgone by students during school time since this time is not costless. If this cost category was to be included it had to be imputed. To make the imputation easier, students' total scholarship costs for any given year could serve as a proxy for total indirect costs, because Malian students forgo no earnings since scholarships are awarded annually. Total indirect costs were not included in IHEs' total expenditures. The last category to be considered is hidden costs which include both foreign faculty and Malian faculty and administration housing costs. These costs are not explicit items that are reflected in budgetary records of the Ministry of Secondary Education, Higher Education.
and Scientific Research. They are instead part of aggregate housing costs for the entire state budget of Mali.

**Per-Student Cost Calculations**

An algorithm for calculating per-student cost was developed consistent with the one outlined in Gonzales (1993). Recurrent costs including personnel (such as faculty, administrator, and staff compensations), along with non-personnel costs (such as instructional materials, utilities, phone, and equipment) were either estimated or computed, and then considered in the form of current, constant, or adjusted francs CFA. In the final analysis, these costs were summed, analyzed, compared and contrasted over time and across institutions from 1985 through 1995.

Students' stipend costs were measured by the annual total amount of stipend allocation for all the IHEs expressed in francs CFA. Furthermore, student travel expenses from their home towns to the location of IHEs were estimated on the basis of the 1994 and 1995 average roundtrip costs by the appropriate means of transportation available for each region. Since accurate figures about the number of student travellers from and to each region was not available, the number of students eligible for the roundtrip by IHE served as a proxy. Then the roundtrip costs by region were averaged and multiplied by the total number of students of the IHE eligible for the roundtrip to obtain travel costs for 1994 and 1995. Then, based on these average roundtrip costs, costs of previous years from 1995 back to 1985 were obtained by adjusting the latest year cost by francs CFA 1,000 for inflation. Finally, all the travel costs for the past years were summed to obtain total travel costs for the time period considered.
The opportunity costs of the educational process included all resources allocated to IHEs that cannot be measured directly in money terms; however, an estimate of their value in alternative uses was included. The most obvious example here is the time spent by students when attending school instead of working. That element is measured in terms of the earnings forgone by students when they are going to school rather than seeking paid employment. The opportunity costs for the students in the IHEs of Mali, in purely economic terms, are virtually nonexistent because of the monthly stipend paid to most of the students. Therefore, total annual scholarship costs for all IHEs, however, can serve as a proxy for total opportunity costs for Mali's IHEs.

The costs of land (on which the IHEs facilities are built), implicit rent, and depreciation could be imputed. The land for all official and governmental use is free in Mali. Implicit rent, representing opportunities of renting the IHEs buildings are high in Bamako where the majority of the IHEs are located (6 out of 7). Depreciation representing the wear and tear or obsolescence of physical assets owned by the IHEs also incurs costs (Cohn and Geske, 1990). No attempt was made to impute these costs and they were not included in total monetary costs of Mali's IHEs.

Finally, total enrollments of tertiary education were computed. In the same way, the student full-time equivalent (FTE) total enrollments of the institutions of higher education for any given year were obtained by summing the total number of full-time students enrolled in each individual institution. In Mali, all students are full-time. Based on the figures obtained, the per-student average or unit cost and marginal cost, using total costs and total enrollments of higher education in Mali, was computed if needed.
Woodhall in Psacharopoulos (1987) argues that there are two different ways of measuring unit costs. The per-student unit cost or average cost is computed by dividing the total expenditure or costs by the total number of students enrolled in an institution or level of education. Psacharopoulos (1980) also contends that on the basis of these data the following variables can be constructed:

\[
AC, \text{ the average cost per student in higher education in U.S. dollars calculated as} \\
AC = \frac{\text{Total education budget in local currency} \times \text{USHARE}}{E} \times \text{Exchange rate}
\]

where USHARE is the share of education budget spent on tertiary education and 
\( E \) is tertiary level enrollment

Psacharopoulos (1980) further reveals that the "real cost" per student is computed in the following manner:

\[
AC, \text{ where } Y \text{ is the country's per capita income.} \\
Y
\]

He further contends that the "real cost" per-student variable "is constructed in order to obtain a realistic proxy of the true cost per university student relative to the country's resources" (p. 22). These different cost measures should measure, with a certain degree of accuracy, the per-student unit cost necessary to design a better cost reduction strategy in the IHEs.

The last step in the measurement procedure involves the identification of criteria relative to the specification of the per-student unit cost in higher education along three major dimensions: High, middle, and low. These criteria can be viewed in three different ways. First, compare the per-student unit cost in higher education to the per-pupil expenditure in primary or secondary education, and then examine the equity issues involved. This comparison may reveal significant disparities between the per-student unit
cost in primary education and higher education. According to Psacharopoulos (1986), the per-student unit cost in higher education in Mali in 1986 was 88 times the per-student unit cost in primary education. Psacharopoulos concluded: "In short, too great a share of public resources goes to higher education levels of education relative to lower ones" (p. 10). Second, compare the per-student unit cost to the country's per capita income. In Mali, the per-capita income was $210 in 1987 (World Bank Development Report, 1988), and based on one computation, the per-student unit cost was estimated to be francs CFA 608,000, equivalent to U.S.$ 2435. The per-student unit cost was 12 times higher than the per-capita income. Third, the per-graduate student unit--a measure of how efficient a system of higher education is in terms of input/output ratio can be considered. For instance, in 1987, this was estimated to be U.S.$ 2435, a high per-graduate student unit cost.

Cost Data Collection Procedures

The collection of quantitative cost data measures constituted the first phase of the study. In this respect, a letter describing the major objectives of the study, its significance for the educational system of Mali in general, and higher education in particular, was mailed to the officials of the Ministries of Finance and Trade, Secondary Education, Higher Education, and Scientific Research in late December 1995 and January 1996. The basic purpose of this letter was to secure cooperation from these officials and to gain their endorsement of the study. The second phase of data collection culminated in a field trip in Mali in February and March 1996 for the completion of the data collection procedures. An official document of endorsement released by the Office of the National Director for Higher Education dated March, 1996, granted permission to collect data.
from all the Agencies of both the Ministries of Secondary Education, Higher Education, and Scientific Research and Basic Education. In addition, the same type of endorsement was received from the Ministry of Finance and Trade through the National Director of the Mali State Budget, who acted as an advisor during the data collection period.

Both primary and secondary data sources were collected. First, the National Directorate of State Budget, along with the Financial Agencies at the Ministries of Higher Education, and Basic Education provided most of the primary source data pertaining to financial and budgetary records about higher education in particular. Secondary source data were also provided by the same agencies, and the National Center for Statistics. Finally resource cost data that refer to data measured in physical units, such as the number of faculty members, students, degrees granted annually, grade repetition rates, and graduation rates were also collected using basically the same procedures for gathering cost data.

Cost Data Analysis Procedures

For the first phase of the study, several types of cost analysis techniques were performed. Three principal methods of cost analysis have been utilized in this study: 1) composition analysis; 2) relational analysis or trend analysis; and 3) direct comparison of two costs. First, composition analysis examines aggregate costs broken down into their main component parts to gain a better understanding of the overall cost. These breakdowns are shown in francs CFA and as a portion or percentage of the total. For example, higher education direct costs are broken down into their main sub-categories and compared from 1985 to 1995.
Second, relational analysis establishes a functional relationship between cost and an independent variable. Since the independent variable is time, this form of cost analysis is known as a trend analysis. For example, this method examines the behavior (change over time) of costs over time, along with the cost variation with changes in the volume of operations such as student enrollments, and faculty size and composition.

Third, the last method of analysis known as direct comparison also examines observed differences among costs. For example, the study focuses on comparisons between actual costs and budgeted costs, between direct costs of two or more years, between or among the costs of organizational units such as the IHEs, between per-student unit costs across IHEs, and recurrent and non-recurrent costs over time.

Finally, the cost analysis approach was eclectic simply because no one specific method of cost analysis was used with one specific category of costs. For example, composition analysis was used to analyze both average cost and/or per-student marginal cost, along with direct costs. Direct comparison was used to analyze both recurrent and nonrecurrent costs, as well as indirect costs over time. Direct analysis was used to analyze all types of costs.

Resource cost data were analyzed. Enrollment trend analysis was utilized to analyze variations in individual IHE's, as well as in all IHEs' total enrollments over time. Major reasons for change were identified and explained. Similarly, graduation and repetition rates were also obtained and analyzed for all IHEs over time. Because data were not available for all IHEs over time, two IHEs, the National School of Public Administration (ENA) and the National School of Medicine and Pharmacy (ENMP) which
had maintained data about graduation and repetition rates, were selected for further analyses.

Phase II: Stakeholder Groups' Attitudes

The second phase of the study was comprised of two distinct parts: a survey research part and a qualitative research part. Qualitative research was used as a tool for adding depth and detail to the previously completed quantitative data analysis. A sample of five administrators was selected for an open-ended standardized interview and a case study was also written about each of them.

The conceptual framework of the study attempts to integrate two areas of inquiry: the economic theory of cost and related concepts together with the attributional theory in psychology. These are used to examine major types, determinants, behavioral characteristics of higher educational costs over time, to design a cost recovery proposal (CRP), and to test the economic and social feasibility of this CRP. The proposal highlights the multiple reciprocal relationships existing among stakeholders' attitudes toward the proposal, along with human factors such as ability and willingness to pay and major indices of efficiency such as internal efficiency, cost recovery, downsizing and monitoring.

Part I: Quantitative Research Design

Dependent variables in the research design were fifteen dimensions of pricing and efficiency, and retrenchment in IHEs, that were factored and condensed into the following three major underlying indices of efficiency: 1) organizational and internal efficiency, 2) cost recovery, and 3) downsizing and monitoring. Independent variables in the research design were four dimensions of the Higher Education Stakeholders' Survey (HESS): 1)
willingness to pay, and 2) ability to pay for education, 3) economic values of and returns to higher education, and 4) cost-benefit beliefs.

First, to investigate the relationships among the stakeholders' attitudes toward the indices of efficiency and human and economic concepts, such as willingness and ability to pay for education, economic values of and returns to higher education, and cost-benefit beliefs, a combined set of quantitative and qualitative design elements and procedures was utilized. The quantitative methodology utilized the survey and correlational research designs described by Borg and Gall (1989). With regard to the correlational research design, the relationships among study variables were explored.

Second, to empirically examine the structure of the HESS, a series of factor analysis procedures was conducted. The principal components method was used to extract factors. Then, orthogonal solutions using varimax rotation procedures were completed. Subsequently, separate intercorrelation matrices among factors were generated using items retained on factors by inspection and by using factor scores computed. Finally, based upon the results of the factor analyses of the HESS, items were retained on subscales identified according to a set of explicit decision rules for factor loadings (e.g., magnitude, independence of loadings). Subscales and items retained with the established decision rules were used in subsequent data analyses.

Sample

The initial sample for the study consisted of all administrators in the 7 institutions of higher education in Mali, along with all key administrators and professional staff at the National Directorate for Higher Education (DNES). The initial sample also comprised students from 5 of the 7 IHEs, with matching parents or guardians, faculty, and
legislators at the 1992 legislature of the III Republic of Mali. Because participation was voluntary, some stakeholder groups did not participate. Following completion of quantitative data analyses, a number of key higher education outlier administrators were identified for the qualitative part of the study. This set consisted of five outlier administrators from the total number of respondents with whom interviews were conducted to elicit the reasons they perceived things the way they said they saw them during the survey. These administrators were identified based on two quantitative results, along with one major IHE characteristic: 1) The proportion of response rates to the administrator population; 2) the scores obtained by administrators on key survey items as they were ranked from highest to lowest; and 3) the institution type and location.

Administrators

The entire population of administrators (N=70) was selected for the study. This population consisted of the National Director for Higher Education, along with the general directors, assistant directors, general secretaries, department chairs, and chief financial officers of all the 7 IHEs, including the Dean, two Assistant Deans, General Secretary, and Chief Financial Officer of the National Medical School (ENMP).

Faculty

Faculty members of 5 of the 7 IHEs of Mali were randomly selected from the official listings of ranks (professor, associate professor, assistant professor, and teaching assistant), as well as from categories (full-time equivalent and part-time) for the study. Using a table of random numbers, 30 faculty members were selected per IHE (N = 162), with the exception of the Superior Institute for Training and Applied Research (ISFRA), where 8 faculty (two thirds) of the entire population (12 faculty) were selected to be
included in the study. No sample was obtained from the National Institute for Agronomy (IPR) and the National Medical School (ENMP) because the former was not in session and the faculty of the latter were not available at the time of the field trip in Mali.

Students

Students for the study were randomly selected from the official head count rosters (Annuaire des Statistiques Scolaires, Enseignement Supérieur 1995-1996) compiled on an annual basis by the DNES for all of the IHEs. Using a table of random numbers, 40 students were selected per IHE (N = 200) to be included in the study. No sample was obtained from IPR because this IHE was not in session at the time of the study. No sample was obtained either from the graduate school (ISFRA) because students of this institution are nontraditional students that could not be reached at the time of the field trip in Mali.

Parents

A sample of students' parents or guardians residing in the Bamako Metropolitan area was obtained and surveyed. The sample consisted only of the parents or guardians of participating students in the study. It does not constitute a nationally representative sample and is not a probability sample in that there was no random selection of parents and guardians. A sample of parents and guardians (N = 200) to match the student sample size was selected to be included in the study. The rationale for selecting a sample of parents residing in Bamako is that this procedure was meant to minimize the time and the cost devoted to the field study.
Legislators

The entire population of the 1992 - 1997 legislature of the III Republic of Mali was surveyed. The legislators were affiliated with 11 political groups out of a total of forty five officially recognized political groups in Mali. These 11 political groups account for over 95 percent of the total electorate of Mali. All the legislators (N = 115) were selected and included in the study. A summary of the total number of participants selected for the study in each stakeholder group is shown in Table 4.1 below.

Instrumentation and Measurements

In developing the Higher Education Stakeholders' Survey (HESS), items relative to human and sociodemographic factors, along with economic factors—educational costs, cost recovery, and efficiency—were identified and selected in a multi-stage process. The first stage was conceptualization. Initial screening of values, beliefs, interests, along with cost, cost recovery, and efficiency issues for inclusion in the study was based on whether they provided insight into the contextual factors affecting stakeholders' attitudes toward a CRP and were relevant to the situation of a developing country such as Mali.

Second, interview sessions were conducted informally with several Malian graduate students, professionals, and faculty across the U.S. to determine relevant items for inclusion in the survey. Similar interviews were conducted with various groups of graduate students and faculty from different developing countries, mainly sub-Saharan African countries. In addition, faculty advisers' suggestions were also crucial in the items identification process.

Third, an initial pool of fifty three items was selected. These fifty three items were those which, in the researcher's judgment, and following extensive reviews and
Table 4.1. Number of Study Participants in Total Sampling Design by Each Key Stakeholder Group

<table>
<thead>
<tr>
<th>Stakeholders' Groups</th>
<th>Number (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>200</td>
</tr>
<tr>
<td>Parents</td>
<td>200</td>
</tr>
<tr>
<td>Faculty</td>
<td>162</td>
</tr>
<tr>
<td>Legislators</td>
<td>115</td>
</tr>
<tr>
<td>Administrators</td>
<td>70</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>747</strong></td>
</tr>
</tbody>
</table>
syntheses of pertinent literatures, and in the informal assessments of several people including three educational cost experts, best represented the relevant features about various dimensions of cost, cost recovery, and efficiency, such as willingness and ability to pay, economic values of and returns to higher education, and cost-benefit beliefs. The items were classified into categories as they related to each stakeholder group's characteristics in Mali: values, interests, and belief system, types of costs, ability and willingness to pay, family size, income, net wealth and expenses, students' and governmental responsibility in the funding of higher education, along with issues relative to efficiency such as graduation and repetition rates, and teacher/student ratio.

Fourth, the instrument was translated into French in Mali, and an additional item crucial in estimating the ability to pay for education was summed and served as the basis for the development of an ability to pay index (API). This item has four components relevant in measuring respondents' levels of income, net wealth, family size, and expenses. Each component was then measured on a three level scale ranging from low or small (1), average or middle (2), and high or large (3).

Fifth, a group of 10 stakeholders (3 parents, 3 faculty, 2 students, and 2 administrators) was selected for participation in a pilot study during the field trip. These persons were hand-delivered the instrument. Nine of them responded to the pilot study. Based on the results of the pilot study, one item was broken into two items (reduce current dropout rates, and reduce current repetition rates in IHEs). The final instrument included these items.

Sixth, for the purpose of uniformity in responses provided to the questionnaire items, two versions of the Higher Education Stakeholders' Survey (HESS) were
developed: A student version and a parent, administrator, faculty and legislator version. The two versions have identical formats but are slightly different in content. The major difference lies in the demographic and background information, and the formulation of two items in the willingness and ability to pay for education category of the instrument. These two items were aimed at establishing responsibility for the payment of tuition by the student or his/her parent/guardian.

Higher Education Stakeholders' Survey/Student Attitude Opinionnaire (HESS/SAO)

The HESS of Student Attitude Opinionnaire (HESS/SAO), included as Appendix A, was developed to collect data for this study. The response format for each of the questionnaire items was a Likert-type forced-choice scale consistent with attitude scaling techniques. The scale points for each of the items were: 1) Strongly Disagree; 2) Disagree; 3) Agree; 4) Strongly Agree.

The Alpha internal consistency of the questionnaire items was examined using data for the total sample of faculty, students, parents, administrators and legislators. Separate internal consistency coefficients were computed for the total sample of stakeholders for each of the four factored subscales of human and economic concepts, and the three factored subscales of attitudes toward the indices of efficiency. The data selected for use in the questionnaire include, but are not limited, to student classification, personal data, demographic data, socioeconomic data, major field of study, parents' educational attainment and socioeconomic data, and data on students' willingness and ability to pay for part of the costs of their higher education. Data were also collected about their attitude, that is, their receptivity to the CRP. After initial data collection, a series of factor analysis was completed to explore empirical inspection of the HESS subscales.
Higher Education Stakeholders' Survey: Parent/Administrator/Legislator/and Faculty Attitude Opinionnaire (HESS/PALFAO)

The HESS of the Parent, Administrator, Legislator, and Faculty Attitude Opinionnaire (HESS/PALFAO), included as Appendix B, was also developed to collect data for this study. This instrument has the same major features as the one developed to collect data from the student sample in terms of format, but differs slightly in terms of content. The same number of items was identified and selected for the two instruments, except past and current employment information.

Development of Ability to Pay Index (API)

In the absence of an Ability to Pay for Education Index (API) in Mali, it was necessary to develop such an instrument. Thus, in developing one, a multi-stage process was required. The first stage was conceptualization. Following extensive reviews and syntheses of pertinent literatures, two important concepts crucial to the determination of the API were identified: 1) stakeholders' disposable income, and 2) their net wealth. McEachern (1991) revealed that Keynes argued that the most important determinant of how much people spend is how much they have available to spend. That is, their disposable income. Therefore, given the level of income, another key factor influencing people's ability to pay is each household's net wealth.

Conceptually, net wealth is the value of all the assets that each household owns minus any liabilities, expenses, and debts owed. The greater the level of net wealth, the more able a household is to consume; e.g., more durable goods or educational services. An attempt was made, therefore, to develop an index of family wealth, income, and expenses. Data were also gathered on family size. Then the appropriate levels of wealth
and income were combined, minus different levels of expenses divided by family size to develop the API.

To identify various income groups, three income levels were selected. First, the low income group was comprised by households with a gross annual income of francs CFA 136,000 or below (average monthly income of about francs CFA 11,500), since this amount was determined by experts at the National Center for Statistics (DNSI) as the poverty level in Mali. Second, the middle income group was comprised of households with a gross annual income ranging from francs CFA 138,000 to francs CFA 1.2 million (that corresponds to a low of francs CFA 12,000 and a high of 100,000 of average monthly income). Third, the highest income level was comprised of households with a gross annual income ranging from francs CFA 1.3 million or above (average monthly income of about francs CFA 108,500). Furthermore, the tuition price ranged between a low of francs CFA 6,000 and a high of 26,000 or above. This selection was based on the official annual tuition to be paid by students at Mali University and the monthly rate of the stipend which is currently at francs CFA 26,250.

The second stage was the determination of the magnitude of all the variables, including family size and expenses that might somewhat affect people’s ability to pay. Levels of disposable income, net wealth, and expenses were ranked from low (1) to middle (2) and high (3), whereas family size was also ranked from small (1) to average (2) and large (3). A family of (2-5) persons (father, mother and 3 children) is considered small, 6-9 average, and above 10 large in Mali since the average family size has been determined by the DNSI to be 5.7 members, nationwide based on the results of the 1987
Mali National Population Census results. A household’s estimated API was computed based on the data provided on the surveys.

Respondents completed the HESS by considering each of four key questions, in relation to perceived personal ability and collective ability of other stakeholders’ groups to pay for higher education. The key questions were as follows: 1) If higher education was not free, I would be able to contribute to the cost of higher education for myself and/or my relatives; 2) If the Malian government developed a policy that required individual students to pay for part of the total annual costs of their higher education, what percentage of those costs do you think students should be required to pay? (Check only one). a. 0-25%; b. 26-50%; c. 51-75%; d. 76-100%; 3) If my family and my own expected contribution to the costs for my higher education degree exceeded annually the following amounts below, I would probably drop out (Check only one). a. F CFA 6,000-10,000; b. F CFA 11,000-15,000; c. F CFA 16,000-20,000; d. F CFA 21,000-25,000; e. Over F CFA 26,000; 4) Given the following four variables (wealth, income, family size, and expenses). If 1 is low, 2 middle, and 3 high relative to the degree of your net wealth; and if 1 is low, 2 middle, and 3 high relative to your total disposable annual income; and if 1 is small (2-5), 2 middle (6-8), and 3 large (9 and above) relative to your family size; and 1 is low, 2 middle, and 3 high relative to your household expenses; then answer all items by filling in the bubble next to the appropriate response.

Assuming that a large household (3) scores low (1) on disposable income, low (1) on net wealth, and low (1) on expenses, its API would be the total sum of disposable and net wealth, minus expenses divided by the family size. That is, $1 + 1-3/1 = -1.00$. Furthermore, assuming that another household scores high on disposable income (3), high
on net wealth (3), low on expenses (3), and low on family size (1) its API would be $3 + 3 - \frac{1}{1} = 5$. In theory, any given household ability to pay index would range between -1.00 and 5.00, with a -1.00 indicating a very low ability to pay and 5.00 indicating a very high ability to pay. (the ability to pay being viewed as the monetary amount a household is expected to pay given a certain level of expenses and liabilities).

In practice, however, the API ranged from -1.00 to 3.00. Thus, three negative values of the individual API were found within stakeholder groups and across institutions. These values were: -1.00, -.50, and -.33. To make the interpretation of the API more meaningful and easier, a zero base scale was obtained by adding 1.00, .50, and .33 to each individual API within the stakeholder group, depending upon the negative value of the API observed in the group. Then, the following procedure was adopted to compute various APIs. First, each individual's API was computed if there were no missing values. Second, wherever negative individual API values were observed within a given group, the API was made zero based by adding the appropriate positive value to each individual's API. Third, the stakeholder group's composite API was computed within each institution by averaging all the APIs within the group. Fourth, the overall composite API was computed for the whole stakeholder group across all the institutions by averaging each group's API.

Willingness to Pay (WTP)

In an attempt to assess stakeholder groups' willingness to pay for higher education in Mali, respondents completed the HESS by considering eight questions in relation to perceived personal willingness to pay for education. For example, two of these eight questions were as follows: 1) If the Malian government decreased the amount of money
allocated for the operation of Mali’s IHEs, I am willing to pay part of the costs; 2) If the Malian government did not pay for the costs of higher education, I would be willing to contribute to the cost of higher education for myself and my siblings. Given the fact that willingness to pay differs from one person to another, these key items reflect an individual willingness to pay, and are, therefore, separately or in combination, a relatively accurate measure of each individual’s willingness to pay for education.

Data Collection Procedures

For the survey data collection, the same procedures were basically utilized. As previously stated, an official letter of endorsement was released from the Office of the National Director for Higher Education, and an approval letter was also granted by the Office of the Speaker at the National Assembly of Mali. Before the administration of the survey, a conference was held between the researcher and the administration of each IHE to explain the objectives of the research, and solicit the individual’s assistance for a convenient administration of the instrument. In the National Assembly of Mali, a similar conference was attended by the Chief of Staff of the House Speaker, House Educational Counsel, and Legislative Secretary.

The second stage consisted in the administration on a pilot of the questionnaire instrument--HESS/SAO--to a small group (n=10) of students, faculty, parents, faculty, and administrators to examine completion time requirements, clarity of items and directions, and to receive suggestions for item revisions in Bamako. Information collected from this protocol was reviewed and both the questionnaire format and content was slightly modified accordingly.
The last stage consisted in the administration of the final version of the instrument. Students, faculty, and administrators' surveys were hand delivered through assistant directors or general secretaries in IHEs. Parents or guardians' surveys were turned in through participating students. Legislators' surveys were also hand delivered through the Legislative Secretary. Participants were requested to complete a survey instrument within ten (10) working days from the time it was received and return responses to assistant directors or general secretaries in IHEs whatever the case was, and to the Legislative Secretary in the National Assembly for collection. Follow-up and personal contacts were made to get a higher response rate. Furthermore, several other supplementary data relevant for the purpose of this study were also collected during this field trip in Mali.

Data Analysis Procedures

Several statistical techniques were utilized to analyze data about higher education major stakeholder groups' attitudes toward the proposal in terms of support or opposition.

1. Descriptive statistics: Descriptive statistical techniques were performed to:

1) document characteristics of respondents, and 2) examine scores and variations on instrument items and subscales. These descriptive statistics included frequency distributions of students by region of origin, gender, socioeconomic backgrounds, family size, and income groups, along with means and standard deviations on dependent and independent variables.

2. Inferential statistical analysis: Pearson moment correlation coefficients were computed in order to examine the relationships among faculty and administrator attitudes toward the human and economic concepts and indices of efficiency. Alpha internal
consistency reliability analyses, correlation, regression analysis, and multivariate analysis of variance—MANOVA—were performed to examine various research questions. Factor analysis was also used to identify the underlying dimensions or "factors" that account for the relationships observed among the variables measured by the Higher Education Stakeholders Survey.

Part II: Qualitative Study

The qualitative design elements of the study utilized a series of standardized open-ended interviews and case studies with outlier higher education administrators. The interview was conducted by a professional reporter who was knowledgeable about higher education. It was consistent with interview strategies outlined in Spradley (1979 & 1980) and Patton (1990), commonly referred to as the Developmental Research Sequence (D.R.S.), and the case study approach recommended by Yin (1989). Furthermore, the qualitative measures were used as tools for adding depth and detail to previously completed quantitative data analysis. They also provided some rationale and justification for the survey section of the study. In general terms, the relationships among them were complementary.

Administrator Selection

Five administrators were selected for the follow-up interview and case study because of their dual role as parents and top decision makers. Their scores on the surveys were ranked from highest to lowest on a number of categories of variables within institutions: willingness, ability, students responsibility in higher education funding, government responsibility, and free provision of higher education. Two administrators were selected at the School of Business Administration (EHEP), a 2-year institution which
had an 85 percent response rate for administrators. One administrator was selected at the National Directorate of Higher Education (the central office) which had a 64 percent response rate, and one was selected at the Higher Institute for Training and Applied Research (ISFRA) which had a 75 percent response rate. One was selected at the School of Agronomy and Veterinary Medicine (IPR) which has a response rate of 70 percent. Since the IPR main campus is located 40 miles away, it was more convenient and cost effective (to minimize the interview cost) to select the Director of the Bamako campus.

Instrumentation and Measurement

After completion of the survey data analysis, a sample of five administrators was identified and selected for the qualitative phase of the study. The interview was consistent with the interview techniques outlined in Patton (1990). A standardized open-ended interview protocol was developed for each administrator to assist in the collection of face-to-face interview data (see Appendix C).

These instruments were basically the same in terms of content and format. Each one consisted of a pool of thirty items, of which twenty were selected from the HESS. Twenty six questions were the same for all respondents, while the remaining four questions were selected based on different scores obtained by each administrator on various items on the HESS. The interview plan was nearly 90 percent uniform for the total sample. The standardized open-ended interview consisted of a set of questions carefully worded and arranged with the intention of taking each respondent through the same sequence and asking him/her nearly the same questions with essentially the same words. The instruments consisted of the following 4 categories of questions:
1) Experience and personal background questions. This section consisted of 10 questions about the administrator's career path and term of tenure in higher education, his/her schooling and college attendance, along with the duration of his/her stay overseas. They were aimed at eliciting descriptions of experiences, and current and past job responsibilities. What is your current position? Where did you go to graduate school? How long did you stay abroad?

2) Opinion and value questions. These were questions aimed at understanding the cognitive and interpretive processes of respondents, and at eliciting information about their economic and political philosophies, along with family values that might have been major determinants in their attitude formation toward the current funding structures of higher education in Mali. What is your philosophy about the funding of higher education? Do you think that this philosophy might have been influenced by the education funding philosophy of the country where you received your college degree?

3) Attitude questions. These were questions aimed at understanding respondents' willingness and ability to pay for higher education, that is, their attitudes toward the CRP. They are aimed at eliciting respondents' attitude toward efficiency, free provision of higher education, various stakeholders' responsibility toward the funding of higher education and who (including the government, students and their parents, along with international governmental and non-governmental organizations) should bear what proportion of these costs. What do think about the payment of tuition and fees in higher education? Who should be responsible for the funding of higher education?

4) Action questions. These were questions aimed at understanding respondents' plan of action about what they can do to make higher education more efficient. These
questions are aimed at eliciting respondents' ability to act (formulating and implementing plans of action) in addressing current issues in higher education such as curbing rising operational costs, implementing student loan programs, and so forth. How can a student loan program be implemented in a poor developing country such as Mali? What can be done to improve the quality of instruction relative to the cost of higher education?

Data Collection Procedures

The interview protocol was hand delivered to all administrators by late September 1996. The subjects were directed to confirm their participation upon receipt of the protocol and to prepare for the interview ahead of time. A professional journalist was identified to conduct the interviews. He was instructed to follow the sequencing of the questions in order to obtain data that are systematic and thorough for each respondent. In addition, he was given little room for flexibility and spontaneity. He was, however, instructed to probe and explain questions when necessary. The interviews were conducted on October 2 and 3, 1996 in Bamako. They were taped and mailed to the researcher who received them by late October 1996. Then, they were transcribed, translated into English, and analyzed.

Data Analysis Procedures

The data obtained by the qualitative method were analyzed using analysis techniques consistent with the strategies outlined in Spradley (1979; see also Hammersly & Atkinson, 1983; Yin 1989, Patton, 1989 & 1990). Other qualitative inquiry methods such as note-taking and recording, along with narrative reporting, were used to analyze the data (Van Maanen, Dabbs, and Faulkner, 1982; Briggs, 1986; Patton, 1990; Spradley, 1990; and Bogdan & Bilken, 1992).
The major qualitative data analysis technique utilized was the Developmental Research Sequence (DRS) in which three major areas of analysis were considered. First, Domain Analysis considers broad categories of higher educational costs that includes other small categories. Second, Taxonomic Analysis is a set of categories organized on the basis of a single semantic relationship. Third, Componential Analysis is the systematic search for the attributes and components of stakeholders' attitudes toward the CRP.

With regard to the data collected from the standardized open-ended interviews, the techniques identified in Patton (1990) as cross-case and/or cross-interview analysis for each question in the interview was also used. According to Patton a case analysis means writing a case study for each person interviewed or each unit studied, whereas cross-case analysis means grouping together answers from different people to common questions or analyzing different perspectives on major issues. With specific reference to the type of data analysis technique to perform, the qualitative data analysis was eclectic, that is, it contained elements from both cross-case and/or cross-interviews in that some of the questions were more prone to be analyzed using one method rather than the other.
CHAPTER V

RESEARCH RESULTS

This chapter contains a descriptive analysis of the costs of higher education in Mali, and also the results from the survey of various higher education stakeholder groups about their receptivity to the cost recovery proposal (CRP). The first section presents the basic types, the major determinants, and the behavioral characteristics (change over time) of higher educational costs. Unit costs and efficiency measures identified as particularly important for the improvement of the internal and organizational efficiency of higher education in Mali are also presented. The second section presents the results of the statistical analysis of the survey of various higher education stakeholder groups' attitudes toward the Cost Recovery Proposal (CRP). Descriptive statistics for the sample, factor analysis for the Higher Education Stakeholders’ Survey (HESS), descriptive statistics for the independent and dependent variables, reliability analyses, intercorrelations of the HESS subscales, and additional analyses are presented.

Analyses Pertinent to Research Questions

Eight research questions were formulated to guide the analyses in this study. The first four research questions focused on the identification of the basic types, the major determinants, and the behavioral characteristics of various costs of higher education in Mali's IHEs for selected years. Per-student unit costs are calculated, and certain efficiency measures are suggested for IHEs in Mali. Research questions five and six were addressed through inspection and comparison of descriptive statistical results for the dependent and independent variables, and for the demographic variables of the various higher education stakeholders' groups in Mali. Qualitative research questions seven and
eight address top-level higher education administrators' attitudes toward the CRP. The results of the analysis for each research question are presented below.

Basic Types of Costs

Research question #1 asks, What are the basic types, the major determinants, and the behavioral characteristics of higher education costs in Mali between 1985 and 1996? The analysis of the budgetary sources to education in general, and higher education in particular, was drawn from the budgetary records of the Ministries of Finance and Trade, and Secondary Education, Higher Education, and Scientific Research. An examination of these sources revealed that higher education accounts are broken down into 10 expenditure classifications: 1) Personnel, 2) Materials and operations, 3) Supplies, 4) Mission and travel allowances, 5) Phone and utilities, 6) Personnel travel expenses, 7) Subsidies, 8) Scholarships and fellowships, 9) Tuition and fees, and 10) Equipment and investment. Further examination of these sources revealed other expenditure classifications such as students' domestic transportation costs to and from the locations of IHEs, housing allowances for Malian administrators and faculty, including expatriate faculty members, and students' health care costs. Furthermore, supplementary payments, including payments for overtime work, extra responsibilities, and costs of in-service teacher training and staff development seminars are also part of the expenditures of higher education in Mali.

The central educational budgets and records have several limitations. Foremost, they omit items such as the opportunity cost of higher education, that is, the value that those resources used in higher education would have in their best alternative uses. This, in fact, is what the economy forgoes or sacrifices in terms of other goods and services in
order to have higher education. Therefore, opportunity cost and "capital" accounts, are considered an integral part of any educational budget, because educational spending includes not only expenditures on current activities, but also outlays for future periods. Depreciation of buildings and equipment during the current period also ought to be added to current costs, as well as the implicit rent that represents forgone opportunities of renting higher education buildings for noneducational uses. The above mentioned expenditure classifications have been collapsed into five major categories of costs: 1) Recurrent costs, 2) Capital costs, 3) Direct costs, 4) Indirect costs, and 5) Hidden costs.

Recurrent Costs

Recurrent costs consist of many different inputs, some very large (particularly faculty costs) and others relatively small (office supplies, travel allowances). Recurrent costs also include the following types of costs: material and operational, instructional materials, personnel travel expenses, gym and sports equipment, phone and utility, administration and faculty housing allowances, and supplementary payments to faculty (such as overtime work). In general, recurrent costs that are variable costs that can be broken down by "object" of expenditure (e.g., faculty, administration, staff costs, and various non-personnel costs) and by "purpose" of expenditure (e.g., transportation, utilities, phone, materials, supplies, gym equipment, and so forth).

Table 5.1 shows total recurrent costs (personnel and non-personnel) for all IHEs of Mali for 1994/95. As may be observed from this table, in 1995, total recurrent costs in Mali's IHEs amounted to francs CFA 2.23 billion, francs CFA 1.7 billion of which was spent on personnel costs and francs CFA 559 million on non-personnel costs. Total personnel costs accounted for 75 percent of total recurrent costs in 1995. Personnel costs
Table 5.1. Classification of Recurrent Costs by Type and Purpose: Institutions of Higher Education in Mali, 1994/1995 Academic Year (in Millions of Current Francs CFA)

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<td>Transportation</td>
<td></td>
<td>13.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gym</td>
<td></td>
<td></td>
<td>19.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>558.73</td>
</tr>
</tbody>
</table>

GRAND TOTAL = Francs CFA 1,693 + Francs CFA 558.76 = Francs CFA 2,2251.76

Note: In 1995 the exchange rate was $1 U.S. to Francs CFA 500
Source: Adapted from Mali State Budget, Office of the National Budget, Ministry of Finance and Trade, Bamako, Mali (1995 Fiscal Year). Totals were computed by the author.
include faculty, administrative, and staff cost, along with overtime supplementary payments to full-time, as well as part-time faculty members. If other categories of personnel costs such as faculty and administrative housing costs are added up, total personnel cost would be much higher. Non-personnel costs have been dominated in recent years by instructional material and operating costs, and utility costs.

The data in Table 5.1 further reveal that supplementary payments to faculty, both full-time and part-time, for overtime work account for a significant portion of the total personnel costs of Mali’s IHEs. Overtime supplements to faculty are currently paid based on an hourly rate of francs CFA 2,000 for doctorate degree holders, and francs CFA 1,750 for other degree holders. This rate was increased by nearly 100 percent in 1979 to attract and retain more qualified faculty. Overtime refers to the extra duties faculty members perform beyond their normal teaching load. Whereas supplementary payments to full-time faculty in Mali’s IHEs amounted to francs CFA 304 million of total personnel costs in 1995—about 18 percent of these costs, supplementary payments to part-time faculty were even higher at francs CFA 348 million—about 20 percent of total personnel costs.

Capital Costs

Capital costs represent fixed costs which are associated with durable educational inputs, such as land, buildings, furniture, and equipment, whose lifespan clearly exceeds one fiscal year if properly maintained. Since the central government in Mali owns both the land and educational buildings, it virtually incurs no costs relative to the purchase and renting of property. The central government, however, incurs costs devoted to the building of new structures and the renovation and maintenance of old ones. In addition,
Mali’s IHEs receive a lot of equipment from donor international agencies and foreign
governments within the framework of bilateral and/or multilateral cooperation. The costs
of renovation and maintenance of old buildings constitute an item in the budgetary
documents of higher education. Total costs on renovation and maintenance rose from
francs CFA 3.7 million in 1994 to 90 million in the 1995 Mali State Budget to keep up
with the deferred maintenance of the IHEs. Total capital outlays on the building of new
structures in higher education were not available.

Direct Costs

The majority of the direct costs of higher education in Mali are incurred by the
central government, since tuition and fees are virtually nil. In addition, the major costs
of student living are also covered by the government in the form of scholarships and
stipends granted to the majority of Malian students. Thus, students and their families do
not incur any direct costs. The major components of direct costs in Mali’s IHEs are: 1)
Tuition waivers costs, 2) Scholarship and stipend costs, 3) Transportation costs to and
from the locations of Mali’s IHEs, 4) Instructional material costs, 5) Students’ health care
costs, art and sport equipment costs, and 6) Costs of supplies, such as notebooks, pens
and pencils.

Total direct costs except for tuition waiver costs are summarized in Table 5.2.
Total direct costs in Mali’s IHEs were estimated to be about francs CFA 2.86 billion in
1995. Scholarship costs that amounted to francs CFA 2.25 billion accounted for about 79
percent of total direct costs in Mali’s IHEs. The cost of instructional materials was
estimated to be about francs CFA 337.8 million and accounted for about 11 percent of
total direct costs. Student travel costs to and from their home towns to the locations of

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IHEs were estimated to be francs CFA 241 million and represented about 8 percent of total direct costs.

As may be observed from Table 5.2, total scholarship costs represented the bulk of total direct costs at each individual IHE. Since scholarship and travel costs are primarily determined by enrollments, they are higher in institutions with high enrollments. For example, the National School for Administration (ENA) where enrollments topped nearly 2200 students in 1995, ranked first in total scholarship and transportation costs and second in instructional material costs. In this school, total direct costs amounted to francs CFA 836 million in 1995. Scholarship costs were estimated to be francs CFA 672.44 million which accounted for 80 percent of this institution’s total direct costs. Finally, ENA’s total direct costs represented about 29 percent of all IHEs’ total direct costs, whereas their scholarship costs represented about 30 percent of the total scholarship package of all of the IHEs combined. Far behind ENA, the National Institute for Agronomy (IPR) ranked second in scholarship costs and first in instructional material costs, whereas the Higher Teachers’ Training College (ENSUP) ranked second in transportation costs and third in instructional material costs.

Indirect Costs

In economic theory, indirect cost is also an integral part of economic costs. It is best evidenced by earnings forgone by students, also known as the opportunity cost. The main components of indirect costs in Mali’s IHEs refer to earnings forgone by students attending school instead of working, and the implicit costs of depreciation, that is, the wear and tear on higher education buildings and equipment. For example, students’ scholarship and stipend costs can serve as a valid proxy for the opportunity costs of
Table 5.2. Total Direct Costs of Institutions of Higher Education by Object and Institution in Mali, 1994/1995 (in Millions of Francs CFA)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>ENSUP</th>
<th>ENA</th>
<th>EHEP</th>
<th>ENI</th>
<th>ENMP</th>
<th>IPR</th>
<th>ISFRA</th>
<th>ENPT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schlshp.</td>
<td>321.77</td>
<td>672.44</td>
<td>144.77</td>
<td>273.55</td>
<td>340.22</td>
<td>480.16</td>
<td>N/A</td>
<td>18.11</td>
<td>2,251.00</td>
</tr>
<tr>
<td>Transprt.</td>
<td>49.44</td>
<td>68.46</td>
<td>17.75</td>
<td>35.50</td>
<td>39.55</td>
<td>27.89</td>
<td>.86</td>
<td>1.42</td>
<td>240.89</td>
</tr>
<tr>
<td>Instruct.</td>
<td>43.35</td>
<td>92.60</td>
<td>18.95</td>
<td>38.65</td>
<td>45.70</td>
<td>96.96</td>
<td>N/A</td>
<td>2.25</td>
<td>337.76</td>
</tr>
<tr>
<td>Materials</td>
<td>1.79</td>
<td>1.27</td>
<td>1.39</td>
<td>4.55</td>
<td>2.09</td>
<td>6.84</td>
<td>1.00</td>
<td>1.44</td>
<td>20.40</td>
</tr>
<tr>
<td>Supplies</td>
<td>1.50</td>
<td>1.23</td>
<td>.87</td>
<td>1.10</td>
<td>1.32</td>
<td>1.40</td>
<td>N/A</td>
<td>.50</td>
<td>7.92</td>
</tr>
<tr>
<td>Other</td>
<td>417.87</td>
<td>836.00</td>
<td>183.73</td>
<td>353.35</td>
<td>428.88</td>
<td>612.55</td>
<td>1.86</td>
<td>23.72</td>
<td>2857.97</td>
</tr>
</tbody>
</table>

ENSUP: Ecole Normale Superieure/Higher Teacher Training College.
ENA: Ecole Nationale d'Administration/National School of Public Administration.
ENI: Ecole Nationale d'Ingenieurs/National College of Engineering.
EHEP: Ecole des Hautes Etudes Pratiques/School of Business Administration and Secretarial Studies
ENMP: Ecole Nationale de Medecine et de Pharmacie/National School of Medicine and pharmacy.
ENPT: Ecole Nationale des Postes et Telecommunications/National School of Telecommunications and Postal Studies.
IPR: Institut Polytechnique Rural/School of Agronomy and Veterinary Medicine.

Note: In 1995, $1 U.S. was equivalent to francs CFA 500.
Source: Adapted from Mali State Budget, Office of the National Budget, Ministry of Finance and Trade, Bamako, Mali (Fiscal Year, 1995). Costs were computed by the author.
attending IHEs in Mali. Since the official budget records do not compute the opportunity costs and the implicit rent, and since no reliable statistics exist about them, no attempt will be made to impute these categories of costs that are very important in understanding the concept of total budgetary costs of Mali's IHEs. Total scholarship costs, however, can serve as a proxy for total indirect costs in IHEs.

Hidden Costs

Hidden costs do not get clearly reflected in the budget of higher education. There may be three broad categories of hidden costs: private costs such as family outlays for books, social costs such as administration and faculty housing allowances incurred by the Malian government, and salaries of expatriate professors paid by their own governments. Housing costs of these faculty are not included in the higher education budget, but appear in other governmental agencies' budget. The cost of free public housing commonly enjoyed by some Malian administrators and faculty members are also considered hidden costs, in the sense that they are not reflected in the costs of higher education in Mali. Therefore, the imputed rent (e.g., the fact that if administrators and faculty were not provided free housing, other tenants could have rented these public buildings at a reasonable cost) is not fully recovered.

Major Determinants of Costs

Certain economic, social, and political forces constantly act and interact to determine the dollar amount needed for the operation of an educational system. In the final analysis, educational costs are shaped by basic economic and policy determinants. Both determinants are characterized by endogenous and exogenous factors that lie inside and outside of the educational system which exert a significant impact on the costs of the
system as a whole. Economic determinants include both macroeconomic factors such as 
production and inflation, and microeconomic factors such as supply and demand, and 
efficiency. Similarly, many other dynamic factors determine the amount of revenues 
available to a system of education.

The purpose of this section is to identify and analyze these determinants, including 
the exogenous factors that lie beyond the immediate control of the national education 
authorities, as well as the endogenous factors that are decided by educational authorities 
that influence the cost and revenue dimensions of the system. The most important 
determinants of educational costs are macro-economic factors including demand factors 
along with other determinants such as the Gross Domestic Product (GDP), national debt, 
trade and budget deficits, and inflation. The factor costs of higher education, and to a 
lesser extent, the magnitude of foreign aid to higher education are also determinants. The 
amount of revenue available to the education system through governmental fiscal policy is 
a major determinant of higher education costs in Mali.

Aggregate Demand Factors

Other factors put aside, the dramatic increase in overall educational expenditures 
in general, and higher education expenditures in particular, from 1960 through 1995, can 
be attributed to the significant increase in the demand for education. Three major factors 
underlying this increase are as follows: a) Population increase that resulted in a rising 
popular demand for higher education, b) Relative democratization of higher educational 
opportunities, and c) The dramatic expansion of manpower requirements.
Impact of Population Increase on Demand for Higher Education

The rapid increase in the Malian population since independence in 1960 has resulted in a dramatic increase of 3.2 percent in the annual growth rate of school-age children (7 through 12 year age group) and total school enrollments. Table 5.3 shows the change in overall population and enrollment patterns in all levels and types of public education from 1960 through 1993 in Mali. During this time period, Mali’s population increased steadily from 3.7 in 1960, to 10.1 million in 1993, an increase of nearly 260 percent. As a result, total enrollments for all levels and types of education increased from about 66,000 in 1960 to over 545,000 in 1993, an increase of 800 percent. The number of school-age children increased from 1.1 million in 1980 to 1.5 million in 1993. Of this 1.1 million children, 299,000 were attending school in 1980, whereas of the 1.5 million children, about 438,000 were attending school in 1993. This dramatic increase alone will inevitably absorb a substantial portion of whatever annual budgetary allocations and increases each level of education might obtain.

As more students complete primary school, nearly all will want to attend secondary education, and then go on to an institution of higher learning. This situation occurs regardless of the ability of Mali’s economy to support a rising higher education demand or to provide jobs for all college graduates. Thus, the increase in higher education enrollments has been dramatic over the past three decades. Enrollments increased from only a few hundred students (about 200) in 1967, to over 10,000 in 1996. Table 5.4 shows the change in enrollment trends in Mali’s IHEs from 1967 through 1996. These data suggest that the dramatic increase in enrollments alone provides the major explanation for the rapid escalation in the costs of higher education in Mali.
Table 5.3. Population and Enrollments in All Levels and Types of Public Education in Mali, Selected Years, 1960-1993

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>3.7</td>
<td>4.5</td>
<td>5.1</td>
<td>6.0</td>
<td>6.5</td>
<td>7.5</td>
<td>9.0</td>
<td>10.1</td>
</tr>
<tr>
<td>Enrollment (thousands)</td>
<td>66.0</td>
<td>149.0</td>
<td>216.0</td>
<td>298.0</td>
<td>376.0</td>
<td>363.0</td>
<td>396.0</td>
<td>545.0</td>
</tr>
</tbody>
</table>

Table 5.4. Enrollment Trends in Institutions of Higher Education in Mali, Selected Years, 1967-1996

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>206</td>
<td>1,365</td>
<td>3,575</td>
<td>4,220</td>
<td>5,540</td>
<td>8,900</td>
<td>10,300</td>
</tr>
</tbody>
</table>

Democratization of Higher Education Opportunities

The second demand factor is a public policy issue. Mali’s IHEs are open admissions institutions. In other words, all high school graduates are admitted into the country’s IHEs without enough consideration being given to the dramatic cost implications of this policy. On the other hand, a major advantage of this policy is that it has made access to higher education possible for low socioeconomic status students who would not otherwise have afforded a college education despite their academic merit. As primary education expands, so will secondary education and higher education in Mali, unless major policy changes are implemented by the government to restrict access to higher education by controlling demand and diversifying alternative training options.

Manpower Requirements

The third demand-raising factor has manifested itself by the automatic recruitment, especially by the government, of all graduates of professional schools and colleges. This trend was sharply reversed in 1980 when success on a national exam instituted by the government was the basic prerequisite for employment in the civil service. This "filtering device" was instituted because the educational system in general, and higher education in particular, had managed to fulfill all unmet manpower demands and produced "surpluses" that the economy could not absorb.

Educational Revenues and Fiscal Policy

The ultimate determinant and limit on educational costs in general, and higher educational costs in particular, from a financial viewpoint, is the amount of revenue an educational system has available for spending each fiscal year. Several endogenous and exogenous factors affect the amount of revenue available such as: 1) The diversity and
elasticity of the funding sources of education and the way they respond to changes in national income; 2) Major types of taxes; 3) Influence of foreign aid; and 4) The fluctuations of foreign trade.

**Diversity and Elasticity of Funding Sources**

An important determinant of an educational system's revenue is the diversity of its sources of income, the way they respond to changes in national income, how well administered they are, and how reliable they are likely to be in the future. Systems of taxation and revenue in Mali involve the central government, regional authorities, and local communities. The central government is primarily responsible for the funding of education. This trend is a legacy of the colonial period during which the federal government was entirely responsible for the financing of some public services such as education. This, too, explains why the central government is the major financial contributor to educational programs.

Of the three major sources of funding for education in Mali, the most important, by far, is the central government funding through national and regional allocations. The second source of funding for education is local tax monies, such as the *Fonds de Developpement Regional et Local (FDRL)*, local communities, and tax revenues from parents' associations. The third source of funding is external assistance through bilateral and multilateral cooperation consisting of loans, grants, technical assistance, and scholarships for studies or training abroad provided by foreign governments, and international governmental and nongovernmental organizations (NGO).
Major Types of Taxes

Various sources of taxation in Mali provide revenues for the funding of all types and levels of education, even though some types of taxes such as the FDRL are especially devoted to the funding of elementary education at a local and/or regional level. Higher education is not particularly funded by any specific taxes, but by revenues generated from various sources of taxation. Table 5.5 depicts major types of taxes and total tax revenues generated in 1989 and 1995 in Mali. Although the amounts of revenues generated by each type of direct and indirect taxes are not available in 1989, the table, nonetheless, provides general statistics about total tax revenues generated by all major types of taxes during this period. First, tax structures have gradually grown in strength over time. Second, tax structures have increasingly become diversified. Third, tax revenues have dramatically increased over time. The data in Table 5.5 also suggest that total tax revenues nearly doubled over a six year time period, from francs CFA 77.7 billion in 1989 to francs 142.9 billion in 1995. Of these totals, indirect taxes are the most important contributor to the central government revenues.

Direct taxes are taxes levied by the government on individual incomes and also profits made by businesses and corporations. There are four major categories of direct taxes in Mali: 1) The General Income Tax (IGR) that raised francs CFA 7.2 billion in 1995; 2) The Corporate Tax referred to as the Impots sur les Benefices Industriels et Commerciaux which raised francs CFA 8.3 millions in revenues in 1995; 3) Property and land taxes which produced francs CFA 2.3 billion; and 4) Solidarity tax and various other types of direct taxation raised francs CFA 6.3 billions in 1995. In sum, total direct taxes
Table 5.5. Structures of Major Types of Taxes and Total Tax Revenues Generated, 1989 and 1995 Fiscal Years, in Mali (in Billions of Francs CFA)

<table>
<thead>
<tr>
<th>Major Types of Taxes</th>
<th>1989</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct Taxes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Income Tax</td>
<td>N/A</td>
<td>7.188</td>
</tr>
<tr>
<td>Corporate Tax</td>
<td>N/A</td>
<td>8.225</td>
</tr>
<tr>
<td>Property Tax</td>
<td>N/A</td>
<td>2.344</td>
</tr>
<tr>
<td>Special Tax</td>
<td>N/A</td>
<td>3.139</td>
</tr>
<tr>
<td>Others</td>
<td>N/A</td>
<td>3.134</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16.830</td>
<td>24.030</td>
</tr>
<tr>
<td><strong>Indirect Taxes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excise Tax</td>
<td>N/A</td>
<td>21.076</td>
</tr>
<tr>
<td>Value Added Tax</td>
<td>N/A</td>
<td>30.120</td>
</tr>
<tr>
<td>Stamp Tax</td>
<td>N/A</td>
<td>4.150</td>
</tr>
<tr>
<td>Import Licenses</td>
<td>N/A</td>
<td>10.989</td>
</tr>
<tr>
<td>Others</td>
<td>N/A</td>
<td>4.620</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33.654</td>
<td>70.955</td>
</tr>
<tr>
<td><strong>Customs Duties</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9.642</td>
<td>23.050</td>
</tr>
<tr>
<td><strong>Severance Taxes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Various Licenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.057</td>
<td>5.989</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14.532</td>
<td>18.964</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>77.715</td>
<td>142.988</td>
</tr>
</tbody>
</table>

Source*: Adapted from the State Budget of Mali, Office of the National Budget, Ministry of Finance and Trade, Bamako, Mali, 1989 and 1995 fiscal years.
increased from francs CFA 16.8 billion in 1989 to francs CFA 24 billion in 1995, an increase of nearly 30 percent.

Indirect taxes that are characteristically imposed at the wholesaler's or retailer's level by the government cover a wide range of taxes. Excise taxes (alcohol and tobacco taxes) generated francs CFA 21.1 billion in 1995; value added tax or general sales taxes generated francs CFA 30.1 billion in 1995, making it the single most important contributor to the revenues of the central government; stamp taxes, import and export licenses, and other types of indirect taxes raised francs CFA billion 4.1, 11.0 and 4.6, respectively. Total indirect taxes more than doubled over this six year period of time, from francs CFA 33.7 billion in 1989 to 71 billion in 1995. The contribution of customs duties to total tax revenues has also been significant over time.

One tax that has not yet been mentioned is the tariff on certain imported goods. Generally referred to as customs duties or levies, this tax, together with other less important types of levies, currently provide an important portion of the revenues needed by the central government. For example, in 1995, these taxes combined, raised more than francs CFA 23.0 billion for the central government.

The severance tax is a new category of tax that is becoming increasingly more important with the surge in mineral extracting industries in Mali. Severance taxes in 1995, along with various types of licenses and fees, raised francs CFA 6.0 billion. Other types of taxes, including occupational taxes applicable to various trades or businesses, such as store licenses, taxicab permits, tourist taxes, or fees to practice a profession such as law, medicine, or accounting, generated together francs CFA 19.0 billion in revenue, in 1995.
The responsibility for administering Mali tax laws and collecting tax revenues rests with four National Offices, all of which report to the Ministry of Finance and Trade. There are: 1) The General Customs Office; 2) The General Tax Office; 3) The General Treasury Office; and 4) The General Office of the National Debt. In addition, all these four offices are responsible for enforcing the tax laws. Each of them collects important segments of various tax revenues nationwide, with the General Customs Office collecting the most significant proportion of all taxes. The General Tax Office ranks second in terms of amounts of taxes collected annually.

**Influence of Foreign Aid**

Within the framework of international cooperation, external assistance coming through multilateral and bilateral channels can have a significant impact on both the revenue and expenditure dimensions of Mali's higher education equation. Most foreign aid to higher education in Mali covers the following forms: Loans, subsidies, donation of equipment, supplies, instructional materials, along with the provision of expatriate faculty whose compensation costs are incurred by their respective governments. For example, the United Nations, its specialized Agencies, and several foreign countries have provided significant subsidies to Mali's system of higher education for years. Such aid has filled strategic gaps that would otherwise have been a budgetary mandate for Mali.

Furthermore, in 1989, about 2000 Malian students were attending college in various countries around the world, on grants and scholarships awarded by the governments of these countries. The dollar amount of these aids and subsidies is considerable. If all or part of these costs were shifted to the Malian state budget, the real
costs of higher education would have been much higher. Since no accurate estimation was made of these costs, no attempt has been made to include them in this study.

**Influence of Foreign Trade**

Educational revenues in Mali are heavily dependent on raw materials exports that sustain domestic employment and income. The deterioration of the terms of trade has been a major issue for Mali because the price it pays for imported industrial goods has gradually increased relative to the prices it receives for its exports, thereby reducing its real purchasing power in world markets. Mali’s balance of trade has shown a chronic deficit over time, with the value of its imports far exceeding the value of its exports. In 1994 total exports of Mali were francs CFA 190.4 billion, whereas total imports were francs CFA 349.9 billion, resulting in a deficit balance of trade of francs CFA 159.5 billion. A negative balance of trade means less revenues for most social services including education.

**Macroeconomic Factors**

There is ample evidence that a two way relationship exists between education and economic growth. This evidence further suggests that investment in education fosters economic growth and economic growth in turn, provides more revenue for the expansion of the educational system. As a general rule, the percentage of total public revenues allocated to education will have to stay in line with the growth of over-all revenues, which in turn will depend, to a large extent, on the growth of the economy. So, in the final analysis, it is basically from increases in the national income that increases in educational revenues must come. Thus, if economic growth is defined as the rate at which per-capita national product in constant dollars grows over a given period of time.
periods of growth have alternated with periods of decline in Mali during the last decade. The GNP per capita has increased in current dollars, but in constant dollars, its overall average annual growth rate has been negative at -4.3 percent between 1985 and 1993. For example, in 1993, the average annual growth rate was negative at -1 percent.

Such economic decline aggravates virtually every problem of Mali. Negative or slow growth means stagnant wages and lower standards of living, but most importantly, major loss of revenues for the central government. The positive average annual growth rate of 2.2 percent in 1994 had a significant impact on the country’s total revenues. From 1994 to 1995, the average annual growth rate more than doubled and increased to about 5 percent. Therefore, the increase in the educational budget over the past 3 years appears to be somewhat justified.

Inflation

Average price level refers to inflation. Inflation is a sustained and continuous increase in the average level of prices. A sustained and continuous price increase implies prices rise month after month. Of all the macroeconomic factors, the impact of inflation on higher education expenditures is the most significant for two reasons: First, what looks like an impressive rise in higher education budget is not "real" after all, if a very high rate of inflation is observed during the period of time considered. This will obviously affect higher education's real purchasing power and reduce its ability to attract and retain good faculty members and administrators. Between 1985 and 1995, for example, the cumulative effect of inflation in Mali was 74.7 percent, with the highest average annual inflation rate of 35.1 percent in 1994. Second, higher education itself is a
major contributor to inflation because it purchases goods and services on the market place that are essential to its operation.

**Unemployment**

The length of time a college graduate might be unemployed might also impact the demand equation for higher education. A study conducted in 1987 by the Mali National Center for Statistics revealed that the very high level of unemployment among college graduates over the past decade has negatively affected primary school attendance in various regions across Mali. As a result, this phenomenon may have contributed to a reduction in the demand for schooling, including the demand for higher education services.

**Other Determinants**

Two endogenous factors that determine the cost of higher education in Mali are:

1) The technology employed by the system of higher education, and 2) Major educational policy decisions pertaining to the monetary compensation for and utilization of faculty members in IHEs. In fact, the nature of a college, and the type and amount of technology it utilizes, determine to a large extent, the total budgetary allocations for this IHE. On the other hand, national faculty policy decisions recently exerted a significant impact on higher educational expenditures. A case in point is the implementation by the government of Mali in 1993 of a policy decision relative to the ranking of higher education faculty members. This policy that ranked higher education faculty into 4 categories—full, associate, assistant professor, and teaching assistant—resulted in the payment of supplementary allowances to the IHEs faculty members based on their ranks.
This policy, consequently, has had significant cost implications for the budgets of Mali’s entire system of higher education.

The factor costs are the prices paid by higher education for its various "factors of production" or inputs required in the "production process" such as faculty, instructional materials, physical facilities, equipment, students, and various types of supplies. The prices of these various inputs are determined by different forces, both outside of and inside the system of higher education. Whereas the prices of materials, equipment, and supplies are determined by the interplay of forces in the market, the pay schedules of faculty members and the monthly rates of students’ scholarships and grants are determined by the central government.

National Debt Issue

Educational revenues in Mali are also determined by the total external debt, along with the percentage of the Mali state budget allocated to the payment of the debt and the debt service. The long term debt of Mali increased from U.S.$238 million in 1970 to U.S.$3,114 million (about francs CFA 1557.2 billion) in 1994. The amount of the external debt due as of December 31, 1994 was francs CFA 94.4 billion. For instance, the debt and the interest payments on the national public debt represented 74.9 percent of total budgetary revenues and 49.6 percent of Mali’s export revenues in 1994. Moreover, the debt and the debt service represented 9.1 percent of Mali’s GNP during the same year. In the final analysis, Mali devotes a very significant proportion of its GNP and state budget to the payment of the national debt.
Competing Public Needs and Priorities

Education has enjoyed a relatively high-priority claim on total public revenues in Mali since its independence in 1960. Thus, despite many public needs and priorities such as health, roads and highways, agriculture and environment, housing, and the like, education's share of total government expenditures expanded rapidly during the 1960s, stabilized during the 1970s and 1980s, and rose again during the 1990s. The rapid expansion of educational expenditures in the 1960s was the result of major policy decisions that were formulated and implemented by the then socialist government. These policies were aimed at promoting educational opportunities and providing mass education. The slow economic growth Mali experienced in the 1970s and 1980s has somewhat slowed down this trend.

The past 10 years have been characterized by periods of decline, stagnation, and increase in educational expenditures of Mali. Table 5.6 shows the trends in major national budgetary allocations to key Ministries from 1985 through 1995. The data in Table 5.6 suggest that the highest proportions of the national budgets between 1985 and 1995 were allocated to National Education and Defense. Other priorities were Health and Agriculture. The educational budget as a percent of state budget, after a relative decline in 1987 and 1989, increased to 23 percent in 1991. The percent of Mali state budget allocated to education fluctuated between 17 and 23 percent over the past 10 years, with the lowest percent in 1987 and the highest in 1991. The increase in the latter percentage was caused by the 75 percent across-the-board raise in the scholarship rate. On the other hand, the National Defense budget steadily increased from 1987 through 1993, before decreasing slightly in 1995 and 1996.
Table 5.6. Education, Health, National Defense, and Agriculture Budgets as a Percentage of National Budgets in Mali, Selected Years, 1985-1996

<table>
<thead>
<tr>
<th>Ministries</th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
<th>1991</th>
<th>1993</th>
<th>1995</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>21.41</td>
<td>17.20</td>
<td>19.41</td>
<td>23.00</td>
<td>21.62</td>
<td>21.27</td>
<td>22.53</td>
</tr>
<tr>
<td>Defense</td>
<td>20.53</td>
<td>17.45</td>
<td>20.27</td>
<td>22.00</td>
<td>23.15</td>
<td>22.46</td>
<td>22.22</td>
</tr>
<tr>
<td>Health</td>
<td>4.96</td>
<td>3.80</td>
<td>3.12</td>
<td>6.12</td>
<td>7.92</td>
<td>8.01</td>
<td>8.31</td>
</tr>
<tr>
<td>Agriculture</td>
<td>3.61</td>
<td>2.44</td>
<td>2.14</td>
<td>5.00</td>
<td>5.51</td>
<td>5.54</td>
<td>9.93</td>
</tr>
</tbody>
</table>

Within the department of education itself, the competition among different types and levels of education has been severe over the years. An increasing number of Malian decision makers, in an effort to expand primary education and promote equal educational opportunities nationwide, are more and more in favor of redefining priorities within the department. Some policy makers believe that current educational budgetary allocations to higher education should be reduced and larger appropriations should be reallocated to primary education. Table 5.7 discloses budgetary allocations by type and level of education as a percent of the national educational budget from 1985 through 1996. The percentage of national education budget made to primary education has steadily increased from 1985 through 1996, except for 1991 and 1993.

On the other hand, higher education budget, after major declines in 1987 and 1989, has stabilized around the 20-21 percent level. Thus, a tolerable balance has been struck between the budgetary allocations to primary education and those to higher education over the last 5 years. Whereas higher education budget might have increased in real terms between 1991 and 1996, primary education budgets increased in real terms between 1991 and 1996. Budgetary allocations to other levels of education have remained constant or have even slightly increased in real terms during the same period of time.

Behavioral Characteristics of Costs

There are significant variations in the costs of higher education in Mali across different IHEs, geographic areas, and even within the same institution across different departments and programs. In this section, the following behavioral characteristics of higher educational costs in Mali are considered, described and examined over time: 1) The steady escalation in recurrent costs along with the dominance of personnel costs, 2)
Table 5.7. Total Expenditures by Types and Levels as a Percentage of Education Budget in Mali, Selected Years, 1985-1996

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cycle I</td>
<td>35</td>
<td>36</td>
<td>40</td>
<td>36</td>
<td>36</td>
<td>38</td>
<td>39</td>
</tr>
<tr>
<td>Cycle II</td>
<td>15</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Cycle I &amp; II</td>
<td>50</td>
<td>51</td>
<td>55</td>
<td>51</td>
<td>51</td>
<td>55</td>
<td>56</td>
</tr>
<tr>
<td>Secondary GL</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Secondary Tech.</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Teacher Training</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Higher</td>
<td>20</td>
<td>19</td>
<td>17</td>
<td>21</td>
<td>20</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Adult</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Central</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The steady and significant rise in direct costs resulting in higher unit costs, 3) The rise in indirect costs, 4) The rise in capital costs, 5) The rise in hidden costs, and 6) The stability of higher educational cost structures over time.

Steady Escalation in Recurrent Costs

Recurrent costs constitute a significant component of the costs of higher education in Mali. Data depicting recurrent costs of higher education in current francs CFA are presented in Table 5.8 for all IHEs in Mali from 1984/85 through 1995/96. During this period, total recurrent costs increased dramatically from francs CFA 1,152.2 million in 1985 to francs CFA 2.6 billion in 1996, an increase of nearly 110 percent. They declined in 1991, before rising sharply again in 1993, 1995 and 1996. Total personnel costs, however, have been rising steadily, from francs CFA 1,509.9 million in 1987 to francs CFA 1,693 million in 1995, and finally to francs CFA 1,798 million in 1996. The faculty ranking policy, the change in supply and demand conditions of faculty, inflation, and the devaluation of the franc CFA are major causes of this increase.

Total non-personnel recurrent costs also increased dramatically from francs CFA 35.5 million in 1985 to francs CFA 753.8 million in 1996, a twenty-one-fold increase during this ten year period. Because of data limitations, supplies, transportation, utility, and phone cost data that are missing in the 1985, 1987, 1989, and 1991 budgetary records could not be computed in non-personnel recurrent costs. If these data were available, the actual total non-personnel recurrent costs of Mali's IHEs for this period of time could be much higher. For instance, it was estimated that francs CFA 324 million—about 43 percent—of the 1996 total non-recurrent costs were spent on instructional materials, francs
Table 5.8. Total Recurrent Costs for the Institutions of Higher Education of Mali, 1991/92-1995/96 (in Millions of Francs CFA)

<table>
<thead>
<tr>
<th>Types of Costs</th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
<th>1991</th>
<th>1993</th>
<th>1995</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>816.7</td>
<td>1,509.9</td>
<td>893.1</td>
<td>737.3</td>
<td>674.1</td>
<td>1,693.0</td>
<td>1,798.1</td>
</tr>
<tr>
<td>Non-Personnel</td>
<td>35.5</td>
<td>226.6</td>
<td>192.0</td>
<td>28.0</td>
<td>1,002.0</td>
<td>558.8</td>
<td>753.8</td>
</tr>
<tr>
<td>Total</td>
<td>852.2</td>
<td>1,561.9</td>
<td>1,085.1</td>
<td>765.3</td>
<td>1,676.1</td>
<td>2,251.8</td>
<td>2,551.9</td>
</tr>
</tbody>
</table>

Note: In 1992, the official rate of exchange was $1 = Francs CFA 250; in January 1994, it was Francs CFA 500. These figures were calculated by the author.

CFA 226.9—about 30 percent—on utilities, and francs CFA 118.2 million—about 16 percent—on food at the National School of Agronomy—IPR.

Total non-personnel recurrent costs soared in 1993 as a result of a significant increase in instructional material costs for the National School of Agronomy (IPR)—more than francs CFA 425 million, the National School of Administration (ENA)—over francs CFA 40 million, and the Higher Teachers' Training College (ENSUP)—over francs CFA 31 million. On the other hand, the increase in total non-personnel costs in 1995, from francs CFA 558.8 million to an estimated 753.8 million in 1996 is also significant.

Dominance of Personnel Costs

The system of higher education in any country—developed or developing—is labor intensive. That is, highly qualified and expensive personnel of all profiles are needed to run the higher education machinery. Consequently, the salaries of faculty, administrators, and staff dominate the bulk of the costs of higher education in Mali. The data in Table 5.9 were obtained from budgetary data reported by the Administrative and Financial Directorate for Secondary, Higher Education, and Scientific Research for 1995 and 1996, and from the Office of the National Budget of the Ministry of Finance and Trade for the 1985, 1987, 1989, 1991, and 1993 fiscal years. The data in all columns include all categories of personnel costs.

First, faculty academic salaries, along with administrator and staff salaries, for all the IHEs of Mali are presented. The breakdowns of these salaries by purpose—faculty, administrator, and staff—are not available. Second, supplementary payments made to full-time and part-time faculty, mainly civil servants and private sector workers, who perform extra teaching and student advisory work in the IHEs due to a dramatic shortage of full-
Table 5.9. Costs of all Categories and Hierarchy of Personnel (Faculty, Administrators, and Staff), Institutions of Higher Education in Mali, 1985-1994 (in Millions of Francs CFA)

<table>
<thead>
<tr>
<th>IHEs</th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
<th>1991</th>
<th>1993</th>
<th>1995</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENSUP/ISFRA</td>
<td>298.4</td>
<td>299.3</td>
<td>320.4</td>
<td>285.4</td>
<td>277.5</td>
<td>471.8</td>
<td>585.4</td>
</tr>
<tr>
<td>ENA</td>
<td>83.4</td>
<td>145.7</td>
<td>90.5</td>
<td>66.8</td>
<td>43.8</td>
<td>64.0</td>
<td>81.8</td>
</tr>
<tr>
<td>ENI</td>
<td>93.4</td>
<td>105.1</td>
<td>103.1</td>
<td>142.3</td>
<td>77.7</td>
<td>135.5</td>
<td>156.9</td>
</tr>
<tr>
<td>IPR</td>
<td>178.1</td>
<td>247.2</td>
<td>178.4</td>
<td>51.6</td>
<td>181.4</td>
<td>227.0</td>
<td>216.2</td>
</tr>
<tr>
<td>EHEP</td>
<td>49.7</td>
<td>74.0</td>
<td>80.8</td>
<td>61.3</td>
<td>29.5</td>
<td>40.4</td>
<td>37.4</td>
</tr>
<tr>
<td>ENMP</td>
<td>75.9</td>
<td>125.3</td>
<td>81.5</td>
<td>104.6</td>
<td>53.2</td>
<td>90.2</td>
<td>64.9</td>
</tr>
<tr>
<td>ENPT</td>
<td>37.8</td>
<td>49.3</td>
<td>38.4</td>
<td>25.1</td>
<td>11.8</td>
<td>12.9</td>
<td>9.6</td>
</tr>
<tr>
<td>Overtime</td>
<td>N/A</td>
<td>463.8</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>304.0</td>
<td>297.0</td>
</tr>
<tr>
<td>Part-Time Instruction</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>348.8</td>
<td>348.8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>816.7</td>
<td>1,509.7</td>
<td>893.1</td>
<td>737.1</td>
<td>674.9</td>
<td>1,693.6</td>
<td>1,798.1</td>
</tr>
</tbody>
</table>

ENSUP: Ecole Normale Superieure/Higher Teacher Training College.
ENA: Ecole Nationale d’Administration/National School of Public Administration.
ENI: Ecole Nationale d’Ingenieurs/National College of Engineering.
EHEP: Ecole des Hautes Etudes Pratiques/School of Business Administration and Secretarial Studies.
ENMP: Ecole Nationale de Medecine et de Pharmacie/National School of Medicine and pharmacy.
ENPT: Ecole Nationale des Postes et Telecommunications/National School of Telecommunications and Postal Studies.
IPR: Institut Polytechnique Rural/School of Agronomy and Veterinary Medicine.

Note: Before 1994, $1 was equivalent to Francs CFA 250; after 1994, the exchange rate increased to Francs CFA 500.
time faculty are included. Third, faculty, administration, and staff fringe benefits are also included in the costs. Finally, payments made to "contractual faculty", that is, nontenured faculty hired on a contractual basis to perform extra teaching in the IHEs are also included.

As may be observed from Table 5.9, total personnel costs for all IHEs nearly doubled over a 10 year period. They increased dramatically from francs CFA 816.7 million in 1985 to francs CFA 1.8 billion in 1996, an increase of over 200 percent. At the institutional level, there are significant cost variations among different categories of institutions. The type of institution, the structure and composition of the faculty, and alternative employment opportunities to teaching in the job market, are possible explanations for differences in the size of the personnel that, in turn, act as determinants of these cost variations.

First, since ENSUP and IPR are institutions where faculty rates of retention are higher and labor turnover is relatively lower than the rest of IHEs, total personnel costs have a tendency to rise. Second, there are more full-time faculty in these two institutions than in all the other institutions combined. For instance in 1991, of a total of 926 faculty members and staff in Mali's IHEs, ENSUP and IPR employed 435 or nearly 50 percent of all faculty members. Third, most of the personnel of these two institutions have received "specific" training that has value mainly within their current employment, e.g., Agronomists, Veterinarians, Plant Pathologists, Psychologists.

As may also be observed from Table 5.9, cost variations have been remarkable when comparing total recurrent costs of the same institution over time. For instance, total personnel costs at ENSUP started rising in 1987 and 1989, before declining in 1991.
and 1993. The increases in 1995 and 1996 have, however, been significant. The same patterns can be observed at other IHEs, except for the National School for Postal Studies (ENPT), where the decline has been consistent since 1987, because the ownership and operation of this college was switched to the Mali Postal Services in 1993. Moreover, the very high full-time faculty attrition rate and the financial implications of the recent policy change pertaining to faculty ranking in the IHEs are two factors which have contributed to the dramatic changes in total personnel recurrent costs in Mali's IHEs.

The change patterns of various costs of higher education have been dramatic over time. The Higher Institute for Training and Applied Research (ISFRA) and Higher Teacher Training College (ENSUP) share the same operational budget. The most significant change in personnel costs occurred at ENSUP/ISFRA. This might provide a partial explanation for the significant increase in personnel costs of these two IHEs. On the other hand, total instructional costs of part-time faculty in 1995 and 1996 have remained constant at francs CFA 348.8 million in real terms. Furthermore, supplementary payments for full-time faculty over time have significantly declined from francs CFA 463.8 million in 1987 to francs CFA 304 million in 1995, and finally to francs CFA 297 million in the 1996 budget forecast.

The following factors might have strongly influenced overall faculty costs in the IHEs. First, a change in educational policy resulting in a change in the structure of faculty wages and salaries implemented in January 1993; second, a change in the supply and demand conditions of the teaching force in Mali's IHEs that has resulted in a change in the composition of the teaching force; third, a cumulative 20 percent across-the-board pay raise for all of Mali's government workers implemented in two phases, 5 percent in
1992 and 15 percent in 1994, respectively; and fourth, a major monetary policy change that led to the devaluation of the franc CFA in January 1994, that resulted in rampant inflation. Therefore, the cumulative effect of inflation between 1980 and 1993, was estimated to be 39.6 percent. For instance, the average annual rate of inflation in 1994 was 35.1 percent, up from 4.4 percent in 1993. The total cumulative annual rate is about 74.7 percent in 15 years.

Faculty Salaries Before the Implementation of Faculty Ranking Policy

Faculty monthly salaries are disclosed in constant 1991/1992 and current francs CFA in Table 5.10. Prior to the implementation of the 1993 higher education faculty ranking policy in Mali, and despite "the incremental steps" which each professor climbs automatically based on years of experience, that translate into incremental salary increases every year, faculty nominal salaries had declined in constant francs CFA. As may be observed from Table 5.10, full-time instructional faculty monthly salaries in Mali's IHEs in 1985/86 were francs CFA 70,540 in constant francs CFA, but francs CFA 55,868 in current francs. So, nominal salaries have dramatically declined in real terms if adjusted for inflation. All average monthly salaries, however, increased by 5 percent in 1992 in nominal terms. Full-time instructional faculty salaries increased to about francs CFA 82,105 in nominal terms in 1991/92. The increased differentials are based on the automatic annual incremental increase for each faculty's salary and the 10 percent across-the-board wage increase granted to all civil service workers in 1985 and 1992. Given the cumulative inflation rate of 30.8 percent between 1985 and 1992, Malian faculty salaries had declined by about 20.8 percent in real terms.
Table 5.10. Average Monthly Salary of Full-Time Instructional Faculty in Institutions of Higher Education in Mali, 1985/86-1992/93 (in Thousands of Francs CFA)

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>All Professors (constant 91/92 F CFA)</th>
<th>Current F CFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985/86</td>
<td>70,540</td>
<td>55,868</td>
</tr>
<tr>
<td>1987/88</td>
<td>74,005</td>
<td>61,869</td>
</tr>
<tr>
<td>1989/90</td>
<td>78,760</td>
<td>69,309</td>
</tr>
<tr>
<td>1991/92</td>
<td>82,105</td>
<td>82,105</td>
</tr>
</tbody>
</table>

Note: Till 1993, the study the official rate of exchange was $1 = francs CFA 250.
Source: Adapted from the Ministere Education Nationale, Direction Administrative et Financiere, Bamako, Mali, 1993.
Change in Higher Education Faculty Ranking Policy

A major educational policy adopted by the government of Mali in January 1993, which pertains to the implementation of the faculty ranking policy based on the qualification of full-time faculty members, has had a profound impact on faculty salaries in Mali's IHEs. Four levels of faculty ranks were adopted: teaching assistant, assistant professor, associate professor, and professor, that correspond to four levels of monthly financial allowances. The monthly allowance amounts to francs CFA 65,000 for a Professor, francs CFA 55,000 for an Associate Professor, francs CFA 45,000 for an Assistant Professor, and francs CFA 20,000 for a Teaching Assistant. This policy implementation has increased the average faculty cost in the Malian IHEs. The magnitude of the increase depended basically on the size of the full-time instructional faculty at each rank. Table 5.11 discloses the size and rank of Malian full-time instructional faculty members in IHEs for 1995.

The data suggest that ENSUP and IPR had the largest number of full-time faculty members, and combined for more than 51 percent of all full-time instructional faculty in Mali's IHEs. In addition, ENSUP was the only IHE to report non-ranked full-time faculty members. Teaching assistants represented the largest category of faculty (142 members)--31.2 percent, whereas full professors represented the smallest category (87 members)--19.1 percent of total full-time faculty members.

After the implementation of the new faculty ranking policy, average monthly salaries of full-time instructional faculty in institutions of higher education in Mali, increased significantly in nominal terms but actually declined in real terms. Data depicting average monthly salaries of full-time instructional faculty in IHEs are presented.
Table 5.11. Rank and Size of Full-Time Faculty in Institutions of Higher Education in Mali, 1994-1995

<table>
<thead>
<tr>
<th>IHEs</th>
<th>Professor</th>
<th>Associate Professor</th>
<th>Assistant Professor</th>
<th>Teaching Assistant</th>
<th>Not Ranked</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENSUP</td>
<td>31</td>
<td>35</td>
<td>24</td>
<td>46</td>
<td>17</td>
<td>153</td>
</tr>
<tr>
<td>ISFRA</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>-</td>
<td>19</td>
</tr>
<tr>
<td>ENA</td>
<td>2</td>
<td>13</td>
<td>5</td>
<td>3</td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>ENI</td>
<td>5</td>
<td>9</td>
<td>16</td>
<td>24</td>
<td>-</td>
<td>54</td>
</tr>
<tr>
<td>IPR</td>
<td>20</td>
<td>28</td>
<td>30</td>
<td>26</td>
<td>-</td>
<td>104</td>
</tr>
<tr>
<td>EHEP</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>ENMP</td>
<td>23</td>
<td>25</td>
<td>12</td>
<td>30</td>
<td>-</td>
<td>90</td>
</tr>
<tr>
<td>ENPT</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>87</td>
<td>117</td>
<td>92</td>
<td>142</td>
<td>17</td>
<td>455</td>
</tr>
</tbody>
</table>

ENSUP: Ecole Normale Superieure/Higher Teacher Training College.
ENA: Ecole Nationale d'Administration/National School of Public Administration.
ENI: Ecole Nationale d'Ingenieurs/National College of Engineering.
EHEP: Ecole des Hautes Etudes Pratiques/School of Business Administration and Secretarial Studies.
ENMP: Ecole Nationale de Medecine et de Pharmacie/National School of Medicine and pharmacy.
ENPT: Ecole Nationale des Postes et Telecommunications/National School of Telecommunications and Postal Studies.
IPR: Institut Polytechnique Rural/School of Agronomy and Veterinary Medicine.

Source: Adapted from the Annuaire de Statistiques des Etablissements d'Enseignement Superieur, Direction Nationale de l'Enseignement Superieur, Bamako, Mali, 1995.
in Table 5.12 for the period 1992/93 through 1995/96. Salaries in nominal terms for all ranks increased 5 percent in 1991/92, and 15 percent in 1994, to offset the rise in prices that resulted from the devaluation of the franc CFA in January 1994. By the end of 1994, the cumulative effect of inflation was 39.6 percent. In real terms, salaries declined by 25 percent by the end of 1994 and 33 percent by the end of 1995.

The data in Table 5.12 disclose variations in monthly salaries across academic ranks in Mali’s IHEs. These salary differentials among ranks in Mali’s IHEs remained about the same in relative terms, but increased in absolute terms from 1992/93 through 1995/96. Higher salaries are associated with promotion to a higher rank. During this period, full professors’ salaries increased slightly faster than those of associate professors, and much faster than assistant professors’ salaries, and teaching assistants’ salaries. For example, the net difference between teaching assistant and assistant professor was francs CFA 10,005, between assistant professor and associate professor was francs CFA 19,995, and between associate and full professor francs CFA 20,000 in 1992/93.

On the other hand, whereas the net salary differential between a full professor and an assistant professor was francs CFA 40,295 in 1992/93, this differential increased to nearly francs CFA 47,000 in 1995/96. Furthermore, the gap between a full professor’s salary and a teaching assistant’s salary significantly widened between 1992/93 and 1995/96. It increased from francs CFA 50,300 in 1992/93 to francs CFA 58,180 in 1995/96. The gap between an associate professor’s and a full professor’s salary also widened from francs CFA 20,000 in 1992/93 to francs CFA 29,650 in 1995/96.

In addition, there are different salary schedules based on faculty qualifications, family status, and years of experience. Recruitment of a faculty member begins with one

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>All Ranks (1)</th>
<th>Professor (2)</th>
<th>Associate Professor (3)</th>
<th>Assistant Professor (4)</th>
<th>Teaching Assistant (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992/93</td>
<td>127,776</td>
<td>155,500</td>
<td>135,200</td>
<td>115,205</td>
<td>105,200</td>
</tr>
<tr>
<td>1993/94</td>
<td>133,400</td>
<td>163,250</td>
<td>139,100</td>
<td>120,765</td>
<td>110,460</td>
</tr>
<tr>
<td>1994/95</td>
<td>146,650</td>
<td>180,100</td>
<td>151,450</td>
<td>133,130</td>
<td>121,920</td>
</tr>
<tr>
<td>1995/96</td>
<td>146,650</td>
<td>180,100</td>
<td>151,450</td>
<td>133,130</td>
<td>121,920</td>
</tr>
</tbody>
</table>

Note: In January 1994 the franc CFA was devalued, and the official rate of exchange to $1 = francs CFA 500.

of the 4 entry levels based on categories of degrees held. The minimum qualification required to be a teaching assistant is a Diplome Universitaire de Technicien Superieur (DUTS)—a degree granted by a 2 year technical IHE, a bachelor's or master's degree. Teaching assistants are hired at entry level 1; assistant professors who must satisfy the minimum qualification requirement of a doctorate degree are hired at entry level 2; medical doctors who must meet the minimum qualification requirement of a medical doctorate are hired at entry level 3; and the terminal "Doctorat d'Etat" (the prestigious French doctorate) degree holders in Sciences and "Agregation" degree holders in Medicine and Law) are hired at entry level 4. Therefore, the structure of faculty wages and salaries are based on each individual faculty's relative position at entry levels.

Salary schedules are also linked to "incremental steps" which each faculty member may climb based on an annual review of performance by the appropriate IHE director. Performance is graded on a 4 point scale ranging from poor that equals 0 to outstanding that equals 4. These grades determine the number of steps a faculty can climb. In fact, all performance evaluations are based on the job assignment of the faculty member. Faculty incremental salary raise is, therefore, a cause of the change in faculty costs over time. Since faculty members of Mali's IHEs are getting older, these incremental costs have a tendency to rise.

Another factor is the change in the supply and demand conditions of Mali's IHEs faculty members. Thus, changes in the distribution and composition of the faculty do have a significant impact on the costs of faculty for the system as a whole. Local faculty supply has improved, and as a result, the substitution of expatriate faculty (whose salaries are paid by their own governments) by Malian faculty has had a profound influence on
total faculty costs of Mali's IHEs. Table 5.13 discloses data about the structure of instructional faculty in Mali's IHEs by size, national origin, and composition for 1986/87 and 1994/95.

In 1986/87, Mali's IHEs had about 712 full-time and part-time faculty members, 134 of whom—more than 23 percent—were expatriate faculty from various national origins. Eight years later, in 1994/95, Mali's IHEs had approximately 738 full-time and part-time faculty members, 20 of whom—about 2.8 percent—were expatriate faculty. This significant change in the composition of faculty during this short time period has resulted in the substitution of increasing numbers of expatriate faculty members by Malian full-time faculty members. This change in the composition of the full-time instructional faculty has also resulted in a shift of financial burden from foreign governments (foreign faculty compensation) to the Malian government.

On the other hand, a new category of faculty known as nontenured faculty or "contractual faculty" has emerged, and their number has grown from 0 in 1986/87 to 91 in 1994/95. They are placed on a special salary schedule among college graduates with minimum qualifications, ranging from DUTS to bachelor's and doctorate degrees. Their salaries represent a monthly lump sum of francs CFA 35,000 to 40,000, and are entirely covered by the budget of the Ministry of Higher Education. In 1995, contractual faculty annual salary costs amounted to about francs CFA 304 million, a significant change over time.

This salary cost represents a shift of financial burden from foreign governments to the Malian budget of higher education, and is equivalent to part of the salaries of the expatriate faculty that was paid by their respective governments. Therefore, faculty costs
Table 5.13. Composition, National Origin, and Size of Faculty in Institutions of Higher Education in Mali 1986/87-1994/95

<table>
<thead>
<tr>
<th></th>
<th>1986/87</th>
<th>1994/95</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full-time faculty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malians</td>
<td>379</td>
<td>455</td>
</tr>
<tr>
<td>Expatriates</td>
<td>134</td>
<td>20</td>
</tr>
<tr>
<td><strong>Part-time faculty</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malians</td>
<td>199</td>
<td>172</td>
</tr>
<tr>
<td>Expatriates</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Contractual faculty</strong></td>
<td>0</td>
<td>91</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>712</td>
<td>738</td>
</tr>
</tbody>
</table>

have changed as a result of the continuous Malianisation policy of faculty members and further training teaching assistants could receive to improve their minimum qualification levels. Faculty members with lower qualifications, for example, can shift to a higher pay schedule after receiving a doctorate or terminal degree through graduate studies, or an "Agregation" degree after success in a "concours", which is a special examination.

The last factor that has caused an increase in faculty salary in Mali's IHEs is the cumulative effect of inflation over the last decade. Thus, the cumulative rate of inflation was 74.7 percent over the 9 year period between 1985 and 1993. Based on this percentage rate, total personnel costs for all the Malian IHEs, when adjusted for inflation, increased from about francs CFA 1,860.2 million to francs CFA 2,511.2 million in current francs. Inflation is a major factor contributing to the rise in higher educational costs in Mali.

Rise in Direct Costs

Major direct costs in Mali's IHEs have changed significantly since the early 1980s. Data on direct costs available from 1985 through 1996 are examined in this section to get a better understanding of the basic reasons for the behavioral characteristics of these costs in Mali's IHEs over time. Three major factors appear to have contributed to a change in the direct costs in Mali's IHEs during this period. First, a 75 percent across-the-board increase in the scholarship monthly rate was granted in 1991 by the Malian government. As a result, scholarships awarded to students increased from francs CFA 15,000 before 1991 to francs CFA 26,250 in 1991. This major increase explains, to a large extent, the significant change in total direct costs of higher education in Mali after 1991.
Second, enrollments, too, increased during the last decade. Total enrollments in all IHEs rose from 5,540 in 1987 to 8,900 in 1992, and from 8,900 to over 10,300 in 1996. The percentage change in enrollments from 1987 to 1996 was nearly 54 percent. In 1992, a year after the scholarship increase, enrollments in all IHEs increased by 62.25 percent, and the total scholarship package increased by 137.25 percent. Third, the average annual inflation rate was 4.4 percent between 1985 and 1993, 35.1 percent in 1994, and 8.2 percent in 1995. This factor also contributed to the change in total direct costs of IHEs during this period of time. When adjusted for inflation, total direct costs declined from francs CFA 1,499.5 million in 1985 to francs CFA 500 million in 1995.

Data regarding enrollments and major components of total direct costs are provided in Table 5.14. As may be observed from Table 5.14, two basic trends characterize enrollment patterns and scholarship costs. With reference to the first trend, a major determinant of total annual scholarship costs in Mali's IHEs was a total enrollment of 7400 students in 1985. Total enrollment declined significantly to 5540 in 1987, a decline of nearly 30 percent, before rising again to 6020 in 1989, an increase of nearly 500 students or a 10 percent increase. During that period, the rise in total scholarship cost was not consistent with the increase in enrollments.

As total enrollments declined in 1987, total scholarship costs increased, and as total enrollments rose in 1989, total scholarship costs declined. This is an atypical phenomenon because scholarship costs vary in direct proportion to the number of students with the monthly stipend rate remaining constant. Nonetheless, total scholarship costs increased from francs CFA 1.3 billion in 1985, declined significantly to francs CFA
Table 5.14. Total Direct Costs of Institutions of Higher Education in Mali, 1985-1996
(Millions of Current Francs CFA)

<table>
<thead>
<tr>
<th>Year</th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
<th>1991</th>
<th>1993</th>
<th>1995</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollments</td>
<td>7585</td>
<td>5540</td>
<td>4540</td>
<td>4845</td>
<td>7555</td>
<td>9700</td>
<td>10300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct Costs</th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
<th>1991</th>
<th>1993</th>
<th>1995</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarships</td>
<td>1,300.0</td>
<td>1,618.0</td>
<td>938.3</td>
<td>1,344.0</td>
<td>1,380.0</td>
<td>2,191.0</td>
<td>1,932.0</td>
</tr>
<tr>
<td>Transportation</td>
<td>148.0</td>
<td>116.0</td>
<td>127.8</td>
<td>138.0</td>
<td>213.6</td>
<td>240.9</td>
<td>251.0</td>
</tr>
<tr>
<td>Supplies</td>
<td>11.0</td>
<td>9.0</td>
<td>11.3</td>
<td>11.0</td>
<td>12.0</td>
<td>20.4</td>
<td>18.9</td>
</tr>
<tr>
<td>Instructional Materials</td>
<td>35.5</td>
<td>42.2</td>
<td>18.3</td>
<td>14.3</td>
<td>14.3</td>
<td>337.7</td>
<td>324.0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5.0</td>
<td>6.0</td>
<td>7.5</td>
<td>8.0</td>
<td>10.7</td>
<td>75.9</td>
<td>148.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,499.5</td>
<td>1,791.2</td>
<td>1,103.2</td>
<td>1,515.3</td>
<td>1,630.6</td>
<td>2,865.9</td>
<td>2,673.9</td>
</tr>
</tbody>
</table>

Note: Prior to January 1994, $1 was equivalent to Francs CFA 250. After January 1994, the rate of exchange was $1 to Francs CFA 500. Cost figures were calculated by the author.

938.3 million in 1989, before reaching a peak of francs CFA 2.2 billion in 1995, an increase of nearly 57 percent.

With regard to the second trend, there has been a direct proportion between total enrollment increase and total scholarship increase since 1991. The rise in enrollments has been consistent with the rise in scholarship costs until 1996. For example, total scholarship costs increased from francs CFA 1.3 billion in 1985 to francs CFA 2.2 billion in 1995, before declining slightly in the 1996 budget forecast to francs CFA 1.9 billion. Two major factors seem to explain this significant increase; first, the 75 percent across-the-board increase in scholarship monthly rate; and second, the steady rise in total enrollments in Mali's IHEs. Furthermore, the decline in total scholarship costs in the 1996 budget may be attributed to a new scholarship award policy implemented by the government in the spring of 1995.

Total direct costs increased from francs CFA 1.5 billion in 1985 to francs CFA 2.7 billion in the 1996 budget forecast, an increase of 55.55 percent in 11 years. Moreover, if tuition and fees costs, estimated at francs CFA 51,000 per student and per year, were included, the actual total direct costs of Mali's IHEs for 1995 would increase by an additional half billion francs CFA.

In addition, the increase in the costs of instructional materials has been dramatic. They increased from francs CFA 14.3 million in 1991 and 1993 to francs CFA 337.7 in 1995, a twenty-four-fold increase. These costs, however, declined slightly in the 1996 budget forecast to francs CFA 324. As a general rule, instructional materials costs have been rising significantly in the last couple of years.
Other costs such as transportation to and from students' home towns have also increased significantly over the last decade. The cost data estimates in Table 5.14 suggest that students' travel costs, after a decline in 1987, increased steadily in 1996. They increased from francs CFA 116 million in 1987 to francs CFA 251 million in 1996, an increase of 110 percent. Miscellaneous costs include students' gym equipment and sport activity costs, health care costs, and food. The most significant increase in this category of cost in the 1996 budget estimate was caused by the dramatic rise in boarding cost, especially food, at the National School for Agronomy (IPR) located in a rural area.

Rise in Indirect Costs

Indirect costs are an important part of the costs of Mali's IHEs. The purpose of this section is to examine (1) the changes in earnings forgone by students who attend IHEs instead of working; (2) the implicit cost of depreciation, that is, the wear and tear on the higher education buildings and equipment; and (3) the value of tax exemption enjoyed by Mali's IHEs over time.

Since all Malian students who attend IHEs receive full or one-half scholarship awards, they forgo no earnings. First, the monthly scholarship rate is about half the starting salary of a college graduate. Since students are still attending college, they make as much as individuals of their age group who have completed a secondary professional school and are working. Further, in Mali, the unemployment rate among college graduates is fairly high. Full scholarships, with a monthly rate of francs CFA 26,250, are awarded annually to a large number of Malian college students. Therefore, the changes in earnings forgone by students over time are tantamount to the changes in total
scholarship costs over the same period of time, since these costs can serve as a proxy for the earnings forgone by students.

Second, due to data limitations, no attempt has been made to examine the change in implicit rent that represents forgone opportunities of renting higher education buildings, and equipment for noneducational uses over time. The land and most higher educational buildings and equipment are the property of the government. Nonetheless, the size, location, and quality of the higher education buildings could influence their market value. And if this market value was appropriately assessed the real implicit rent of the buildings could be fairly high.

Third, Mali’s institutions of higher education are exempted from payment of property tax. If IHEs were subject to property taxes, total higher education costs would have risen. Furthermore, no attempt has been made to compute the costs of tax exemption. However, if property tax on higher education buildings was accurately assessed, the real cost of tax exemption for all the property could be fairly high.

Higher Educational Cost Per Student Unit

Analysis of Research Question #2: What major factors determined per-student unit costs in Mali’s institutions of higher education (IHEs) and were there significant variations in per-student unit costs over time and across these institutions between 1985 and 1996?

A student is the unit of service to which educational cost is to be related. Five major factors act as powerful determinants of per-student unit cost: 1) The institution size characterized by its total enrollments; 2) The total revenue available to the institution; 3) The institution location, and 4) The institution size, and 5) Inflation. First, findings suggest that there is a strong positive relationship between an institution's total enrollment
and its per-student unit cost. Institutions with large enrollments tend to have lower per-student unit costs, whereas institutions with low enrollments tend to have higher per-student unit costs. Enrollments push both total recurrent and direct costs upward, simply because more faculty, staff, space, and instructional materials are needed as enrollments grow. Each of these acquisitions require a large initial cost, but as enrollment grows, the cost is spread over more students, and unit costs tend to fall. Also, at the same time that these initial costs give rise to economies of scale, several other factors tend to push cost up as the size of the institution increases. One of these factors is the students’ total scholarship cost and travel expenses.

Second, the per-student unit cost is also determined by the amount of revenue available to the institution. Bowen (1980) referred to this phenomenon as the revenue cost theory. Since revenues are allocated to IHEs based on total enrollments, personnel size, and the like, these factors, in the final analysis, impact the per-student unit cost as previously stated. Revenues have a tendency to rise as the scale of operation of the institution expands.

Third, the location of the IHE appears to have some impact on the per-student unit cost. There are specific types of costs associated with urban setting IHEs, and specific types of costs associated with the rural setting IHE. The geographic location appears to have an impact on the per-student unit cost because the rural setting IHE is engaged in quite different activities from urban setting IHEs, and these activities call on different numbers of support staff, such as various categories of farm workers, more specialized assistant veterinarians, and laboratories. In addition, room and board are also required.
for students attending the rural IHE. These factors have a tendency to push the National School for Agronomy (IPR) per-student unit cost upward.

Fourth, per-student unit costs in 2-year IHEs tend to be higher than per-student unit costs in other IHEs. Fifth, inflation is the last major cause of increase in the per-student unit cost as previously stated. A substantial part of the impressive rise in per-student unit cost between 1985 and 1996 was not "real" and should not be attributed to the previously stated factors because of inflationary trends. Between 1985 and 1993, the inflation rate in Mali was running at 4.4 percent a year, a cumulative rate of 39.6 percent. That high rate, coupled with high rates of 35 percent for 1994, 9 for 1995, and 8 for 1996, added up to a cumulative rate of 90.6 percent. In nominal terms, that means that the 1996 per-student unit cost was 90.6 greater than the 1985's.

Overall per-student unit costs were computed for selected years from 1985 through 1996. Table 5.15 depicts changes in overall per-student unit costs and total enrollments in Mali's IHEs from 1985 through 1996. First, the findings suggest that there are significant variations among overall per-student unit costs over time. The most significant variation occurred between 1985 and 1987, when overall per-student unit cost increased from francs CFA 378,000 in 1985, to an unprecedented peak of francs CFA 608,000 in 1987. After the dramatic 1987 increase, overall per-student unit costs decreased dramatically to francs CFA 405,000 in 1989. Overall per-student unit costs remained fairly constant in the francs CFA 400,000 range from 1989 through 1996, except for 1991, when they increased to francs CFA 508,000. The major explanation for this large increase is due to the 1991 across-the-board 75 percent increase in the scholarship monthly rate for all students of Mali.
Table 5.15. Overall Per-Student Unit Cost in Institutions of Higher Education in Mali, Selected Years, 1985-1996

<table>
<thead>
<tr>
<th>Years</th>
<th>1985</th>
<th>1987</th>
<th>1989</th>
<th>1991</th>
<th>1993</th>
<th>1995</th>
<th>1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per-student Unit Cost (in thousands of FCFA)</td>
<td>387</td>
<td>608</td>
<td>405</td>
<td>508</td>
<td>434</td>
<td>493</td>
<td>488</td>
</tr>
<tr>
<td>Enrollments in IHEs</td>
<td>7,585</td>
<td>5,540</td>
<td>4,540</td>
<td>4,845</td>
<td>7,555</td>
<td>9,700</td>
<td>10,300</td>
</tr>
</tbody>
</table>

Note: Prior to January 1994, $1 was equivalent to Francs CFA 250. After January 1994, the rate of exchange was $1 to Francs CFA 500.

Second, the data provided in Table 5.15 further suggest that overall per-student unit costs have a tendency to fall as enrollments increase. This is further evidenced by the overall per-student unit costs of francs CFA 434,000 in 1993, when enrollments rose to 7555 students, and francs CFA 488,000 in 1996 when enrollments peaked 10,300 students. In addition, 1995 is also revealing because overall per-student unit costs increased slightly with a significant increase in enrollments. One might argue that there is a somewhat positive relationship between enrollments and overall per-student unit costs in IHEs over time. When adjusted for inflation, it may be concluded that unit costs have a tendency to decline when enrollments increase.

Per-student unit costs were computed for academic years for which the same type of complete cost datasets were available for all the IHEs. Table 5.16 provides data about per-student unit costs, and enrollments for all types of IHEs from 1985 through 1996. The findings suggest that there were significant differences among per-student unit costs across institutions over time. For instance, in 1987, per-student unit costs ranged from a low of francs CFA 414,000 at the National School of Public Administration (ENA) with enrollments of 1300 students, to a high of francs CFA 836,000 at the National School of Postal Studies (ENPT) with enrollments of only 160, a net differential of francs CFA 421,000. In 1987, per-student unit costs remained relatively high for the remainder of the IHEs when they averaged nearly francs CFA 680,000 in the face of low enrollments. In 1995, per-student unit cost ranged from a low of francs CFA 344,000 at the National School of Engineering (ENT) with enrollments of 1250 students, to a high of francs CFA 884,000 at the National Institute for Agronomy (IPR), with enrollments of 2400 students.
Table 5.16. Comparisons of Per-Student Unit Cost and Enrollments Over Time and Across Institutions of Higher Education in Mali, 1987 and 1995

<table>
<thead>
<tr>
<th>2-Year Institutions of Higher Education</th>
<th>1987</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>EHEP: School of Business Administration and Secretarial Studies</td>
<td>647</td>
<td>365</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
<td>647</td>
<td>365</td>
</tr>
<tr>
<td>Enrollment</td>
<td>540</td>
<td>740</td>
</tr>
<tr>
<td>ENTP: National School of Telecommunications and Postal Studies</td>
<td>936</td>
<td>N/A</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
<td>936</td>
<td>N/A</td>
</tr>
<tr>
<td>Enrollment</td>
<td>160</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4-Year Institutions of Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENA: National School of Public Administration</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
</tr>
<tr>
<td>Enrollment</td>
</tr>
<tr>
<td>ENI¹: National College of Engineering</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
</tr>
<tr>
<td>Enrollment</td>
</tr>
<tr>
<td>ENSUP: Higher Teacher Training College</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
</tr>
<tr>
<td>Enrollment</td>
</tr>
<tr>
<td>IPR¹: School of Agronomy and Veterinary Medicine</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
</tr>
<tr>
<td>Enrollment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6-Year Institutions of Higher Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENMP: National School of Medicine and Pharmacy</td>
</tr>
<tr>
<td>Per-Student Unit Cost (in thousands of F CFA)</td>
</tr>
<tr>
<td>Enrollment</td>
</tr>
</tbody>
</table>

¹ Both ENI and IPR were 4-year institutions prior to 1994 when they became 5-year institutions.

Note: All per-student unit costs were calculated by the author.

a net differential of francs CFA 540,000. The rest of the colleges averaged a per-student unit cost of francs CFA 400,000 in the face of rising enrollments.

The findings suggest an interesting pattern between the cost and the size of the IHE. In other words, per-student unit costs positively relate to the size of the institution and its location rather than its type (2, 4, 5, or 6-year institution). Comparisons of per-student unit cost within and across institutions over time revealed the following trends.

Per-student unit costs differed widely within and among institutions. First, in 1987, at 2-year institutions, per-student unit costs were higher at EHEP (francs CFA 647,000) with total enrollments of 536 than in 1995, when they declined to (francs CFA 365,000) when total enrollments increased to 740 students. Across 2-year institutions, in 1987, ENPT, with total enrollments of only 160, had per-student unit cost of about francs CFA 835,000, a range of nearly francs CFA 188,000. Enrollment levels may be an important explanation accounting for the per-student unit cost differential.

Second, at 4-year institutions, in 1987, per-student unit costs (francs CFA 591,000) were higher at ENSUP with total enrollments of 1460 than in 1995, when they declined to (francs CFA 475,000) when enrollments increased to over 2200 students. The same conclusion holds for both ENA and ENI. Comparisons between 4 year-institutions (ENA, ENI, ENSUP) revealed that per-student unit costs were higher in 1987, at ENA (francs CFA 414,000) with enrollments of 1360, at ENI (690,000) with enrollments of 600 students, and (591,000) at ENSUP with enrollments of 1460, than in 1995 (francs CFA 414,000, 344,000, and 475,000, respectively) when enrollment declines were observed. In 1995, at the 5-year institutions, per-student unit costs were much higher at IPR (francs CFA 884,000) with enrollments of 2400 students, than at ENI (francs
Comparisons of per-student unit costs at the Medical School over time revealed that per-student unit costs were higher in 1987 (francs CFA 676,000), than in 1995 (francs CFA 371,000) when enrollments were at 570 and 1270 respectively.

In conclusion, all things being equal, similar student bodies and expenditure patterns, one can speculate that per-student unit costs are higher at 2-year institutions than at 4 or 6-year institutions. One can also argue that the mission of the institution does not appear to have a decisive impact on per-student unit cost differential because of the limited cost disparity among different institutions with different missions. There is a limited institutional location effect relative to per-student unit costs. Finally, though the median per-student unit costs for various types of institutions tended to converge in 1995, the variance of per-student unit cost among individual IHEs remained relatively great.

Therefore, Coombs and Hallak (1972) and Psacharopoulos's (1986) assertions that per-student unit costs decline as enrollments increase and increase as enrollments decline is supported by data in the case of Mali's IHEs, where there is strong evidence corroborating the conclusion that per-student unit costs declined as enrollments grow. On the other hand, there is also limited evidence to corroborate Schiefelbein's (1983) conclusion that states that per-student unit costs increase as enrollments rise. Further examination of per-student unit costs over longer time periods might provide more compelling evidence in corroborating one conclusion or the other.

Proposals for Improving Efficiency of Operations in Mali's IHEs

Research Question #3: How can the internal and organizational efficiency in Mali's IHEs be improved?
Efficiency is measured as a ratio between educational outcomes and resources employed in the educational production process, in other words, between inputs and outputs. A number of concepts such as accountability, improvement of educational outcomes, management, and the increase in the faculty/student ratio is linked to the idea of efficiency. The focus of the analysis was not on technological efficiency (the maximum amount of educational outcome, taking into account a given amount of financial resources that can be used to purchase a certain mix of inputs at prevailing prices), per se, but on internal efficiency (the comparison of costs of education to the outputs or effects within education).

The analysis of various data sources suggests that the educational system of Mali in general is characterized by a low level of efficiency. Another common pattern relates to the differential internal rate of efficiency between different levels and types of education. The differential internal rate of efficiency is the ratio between the percentage of students enrolled in a given level of education with the percent of students graduating from the same level over a given period of time. For example, in 1987, in elementary education, this rate varied from 19 percent in Cycle I (grade I through grade 6) to 23 percent in Cycle II (grade 7 through grade 9). The ratio was estimated to be 50 percent in secondary education, and 54.2 percent in higher education. Furthermore, the dropout indicator gradually decreased from 81 percent in primary education Cycle I to 45.2 percent in higher education.

With specific reference to higher education, in 1987, the average time it takes to graduate was approximately 2.5, 4.6, and 6.5 years for a 2-year, 4-year, and 6-year institutions, respectively. To get a better understanding of the issue of inefficiency
through dropout and grade repetition, and to assess the financial implications of this phenomenon in higher education, a 1984 cohort of freshmen was followed through their college cycle. Data about cohort survivorship suggest that of a total of 662 freshmen enrolled in 2-year institutions in 1984, 547 were promoted to the 2nd year, a 82.3 percent promotion rate. Of a total of 2705 freshmen enrolled in 4-year institutions in 1984, 1407 were promoted to the 4th year in 1987, a 52.0 percent promotion rate.

Data about cumulative grade repetition rates are not available. The repetition policy stipulates that 1 repetition is allowed in a 2-year institution, 2 in a 4-year institution, and 2 in a 6-year institution. Based on the data available, and given the fact that the overall per-student unit cost was estimated to be francs CFA 378,000 in 1985, total resource wastage amounted to francs CFA 6 million for 2-year institutions, and francs CFA 494 million for the rest of the IHEs combined. Total resource wastage for all the IHEs combined in 1985 was estimated to be over half a billion francs CFA.

Graduation Rates Over Time

If one applies internal efficiency principles (maintaining a constant level of input while producing more desired outputs), significant financial resource wastage can be eliminated. Whereas inputs consist of students, faculty, instructional materials, curriculum, pedagogical methods, equipment and the like, outputs consist of graduation rates, and cognitive and noncognitive skills learned by students. Because of the methodological problems involved in measuring the cognitive and noncognitive skills learned by students, the focus of the analysis was on one specific type of output—graduation rates over time in some IHEs.
Two schools, the National School of Administration (ENA), a 4-year institution, and the National Medical School (ENMP), a 6-year institution, were selected because the same complete data sets were available for both institutions over the same time period. Their 1989/1990 through 1994/1995 graduation rates were analyzed. ENA overall graduation rates varied from a low of 66.9 percent in 1989/90 to a high of 77.8 percent in 1994/95. In other words, about 33, 22, and 32 percent of students enrolled at ENA did not complete college in 1989/90, 1990/91, and 1992/93, respectively. This phenomenon has had dramatic financial implications for ENA. For example, in 1994/95, 27.8 percent (about 700 students) of ENA's 2520 students failed their final exams. Given the fact that ENA per-student unit cost was estimated to be francs CFA 399,000 in 1995, total resource wastage was estimated to be francs CFA 280 million. Given the fact that graduation rates were lower in 1989/90 and 1990/91 than in 1995, total resource wastage cost for these two years could be even higher.

At a 6-year institution, the National Medical School, the analysis of overall graduation rates over time presents similar perspectives like at ENA. ENMP overall annual graduation rates from 1991 through 1995 were quite high in absolute terms. The completion rate varied from a low 76.86 percent in 1992/93 to a high of 88.95 percent in 1991/92. For example, in 1994/95, 18.54 percent of ENMP total student body (about 253 students) did not complete college. Given the fact that, in 1995, ENMP per-student unit cost was estimated to be francs CFA 371,000, total resource wastage for this institutions amounted to francs CFA 94 million, a considerable drain of resources. In 1995, total resource wastage for these two colleges combined was estimated to be francs
CFA 374 million, although the magnitude of the wastage was more significant at ENA than at ENMP.

Improvement in Faculty/Student Ratio

Since faculty and student costs dominate the costs of higher education in Mali, any proposal relative to the improvement in the efficiency of operation of the system should focus on the faculty/student ratio. One major suggestion is that higher education in Mali could reduce the size of the faculty in relation to the number of students. Two sets of ratios were computed: 1) the faculty/student ratio for the system as a whole, and 2) the institutional faculty/student ratio based on faculty and student data available in 1987 and 1995. In 1986/1987 there were 513 Full-Time Equivalent (FTE) instructional faculty members and 199 part-time instructional faculty members in Mali’s IHEs. Assuming that 1 FTE is equivalent to 2 part-time faculty members, the 199 part-time faculty members are equivalent to 99 FTE. Therefore, total FTE faculty members in Mali’s IHEs were 612 in 1987. In 1987, total enrollments in Mali’s IHEs amounted to 5540 students. Therefore, the 1987 faculty/student ratio was 9.05:1.

In 1994/1995, total faculty members were 475, (455 Malians) and 20 expatriates. In addition, there were 91 contractual faculty who carry the same teaching load as full-time faculty and may be considered full-time. There were 172 part-time faculty or 86 FTE. Altogether, total FTE for the system of higher education in Mali amounted to 652 faculty members. Total enrollments were 9750 students. Therefore, the faculty/student ratio in 1995 was 14.95:1. Although the faculty/student ratio increased significantly from 9.05:1 in 1987 to 14.95:1 in 1995, these figures indicate that faculty members, who
represent about three quarters of the entire personnel employed in higher education, could be better utilized to achieve certain economies.

Comparisons of the faculty/student ratios within and across institutions reveal interesting patterns. Faculty/student ratios differed widely among institutions in 1987. It fluctuates between a low of 6.7:1 at the Medical School and a high of 12.3:1 at the School of Administration. During the same year, ENI was at 7.1:1; EHEP at 9.1:1; IPR at 9.1:1; and ENSUP at 10.0:1. Conversely, in 1995, the faculty/student ratio increased significantly across institutions. It ranged from a low of 9.4:1 at ENSUP to a high of 24.2:1 at ENA. During the same year, the faculty/student ratio was 13.1:1 at the Medical School; 14.3:1 at EHEP; 15.8:1 at ENI; and 19.0:1 at IPR.

Three major conclusions can be drawn from the comparison of the faculty/student ratio over time: 1) The faculty/student ratio increased significantly over time and across institutions; 2) Whereas 4 institutional faculty/student ratios were slightly below or equal to the national average in 1987, three were above and 3 below the national average in 1995; 3) Economies can be realized by improving this faculty/student ratio, and ENA appears to be quite efficient in 1995 in terms of faculty/student ratio. Finally, in terms of administrator and staff/student ratio in 1995, ENA was at 93.3:1; ENSUP at 68.8:1; ENI at 41.7:1; IPR at 37.8:1; EHEP at 28.5:1; and ENMP at 254.0:1. During this year, IPR appears to be overstaffed, whereas ENMP appeared to be understaffed. A strong case can, therefore, be made that economies should be also sought and could be realized in noninstructional staff in Mali's IHEs.
**Cost Recovery Proposal**

Findings suggest that an increasingly important proportion of stakeholder groups (45.4 percent) believe that the Malian government should share the responsibility of higher education funding with the students and their families. Stakeholders reacted differently to the two major cost recovery strategies (tuition and fees payment by students and the implementation of a student loan program) in the survey. Only 10.8 percent of the students surveyed and 24.3 percent of the rest of stakeholders surveyed reported they would support tuition payment, whereas an overwhelming majority of stakeholders (73.5 percent of the students surveyed) and (60.2 percent of the other stakeholders) reported that they would support the implementation of a student loan program in Mali. A cost recovery proposal that is partitioned into three major components is suggested: 1) Tuition and fees payment by students, 2) Student loan program (SLP), and 3) Higher education package plan (HEPP).

Research Question #4: What should be the major components of a cost recovery proposal and what percentage of the overall per-student unit cost could possibly be recovered in Mali’s IHEs?

A cost recovery proposal, then, can be thought of as a set of elements (economic, human, and the like). In other words, the proposal can be perceived as a function of the interaction of these elements. Thus, cost recovery is the result of the dynamic relationship among its elements. More specifically, cost recovery (RC) is a function (f) of the price for education (P), total enrollments (TE), willingness to pay, (WTP), ability to pay Index (API), and a student loan program (SLP).

\[
RC = f(P \times TE \times WTP \times API \times SLP)
\]
One can speculate that to understand the mechanism of cost recovery, it is useful to examine the interactions among the elements in terms of their consistency. The greater the degree of congruence among the elements of the proposal, the more effective the cost recovery proposal. The magnitude of the cost of higher education recovered depends, to a large extent, on the amount of the tuition to be charged, total IHEs' enrollments, the degree of willingness and ability to pay, along with the effectiveness of a student loan scheme. These elements may interact in various ways. The purpose of this study is not to validate the proposal, but to examine some of the elements individually or in combination.

Tuition Payment as a Cost Recovery Mechanism

A normative criterion that may be used to evaluate the desirability of the payment of tuition and fees and the reduction in the monthly rate of student stipend is Pareto optimality. Let us recall that a reallocation of resources is Pareto optimal only if there exists no change that will make one or more individuals better off without making someone else worse off. In fact, the implementation of the introduction of tuition payment and the reduction in the monthly rate of the stipend will make the system of higher education better off, but students worse off because of the significant loss in income they will face. Nonetheless, if these measures were introduced they could generate a significant amount of resources for Mali's IHEs, depending on the amount of tuition to be charged and the percentage reduction in the stipend. This issue is a major policy option the Malian government might want to explore in the future.

As previously stated, the cost recovery of a certain percentage of per-student unit cost (partial cost recovery) raises the issue of the efficient utilization of resources in terms
of Pareto optimality. Bigsten (1983) questions the usefulness of this concept in terms of the practical implementation of efficiency measures. Bigsten argues that changes that benefit someone without hurting anybody else is of little use in practical policy making. He posited that "Its acceptance would tend to hinder all attempts to redistribute income" (p. 47). Therefore, if wealth has to be redistributed and if the students and their families have to shoulder some of the costs of college, then a pricing system has to be implemented. Pricing as a means of financing higher education, until very recently (October 1996), has never been implemented in Mali. Thus, the case for greater cost recovery through pricing can be made for higher education. For instance, given the general per-student unit cost in Mali (estimated to be francs CFA 490,000 in 1995) and assuming that, the tuition charged annually in 1995 amounted to francs CFA 50,000, then the percentage of per-student unit cost recovered can be computed. Therefore, this percentage would have been:

\[
\frac{\text{CFA francs 50,000}}{\text{CFA francs 490,000}} = .102 \text{ that is 10.2 percent.}
\]

So, 10.2 percent of the overall per-student unit cost could have been recovered for Mali's IHEs.

The second issue of paramount importance for the government is the amount of cost it could possibly recover. So the formula \( rg \) refers to the cost recovery ratio to the government of total social cost of higher education in Mali, during a given period of time. So \( rg = \frac{p}{(rc + cc + t)} \)

where \( p \) is the price for the service, that is, the amount of tuition and fees to be charged.
(rc) the recurrent cost;

(cc) the capitalized cost;

and t any financial transfer payment made to the students such as scholarships.

Other costs such as total direct costs can be added to this formula so that it reflects the reality of various types of higher education costs incurred by the government of Mali.

Thus the formula can be rewritten as follows:

\[ rg = \frac{p}{(rc)} + t_{dc} + cc + t. \]

If the data for 1995 are taken into account, where \( p = \text{CFA francs 50,000}; \)

\( rc = \text{francs CFA 2,251.8 million}; \)

\( t_{dc} = \text{francs CFA 2,865.9 million}; \)

\( cc \) is not available;

\( t \) is included in \( t_{dc}; \)

and 9700 total enrollments in 1995

then \( rg \) would be:

\[ \frac{\text{francs CFA 50,000} \times 9700}{\text{francs CFA 2,251.8 million} + \text{francs CFA 2,865.9 million}} = \frac{\text{francs CFA 48,500,000 million}}{\text{francs CFA 5.117 billion}} = .0947 \text{ that is about 10 percent.} \]

\[ rg = 10 \text{ percent.} \]

Therefore, about 10 percent (a relatively small ratio) of the per-student unit cost would be the cost recovery ratio of higher education by the government of Mali. This 10 percent is within the 0-25 percent range indicated by the majority of Mali stakeholders as the percentage of the unit cost the students should be required to pay.
Student Loan Program as a Cost Recovery Mechanism

Although student loan schemes in Africa (Ghana, 1971-1972, and Nigeria, 1977-1978) were short-lived, experience shows that student loans can and do work elsewhere in developing countries, mainly Latin America (Woodhall, 1980). Student loans appear to be a feasible means of financing higher education provided they are well thought out and carefully implemented with adequate safeguards for money lenders, whether the revolving funds are from government or private sources. Findings provide support for the implementation of a student loan program (SLP) in Mali. Nonetheless, a number of issues crucial to the success or failure of a student loan program need to be addressed. First, the income level of aid recipients should be established in terms of a means-test that is, the eligibility criteria for loans. Second, the cost of student loans should constantly and accurately be assessed in terms of initial capitalization, such as the cost of administration, interest, and inflation rate adjustments over time. Third, the specifications of the payment terms, that is, the length of repayment, and the reduction in default rates, need to be under special scrutiny. Fourth, the impact of loans on access to higher education (the correlation between loan and private demand for higher education), and the level of public and private expenditure on education (e.g., the degree of public subsidy) should also be under scrutiny.

In the Malian context, the loan program could be in place to serve specific categories of students by providing various types of financial aid: 1) Scholarships for outstanding students which should be renewed as long as the recipient remains in good academic standing; 2) Bursaries for students seeking degrees in critical need areas where there is still a crucial manpower shortage; 3.) Interest free loans for other students. Since
experience shows that at the inception student loans are unpopular in several countries, the government should make every effort, in a national advertising campaign, to explain the purpose and the advantages of a student loan program in order to guarantee its success.

Higher Education Package Plan as a Cost Recovery Mechanism

The third and last strategy is the higher education package plan as a cost recovery mechanism. Conceptually, the HEPP is a 2, 3, 4, 5 and 6-year total package that includes the cost of a 9 month scholarship, travel, and tuition computed based on the overall per-student unit cost. First, the plan is offered to any student who meets the following two major criteria: 1) Academic merit, and 2) Demonstration of financial need. Therefore, all students who meet the academic merit and financial need criteria automatically qualify for the plan, otherwise they are eliminated. The purpose of this discrimination is to eliminate at the onset a number of students who would otherwise have qualified for the plan. This might result in a certain amount of savings. Second, the plan is linked with the amount of time it takes a student to graduate. Successive grade repetitions result in a reduction in the total amount of the package. One grade repetition results in a 30 percent reduction in the total package. Two grade repetitions results in a 60 percent reduction in the total amount of the plan. These two measures offer incentives to students to graduate within the required time frame. Research evidence by Jallade (1974) shows that students who contribute to the costs of their college education are more likely to graduate faster than those who do not contribute. Viewed from this perspective, the plan may achieve two essential objectives: 1) speed up the graduation length for all the beneficiaries, and 2) eliminate financial wastage in the IHEs related to continuous
grade repetitions. This might result in significant savings in IHEs given high grade repetition rates. Third, under the plan, every student should be responsible for a certain amount of tuition and fees regardless of academic merit or demonstration of financial needs. This also might result in a significant generation of incomes for the institutions of higher education over time.

Summary of Survey Results

This section of the chapter reports the results of the second phase of the study—the stakeholders' group survey. The results are presented as follows: 1) descriptive statistics for the sample, 2) factor analyses for the HESS, 3) descriptive statistics for the independent and dependent variables, 4) reliability analyses, 5) intercorrelations of the HESS subscales, 6) and additional analyses. Independent variables are ability and willingness to pay, economic values and returns, and cost/benefit beliefs. Dependent variables are the three dimensions of stakeholders' attitudes toward the CRP: 1) organizational and internal efficiency of IHEs, 2) cost recovery, and 3) downsizing and monitoring. Summaries of descriptive statistics for demographic variables presented in this chapter can be cross-referenced for item content with the instrument packets administered to faculty, administrators, parents, legislators, and students.

Summary of Descriptive Statistics

Because of the relatively small size of Mali's higher education system, the study focused on all Institutions of Higher Education, the National Directorate for Higher Education (DNES), along with the 1992/1997 Legislature of Mali. Usable data were received from all seven IHEs, the DNES, and the 1992 National Legislature. Participants surveyed in the study included students, administrators (general directors, assistant
general directors, general secretaries, chief financial officers, Malian department chairs of 6 IHEs, the Dean, Assistant Deans, General Secretary, Chief Financial Officer of the Medical School, along with the National Director, Assistant National Director, the Heads of Divisions, and the Heads of Sections of the DNES), the faculty of 5 of the 7 IHEs, students' parents or guardians of 6 of the 7 IHEs, and the legislators.

Students

Table 5.17 presents summaries of personal and demographic characteristics of the student sample. Male students comprised 75.9 percent, whereas female students accounted for 24.1 percent of the total sample. The typical respondent in this sample was single, Moslem, freshman, male, in his mid-20s who belongs to one of the following ethnic groups of Mali: Bambara, Fulani, and Sonhrai. Of the total number of student respondents, 18.1 percent were Bambaras, 19.3 percent Fulanis, and 13.3 percent Songhais. In addition, 84.3 percent were Moslems, and 13.3 percent Christians.

Furthermore, of the total number of student respondents, 77.1 percent were below 25 years of age, 32.5 percent were attending a 2-year institution, 21.7 percent a 4-year institution, 21.7 percent a 5 year-institution, and 24.1 percent a 6-year institution; 10 percent had 13 years of schooling, 17.5 percent 14, 21.7 percent 15, 25.3 percent 16, and 23.7 percent 17 or more. Nearly 55 percent of the total number of student respondents were originally from the 2nd region (Koulikoro, 17.7 percent), 3rd region (Sikasso, 17.7 percent) and 4th region (Segou, 19.0 percent). As far as parents' type of residence location, 25.3 percent of parents or guardians lived in the Segou and Sikasso regions, whereas 43.2 percent lived in the capital city of Bamako. There is a higher percentage of fathers with a higher level of educational attainment than mothers. 27.2 percent of
Table 5.17. Summary of Demographics and Personal Characteristics of Student Sample Population

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<td>Francs CFA 1.3 million or above</td>
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* Percent of Total Group Responding to Item
fathers or male guardians, and 51.2 percent of mothers or female guardians have no schooling, 28.4 percent of fathers or male guardians, and only 7.3 of mothers or female guardians were college graduates.

Parents or guardians represented three major occupations. Of the total number of the student respondents' fathers or male guardians 22.2 percent were farmers, and 44.4 percent were civil servants. Only 12.5 percent of mothers or female guardians were farmers, whereas an overwhelming majority, 61.3 percent, were housewives. Finally, with reference to family combined net wealth, 71.1 percent of students reported that their families' total annual net wealth was francs CFA 137,000 or less; 17.1 percent reported that their families' total annual net wealth was between francs CFA 137,000 and 1.2 million; and only 11.2 percent reported having families' total annual net wealth of francs CFA 1.3 million or above.

Administrators, Parents, Faculty and Legislators

Table 5.18 contains summaries of personal and professional characteristics of the administrator and legislator population, along with the parent and faculty sample. The typical respondent was Moslem, married, middle aged, civil servant, male, with an average family size of 6 members (of which 3 siblings attend a fee paying institution), and a family net annual wealth of francs CFA 137,000 or less. In terms of ethnicity, 26.7 percent of the total number of respondents were Bambaras, 16.7 percent Fulanis, and 11.7 percent Songhais. Of the total number of respondents, 84 percent were male and 16 percent female; 90.2 percent were Moslems and 9 percent Christians. In addition, 85 percent of the total number of respondents were 55 years of age or below. In terms of family size, 65.5 percent of respondents had an average family size of 9 persons or
Table 5.18 Summary of Demographics and Personal Characteristics of Parents and Faculty Sample, and Administrator and Legislator Population

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<td>Female</td>
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<td>16.0</td>
</tr>
<tr>
<td>Ethnicity</td>
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<td></td>
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<tr>
<td>Bambara</td>
<td>32</td>
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</tr>
<tr>
<td>Fulani</td>
<td>20</td>
<td>16.7</td>
</tr>
<tr>
<td>Songhai</td>
<td>14</td>
<td>11.7</td>
</tr>
<tr>
<td>Sarakole</td>
<td>10</td>
<td>7.9</td>
</tr>
<tr>
<td>Other</td>
<td>44</td>
<td>36.7</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moslem</td>
<td>110</td>
<td>90.2</td>
</tr>
<tr>
<td>Christian</td>
<td>11</td>
<td>9.0</td>
</tr>
<tr>
<td>Other</td>
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</tr>
<tr>
<td>Age</td>
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<tr>
<td>30 - 35</td>
<td>18</td>
<td>15.0</td>
</tr>
<tr>
<td>36 - 40</td>
<td>26</td>
<td>21.7</td>
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<tr>
<td>41 - 45</td>
<td>24</td>
<td>20.0</td>
</tr>
<tr>
<td>46 - 50</td>
<td>17</td>
<td>14.2</td>
</tr>
<tr>
<td>51 - 55</td>
<td>17</td>
<td>14.2</td>
</tr>
<tr>
<td>56 - 60</td>
<td>5</td>
<td>4.2</td>
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<tr>
<td>61 and over</td>
<td>13</td>
<td>10.8</td>
</tr>
<tr>
<td>Family Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 - 5 persons</td>
<td>32</td>
<td>28.3</td>
</tr>
<tr>
<td>6 - 9 persons</td>
<td>42</td>
<td>37.2</td>
</tr>
<tr>
<td>10 - 14 persons</td>
<td>20</td>
<td>17.7</td>
</tr>
<tr>
<td>15 and over</td>
<td>19</td>
<td>16.8</td>
</tr>
<tr>
<td>Number of siblings attending a fee paying institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 person</td>
<td>15</td>
<td>33.3</td>
</tr>
<tr>
<td>2 persons</td>
<td>16</td>
<td>35.6</td>
</tr>
<tr>
<td>3 persons</td>
<td>6</td>
<td>13.3</td>
</tr>
<tr>
<td>4 persons</td>
<td>2</td>
<td>4.4</td>
</tr>
<tr>
<td>5 persons</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>6 persons</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>7 persons</td>
<td>3</td>
<td>6.7</td>
</tr>
<tr>
<td>8 and over</td>
<td>1</td>
<td>2.2</td>
</tr>
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\[(table con'd)\]
### Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percent*</th>
</tr>
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<tbody>
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<td><strong>Level of education attainment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td>10</td>
<td>8.0</td>
</tr>
<tr>
<td>Primary education (Cycle I)</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>Primary education (Cycle II)</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>2 year professional school</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>4 year professional school</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Secondary education</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>College</td>
<td>78</td>
<td>62.4</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>3.2</td>
</tr>
</tbody>
</table>

| **Annual amount of family net wealth**               |           |          |
| (All sources combined)                               |           |          |
| Francs CFA 137,000 or less                           | 63        | 58.3     |
| Francs CFA 138,000 - 1.2 million                     | 29        | 26.9     |
| Francs CFA 1.3 million or above                      | 16        | 14.8     |

* Percent of Total Group Responding to Item
below, and 88.9 percent had 5 siblings attending a fee paying institution. Respondents' levels of educational attainment were as follows: 8 percent reported having no schooling, 4 percent had primary education (Cycle I), 5.6 percent primary education (Cycle II), 5.6 percent 2-year professional education, 5.6 percent 4-year professional education, 5.6 percent secondary education, and 62.6 had some college education. In terms of occupation, 3.5 percent of the total number of respondents reported being farmers, 65.5 percent civil servants, 8 percent private sector workers, and 5.3 percent self-employed workers.

Survey Return Rates

Table 5.19 provides a profile of the population of participating IHEs, the DNES, and the National Assembly of Mali. Thus, survey return rates were examined by categories of stakeholders' groups. A total of 747 students, faculty, administrators in the 7 IHEs, along with parents matching with students, and legislators were surveyed. In all, 215 instruments were returned of which 210 were usable. Of these total usable returns, 83 were usable HESS/SAO (student attitude opinionnaire) instrument sets, and 127 were usable HESS/PALFAO (parent, administrator, legislator, and faculty attitude opinionnaire) instrument sets. The student response rate for the total sample was 42 percent. Of the 127 usable instrument sets, 28 instruments were returned by administrators of which 26 were usable, a 40 percent return rate; 62 usable instruments were returned by parents, a 31 percent return rate; 38 usable instruments were returned by faculty, a 28.80 percent return rate; and only 4 instruments were returned by legislators, a 3.66 percent return rate. Of these 4 instruments, only 1 instrument was usable, a .8 percent return rate.
Table 5.19. Profile of Sample of Institutions of Higher Education, National Directorate of Higher Education, and the National Legislature of Mali

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>N</th>
<th>Usable</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions Responding</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of Total Sample</td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Students Surveyed</td>
<td>200</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>Student Return Rate</td>
<td></td>
<td></td>
<td>42%</td>
</tr>
<tr>
<td>Administrators Surveyed</td>
<td>70</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Administrator Return Rate</td>
<td></td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td>Parent Surveyed</td>
<td>200</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Parent Return Rate</td>
<td></td>
<td></td>
<td>31%</td>
</tr>
<tr>
<td>Faculty Surveyed</td>
<td>132</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Faculty Return Rate</td>
<td></td>
<td></td>
<td>28.8%</td>
</tr>
<tr>
<td>Legislators Surveyed</td>
<td>115</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Legislator Return Rate</td>
<td></td>
<td></td>
<td>0.8%</td>
</tr>
</tbody>
</table>
Responses to Survey

Students

Table 5.20 provides student responses to some key study variables such as responsibility for higher education funding, ability and willingness to pay, the economic values and returns, internal and organizational efficiency, cost recovery, and downsizing and monitoring. The data provided in Table 5.20 suggest that of the total number of student respondents, 77.1 disagree and/or strongly disagree that the Malian government should not continue to provide for the full costs of higher education for its citizens, 81.9 disagree and/or strongly disagree that those attending institutions of higher education in Mali should pay for part of the costs of their education.

In addition, of the total number of student respondents, 71.1 are not willing to contribute to their own higher education costs, and 89.7 percent reported that they would be able to pay only 0-25 percent (the minimum percentage) of the total costs of their higher education if the Malian government developed a policy requiring individual students to pay for part of their education. Conversely, the overwhelming majority of the total number of student respondents (about 80 percent) would support all the efficiency measures in Malian IHEs.

Administrators, Parents, Faculty, and Legislators

Table 5.21 provides other stakeholder groups’ responses to some key study variables such as responsibility for higher education funding, ability and willingness to pay, the economic values and returns, internal and organizational efficiency, cost recovery, and downsizing and monitoring. With regard to the funding responsibility for higher education, of the total number of respondents, 61.3 percent disagree or strongly
Table 5.20. Student Responses to Some Key Study Variables (e.g., Funding Responsibility, Ability and Willingness to Pay, Economic Values, Efficiency, and Cost Recovery)

<table>
<thead>
<tr>
<th>PART I</th>
<th>Items</th>
<th>Response&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Full Cost</td>
<td>SD</td>
<td>54.2</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>22.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>13.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>9.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Economic Growth</td>
<td>D</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>25.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>72.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Cost Sharing</td>
<td>SD</td>
<td>50.6</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>31.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>13.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>4.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Willingness to Pay</td>
<td>SD</td>
<td>45.8</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>25.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>24.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>4.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Eligibility for Higher Ed.</td>
<td>SD</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>20.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>22.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA</td>
<td>53.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Percentage of Cost</td>
<td>0 - 25%</td>
<td>89.7</td>
<td></td>
</tr>
<tr>
<td>26 - 50%</td>
<td>7.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51 - 75%</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34. Tuition Price</td>
<td>6,000 - 10,000</td>
<td>54.4</td>
<td></td>
</tr>
<tr>
<td>(in F CFA) 11,000 - 15,000</td>
<td>16.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16,000 - 20,000</td>
<td>5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20,000 - 25,000</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26,000 and above</td>
<td>21.5</td>
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(table con’d)
<table>
<thead>
<tr>
<th>PART II</th>
</tr>
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<tbody>
<tr>
<td>4. Improve Graduation Rate</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

* Strongly Disagree = SD  
  Disagree = D  
  Agree = A  
  Strongly Agree = SA
Table 5.21. Parents, Administrators, Legislators, and Faculty Responses to Some Key Study Variables, (e.g., Funding Responsibility, Ability and Willingness to Pay, Economic Values, Efficiency, and Cost Recovery)

<table>
<thead>
<tr>
<th>Items</th>
<th>Response</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Full Cost</td>
<td>SD</td>
<td>39.5</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>21.8</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>13.7</td>
</tr>
<tr>
<td>2. Economic Growth</td>
<td>SD</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>27.4</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>69.4</td>
</tr>
<tr>
<td>6. Cost Sharing</td>
<td>SD</td>
<td>27.2</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>32.0</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>31.2</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>9.6</td>
</tr>
<tr>
<td>9. Willingness to Pay</td>
<td>SD</td>
<td>28.0</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>24.8</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>37.6</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>9.6</td>
</tr>
<tr>
<td>10. Eligibility for Free Higher Ed.</td>
<td>SD</td>
<td>15.9</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>31.0</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>19.8</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>33.3</td>
</tr>
<tr>
<td>26. Percentage of Cost</td>
<td>0 - 25%</td>
<td>90.0</td>
</tr>
<tr>
<td></td>
<td>26 - 50%</td>
<td>10.0</td>
</tr>
<tr>
<td>34. Tuition Price</td>
<td>in F CFA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6,000 - 10,000</td>
<td>44.2</td>
</tr>
<tr>
<td></td>
<td>11,000 - 15,000</td>
<td>12.4</td>
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<td>16,000 - 20,000</td>
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<td>8.8</td>
</tr>
<tr>
<td></td>
<td>26,000 and above</td>
<td>26.5</td>
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<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>43.8</td>
</tr>
<tr>
<td></td>
<td>SA</td>
<td>53.7</td>
</tr>
</tbody>
</table>

* Strongly Disagree = SD  
Disagree        = D  
Agree           = A  
Strongly Agree  = SA
disagree that the Malian government should not continue to provide for the full costs of higher education for its citizens. Of the total number of respondents, 40.8 percent agree (31.2 percent) or strongly agree (9.6 percent) that those attending IHEs should pay for part of the cost of their education. With regard to willingness to pay, of the total number of respondents, 47.2 percent agree (19.8 percent) and/or strongly agree (37.6 percent) that they would be willing to contribute to the cost of their own higher education. As far as the percentage of total annual costs of higher education the students should be required to pay, 90.0 percent of the respondents indicated 0-25 percent. In addition, whereas 74.2 percent of the total number of respondents reported that they would definitely not support or probably would not support a policy aiming at gradually (over three to four years) reducing the amount of government support (student monthly stipend) by fifty percent, 69.4 percent would oppose a policy requiring students to pay the tuition cost of higher education.

Moreover, 57 percent of all respondents reported that if their family and their expected contribution to their own or siblings higher education costs exceeded annually francs CFA 16,000, they would probably drop out. Of the total number of respondents, 45 and 42 percent reported low levels of wealth and income respectively. Whereas the overwhelming majority (86 percent) of the total number of respondents would support all the efficiency measures in higher education (e.g., improving faculty/student ratio, reducing current drop out rates, and so forth), 53 percent would oppose a policy aimed at redesigning colleges and consolidating academic programs.

Item descriptive statistics for the original 56-item (including the 4 sub-items of item 38) HESS-SA0 and PALFA0 were computed for the total sample of stakeholders.
Results reported in Table 5.22 for descriptive statistics are for all 7 IHEs, the National Directorate of Higher Education, students' parents, and the 1992 Legislature. Table 5.22 presents means and standard deviations for each HESS-SA0 and PALFAO item. Item numbers in Table 5.22 can be cross-referenced with item numbers in Appendices A and B to examine HESS-SA0 and PALFAO item content. For the HESS-SA0 and PALFAO full funding responsibility, efficiency and cost recovery items, the higher the item mean, the more positive respondents' attitudes toward efficiency and cost recovery in IHEs.

The items means ranged from 1.35 on a 3 point scale (item 38.1 Part II "family wealth," to 3.66 (item 2, "Increasing the general level of education of Malian citizens is important for Mali's future economic growth and development"). There were 28 items with item means at or below midpoint (2.50), which represented 50 percent of the total number of items. However, only 14 items (25 percent) were at or exceeded a mean of 3.0. The standard deviations for the items ranged from .48 (Part II, item 11 "Monitor/improve the internal (organizational) efficiency of Mali's IHEs") to 1.06 (item 1, "In the future, the Malian government should not continue to provide for the full costs of higher education for its citizens," and 29, "I would support a new policy in Mali that required students to pay proportional costs of their higher education based upon financial needs").

In general, the results show some interesting patterns. Item means tend to be higher for items relative to: 1) government full funding of higher education, 2) free provision of higher education for all, 3) organizational and internal efficiency of IHEs, 4) economic values and returns. For example, the mean of item 3 of Part I ("The well-
Table 5.22. Summary of Descriptive Statistics for Each Item of the HESS-SAO/PALFAO,  
(n=210)

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART I</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Full Cost</td>
<td>1.98</td>
<td>1.06</td>
</tr>
<tr>
<td>2. Economic Growth</td>
<td>3.66</td>
<td>.57</td>
</tr>
<tr>
<td>3. Well Being</td>
<td>3.49</td>
<td>.69</td>
</tr>
<tr>
<td>4. Citizenry</td>
<td>3.54</td>
<td>.63</td>
</tr>
<tr>
<td>5. Increased Earning</td>
<td>2.50</td>
<td>1.00</td>
</tr>
<tr>
<td>6. Cost Sharing</td>
<td>2.01</td>
<td>.95</td>
</tr>
<tr>
<td>7. Individual willingness</td>
<td>1.92</td>
<td>.89</td>
</tr>
<tr>
<td>8. Individual responsibility</td>
<td>2.39</td>
<td>1.00</td>
</tr>
<tr>
<td>10. Eligibility for Free higher ed.</td>
<td>2.92</td>
<td>1.05</td>
</tr>
<tr>
<td>11. Personal ability to Pay</td>
<td>1.76</td>
<td>.85</td>
</tr>
<tr>
<td>12. Government Full funding</td>
<td>2.86</td>
<td>.94</td>
</tr>
<tr>
<td>13. Inadequate Funding</td>
<td>2.89</td>
<td>.85</td>
</tr>
<tr>
<td>14. Free Provision for Qualified Students</td>
<td>3.35</td>
<td>.86</td>
</tr>
<tr>
<td>15. Limited Support for Unqualified students</td>
<td>2.22</td>
<td>.97</td>
</tr>
<tr>
<td>16. Benefits of Labor Quality</td>
<td>3.18</td>
<td>.88</td>
</tr>
<tr>
<td>17. Contribution to Development</td>
<td>2.77</td>
<td>.92</td>
</tr>
<tr>
<td>18. No Support</td>
<td>1.83</td>
<td>.78</td>
</tr>
<tr>
<td>19. Quality Improvement</td>
<td>2.59</td>
<td>.94</td>
</tr>
<tr>
<td>20. K-12 Improvement</td>
<td>2.50</td>
<td>.97</td>
</tr>
<tr>
<td>21. Partial Cost Recovery</td>
<td>1.87</td>
<td>.80</td>
</tr>
<tr>
<td>22. Cost Responsibility</td>
<td>2.30</td>
<td>.93</td>
</tr>
<tr>
<td>23. Student Needs</td>
<td>2.88</td>
<td>.91</td>
</tr>
<tr>
<td>24. Family Wealth</td>
<td>2.00</td>
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<td>25. Financial Status</td>
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<tr>
<td>26. Percentage of Cost</td>
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</tr>
<tr>
<td>27. Increased Funding</td>
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<tr>
<td>28. Student Expectations</td>
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<td>29. Proportional Payment</td>
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</tr>
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<td>30. Free Higher Education</td>
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<tr>
<td>31. Copayment</td>
<td>1.90</td>
<td>.91</td>
</tr>
<tr>
<td>32. Graduation length</td>
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<td>1.03</td>
</tr>
<tr>
<td>33. No Financial Means</td>
<td>2.45</td>
<td>1.04</td>
</tr>
<tr>
<td>34. Tuition Price</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35. Stipend Use</td>
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<td>.89</td>
</tr>
<tr>
<td>36. Student Loans</td>
<td>2.75</td>
<td>.96</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Item</th>
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<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>37. Forgiveness of Loans</td>
<td>2.79</td>
<td>.95</td>
</tr>
<tr>
<td>38.1 Family Wealth</td>
<td>1.35</td>
<td>.50</td>
</tr>
<tr>
<td>38.2 Family Income</td>
<td>1.50</td>
<td>.57</td>
</tr>
<tr>
<td>38.3 Family Size</td>
<td>2.06</td>
<td>.74</td>
</tr>
<tr>
<td>38.4 Family Expense</td>
<td>2.30</td>
<td>.68</td>
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</table>

PART II

<table>
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<tr>
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<th>S.D.</th>
</tr>
</thead>
<tbody>
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<td>Total Cost</td>
<td>1.83</td>
<td>.84</td>
</tr>
<tr>
<td>3</td>
<td>Improve Student/Fac. Ratio</td>
<td>3.44</td>
<td>.61</td>
</tr>
<tr>
<td>4</td>
<td>Improve Graduation rate</td>
<td>3.49</td>
<td>.59</td>
</tr>
<tr>
<td>5</td>
<td>Reduce Dropout Rate</td>
<td>3.27</td>
<td>.85</td>
</tr>
<tr>
<td>6</td>
<td>Reduce Repetion Rate</td>
<td>3.13</td>
<td>.86</td>
</tr>
<tr>
<td>7</td>
<td>Scholarship Reduction</td>
<td>1.78</td>
<td>.88</td>
</tr>
<tr>
<td>8</td>
<td>Tuition Payment</td>
<td>1.88</td>
<td>.91</td>
</tr>
<tr>
<td>9</td>
<td>Cost of Living Expenses</td>
<td>3.17</td>
<td>.80</td>
</tr>
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<td>10</td>
<td>Layoff</td>
<td>2.80</td>
<td>.86</td>
</tr>
<tr>
<td>11</td>
<td>Greater Efficiency</td>
<td>3.62</td>
<td>.48</td>
</tr>
<tr>
<td>12</td>
<td>Audit</td>
<td>3.26</td>
<td>.74</td>
</tr>
<tr>
<td>13</td>
<td>Downsize</td>
<td>2.33</td>
<td>.99</td>
</tr>
<tr>
<td>14</td>
<td>Administration</td>
<td>2.67</td>
<td>.92</td>
</tr>
<tr>
<td>15</td>
<td>Cost of Living Index</td>
<td>3.06</td>
<td>.84</td>
</tr>
</tbody>
</table>
being of Malian society goes hand in hand with increased educational levels of its citizens") was 3.50. Item means tend to be moderate for items relative to willingness to pay. For example, the mean of item 9 of Part II ("If the Malian government did not pay for the costs of higher education, I would be willing to contribute to the cost of higher education for myself") was 2.14. Item means tend to be lower for items relative to: 1) increased student responsibility for their own college costs, and 2) a gradual reduction in the amount student monthly stipend. For example, the means for item 7 of Part II ("Gradually [over three to four years] reduce the amount of government support [monthly stipend] for students by fifty percent") was 1.78.

Factor Analyses

Factor analysis was used to condense thirty seven items representing the independent variables (Part I of the instrument) and fifteen items representing the dependent variables (Part II of the instrument) into a few underlying constructs. To make the analysis more meaningful, the HESS-SAO and PALFAO were merged into one data set. Then, the HESS data were submitted to a variety of exploratory factor analyses. Since a relatively small number of data was missing across respondents (about 2.70 percent), an item grand means substitution for missing item scores for individual respondents was performed to obtain a maximum number of usable cases for the various factor analyses. Following this substitution procedure, exploratory factor analyses were conducted, extracting from one to thirteen factors for the independent variables (Part I) and from one to seven factors for the dependent variables (Part II) using oblique and orthogonal procedures (SAS Institute, 1985).
Based on the simplicity of the factor structure, the conceptual fit of items comprising each factor, and the amount of variance explained by each solution, a four-factor solution for the independent variables (Part I) and a three-factor solution for the dependent variables (Part II) was retained for use in subsequent analyses. The four-factor and three-factor solutions were further suggested as the five and four-factor solutions did not generate additional clearly identifiable factors. Table 5.23 summarizes item/factor loadings for a one-factor and a four-factor solution for Part I of the HESS data, and includes the amount of variance in the solution explained by each factor extracted and the communality values (the proportion of variance in the variable explained by all the factors). The communality values range from 10.68 for item 32, indicating a weak association, to a maximum of 67.56 for item 20, indicating a strong association. The factor loadings are factor structure coefficients and, since the solution is orthogonal, can be interpreted as Pearson product-moment correlations. The higher an individual loading, the stronger the relationship between a particular HESS item and a HESS factor. For the one-factor solution of Part I of the instrument, 14 of the 37 items loaded on a single HESS factor. Factor loading coefficients ranged from -.43 to .77, with 12 of the 37 items (32 percent) loading at or exceeding .50. This one-factor solution accounted for 17.80 percent of the total variance of Part I of the HESS.

For the one-factor solution of Part II of the instrument, 12 of the 15 items loaded on a single HESS factor. Factor loading coefficients ranged from .05 to .60, with 9 of the 15 items (60 percent) loading at or exceeding .50. This one-factor solution accounted for 22.48 percent of the total variance of Part II of the HESS. The factor loadings for each HESS item for the three-factor solution are also presented in Table 5.24 along with
Table 5.23. Summary of Factor Pattern Loadings for the HESS One-Factor and Four-Factor Solutions (n=210)

<table>
<thead>
<tr>
<th>Item</th>
<th>I-Factor Solution</th>
<th>Communalities</th>
<th>4-Factor Solution</th>
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(table con'd)
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<th>HESS/SAO-PALFAO Item</th>
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<th>Item Communalities</th>
<th>4-Factor Solution</th>
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<td>19.55</td>
<td>.14</td>
<td>.37</td>
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Variance Explained 17.80 7.30 6.40 5.70

Total Variance Explained 21.49 37.20

*Factor structure coefficients in this table are Pearson coefficients.
<table>
<thead>
<tr>
<th>HESS/SAO-PALFAO Item</th>
<th>I-Factor Solution</th>
<th>Item Communalities</th>
<th>3-Factor Solution</th>
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<td>.32</td>
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<td>45.72</td>
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<tr>
<td>15</td>
<td>.58</td>
<td>54.95</td>
<td>.25</td>
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</tbody>
</table>

Variance Explained

|                   |                   |                   |
|                   | 17.40             | 16.20             |
|                   | 22.84             | 47.50             |

*Factor structure coefficients in this table are Pearson coefficients.*
the communality values of the one-factor and a three-factor solution for Part II of the HESS. The communality values range from a low of 18.44 for item 13, indicating a weak association, to a high of 63.13 for item 4, indicating a strong association.

Varimax rotation procedures were used to identify a set of orthogonal factors in the solution. Item loadings for the various factors identified were guided by the following set of decision rules: 1) the minimum value for retaining an item on a factor was .33; 2) an item was retained only if it loaded primarily on one factor; 3) an item was retained on the factor on which its loading was greatest; and 4) if an item loaded on more than one factor, the item was retained only on a factor if the difference between the two highest loadings was .20 or greater. Application of these decision rules resulted in the retention of 28 HESS items for Part I and 12 HESS items for Part II of the HESS to operationalize the four and three factors as shown in Tables 5.23 and 5.24.

In Part I of the instrument, the first factor (Willingness to Pay) consisted of 14 items and accounted for 17.80 percent of the variance in the solution. The second factor (Ability to Pay) accounted for 7.30 percent of the variance in the solution and consisted of 5 items. The third factor (Economic Values and Returns) accounted for 6.40 percent of the variance in the solution and consisted of 4 items. The fourth and last factor (Cost/Benefit Beliefs) accounted for 5.70 percent of the variance in the solution and consisted of 5 items. The total amount of variance explained by the four-factor solution was 37.20 percent. An item location index for the four-factor solution of the HESS which shows item numbers comprising each subscale is presented in Table 5.25. In Part II of the HESS instrument, the first factor (Organizational and Internal Efficiency) consisted of 5 items and accounted for 17.40 percent of the variance in the solution. The
Table 5.25. Item Location Index for the Three-Factor Solution of the HESS-SAO/PALFAO

<table>
<thead>
<tr>
<th>PART I</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Willingness to Pay (14)†</strong></td>
<td>1, 6, 7, 9, 10</td>
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<tr>
<td></td>
<td>11, 12, 19, 21, 22</td>
</tr>
<tr>
<td></td>
<td>28, 31, 32, 34</td>
</tr>
<tr>
<td><strong>2) Ability to Pay (5)</strong></td>
<td>23, 24, 25, 36, 37</td>
</tr>
<tr>
<td><strong>3) Economic Values and Returns (4)</strong></td>
<td>2, 3, 4, 16,</td>
</tr>
<tr>
<td><strong>4) Cost/Benefit Beliefs (5)</strong></td>
<td>5, 8, 14, 17, 18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART II</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Organizational and</strong></td>
<td></td>
</tr>
<tr>
<td>Internal Efficiency (5)†</td>
<td>3, 4, 5, 6, 11</td>
</tr>
<tr>
<td><strong>2) Cost Recovery (5)</strong></td>
<td>1, 2, 7, 8, 9</td>
</tr>
<tr>
<td><strong>3) Downsizing and Monitoring (5)</strong></td>
<td>10, 12, 13, 14, 15</td>
</tr>
</tbody>
</table>

* Number of items per factor
second factor (Cost Recovery) accounted for 16.20 percent of the variance and consisted also of 5 items. The third factor (Downsizing and Monitoring), consisting of 5 items, accounted for 13.90 percent of the variance in the solution. The total proportion of variance explained by the three-factor solution was 47.50 percent. An item location index for the three-factor solution of the HESS which shows item numbers comprising each subscale is provided in Table 5.25.

Descriptive Statistics for Factored Scales

Summaries of descriptive statistics for each subscale of the revised 43-item HESS for all the stakeholders are presented in Table 5.26. The table includes means and standard deviations for each HESS-SAOCI/PALFAO subscale, and also provides minimum and maximum possible scores, along with the mean expressed as a percentage of the maximum possible scores. The highest mean (31.62) is for Willingness to Pay (WTP) and the lowest mean (10.68) is for Cost Recovery. The rest of the means varies between 10.68 and 14.15. The maximum score is for Willingness to Pay (47.000) whereas the minimum score is for Economic Values and Returns (4.000). Standard deviations vary between 2.00 for Economic Values and Returns and 5.82 for Willingness to Pay. In Part I of the instrument, the mean expressed as a percentage of the maximum possible score varies from a low of 56.5 percent for Willingness to Pay and a high of 86.8 percent for Economic Values and Returns. In Part II of the instrument, the means range from a low of 53.4 percent for Cost Recovery to a high of 84.9 percent for Attitude toward Internal Efficiency. The means expressed as a percentage of the maximum possible scores are higher for Economic Value and Return and Attitude toward Internal Efficiency variables and lower for Cost Recovery and Willingness to Pay variables.
Table 5.26. Summary of Descriptive Statistics for Each Subscale of the Four-Factor Solution of (Part I) and the Three-Factor Solution of (Part II) for the Total Sample of Stakeholders (n=210)

<table>
<thead>
<tr>
<th>Subscale</th>
<th>M</th>
<th>S.D.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M% Maximum¹</th>
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<tr>
<td><strong>Part I</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to Pay (14)b</td>
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<td>5.82</td>
<td>20.000</td>
<td>47.000</td>
<td>56.5</td>
</tr>
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<td>2.64</td>
<td>6.010</td>
<td>20.000</td>
<td>66.8</td>
</tr>
<tr>
<td>Economic Values &amp; Returns (4)</td>
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<td>2.00</td>
<td>4.000</td>
<td>16.000</td>
<td>86.8</td>
</tr>
<tr>
<td>Cost-Benefit Beliefs (5)</td>
<td>12.86</td>
<td>2.30</td>
<td>6.000</td>
<td>18.000</td>
<td>64.3</td>
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<tr>
<td><strong>Part II</strong></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward Internal Efficiency (5)</td>
<td>16.98</td>
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<td>10.000</td>
<td>20.000</td>
<td>84.9</td>
</tr>
<tr>
<td>Cost Recovery (5)</td>
<td>10.68</td>
<td>2.64</td>
<td>5.000</td>
<td>20.000</td>
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</tr>
<tr>
<td>Downsizing and Monitoring (5)</td>
<td>14.15</td>
<td>2.68</td>
<td>5.000</td>
<td>20.000</td>
<td>70.8</td>
</tr>
</tbody>
</table>

¹ M% Maximum: Mean expressed as a percentage of the maximum possible score

b Number of items per scale
Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for subscales of the HESS Part I and the HESS Part II composed of Attitudes toward various indices of efficiency. Table 5.27 presents a summary of the Cronbach Alpha reliability coefficients for all the stakeholders. Cronbach Alpha internal consistency reliability coefficients were computed for each of the four HESS Part I subscales for the total sample of stakeholders (n=210). Reliability coefficients for the HESS-Part I subscales were as follows: Willingness to Pay (r=.66), Ability to Pay (r=.50), Economic Values and Returns (r=.70), and Cost-Benefit Beliefs (r=.38). The Cronbach Alpha reliability coefficients for the four subscales for all the stakeholders ranged from .38 (Cost-Benefit Beliefs) to .70 (Economic Values and Returns).

As far as the three indices of efficiency are concerned, reliability coefficients were as follows: Attitude toward Organizational and Internal Efficiency (r=.73), Attitude toward Cost Recovery (r=.53), and Attitude toward Downsizing and Monitoring (r=.61). The Cronbach Alpha reliability coefficients for the three subscales Part I for all the stakeholders ranged from .53 (Cost Recovery) to .73 (Organizational and Internal Efficiency). In general, the Alpha reliability coefficients are very low for the Cost/Benefit Beliefs variable, lower than desirable for Ability to Pay and Attitude toward Cost Recovery, and moderate for Willingness to Pay, Economic Values and Returns, and Attitude toward Internal Efficiency.

Table 5.28 presents a summary of the intercorrelations among the four HESS-SAOPALFAO Part I subscales for the total sample of stakeholders (n=210). Pearson product-moment correlation coefficients among the subscales ranged from .02 to .24.
Table 5.27. Summary of the Cronbach Alpha Reliability Coefficient for HESS Subscales and for all the Stakeholders (n=210)

<table>
<thead>
<tr>
<th>Part I</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness To Pay (14)*</td>
<td>.66</td>
</tr>
<tr>
<td>Ability To Pay (5)</td>
<td>.50</td>
</tr>
<tr>
<td>Economic Values and Returns (4)</td>
<td>.70</td>
</tr>
<tr>
<td>Cost-Benefit Beliefs (5)</td>
<td>.38</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part II (Indices of Efficiency)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward Internal Efficiency (5)</td>
<td>.73</td>
</tr>
<tr>
<td>Attitude toward Cost Recovery (5)</td>
<td>.53</td>
</tr>
<tr>
<td>Attitude toward Downsizing and Monitoring (5)</td>
<td>.61</td>
</tr>
</tbody>
</table>

* Number of items per subscale
Table 5.28. Summary of Intercorrelations Among HESS-SAO/PALFAO Subscales for the Total Sample of Stakeholders (n=210)

<table>
<thead>
<tr>
<th>HESS-SAO/PALFAO Subscales</th>
<th>Willingness To Pay</th>
<th>Ability To Pay</th>
<th>Economic Values &amp; Return</th>
<th>Cost-Benefit Beliefs</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTP</td>
<td>1.0</td>
<td>.24*</td>
<td>-.02*</td>
<td>-.03*</td>
</tr>
<tr>
<td>ATP</td>
<td>1.0</td>
<td>.20*</td>
<td></td>
<td>.03*</td>
</tr>
<tr>
<td>EVR</td>
<td>1.0</td>
<td></td>
<td>.19*</td>
<td></td>
</tr>
<tr>
<td>CBB</td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

* p < .05
First, all the correlations among the four subscales of the HESS are weak in magnitude. Second, a total of 10 out of 16 correlations (63 percent) was statistically significant (p < .05) and positive in direction. Weaker relationships were evident for Willingness to Pay (WTP) and Ability to Pay (ATP) (.23, p < .0006), Ability to Pay and Economic Values and Returns (EVR) (.20, p < .004), Economic Values and Returns and Cost-Benefit Beliefs (.19, p < .006). The rest of the correlation coefficients were negative, weak in magnitude, and not statistically significant (p > .05).

Table 5.29 contains a summary of the intercorrelations among the HESS subscales relative to the indices of efficiency. Weaker relationships exist among various subscales of indices of efficiency. Weak relationships exist among Attitude toward Internal Efficiency (AIE) and Cost Recovery (CR) (.21, p < .002) and Downsizing and Monitoring (DM) (.23, p < .0009), and Cost Recovery (CR) and Downsizing and Monitoring (DM) (.34, p < .0001). For the total sample of stakeholders, all the correlations were statistically significant (p < .05) and positive in direction.

Table 5.30 provides a summary of the intercorrelations between the HESS Part I subscales and the HESS Part II subscales of indices of efficiency. The correlation between Willingness to Pay (WTP) and Cost Recovery (CR) (.53, P < .0001) was positive in direction and moderately strong in magnitude. Positive correlations were also found between the subscales of Willingness to Pay and Attitude toward Internal Efficiency (.15, p < .0001), Cost Recovery (CR) and Downsizing and Monitoring (DM) (.34, p < .0001), and Ability to Pay and Downsizing and Monitoring (.28, p < .0001). Of the remaining intercorrelations, six were positive and weak in magnitude, and statistically significant (p < .05), whereas four were negative.
Table 5.29. Summary of Intercorrelations Among HESS-SAO/PALFAO Subscales of Indices of Efficiency for the Total Sample of Stakeholders (n=210)

<table>
<thead>
<tr>
<th>HESS-S/P Subscales</th>
<th>Attitude Toward Internal Efficiency</th>
<th>Attitude Toward Cost Recovery</th>
<th>Attitude Toward Downsizing &amp; Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIE</td>
<td>1.0</td>
<td>.21*</td>
<td>.23*</td>
</tr>
<tr>
<td>CR</td>
<td></td>
<td>1.0</td>
<td>.34*</td>
</tr>
<tr>
<td>DM</td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

* p < .05

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Table 5.30. Summary of Intercorrelations Among the HESS-SA0/PALFA0 Subscales of Part I and Part II (Indices of Efficiency) for the Total Sample (n=210)

<table>
<thead>
<tr>
<th>HESS-S/P Subscales</th>
<th>AIE (5)$^a$</th>
<th>CR (5)</th>
<th>DM (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willingness To Pay (14)$^2$</td>
<td>.15''</td>
<td>.53''</td>
<td>.24''</td>
</tr>
<tr>
<td>Ability To Pay (5)</td>
<td>.18'</td>
<td>.13'</td>
<td>.28'</td>
</tr>
<tr>
<td>Economic Values and Returns (4)</td>
<td>.17'</td>
<td>.15'</td>
<td>.15'</td>
</tr>
<tr>
<td>Cost-Benefit Beliefs (5)</td>
<td>.09'</td>
<td>.14'</td>
<td>.07'</td>
</tr>
</tbody>
</table>

$^2$ Number of items per subscale

$^*$ p < .05

$^{**}$ p < .01
Analysis of Research Questions #5 and #6: What are the multivariate relationships among the set of independent variables and attitudinal measures of the different stakeholder groups toward the CRP for Mali’s IHEs? Are there significant differences among the various stakeholder groups in attitudes toward the CRP for Mali’s IHEs?

To address this research question, a series of stepwise multiple regression analyses with forward inclusion of variables (SAS Institute, 1985) were completed for each stakeholder groups’ attitudes toward various indices of efficiency measure (dependent variables) by regressing each efficiency variable on each dimension/subscale (human and economic concepts) of the HESS. A total of three regression analyses was completed, one for each of the following dependent variables: 1) attitude toward internal efficiency, 2) attitude toward cost recovery, and 3) attitude toward downsizing and monitoring.

A first multiple regression analysis was completed for the variable set (HESS dimensions) using the AIE as the dependent variable. Results of this regression analysis are summarized in Table 5.31. The first variable to enter the regression equation was the HESS-SAOPALFAO subscale/dimension of Ability to Pay (ATP). This HESS dimension accounted for 3 percent of the total variation among stakeholders in attitude toward internal efficiency. The second variable to enter the regression was the HESS subscale of Economic Values and Returns (EVR). In combination, these two variables accounted for 5 percent of the total variance among stakeholder groups in attitude toward various efficiency dimensions. The third variable to enter the regression was the HESS subscale of Cost- Benefit Beliefs (CBB). In combination, these three variables accounted for 7 percent of the total variance among stakeholder groups in attitude toward the organizational and internal efficiency of Mali’s IHEs.
Table 5.31. Summary of Stepwise Regression of AIE on Subscales of the HESS-SAOU/PALFAO (n=210)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>R</th>
<th>R²</th>
<th>ΔR²</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
</table>
| 1    | ATP              | .18  | .03  | -   | 7.11  | .0083*
| 2    | EVR              | .23  | .05  | .02 | 4.30  | .0392' |

* p < .05

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A second multiple regression analysis was completed for the variable set (HESS dimensions) using the CR as the dependent variable. Results of this regression are summarized in Table 5.32. The first variable to enter the regression equation was the HESS subscale of Willingness to Pay (WTP). This HESS dimension accounted for 29 percent of the total variation among stakeholders in attitude toward cost recovery. The second variable to enter the regression was the HESS dimension of Economic Values and Returns (EVR). In combination, these two variables accounted for 30 percent of the total variance among stakeholder groups in attitude toward cost recovery. The third variable entered in the regression equation was the HESS subscale of Cost-Benefit Beliefs (CBB). In combination, these three variables accounted for 32 percent of the total variance among stakeholder groups in attitude toward cost recovery.

A third multiple regression analysis was completed for the variable set (HESS dimensions) using Downsizing and Monitoring as the dependent variable. Results of this regression analysis are summarized in Table 5.33. The first variable to enter the regression equation was the HESS-SAO/PALFAO subscale/dimension of Ability to Pay (ATP). This HESS dimension accounted for 8 percent of the total variation among stakeholder groups in attitude toward Downsizing and Monitoring. The second variable to enter the regression was the HESS-SAO/PALFAO subscale/dimension of Willingness to Pay (WTP). In combination, these two variables accounted for 11 percent of the total variation among stakeholders in attitude toward Downsizing and Monitoring. The third variable to enter the regression was the HESS dimension of Cost-Benefit Beliefs (CBB). Altogether, they accounted for 12 percent of the total variation among stakeholders in attitude toward Downsizing and Monitoring.
Table 5.32. Summary of Stepwise Regression of CR on Subscales of the HESS-SAO/PALFAO (n=210)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>R</th>
<th>R²</th>
<th>ΔR²</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WTP</td>
<td>.53</td>
<td>.29</td>
<td>-</td>
<td>82.94</td>
<td>.0001*</td>
</tr>
<tr>
<td>2</td>
<td>EVR</td>
<td>.55</td>
<td>.30</td>
<td>.01</td>
<td>6.07</td>
<td>.0145*</td>
</tr>
</tbody>
</table>

*p < .05
Table 5.33. Summary of Stepwise Regression of DM on Subscales of the HESS-SA0/PALFA0 (n=210)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>R</th>
<th>R²</th>
<th>ΔR²</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ATP</td>
<td>.29</td>
<td>.08</td>
<td></td>
<td>18.26</td>
<td>.0001*</td>
</tr>
<tr>
<td>2</td>
<td>WTP</td>
<td>.33</td>
<td>.11</td>
<td>.03</td>
<td>7.46</td>
<td>.0068*</td>
</tr>
</tbody>
</table>

* p < .05
To address research question #6, a series of multivariate analysis of variance--MANOVA--multivariate tests of significance which are measures of whether groups (the independent variables) differ significantly in their scores on the set of dependent variables--Attitudes toward Internal Efficiency, Cost Recovery, and Downsizing and Monitoring--was performed. The results of the analysis suggest that at least two of the stakeholder groups are significantly different with respect to at least one of the dependent variables. MANOVA results for the effect of these five independent variables are presented in Table 5.34. The analysis revealed a significant multivariate effect for type of higher education stakeholder groups, Wilks’ Lambda = .80, F (15, 558) = 3.10; p < .0001. Follow-up tests to identify the pairs of groups that were significantly different, and the specific dependent variables on which they are different were performed. A univariate ANOVA test was conducted to find out the dependent variable on which the groups were different. The groups differ on the dependent variable of Cost Recovery, but not on the other dependent variables. Then, Tukey’s honestly significant difference (HSD) was performed under MANOVA for group comparison through multiple comparison procedures in an effort to identify which stakeholder groups were significantly different. The multivariate analysis of variance for differences among various stakeholder groups in attitudes toward internal efficiency of the IHEs and downsizing and monitoring was not statistically significant--F (5, 204) = 1.7, p > .1366, and F (5, 204) = 1.33, p > .2542, respectively. However, the analysis revealed statistically significant differences among stakeholder groups in attitudes toward cost recovery, F (5, 204) = 8.69, p < .0001.
Table 5.34. Summary of Differences Among Groups (MANOVA) on Dependent Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Wilks' Lambda</th>
<th>Mean Square</th>
<th>F-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>.80</td>
<td>3.10</td>
<td>.0001*</td>
</tr>
<tr>
<td>Attitude toward Cost Recovery</td>
<td>51.1337</td>
<td>8.69</td>
<td>.0001*</td>
</tr>
</tbody>
</table>

* p < .05

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The summary results indicate that no differences were found between major stakeholder groups regarding their attitudes toward internal efficiency and downsizing and monitoring. Significant differences, however, were found between major groups regarding their attitudes toward cost recovery. Thus, the next step was to find where the differences were. In general, a post hoc test enables us to go back and compare the individual groups two at a time through a procedure referred to as pairwise comparison for each dependent variable.

The post hoc test used was Tukey's honestly significant difference or (HSD). The results of the post hoc test confirmed the results of the MANOVA test, that is, no significant differences were found between groups on the two dependent variables of internal efficiency and downsizing and monitoring, whereas significant differences were found between groups regarding their attitudes toward cost recovery. Post hoc comparisons showed the following group differences: 1) administrator mean (12.41) was significantly different from both parent mean (10.19) and student mean (9.80) at p < .05. Faculty mean (12.26) was significantly different from both parent (19.19) and student mean (9.80) at p < .05.

Although statistically significant differences between means were found, one may argue that the substantive significance (the magnitude of the effect) of the findings was rather limited. In fact, comparisons of means expressed as a percentage of the maximum possible score of 20.00 revealed the following trends. Percentages varied from a low of 49.00 (student) to a high of 62.05 (administrator). For example, administrator percentage was 62.05, faculty was 61.30, parent was 50.95, and student was 49.00. A 13.05 percentage point differential exists between administrator and student, .75 between
administrator and faculty, and 11.1 between administrator and parent. The percentage point differential between faculty and parent was 10.35, and this differential between faculty and student was 12.30. The percentage point differential between parent and student was only 1.95. In practical terms, if means expressed as a percentage of the maximum possible score of 20.00 do not reach the 85.00-90.00 mark, it can be argued that there is still room for improvement. Therefore, these findings may suggest that a cost recovery awareness campaign should target all the stakeholder groups, but more specifically the students whose mean percentage point is slightly below the mid point of 50.

Qualitative Interview Results

Qualitative research has often been utilized in an exploratory manner to gain insight in areas where little information has previously been available. In addition, qualitative research is often used as a tool for adding depth and detail, and providing explanation to previously completed quantitative data analysis. While statistical results may suggest general patterns found across a given sample, extending the meaning of those trends and patterns through qualitative methods may provide additional information. Viewed from this perspective, Patton (1990) argues that qualitative analysis gives richer meaning to those areas under study.

When using qualitative data to provide deeper meaning, one major purpose of research is to show what the survey respondents might have meant when they answered in a particular manner. In addition, this qualitative extension may suggest how the research fits together as a whole. Patton (1990) emphasized this point when he argued that "Qualitative data put flesh on the bones of survey results" (p. 132). While the role of
qualitative research as an exploratory tool is generally well understood, the confirmatory role of qualitative data analysis is not.

In this study, the qualitative component was designed to answer additional questions and also provide "additional meaning" to the survey results. In general, the role of the antecedent variables, (the variables that might have contributed to the formation of stakeholder groups' attitudes) is thoroughly investigated. These variables included individual personal characteristics, family background factors, and political and economic orientations. Qualitative data were gathered in an attempt to capture the complexities of the administrators' individual perceptions and experiences regarding these variables and to provide additional answers to survey items instrumental in better understanding the administrators' attitudes.

In this section, standardized open-ended interviews are examined using both the case analysis approach, which is writing a case for each person interviewed (Yin, 1989; and Patton, 1990), and the cross-case analysis approach, which is grouping together answers from the five outlier administrators to common questions (Patton, 1990). In the latter case, the interview data analysis strategy known as the Developmental Research Sequence (D.R.S) developed by Spradley (1979) was utilized. According to Yin (1989), studies that contain more than a single case use the multiple-case design. When using the multiple-case design every case is selected to serve a specific purpose. Cases are selected to produce either similar results (a literal replication) or contrary results, but for predictable reasons (a theoretical replication).

The following seven major characteristics of the administrators were the focal points of the interview: 1) The personal characteristics, 2) The personal higher education
funding philosophies, 3) The funding model of higher education, 4) The attitude
determinants toward higher education funding, 5) The perceptions toward efficiency
indices in higher education, 6) The major components of a cost recovery plan in higher
education, and 7) The willingness to pay for education. For the purpose of the analysis,
each administrator was identified by his/her current position, and since there were two
directors, gender was used to distinguish between the male and female director. Thus,
the female Director was identified as (Fedi), the male Director as (Madi), the Assistant
Director as (Gadi), the Department Chair as (Dech), and the Head of Section as (Hesec).
Table 5.35 provides information about each case in terms of personal and professional
characteristics (highest degree obtained, rank, and prior experience) and the cross-case
sites in terms of basic institutional characteristics (type, enrollments, and the available
1995 per-student unit costs). Three of the administrators were female and two were
male.

Interview Procedures and Mechanics

Of the original sample of 6 administrators selected, only one declined to
participate in the interview. In late September 1996, a letter specifying the purpose,
focus, and details of the interviews was delivered to each administrator in Bamako to
secure his/her participation in the interview. To initiate the interview, all interviewees
were informed that as a follow-up to the survey administration in March, 1996, they were
identified and selected based on their scores on some key items on the survey. It was
also expressed to them that their thoughts and opinions were valued and that their input
was welcome. They were assured that the interview would be completely anonymous.
Table 5.35. Summary Table of Cross-Case Studies

<table>
<thead>
<tr>
<th>Personal Characteristics</th>
<th>Professional Characteristics</th>
<th>Institutional Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Highest Degree</td>
<td>Rank</td>
</tr>
<tr>
<td>Fedi</td>
<td>3rd Cycle Doctorate</td>
<td>Asso. Prof.</td>
</tr>
<tr>
<td>Madi</td>
<td>Specialty Doctorate</td>
<td>Asso. Prof.</td>
</tr>
<tr>
<td>Gadi</td>
<td>3rd Cycle Doctorate</td>
<td>Asso. Prof.</td>
</tr>
<tr>
<td>Dech</td>
<td>Specialty Doctorate</td>
<td>Prof.</td>
</tr>
<tr>
<td>Hesec</td>
<td>3rd Cycle Doctorate</td>
<td>Asso. Prof.</td>
</tr>
</tbody>
</table>

* Bamako Campus
N/A: Not Available
----- Not Applicable
The fact that the interview was quite voluntary was also underscored. In the final analysis, 5 of 6 informants decided to take part in the interview.

A professional reporter was selected to conduct the interviews in Bamako. The interviewees were asked if the interview could be tape recorded. There was no objection to this request. Finally, an appointment was set up with each interviewee specifying the date, time, place, and approximate duration of the interview. The interviews took place in the location most convenient for the interviewees, (in the office of 4 and at the home of 1). The interviews were conducted in a rather formal, systematic, and structured manner, and ranged in time from a minimum of 50 minutes to a maximum of 80 minutes. The interviewer followed the same format for all five administrators, and no probes were utilized during the interview process since the interviewer did not feel comfortable using them. The interview protocol was almost entirely based on Spradley's model of standardized open-ended interview. Of the 30 questions of the interview guide, every interviewee was asked the same 26 questions in the same sequence. The five remaining questions differed from one interviewee to another, depending on their scores on specific items of the HESS-PALFAO.

The interview covered four topical areas: 1) demographic background and experience, 2) opinions and values, 3) attitudes, and 4) action, and consisted of three basic types of questions highlighted in Spradley (1979): Observation questions, structural questions, and contrast questions which were broken down into smaller components or units whenever necessary (e.g., grand-tour and mini-tour questions, dyadic and triadic questions). Structural and contrast questions were used basically when asking opinion, value, attitude, and action questions. In an attempt to better understand the
administrators' opinions and thoughts about higher education funding in Mali, and also
gauge the intensity of these attitudes, grand-tour questions and mini-tour questions were
asked. Grand-tour questions dealt with very general descriptive situations, whereas mini-
tour questions focused on more specific situations. The responses given by the five
informants are summarized below in the following case studies and cross-case study.

Analysis of Research Question #7: What are the philosophies and attitudes of the high-
level administrators in Mali's IHEs toward the funding structures, efficiency measures,
and elements of the CRP, and what are the major determinants of these attitudes?

Fedi: General Director

1. Personal Characteristics

Fedi was friendly, but firm, and extremely professional woman in her demeanor
and appearance. She was in her late 40s, married to a Malian, had four children, and had
lived in Mali for 13 years. She was an "outsider", having taught mechanical engineering
and chemistry for 8 years at an urban IHE prior to being appointed as an Assistant
General Director at this institution of higher education. She was promoted to the position
of General Director in 1994. She received her 3rd Cycle Doctorate degree from a French
university in mechanical engineering. She was a product of the French system of
education, both in the West Indies (Martinique) where she was from originally and in
France. She was currently an associate professor.

2. Personal Philosophy

After the demographic and personal questions were asked, the topical area of
opinions and values was considered. The following grand-tour question was asked: What
is your philosophy of the funding of education in general and higher education in particular?

The foundation of Fedi's higher education funding philosophy rested on a multiple-level funding tier comprised of the government, the students and their parents, and the international donor agencies. She said,

The government, the students and their parents should all contribute to the cost of college. The students who contribute to the costs of their education are more motivated, therefore, more likely to graduate in less time than those who do not. In addition, these students are more likely to study harder, to be high achievers, and to be more persistent than those who do not contribute to the college costs.

In addition, Fedi gave a compelling reason for the multiple funding formula, especially the tuition and fees payment by the students. She said,

One of the reasons I am a proponent of cofunding is because it leads to more accountability and responsibility on behalf of the students.

During the interview process a general descriptive question was followed by a structural question. At this particular point in time, the following structural question was asked: What categories or subcategories of higher education costs should the government, the students and their families, the taxpayers, and governmental and non-governmental organizations be responsible for? In other words, who should pay what, and in what proportions?

To respond to this question, Fedi said,

I strongly feel that the Malian government should be primarily responsible for incurring all the recurrent, hidden costs, and capital outlays whereas international governmental and non-governmental organizations should provide instructional materials, equipment, and scholarships for the most meritorious students. Furthermore, students should be charged tuition. To upgrade laboratories, computer and media centers, I suggest the students be further assessed various types of fees.
3. Major Determinants of Attitudes Toward Funding of Higher Education

Another key grand-tour question was asked to shed light on another important issue. Can you tell me the most important factors that might have shaped your personal philosophy relative to the funding of higher education in Mali? Would you say that it is your family background, personal experience, level of educational attainment, the level of economic development of Mali, the student socioeconomic status, Mali’s former political orientation, or a combination of all the above?

Fedi revealed that her past experience (mainly her personal and family background), along with factors such as Mali’s level of economic development and students’ socioeconomic status, are major determinants of her attitudes toward higher education funding. She was asked to rank these factors as to their importance, then justify and explain her choice. Ranks ranging from most important to important and least important were assigned to each factor. Fedi said,

The single most important factor that has shaped my personal philosophy concerning the funding of education is undoubtedly the level of economic development of Mali along with my past personal experience. These two factors have had profound influence on my thinking, beliefs, willingness, and ability to pay for education, and attitude toward cost recovery. They say it all. The remaining factors are not so important.

4. Funding Model of Higher Education

There were two questions about the funding model of higher education: The first one was asked to compare and contrast the funding model of higher education in Mali with the higher education funding model implemented in the country or countries where Fedi attended college, and the second one was about the ideal funding model of higher education. To respond to the first question, Fedi revealed that although in the past the
two funding models of higher education were similar in many respects, there are currently a lot of differences among them. She said,

In my country, a full government funding formula was implemented in the first place. Then, the government decided to shift some of the costs to the students and their families. Although most of the costs of higher education are borne by the government, the students and their families do contribute by the payment of a certain amount of tuition and fees.

Then, a question about the ideal model for the funding of higher education was asked: Can you describe the ideal funding model of higher education?

Fedi said,

There is no ideal funding model. I personally believe that the ideal model is primarily a function of the socioeconomic realities of each country.

5. Attitudes Toward Efficiency Indices in Higher Education

To the question about the internal and organizational efficiency measures that could possibly be implemented in the IHEs, Fedi suggested that the following actions can be taken: First, improve the promotion and graduation rates, and minimize the grade repetition rates so as to also minimize their financial implications. She said,

In a 2-year institution, the average graduation length is 4.5 years. In addition, the financial implications of "blank years", "optional years", and "carry-over years" represent a significant waste of resources for the government. Over the past three years or so, it took a significant proportion of students an average of 4.5 years to graduate from a 2-year institution. Do you have an idea of the magnitude of the financial cost involved? It represents millions and millions of francs CFA, and as a matter of fact, a complete waste of our scarce resources. The major action that can be taken to address the issue is to make the students, administrators, and even the faculty comply with the current class repetition policy.

Then, a dyadic contrast question about the tradeoff between the quality of higher education and the resources allocated to the system was asked. Fedi-basically perceives
the issue from the perspective of faculty productivity. She explained that she was
dissatisfied with faculty productivity in IHEs. She said,

The faculty are more involved doing lucrative activities rather than
focusing on teaching and research. The support personnel are not properly
doing their job either and this is why I have a problem of morale.


In response to the questions relative to the identification of the elements of a cost
recovery plan for higher education, two major components were perceived to be
important cost recovery mechanisms. First, the tuition payment by the students, and
second, the implementation of a student loan program (SLP). As far as the first
component, Fedi said,

I believe that the students should pay a minimum amount of tuition not
exceeding 25 percent of the overall annual per-student unit cost. I
consider myself "a minimalist". This is why I would not like to see the
students charged a maximum amount of tuition.

When commenting on the second component of a cost recovery plan, that is, a SLP, Fedi
said,

I think that a student loan program is a good idea. In the past, the issue
was debated at the Ministry of Higher Education, and I was expecting
further considerations given to the issue. Despite the economic condition
of Mali, mainly the very high unemployment rate among college
graduates, I think the SLP should be given a chance.

7. Willingness to Pay

As far as willingness to pay for education, Fedi revealed that her degree of
willingness is pretty high for two reasons. She said,

I strongly feel that investment in higher education is a productive
investment that yields future returns to both the individual and society, and
second, I have a moral obligation to contribute to the college costs of my
own siblings.
With regard to the remaining questions she was asked, Fedi did not think that the redesign of colleges and consolidation of academic departments and programs was a good idea. She emphasized the need for more diversified training programs only in fields where there is a crucial shortage of qualified and highly trained manpower. She revealed that her institution even needs to upsize (six more departments) in order to offer more choices and meet the training needs of an increasingly significant diverse student body. She also believes that there should be more objective and equitable scholarship eligibility criteria based primarily on student academic performance and socioeconomic status. She said, "There are no unnecessary duplications of academic programs. This is one of the strengths of the Malian system of higher education."

Madi: General Director

1. Personal Characteristics

Madi was in his early 40s and married with children. He was an extremely intense man with a very strong personality. He was a true "insider", having worked for the previous 15 years at the same institution of higher education. He taught various courses such as animal physiology, genetic improvement, and food technology, before specializing in animal nutrition. He was promoted to the position of General Director in 1994. He received both his Bachelor’s and Doctorate degrees from a former Soviet Union university in Animal Nutrition and Production. He stayed in the former Soviet Union for over 10 years and was a pure product of that country’s system of higher education. Madi was an associate professor.
2. Personal Philosophy

After the demographic and professional questions were asked, the topical area of opinions and values was considered. Madi was asked, What is your philosophy of the funding of education in general and higher education in particular?

The foundation of Madi's funding philosophy of higher education rests mainly on a two level funding tier: the government, and the students and their parents. He said, Educational or training programs provided free of charge are valued differently from those that are paid for by the beneficiaries. As a matter of fact, I believe that the students should contribute to their college costs.

A follow-up question was asked: What categories of costs should the government, the students and their families, the taxpayers, the governmental and nongovernmental organizations be responsible for? In other words, who should pay what, and in what proportions? To respond to this question Madi said,

I think that the government mainly, through tax francs should bear the bulk of costs such as capital outlays, recurrent and hidden costs, whereas international governmental and non-governmental organizations should fund a portion of non-recurrent costs such as equipment, and the like. I strongly feel that part of direct costs, mainly a certain portion of the tuition costs, should be shifted to the students and their families.

3. Major Determinants of Attitudes Toward Funding of Higher Education

Another key grand-tour question that shed light on the next issue was asked. Can you tell me the most important factors that might have shaped your personal philosophy relative to the funding of higher education in Mali? Would you say that it is your family background, personal experience, level of educational attainment, the level of economic development of Mali, its former political orientation, student socioeconomic status, or a combination of the above? Madi gave an equal weight to all these factors. He argued that,
All these factors are equally important, with the level of economic development of Mali being slightly more important than the other factors. In addition, if students pay for tuition, the funds thus generated can be put back into the system by the government to develop more programs. In fact, something has value for you when you pay for it.

4. Funding Model of Higher Education

Two questions relative to the funding of higher education were asked: one question to contrast and compare the funding model of higher education in Mali with the used in the countries where Madi attended college, and the other relative to the ideal funding model of higher education.

Madi revealed that the funding pattern of higher education in Mali compares in many respects to the funding pattern of higher education in the former Soviet Union. He said,

I went to college in a country, the former Soviet Union, where higher education was completely free of charge. All the costs of higher education were borne by the government. All students were also awarded a scholarship. Thus, there are more commonalities between the Malian system and the former Soviet Union system than there are differences. I think that free provision of higher education is a European tradition. This is why several features of our funding structure are imported from Europe.

Madi was then asked to describe the ideal funding model of higher education from his perspective. He said,

As a "gradualist" I think that the ideal funding model of higher education should be a multi-stage, dynamic, gradual model. In the first stage, higher education should be funded 25 percent by the students and their families, 75 percent by the government. In the second stage, it should be 50 percent by the government and 50 percent by students and their families. In the third stage, 25 percent of the funding should be provided by the government and 75 percent by the students and their families.
5. Attitudes Toward Efficiency Indices in Higher Education

To the question about the internal and organizational efficiency measures that could possibly be implemented in IHEs, Madi suggested that the following actions can be taken: He said,

First, increase output such as graduation rates, by maintaining a constant input; second, improve faculty/student ratio; and third, increase administrator-staff/student ratio in IHEs. I strongly believe that the financial ramifications of grade repetition must be minimized. There are three types of school years lost by the students: 1) "A blank year" (an academic year when the student does not take any examination due to various reasons such as school closure); 2) "A carry-over year" (an academic school year that is not counted in the student's total years of schooling); and 3) "An optional year" (an academic year that the student has the latitude to attend or not attend college). The thing is, during any of these years, the student is eligible for the scholarship award. So, viewed from this perspective, it takes a student 5, 6, 7 or even 8 years to graduate from a 4 or 5-year institution, and this represents a significant waste of resources for our system.

To address the issue, Madi suggests that 1) instructors should be more accountable and less lenient toward students, and 2) a selective admission policy be institutionalized.

To respond to the question about the quality of higher education relative to the amount of financial resources currently allocated to the system, Madi revealed that he is utterly dissatisfied with the quality of the system for the following reasons: the lack of instructional materials, the lack of equipment, and the shortage of qualified instructors.


With regard to the questions relative to the identification of the elements of a cost recovery plan for higher education, two major components were perceived to be important cost recovery mechanisms. Madi said,

I am a "pro tuitioner", a strong advocate of tuition payment by the students and their families. Then, I am also a "maximalist" because I believe that the students should be assessed the maximum amount of

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tuition. At the onset, 50 percent of the overall per-student unit cost may be a good starting point. I think that student travel expenses should continue to be incurred by the government. These costs, however, should be monitored more closely by the administration for efficiency reasons.

Second, Madi has a lot of doubt about the feasibility of a student loan program as a cost recovery mechanism for three reasons: 1) The structural weakness of the credit system, 2) the uncertainty about after graduation employment opportunities, and 3) the repayment issue that has thwarted efforts elsewhere to implement a viable SLP. He said,

Despite all these problems, I think that a SLP should be given a chance, and only time will tell if such a program is feasible in Mali. The proof of the pudding is in the eating.

7. Willingness to Pay

About willingness to pay for education, Madi revealed that he is willing to invest in his siblings' higher education. He said,

No matter what, I am willing to contribute to the college costs of my siblings because I believe that the future of the country is intimately linked to how well educated the citizens of Mali will be. Moreover, higher education is still a good investment and I have the moral obligation to contribute to the college costs of my own siblings.

In addressing the remaining questions, Madi believes that the redesign of institutions of higher education may not be a good idea. He argued that each of the current IHEs has its own specific mission. In addition, he believes that the consolidation of academic programs may be not be feasible right now. Finally, he concluded that there must be more fairness in the scholarship eligibility criteria.
Gadi: General Assistant Director

1. Personal Characteristics

Gadi was a highly committed woman in her late 40s with a pleasant personality. She was married with 5 children. She was an "outsider" because she had been a researcher at the National Institute for Public Health for a limited time period. She has been in higher education administration for 8 years and has served in various capacities. She first served as Technical Advisor to the Minister for Culture and Scientific Research for 4 years. Then, in 1994, she was appointed Assistant General Director to this institution of higher education. She stayed in France and Belgium for nearly 8 years. She received her 3rd Cycle Doctorate degree from a French university in biochemistry. She was an associate professor.

2. Personal Philosophy

After the demographic and professional questions were asked, the topical area of opinions and values was considered. The following grand-tour question was asked: What is your philosophy of the funding of education in general and higher education in particular?

The foundation of Gadi's funding philosophy of higher education rests on a multiple level funding tier: the government, the students and their parents, and the international donor agencies. She said,

I think the central government should bear the operating costs, all the recurrent costs, and the capital outlays. A significant portion of direct costs, mainly a reasonable amount of tuition and fees, should be incurred by the students and their families. The other portion of direct costs, that is, the scholarship should be also incurred by the government and the international donor agencies, but based on the academic standing of the students and the demonstration of financial needs.
Gadi also posits that the rationale for students being responsible for part of the cost of college is "because the government cannot afford to continue providing free higher education for all the high school graduates of Mali in the face of escalating costs and increasing enrollments."

3. Major Determinants of Attitudes Toward Funding of Higher Education

She was then asked, Can you tell me the most important factors that might have shaped your personal philosophy relative to the funding of higher education in Mali? Would you say that it is your family background, personal experience, level of educational attainment, the level of economic development of Mali, its former political orientation, student socioeconomic status, or a combination of the above?

The most important determinants of Gadi's attitudes toward the funding of higher education are her family background and the previous political orientation of Mali (mainly the socialist orientation from 1960 through 1968). When asked to rank the factors as to their importance, and then justify and explain her choice, Gadi provided the following ranking: 1) family background, 2) past political orientation, 3) level of educational attainment, 4) condition of economic development, and 5) socioeconomic status of Malians. She said,

The family background factor is more important for me because the cost of my secondary education was entirely borne by my parents at a private high school. As far as the past political orientation of the country is concerned, I grew up at a time when the socialist regime was in power and everybody had to contribute to the national reconstruction effort, based on his/her ability in order to build a better Mali. In addition, since I value education, I think this is a parental responsibility to contribute to the cost of college for their own children. If the students contribute to the costs of their college education, this should generate a reasonable amount of funds.
4. Funding Model of Higher Education

Two questions relative to the funding of higher education were asked: one question to compare and contrast the funding model of higher education in Mali with the funding model of the countries where she attended college, and the other question was relative to the ideal funding model of higher education.

Gadi revealed that the funding pattern of higher education in Mali compares in many respects, to the funding pattern of higher education in France where she went to college. She revealed that she was somewhat influenced by the French model that is slightly different from the Malian model. She stated,

In France, all the costs of higher education are borne by the government. Then, a selective scholarship program is implemented based on merit and socioeconomic status. In addition, all the students are required to pay a relatively low amount of money for tuition.

Then, she concluded,

As a matter of fact, I paid a certain amount of tuition every year. The best funding model of higher education is the one where the government incurs 80 percent of the total costs of the system, the students pay tuition, and a selective scholarship program is implemented for the most academically meritorious students.

5. Attitudes Toward Efficiency Indices in Higher Education

To the question about the internal and organizational efficiency measures that could possibly be implemented in the IHEs, Gadi suggested that the following actions be taken: First, identify and assess all the costs of higher education; second, develop a better understanding about the outcomes of higher education, then conduct an input/output analysis; third, improve graduation rates; fourth, minimize grade repetition rates; fifth, improve the faculty/student ratio and the administrator-staff/student ratio. She also suggests reducing class size and acquiring more instructional materials and equipment.
In response to the mini-tour dyadic contrast question about the quality of higher education relative to the amount of financial resources currently allocated to the system, Gadi revealed that she is very dissatisfied with the quality of the system for the following reasons: the lack of instructional materials, the lack of equipment, and the lack of qualified instructors. "But I have high expectations for the national university, and I hope that a lot of things will change when the university starts operation in October 1996," she concluded.


In response to the questions relative to the identification of the elements of a cost recovery plan for higher education, two major components were perceived to be important cost recovery mechanisms for Gadi. The first component was the payment of tuition and fees, as at her institution. Gadi specifically emphasized the fact that, although the proportion of low socioeconomic status households in Mali is significantly high, this would not constitute a compelling reason for them not to contribute to the college cost of their own siblings based on their ability to pay for education. I am "pro tuitioner," "pro stipender." But since I am also a "minimalist," I suggest the payment of the minimum amount of tuition by the students. The situation, however, in my institution is different from the rest of the IHEs because we do not enroll undergraduate regular students.

Gadi further revealed that,

In my institution, annual tuition costs range from francs CFA 15,000 for non traditional students to 300,000 for corporate sponsored students. As a matter of fact, all direct costs have been shifted to students.

Second, serious consideration should be given to the implementation of a student loan program. She said,

Personally, I have a lot of reservations about the feasibility of such as a program. The first major obstacle may be the very high unemployment rate in Mali among college graduates, followed by the availability of
funds. I am still wondering how banks are going to accept being involved, presumably due to the future repayment issue.

7. Willingness to Pay

Gadi scored high on willingness to pay for education, and revealed that she is willing to invest in her siblings higher education. She said,

Since my parents made a considerable effort to cover the costs of my secondary education, as a matter of fact, I am willing to contribute to the college costs of my siblings because I believe that a college degree will increase their chances for success in real life. There is no way I can avoid my parental responsibility not to contribute to the college costs of my siblings. Moreover, higher education is still a good investment that yields future returns.

In regard to the remaining questions, Gadi thinks that the college redesign programs may not be a very good idea. She reveals, however, that some academic programs need to be consolidated across institutions, regardless of the institutions’ diverse missions. Some sections of low enrollment courses can be simply eliminated. She said,

This may result in greater efficiency and it may not hurt any student in any way. I also believe that we need to do a better job about the eligibility criteria of scholarships.

Dech: Department Chair

1. Personal Characteristics

Dech was a tall, athletic man in his early 50s, but had a very youthful appearance. He referred to himself as "a sac au dos" professional (literally translated by a backpacker). The metaphor is borrowed from the military and refers to private soldiers who have come up through the ranks to the top as Colonels or Generals. Dech has been teaching for 29 years, starting his career as a primary school teacher and later as a college professor with a Specialty Doctorate degree. He was the only administrator who had taught at all the educational levels (elementary through graduate school). He has
been in higher education since 1972 and has served in various capacities within higher education (National Associate Director for higher education), and outside of higher education (top aide to the National Secretary for Cultural Affairs of the Central Executive Bureau of the former party of the Democratic Union of Malian People). He received a specialty Doctorate degree from a French university and has been in France for periods ranging from 1 to 3 months on several occasions. He was a professor.

2. Personal Philosophy

First, the following grand-tour question was asked: What is your philosophy of the funding of education in general and higher education in particular? The foundation of Dech’s funding philosophy of higher education is basically concerned with one major funding source: the government—along with minor funding sources, such as corporate Mali and non-governmental organizations. Dech stated that "the full funding of education (all types and all levels) over time should primarily be the responsibility of the government."

Second, the next question dealt with funding responsibility for higher education cost categories. What categories or subcategories of higher education costs should the government, students and their families, taxpayers, governmental and non-governmental organizations be responsible for? In other words, who should pay what, and in what proportions?

Dech, a strong advocate of maximum government funding, said,

The Malian government should primarily be responsible for incurring all the recurrent, direct, hidden costs, and capital outlays; international governmental and non-governmental organizations should provide limited funding through the provision of instructional materials, equipment and scholarships for the most meritorious students, and students should enjoy
higher education completely free of charge. Corporate Mali should contribute to a college general scholarship fund.

3. Major Determinants of Attitudes Toward Funding of Higher Education

Can you tell me the most important factors that might have shaped your personal philosophy relative to the funding of higher education in Mali? Would you say that it is your family background, personal experience, level of educational attainment, the level of economic development of Mali, its former political orientation, student socioeconomic status, or a combination of all the above? Dech revealed that all these factors are equally important. When asked to rank these determinants in order of importance, and explain and justify his choice, he said,

The condition of economic development of Mali, my own personal political orientation, and students' socioeconomic backgrounds rank most important, important, and least important, respectively. For the justification and explanation for my choice, I strongly feel that in a country with a low level of economic development, where the majority of people are of low socioeconomic status, it should be the sole responsibility of the government to provide free higher education for all. In addition, I am a "welfarist," a "utilitarian," a "free rider," and I strongly believe that in an economic context such as the one in Mali, the government should do everything possible to maximize the sum of the welfare of all individuals.

4. Funding Model of Higher Education

Two questions relative to the funding model of higher education were asked: one question was asked to compare and contrast the funding model of higher education in Mali with the funding model of the country or countries of Dech's college attendance. The other question was relative to the ideal funding model of higher education. Dech revealed that, although he received his doctorate degree from a French university, he is basically the product of the Malian system of education. He said,

I was in France for rather short stays. However, I know the funding structure of its higher educational system well enough to say that it
compares to Mali’s in several respects: All the major costs are incurred by the government, a selective scholarship based on the demonstration of financial need is implemented in both the Grandes Ecoles and universities, and all the students pay a limited amount of tuition regardless of socioeconomic status. This is where the difference lies with the funding structure in Mali. Anyway the French system did not influence my philosophy at all. The major determinant of my philosophy is the condition of the Malian economy.

Dech believes that the ideal funding model of higher education is the model with major contributions from the government and limited specific contributions from various stakeholders. He said,

The ideal model of funding of higher education is a multiple funding source comprised of the Malian government whose contribution should account for about 80 percent of the total costs of higher education, international governmental and non-governmental agencies about 10 percent, and corporate Mali about 10 percent. I would like to see corporate Mali more involved in the funding of higher education in our country. I really am very supportive of this kind of formula.

5. Attitudes Toward Efficiency Indices in Higher Education

In response to the question about the internal and organizational efficiency measures that could possibly be implemented in the IHEs, Dech suggested that the following actions be taken: First, reduce class size, and second, acquire more instructional materials and equipment. He said, "From my perspective, the efficiency issue relates to the improvement of the quality of teaching in IHEs."


The questions relative to the identification of the elements of a cost recovery plan for higher education centered around two major components: the tuition payment by the students, and a student loan program (SLP). Dech said that he is a strong opponent of both the tuition payment by the students and a SLP. He said, "I am an antituitioner" and I think that a SLP is utopia in Mali."
7. Willingness to Pay

Dech said that he is willing to pay for the college costs of his siblings. He said,

I am willing to pay for the college costs of my siblings because I believe that a college degree has future payoffs for my siblings and society. It will increase their chances of success in life. There is no way I can avoid my parental responsibility to contribute to the college costs of my siblings. Moreover, higher education is still a good investment that yields future returns.

As far as his answers to the additional questions, Dech believes that the government should be entirely responsible for the bulk of the costs of higher education because a significant proportion of Malian households are below the poverty level. He also believes that the system is not currently in need of redesigning colleges or consolidating departments or educational programs. In addition, he argues that every student should be eligible for a scholarship, and that there should be no reduction in the amount of the award. He suggests that corporate Mali should be involved in an effective scholarship program, mainly for low income students.

Hesec: Head of Section

1. Personal Characteristics

Hesec was a dedicated woman in her early 40s, who was the typical representative of the post-independence generation of well-educated Malian women. Before becoming an administrator, she had taught for 5 years in an institution of higher education. She had worked in the Central Office for 2 years prior to being appointed Head of Section. She has served in this capacity since 1991. She received her 3rd Cycle Doctorate degree from a former east German university, and had stayed in the former East Germany for 4.5 years. She also has visited several universities across Africa and North America. She was an associate professor.
2. Personal Philosophy

The following grand-tour question was asked: What is your philosophy of the funding of education in general and higher education in particular? The foundation of Hesec's funding philosophy of higher education rests mainly on a two level tier. Hesec suggested that the government fully fund the K-12 sector, and she suggested a cofunding formula for higher education. She argued that "K-12 education should be funded 90 percent by the government, whereas higher education should be cofunded by the government, and the students and their parents." The question then was asked: What categories or subcategories of higher education costs should the government, students and their families, taxpayers, governmental and non-governmental organizations be responsible for? In other words, who should pay what, and in what proportions?

Hesec said,

Recurrent costs, capital outlays, and hidden costs should be incurred by the government, whereas direct costs should be shifted to the students and their families. I also think that a selective scholarship program should be implemented based on student means testing, and the payment by the students of a relatively significant amount of tuition.

3. Major Determinants of Attitudes Toward Funding of Higher Education

Can you tell me the most important factors that might have shaped your personal philosophy of the funding of higher education in Mali? Would you say that it is your family background, personal experience, level of educational attainment, the level of economic development of Mali, its former political orientation, student socioeconomic status, or a combination of all the above? Hesec said that her philosophy has primarily been determined by the condition of economic development of Mali, and the socioeconomic status of students. She said,
The condition of economic development of Mali and its corollary the existence of a significant proportion of low socioeconomic status people are the two important factors that justify my answer. However, I believe that as this is the practice elsewhere around the world, we must educate Malians to accept more responsibility for their own college cost or that of their siblings in the face of the scarcity of government resources. Another justification of my stand is the private benefits of higher education along with its high cost, and special nature.

4. Funding Model of Higher Education

Two questions about the funding model of higher education were asked: First, a question was asked to compare and contrast the funding model of higher education in Mali with the funding model used in the country where Hesec attended college. Second, a question was about the ideal funding model of higher education. Hesec revealed that the funding pattern of higher education in the former East Germany was similar to that of Mali in many respects. She said,

In the former East Germany, all the major costs of higher education were incurred by the government. Moreover, the government awarded an annual scholarship to all the students. That is exactly the same as the current funding structure of our higher education.

Asked if her funding philosophy was influenced by this model, she replied, "No. My stand, all things considered, is based on common sense."

As far as the ideal funding model is concerned, Hesec revealed a somewhat complex model. She said,

In the ideal funding model of higher education, the government should be responsible for the bulk of operating costs whereas the students should be responsible for tuition. In addition, a selective scholarship award based on individual ability should serve to make challenging, high-quality educational options, which may be more accessible to those who are academically qualified but not financially prepared. The scholarship award may take various forms, but it should be primarily performance based. All freshmen students should be eligible for a scholarship award. Then open competitive merit awards and awards based on subsequent
performance of sophomore, junior, and senior students should be implemented.

5. Attitudes Toward Efficiency Indices in Higher Education

In response to the question about the internal and organizational efficiency measures that could possibly be implemented in the IHEs, Hesec made three suggestions to address the issue: 1) Implement a more stringent admission policy, 2) Institutionalize admission tests, and 3) Encourage access based on choice and test results. These suggestions, she said, "attack the root causes of the limited higher educational outcomes and the financial implications of grade repetition and the like." With reference to the quality of higher education and the amount of resource allocation tradeoff, Hesec reveals that she is very dissatisfied with the quality of the system. She said, "The students are overfunded, and the instructional materials and equipment, and academic support are underfunded. This situation is in need of change."


The answers to the questions relative to the identification of the elements of a cost recovery plan for higher education centered around two major components: The tuition payment by the students, and a student loan program. First, she thinks that students should be assessed a tuition that represents 50 percent of the overall annual per-student unit cost. She said,

People should not consider only the financial burden side of tuition payment. One major advantage of tuition payment is that it is more likely to motivate students to graduate in the required time frame.

Second, Hesec does not categorically reject a student loan scheme as an alternative source of funding for higher education, and she even thinks that Mali can learn from the
experiences of other countries such as the United States that have implemented the program in some form. She said,

A government guaranteed student loan program at a low interest rate is a major condition for the success of a student loan policy. As a "rationalist", I think that you have to introduce some form of cost recovery, sooner or later, and a SLP is an option to consider.

7. Willingness to Pay

Hesec said that she is willing to pay for the college costs of her siblings.

Since I value higher education more than anyone, I will be more than willing to contribute to the costs of college for my siblings if tuition payment is implemented in Mali’s IHEs. If my siblings graduate from college, they will be productive members of this community, and will contribute to the development of this country.

In response to the rest of the specific questions she was asked, Hesec suggests that the government should depart altogether from the current scholarship eligibility criteria. She thinks that the government should develop more international programs with other institutions of higher learning. She also thinks that some educational programs in some IHEs may be consolidated and that the creation of new programs should be very selective and linked to the availability of funds.

Cross-Case Analysis

In this section, the standardized open-ended interviews previously administered to the five administrators also serve as the basis for the cross-case analysis technique that uses mainly Spradley’s (1997) Developmental Research Sequence. The primary method of contrast which emerged from the data analysis was a comparison of the five administrators on the basis of personal, professional, and institutional characteristics, as well as their funding philosophies and attitude determinants, both through the direction of the attitudes, as well as the strength of the attitudes. Their perspectives on efficiency and
elements of a cost recovery proposal for higher education along with their willingness to pay are also presented.

Attitudes and Attitude Determinants Toward Efficiency and Cost Recovery

In an effort to reduce the data, the five cases are summarized concerning the strength of the forces that influence the administrators’ characteristics, attitudes and attitude determinants, regarding higher education funding structures, efficiency, and cost recovery. All the administrators were impacted by the same forces and the relationships between the administrators and the strength of the forces are shown in Table 5.36. At this stage of analysis, the observed forces are clustered, or groups under general headings (Miles & Huberman, 1984). The frequency and strength of the various forces are illustrated in the columns of the table. An overall pattern of the influences is displayed across the rows for each administrator interviewed. The differences are represented by the strength and direction of the influence on the behavior of each administrator.

As shown in the Table 5.36, the most commonly observed personal forces included the administrators’ personal philosophy, individual personality, and family background. The findings revealed that these personal forces are strongly represented in each administrator. The family background forces are strongly represented in Fedi, Madi, and Gadi, while they are weakly represented in Dech and Hesec. In addition, for nearly all the administrators, economic forces such as the level of economic development of Mali and the student socioeconomic status were found to be strong. As far as political orientation, however, the administrators were influenced differently. Political orientation was found to be a strong force for Madi and Gadi, while it was a weak force for Fedi, Hesec and Dech.
Table 5.36: Summary of Strength of IHEs Administrators’ Personal Characteristics, Attitudes and Attitude Determinants toward Funding Structure, Efficiency, and Cost Recovery in Higher Education, Mali, 1996

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<td>Hesec</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

● = Strong Force  ○ = Moderate Force  ○ = Weak Force
The information provided in Table 5.36 shows that the multiple funding source was found to be a strong force for Fedi, Madi, and Gadi, while it was found to be a moderate force for Dech and Hesec. Conversely, full government funding was found to be a weak force for Fedi, Madi, Gadi, and Hesec, and a strong force for Dech only. Moreover, all the efficiency indices (improvement of faculty/student ratio, administrator-staff/student ratio, improvement of input/output ratio) were found to be strong and moderate forces for all of the administrators. At the same time, there were significant differences among the administrators relative to the cost recovery elements. Tuition payment by the students was found to be a strong force for all the administrators except Dech, while a student loan program was found to be a strong force for Fedi and Hesec, and a weak force for Madi, Gadi, and Dech. The maintenance of the payment of student travel expenses by the government was found to be a strong force for all the administrators. Finally, willingness to pay was found to be a strong force for all five administrators. Since they all scored high on the willingness to pay factor, this represented a strong force for every administrator. Therefore, they are all more than willing to invest in the college costs of their siblings.

Developmental Research Sequence (DRS)

In addition to the cross-case analysis, the model developed by Spradley (1979) and referred to as the D.R.S. was utilized to analyze the data. This model suggests three steps to analyze an ethnographic study: Domain Analysis, Taxonomic Analysis, and Componential Analysis. During the course of the interview numerous kinds of domains were identified. Spradley (1979) refers to "a domain as a category of cultural meaning
that includes other smaller categories" (p.88). All these domains, however, were not systematically analyzed, just those relevant to the topic under investigation were.

**Domain Analysis**

A significant number of domains were used by the administrators during the course of the interview to describe either themselves or their attitudes toward higher education funding structures and cost recovery in Mali. Spradley (1979) argues that domains are made of three basic elements: cover term, included terms, and semantic relationship. The cover term, according to Spradley, is the name for a cultural domain. For example, "administrator" is a cover term for a domain from the interview data. The included terms are the names for the smaller categories inside the domain, such as "gradualist," "free rider," "welfarist." The third element in the domain is a single semantic relationship linking together two categories. When conducting domain analysis, Spradley (1979) recommends making use of a number of relationships. Although he identified 9 types of these relationships, only four that are relevant to this study were selected for the domain analysis: They are strict inclusion (X is a kind of Y), means-end (X is a way to Y), cause-effect (X is a result of Y), and rationale (X is a reason for doing Y).

Cover terms, included terms, and semantic relationships are words and phrases that give more meaning to the context and persons being described and studied. They shed light on a person's personality, mindset, attitudes toward an object, willingness or unwillingness to do something, sense of humor, motivation, values, interests, and involvement. In addition, Spradley (1979) revealed that there are many kinds of domains. They include folk domain, analytic domain, and mixed domain.
The folk domain includes native language used by the administrators. These are terms used by the administrators to describe themselves, their philosophies, attitudes toward funding models and sources, efficiency and elements of cost recovery, along with attitude determinants. For purposes of illustration, a number of examples are given with each selected type of semantic relationship. Dech, for example, describes himself when addressing the issue of government social assistance and income distribution policies in Mali as a "welfarist," and "a free rider." He also used the term "sac au dos" to describe his rise in the teacher career ladder. Furthermore, the terms "welfarist" and "free rider" refer to administrators who are advocates of free provision of higher education by the government. Madi also describes himself when addressing the issue of college tuition payment by the students as a "gradualist," (a partisan of the gradual shift of some of the costs of higher education to the students). Hesec uses the term "rationalist" (a person who is favorable to a better utilization of resources for greater efficiency) to define her stand about how resources of higher education should be utilized. Figure 5.1 provides information about various categories of administrators as they relate to tuition payment or exemption in Mali’s IHEs.

In addition, terms such as "blank year," "carry-over year," and "optional year" were used to characterize various types of academic years lost in Mali’s IHEs, due to student disturbances, local or national social unrest, and official or unofficial school closures. Several other terms used by the administrators also provided a significant amount of information about their attitudes toward various cost recovery and efficiency measures. These terms shed light on the types of attitudes (favorable or unfavorable, pro or con, negative or positive) they displayed toward a particular cost recovery or efficiency
<table>
<thead>
<tr>
<th>Included Terms</th>
<th>Semantic Relationship</th>
<th>Cover Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>A gradualist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A rationalist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A free rider</td>
<td>is a kind of</td>
<td>administrator</td>
</tr>
<tr>
<td>A welfarist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A minimalist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A maximalist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A sac au dos</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.1. Administrators' Attitudes Toward Tuition Payment in Mali's IHEs.
measure. Figure 5.2 provides information about the direction and magnitude of the administrators' attitudes and attitude determinants. Antituition, prostipend, and strong support for free higher education are terms used by the top level administrators who are unfavorable to tuition payment by the students, but who favor a scholarship award for every student. Terms such as protuition, antistipend, and strong opposition to free higher education are used by the administrators who are advocates of cost recovery. The middle of the road is a neutral term.

In the course of the interview, the administrators used many words and expressions that provided directions along which to look. The analytic domain includes terms that are constructed by the interviewer. These terms are technical in nature and are used by the informants after the interviewer clarifies them. Figure 5.3 provides information about major categories of higher educational costs in Mali.

During the course of the interview, the administrators attempted to provide justifications for the dramatic increase in the costs of higher education over time in Mali. One reason for this increase appears to be the enrollment growth in IHEs. So the cause-effect explanation about rising costs and increasing enrollments is pinpointed. Figure 5.4 provides information about such a relationship.

The administrators made a significant use of the rationale semantic relationship to provide reasons for some of the suggestions they made for the containment of higher education costs, especially direct costs, including but not limited to, student travel, scholarship, and various financial implications of input/output relationships (e.g., grade repetition costs). Figure 5.5 provides information about this kind of relationship.
<table>
<thead>
<tr>
<th>Included Terms</th>
<th>Semantic Relationship</th>
<th>Cover Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antituition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antistipend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protuition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prostipend</td>
<td><strong>is a kind of</strong></td>
<td>attitude</td>
</tr>
<tr>
<td>Strong support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong opposition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle of the road</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.2. Direction and Magnitude of Administrators' Attitudes Toward Cost Recovery and Efficiency in Mali's IHEs.
<table>
<thead>
<tr>
<th>Included Terms</th>
<th>Semantic Relationship</th>
<th>Cover Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital outlays</td>
<td>are kinds of</td>
<td>aggregate costs</td>
</tr>
<tr>
<td>Personnel costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-student unit costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hidden costs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.3. Various Types of Costs in Mali Institutions of Higher Education
<table>
<thead>
<tr>
<th>Included Terms</th>
<th>Semantic Relationship</th>
<th>Cover Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>High direct cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High recurrent cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High factor cost</td>
<td>is a result of</td>
<td>enrollment growth</td>
</tr>
<tr>
<td>High capital outlays</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High hidden cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High operational cost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.4. Cause-Effect Relationship of Types of Costs With Enrollment Growth in IHEs.
<table>
<thead>
<tr>
<th>Included Term</th>
<th>Semantic Relationship</th>
<th>Cover Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition payment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stringent admission policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementation of admission tests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher aggregate costs</td>
<td>is a reason for doing</td>
<td>cost recovery</td>
</tr>
<tr>
<td>Scarce government resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selective scholarship policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving internal efficiency</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.5. Rationale for Cost Recovery in Mali's IHEs.
The next semantic relationship used in the study is the means-end relationship. In this relationship, the administrators explore various ways to bring the costs of higher education under control through the implementation of a cost reduction scheme or the improvement of the internal and organizational efficiency of Mali’s IHEs. Figure 5.6 provides information about means-end relationship in IHEs.

Mixed domains are a combination of folk and analytic domains. In the course of the interview, the administrators used folk domains when describing themselves or particular situations of higher education. There are, however, additional characteristics about the administrators that were omitted. Therefore, selected appropriate analytic terms were identified to complete the domain. To illustrate this, the following example is given. Figure 5.7 provides information about the administrators’ attitudes toward higher education funding, which suggests that the administrators’ attitudes range from very strong supporter, to "middle of the roader," to very strong opponent of the CRP. Some administrators, such as Madi and Hesec, are very strong supporters of tuition payment by the students, whereas Fedi and Gadi are middle of the roaders, and Dech is a strong opponent of tuition payment.

**Taxonomic Analysis**

A taxonomy is a set of categories organized on the basis of a single semantic relationship. In this section three major taxonomies considered significant in terms of their specific meanings are examined. Spradley (1979) argues that a taxonomy shows the relationships among all the included terms in a domain. In addition, a taxonomy reveals subsets and the way they are related to the whole. The following two major taxonomies are analyzed: an attitude taxonomy, and a philosophy determinant taxonomy.
<table>
<thead>
<tr>
<th>Included Term</th>
<th>Semantic Relationship</th>
<th>Cover Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction in class size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Audit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduction in dropout rates</td>
<td>is a way to improve</td>
<td>internal efficiency</td>
</tr>
<tr>
<td>Reduction in repetition rates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consolidating academ. progs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establishing scholarship criteria</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.6. Improvement of Organizational and Internal Efficiency of Mali’s IHEs.
<table>
<thead>
<tr>
<th>Included Term</th>
<th>Semantic Relationship</th>
<th>Cover Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>A full government funding &quot;supporter&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A partial government funding &quot;supporter&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>An advocate of full tuition payment</td>
<td>is a kind of</td>
<td>administrator</td>
</tr>
<tr>
<td>A proponent of free travel cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>An opponent of government full funding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A &quot;cost sharer&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A full scholarship advocate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5.7.** Administrators' Attitudes Toward the Funding of Higher Education.
Halloran (1976) posits that attitudes are not innate. On the contrary, they are learned, they develop and are organized through experience. Therefore, an attitude is a product of one’s experience. People retain residues of experience of such a nature as to guide, bias, or otherwise influence their behavior. Halloran (1976) further argues that the direction of an attitude refers to its favorable, intermediary or unfavorable properties, e.g., for-or-against, like or dislike. There are degrees in the administrators’ attitudes toward the proposal for cost recovery. These degrees refer to how strongly the position is held. Finally, the intensity refers to the degree of conviction with which an attitude is held by an individual.

Interestingly, respondents have different attitudes, with various directions and levels of intensity, toward the CRP. For example, Dech is an antituitioner. He is strongly opposed to all forms of tuition and fee payments by students. He is a strong advocate of free provision of higher education and corporate sponsorship of scholarships. Hesec, on the other hand, is a strong supporter of tuition payment by students and a strong proponent of non-governmental organizations’ (NGOs) coverage of equipment cost. Madi is a strong advocate of tuition payment by students and against shifting travel costs to the students and their families. Fedi is a moderate supporter of tuition payment by students, but a strong supporter of a student loan program and NGOs funding of instructional materials and equipment. Finally, Gadi is for tuition payment by students and against a student loan program. Figure 5.8 provides information about the direction of the administrators’ attitudes, the degree of the attitude, and the intensity of the degree. The direction ranges from favorable to intermediate and unfavorable, and the degree in intensity from strong, moderate supporter to strong opponent.
Figure 5.8—Taxonomy of Attitudes Toward Various Funding Structures and Cost Recovery in Higher Education in Mali
Figure 5.9 provides information about the various determinants of the administrators' philosophies. At least a couple of factors act as major determinants of the administrators' philosophies of higher education funding in Mali. These factors are broken down into subsets, with some subsets being more important to some administrators than to others. The relative importance of each factor or subset of factors depends basically on the specific background of each administrator including family characteristics, personal experiences, the nature of various political regimes in Mali over time, and the economic conditions of households. First, economic growth that leads to an increase in wealth and income, and strengthens households' ability to pay, was perceived by most of the administrators as the most important determinant of their philosophies. Second, family background, and former political orientations, were perceived by three of the administrators as important attitude determinants. Third, the level of educational attainment was considered a less important factor.

The administrators suggested various funding sources for higher education. For example, Dech suggested government full funding as the major funding source. Hesec suggested a co-funding formula comprised of the Malian government, along with the students and non-governmental organizations (NGOs) and governmental organizations. A third suggestion was made relative to a multiple funding formula including the Malian government, NGOs, the students and their families, and corporate Mali.

Componential Analysis

Spradley (1979) posits that componential analysis is the systematic search for the attributes (components of meaning) associated with attitudinal categories. Given the relatively higher number of domains identified for this study, this section focused
Level of Economic Development
- Low income
- Low wealth
- Extended families
- High household expenditures
- Most household below Poverty line

Student Socioeconomic Status (SES)
- High SES student
- Median SES student
- Low SES student

Family Background
- Family valued self-reliance
- Family valued collectiveness
- Family valued sharing

Personal Experiences
- Personal attributes
- Personal commitment
- Personal beliefs

Level of Educational Attainment
- High level of ed. Attainment
- Terminal doctoral degree Holder
- Other types of advanced degree Holder

Past Political Orientation
- Socialist government policy
- Military government policy
- Provisional government policy

Figure 5.9—Major Determinants of Administrator's Philosophy about Higher Education Funding
exclusively on one contrast set of the economic domain (kinds of cost recovery elements).

Table 5.37 provides information about the dimensions of contrast of the domain kinds of cost recovery elements among the top-level administrators. This economic domain has smaller categories, and each category, such as tuition, has a unique cluster of attributes or smaller units (e.g., tuition payment, tuition exemption, full [maximum] tuition, and partial [minimum] tuition). Similarly, fees, another component of the domain, have smaller attributes as well (e.g., library fees, laboratory fees, sports fees, and the like).

A dimension of contrast is an idea or concept according to Spradley that has at least two parts. For example, the dimension of contrast related to scholarship has at least two values or parts: (1) yes, a student is eligible for full scholarship; (2) no, a student is not eligible for full scholarship. From this example of contrast a binary dimension of contrast can be formulated. Do the administrators support a full scholarship award for all students? Of course, the answer may be yes or no, depending on the personal attitude of each administrator toward this element. There are differences and commonalities among the administrators regarding the attributes of the economic domain of cost recovery elements. Almost always, however, two dimensions of contrast, each with binary values, will on closer inspection prove to be related. In Table 5.37, for example, the following dimensions of contrast: (1) "supports or opposes full tuition payment", (2) "supports or opposes partial tuition payment", (3) "supports or opposes differential tuition payment" are presented. Then, "yes" or "no" is entered under each column depending on applicability. These columns can be combined into a single dimension of contrast which can be titled "tuition payment". The same componential analysis can be carried out for each contrast set.
Table 5.37. Partial Domain "Kinds of Cost Recovery Elements"

<table>
<thead>
<tr>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fedi</td>
</tr>
<tr>
<td>Madi</td>
</tr>
<tr>
<td>Gadi</td>
</tr>
<tr>
<td>Dech</td>
</tr>
<tr>
<td>Hesec</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DOMAIN Cost Recovery Elements</th>
<th>Dimensions of Contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports Tuition Payment</td>
<td>Supports Partial Tuition Payment</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
The information in Table 5.37 further suggests that the administrators differ significantly regarding the dimensions of contrast of partial tuition payment by students. Fedi, Gadi and Dech are opposed to full (or maximum) tuition payment by students, whereas Madi and Hesec are advocates of full (or maximum) tuition payment by students. Similarly, regarding the dimensions of contrast of full scholarship award to all of the academically qualified students, no differences are found among the administrators regardless of personal background, funding philosophies and the like. Major differences, however, are found among the administrators regarding the contrast set of the implementation of a student loan program. Fedi and Hesec are ardent supporters of a SLP, whereas Madi, and Dech are adamantly opposed to such a program, and Gadi has a middle of the road position.

Research Question #8: Are there differences in the philosophies and attitudes of the high-level administrators in Mali’s IHEs based on gender, rank, and position.

If one applies Mintzberg’s key structure of the organization in Hoy and Miskel (1990) to the five administrators, Fedi, Madi, and Gadi by virtue of their higher level administrator positions, clearly belong to the strategic apex (general directors and assistant general directors), whereas Dech and Hesec belong to the middle line (department chairs and heads of sections). Findings tend to suggest that there are no gender differences among these administrators relative to the cost recovery elements because female administrators and male administrators do not always give responses that are consistent across gender. Similarly, there appears to be no rank or position differences either. One can speculate that the contingency approach (Hoy and Miskel, 1990) may be applied regarding the administrators’ responses to the cost recovery elements set of contrast. In
other words, the evidence indicates that under one set of circumstances, one group of administrators react to the set of contrast in a certain way; and under another set of circumstances another group of administrators react in another way. For example, neither group (the strategic apex), nor the middle line group is cohesive. Their stand depends, to a large extent, on the antecedent variables.

Summary

It is quite obvious that an individual's attitudes do not develop and persist in a vacuum and that the group affiliations of the individual help to determine the formation of his/her attitudes. For example, both Fedi's and Gadi's attitudes toward tuition payment by students were determined by their personal and family backgrounds. In addition, the political affiliation of Gadi provides additional evidence of her attitude toward tuition payment by students. For Madi and Hesec, for example, all the major determinants of their attitudes toward the CRP are compelling. Consequently, the fact that they ranked these determinants equally is indicative of the importance of the degree to which they have come to influence both Madi's and Hesec's attitudes. It is generally recognized that the attitudes of an individual depend upon the attitudes and norms of the groups that form his/her frame of reference. This frame of reference includes group affiliations, as well as social and economic norms. The data in the Table 5.37 further suggest that there are differences and commonalities among the administrators regarding the major elements of cost recovery.
CHAPTER VI

CONCLUSIONS, DISCUSSION, AND IMPLICATIONS

Chapter VI recapitulates the overall structure and purpose of the study. Major findings and conclusions of the study are delineated in the following way: 1) analyses of higher educational cost and related concepts, 2) design of cost recovery proposal and development and refinement of the instrument, and 3) major findings and conclusions pertinent to the research questions. A discussion, organized in three parts, is then presented: 1) higher educational costs and related concepts, 2) development of the instrument, and 3) qualitative interviews of top-level administrators. The concluding section of the chapter consists of two subsections: 1) the implications of the findings, and 2) potential directions for educational costs and attitudes toward cost recovery for future research.

The overall purpose of this study was to utilize the economic theory of cost and attributional psychology to extend understandings of educational costs in general, and higher education costs in particular, in developing countries, but more specifically in Mali. Three major objectives of the study were to: 1) identify, examine, and interpret basic types, major determinants, and behavioral characteristics of higher educational costs in Mali over time; 2) devise a cost recovery proposal (CRP) for Mali’s IHEs, and develop an instrument; and 3) utilize a mix of economic and human perspectives to test the attitudes of major higher education stakeholder groups in Mali toward the CRP.

The study was completed in two distinct phases. The first phase of the study focused on the identification, examination, and interpretation of basic types, determinants, and behavioral characteristics of higher educational costs over time. The second phase of
the study comprised two parts. Part I focused on the design of a CRP and the
development and refinement of an instrument—Higher Education Stakeholders Survey -
Student Attitude Opinionnaire (HESS/SAO), and Parent, Administrator, Legislator and
Faculty Attitude Opinionnaire (HESS/PALFAO) for the specific purposes of this study.
Part II of the study further clarified the survey results through qualitative research. It
should be noted that this study did not attempt to validate this proposal but to use it
instead as a conceptual framework for exploring relationships among economic and
human perspectives in the study.

Major Findings and Conclusions

Part I of Phase I of the study focused on the identification of basic types,
determinants, and behavioral characteristics of higher educational costs over time. First,
basic types of higher educational costs were identified in terms of assignability—recurrent,
direct, capital, indirect, and hidden costs, variability—fixed, variable, or semi-variable,
and objective—instruction, compensation, and travel. Then, based on their function and
objective, these costs were classified into one broad cluster of costs, and two independent
entities of costs. The cost cluster that comprised recurrent, direct, and hidden costs share
several commonalities. In fact, these costs cover, mainly, educational and general
expenditures, that is, costs connected with research, and the instruction and welfare of
students, and factor costs (the cost of inputs). Capital costs represented the first entity
and indirect costs represented the second entity.

This cost analysis generated the following major conclusions: 1) the cost cluster
was significant in magnitude and diversified in objective; 2) the cluster cost accounted for
about 95 percent of the aggregate costs of Mali’s higher education; 3) direct costs
dominate the bulk of the cost cluster and increase at a faster pace than recurrent costs; 4) the cost cluster represents variable costs, that is, costs that fluctuate with a change in the activity level of higher education; and 5) they include other types of costs such as factor costs, resource costs, and are expressed as financial or monetary costs. The first entity of capital costs is fixed costs, and the life time of these costs expands beyond a fiscal year. The last entity is indirect costs which can also be referred to as opportunity costs. Thus, the following conclusions can be drawn about these two entities of cost: 1) the resources of higher education that consist partly of capital, land, and labor could be allocated for alternative purposes; 2) since indirect costs can be considered a proxy of scholarship costs, students forego no earnings by attending college instead of working; and 3) the real costs of higher education include more than expenditures or monetary payments.

Second, examination of the major determinants of higher educational costs in Mali over time yielded the following findings: 1) changes in popular demand for higher education services evidenced by an increase in resource costs; 2) changes in faculty, size, structure, and composition over time; 3) changes in the amount of revenue available to higher education; 4) change in Gross Domestic Product (GDP); 5) significant inflation which led to loss in the value of the franc, severely affecting the purchasing power of higher education; 6) implementation of a new higher education faculty ranking policy in 1993; policy decisions about significant increases in the student stipend monthly rate in 1991. Based on this analysis, it can be concluded that if one wants to better understand the funding of higher education in Mali, one may want to: 1) pay more attention to the changing educational needs of a rapidly growing population; 2) regularly monitor the performance of the aggregate economic forces which ultimately act as powerful
determinants of the national revenue; 3) formulate and implement bold national economic policies to stimulate the growth of the economy, and 4) diversify the funding sources of higher education.

Third, three major findings emerged from the analysis of the behavioral characteristics of higher education costs over time: First, there were significant variations in the costs of Mali's system of higher education over time. Second, there were intrainstitutional (trend analysis within an institution) and extraintitutional (direct comparison of institution costs) cost variations. Third, there were cost variations based on geographic areas. Fourth, there were cost variations based on institution size. These findings about the behavioral characteristics of costs support the following conclusions: 1) economic downturns strongly influence the behavior of higher educational costs; 2) dramatic instability of cost behavior (periods of decreasing costs followed by periods of increasing costs; 3) recurrent and direct costs are more subject to dramatic changes than other types of costs, and 4) a hold on demand factors may lead to a stabilization of higher educational costs.

Cost Recovery Proposal/Instrument Development and Refinement

Part I of Phase II of the study focused on the design of a conceptual proposal of cost recovery. The proposal posited multiple, reciprocal relationships among human and sociodemographic factors, costs and cost related concepts, and higher education stakeholder groups' attitudes toward various aspects of cost recovery. The proposal served as the basis for the development of the Higher Education Stakeholders' Survey - Student Attitude Opinionnaire, and Parent, Administrator, Legislator, and Faculty Attitude Opinionnaire (HESS-SAO/PALFAO). The following section gives a brief description of
the steps undertaken in the design of the proposal and the development of the HESS-SAO/PALFAO instrument for the purpose of the study.

The structure of the CRP (see Chapter I, Figure 1.1, p. 15) consists of sociodemographic factors (ability to pay), human factors (willingness to pay), sets of macro- and microeconomic elements (cost, efficiency, price, and so forth), along with stakeholder groups’ attitudes toward the proposal. The macro- and microeconomic elements were conceptualized in a binary way. Conceptually, a two-way interaction among pairs, for example, costs and price, price and efficiency, characterized the linkage among the economic elements of the proposal. These macro- and microeconomic elements were further defined through a set of five dimensions or variables. These variables were: economic values and returns, cost/benefit beliefs, internal efficiency, cost recovery, and downsizing and monitoring.

Two forms of the Higher Education Stakeholder Survey (HESS) were developed, the student form (HESS-SAO) and the parent, administrator, legislator, and faculty form (HESS-PALFAO). An item pool was developed to operationalize the seven HESS dimensions/variables. The item pool consisted of concepts related to ability and willingness to pay, economic values and returns, cost/benefit beliefs, internal efficiency, cost recovery, and downsizing and monitoring. Initial face validity of the instrument was checked by three judges. These judges made suggestions and the revisions were incorporated in the final version of the instrument. Then a series of factor analyses performed on the HESS-SAO/PALFAO data set resulted in seven identified factors: Ability to Pay (ATP), Willingness to Pay (WTP), Economic Values and Returns (EVR), Cost/Benefit Beliefs (CBB), Attitudes toward Internal Efficiency (AEI), Cost Recovery...
(CR), and Downsizing and Monitoring (DM). The factor analysis revealed two major findings: 1) the subscale of Willingness to Pay (WTP) dimension demonstrated the largest number of item loadings; and 2) the three-factor solution for the dependable variables, and the four-factor solution for the independent variables appear to be the "best" solutions.

Results of the alpha internal consistency analyses for the HESS-SAO/PALFAO instrument yielded the following results: First, the HESS-SAO/PALFAO subscales (AEI, EVR, WTP, and (DM) evidenced moderately strong reliability coefficients ($r = .73, .70, .66, and .61$, respectively); and 2) the remainder of the subscales (CR, ATP, and CBB) demonstrated rather weak reliability coefficients ($r = .53, .50, and .38$, respectively). The findings about these internal consistency coefficients support the major conclusion that the items are not heterogenous enough and that there is not enough response consistency which may suggest that the instrument is subject to error. Finally, results of the intercorrelation analyses for the HESS-SAO/PALFAO instrument yielded the following findings: First, pearson product moment correlation coefficients among the subscales ranged from $.02$ to $.24$ for Part I subscales. Second, these coefficients ranged from $.21$ to $.34$ for Part II subscales. The following two conclusions could be drawn: 1) there is no multicollinearity among the set of independent variables; and 2) more work needs to be done on the instrument subscales.

Research Questions

Research Question 1. What were the basic types, major determinants, and behavioral characteristics of higher education costs in Mali between 1985 and 1996?
The results of cost analyses completed to investigate the first research question produced the following findings. Four broad categories of higher education costs were identified: recurrent, direct, capital, and indirect costs. First, recurrent costs are composed of personnel and non-personnel costs and are referred to as variable costs, that is, they vary with the changes taking place in the activity level of the system of higher education. Personnel costs dominate recurrent costs. The major determinant of recurrent costs is the prices of the inputs (e.g., faculty, materials and equipment) used up in the higher educational production process. Personnel costs, in turn, are mainly determined by factors such as: 1) institution size, type, and location; 2) structure, composition, and size of the faculty; 3) the continued "Malianisation" of the faculty; 4) faculty seniority and distribution by points on the promotional steps of the salary scales. The findings further indicate that higher educational cost behavior changes over time. Large cost fluctuations were observed from one year to the next.

The following conclusions were derived from these findings: 1) recurrent costs are the second largest type of higher educational cost and constitute a sizable proportion of the higher educational budget; 2) recurrent costs should be given more consideration because instructional costs represent the core of an IHE, 3) the important reduction in the number of foreign faculty, whose costs were entirely borne by their respective governments, has resulted in a shift of additional personnel cost to the Malian government, and 4) the funding of research should be a major policy objective.

Second, direct costs represent the major type of higher educational costs that can also be categorized as variable costs. Three major components of direct costs were identified: 1) scholarship and stipend costs, 2) travel costs to and from the locations of
Mali's IHEs, and 3) instructional material costs. Two major factors have acted as powerful determinants of direct costs in Mali's IHEs: 1) the single most important determinant of direct costs has been enrollments; 2) the second determinant has been policy decisions. The findings further suggest that the behavioral characteristics of direct costs has been significant. It should be noted that behavioral patterns of both recurrent costs and direct costs appear to be consistent and similar over time.

The following conclusions were derived from these findings: 1) direct costs are the most important category of cost in Mali's IHE; 2) cost recovery will play an important role in the magnitude and nature of direct costs; 3) the rise in direct costs will be dictated by the current status quo (free tuition, and scholarship awards for most college students); 4) if enrollments continue to rise without sustainable economic growth in Mali, then it may become increasingly difficult for the Malian government to continue to provide scholarship and free tuition for all college students in the future; and 5) on the contrary, steady economic growth will provide enough justification for a shift of certain direct costs to students and their families.

Capital costs are the third basic type of higher educational costs in Mali. Capital costs represent fixed costs because they are associated with durable educational inputs, such as land, buildings, furniture, and equipment, whose lifespan clearly extends beyond one fiscal year if properly maintained. The major determinants of capital costs are the costs of land, buildings, equipment, depreciation, along with the costs of building new structures and the renovation and maintenance of old ones. Information about these costs incurred by the central government is rather limited since the Malian government owns
both the land and educational buildings. Little is known about the behavioral characteristics of these costs because of data limitations.

Indirect costs are the fourth basic type of higher educational costs in Mali. They are composed of opportunity costs of which earnings forgone by students are an integral part. Students' scholarship and stipend costs serve as a proxy for indirect costs. From an economic point of view, since indirect costs also represent opportunity cost, their determinants and behavioral characteristics go hand in hand with direct costs.

Research Question 2: What major factors determined per-student unit costs in Mali’s institutions of higher education (IHEs) and were there significant variations in per-student unit costs over time and across these institutions between 1985 and 1996?

The findings suggest that there were four major determinants of per-student unit costs: 1) institution size characterized by its total enrollment, 2) total revenue available to the institution, 3) institution location, and 4) inflation. The mission of the institution was not identified as a major determinant of per-student unit cost. These findings of the study suggest the following conclusions: 1) there appears to be a direct positive relationship between total enrollment of the institution and its per-student unit cost, that is, institutions with large enrollments tend to have lower per-student unit costs, whereas institutions with low enrollments tend to have higher per-student unit costs; 2) there appears to be economies of scale as the institution size grows; 3) where economies of scale are prevalent, the marginal costs of adding additional students are lower than per-student unit costs; the current organizational structure of some IHEs may not give a true picture of an institution IHE per-student unit cost, and 5) other important resources going into the IHEs may have been omitted.
Results of direct comparative analyses completed to address per-student unit costs within and among institutions of higher education in Mali yielded five major findings: First, substantial differences were found between overall per-student unit costs over time. Second, there were significant variations among per-student unit costs within institutions over time. Third, significant variations were also found among per-student unit costs across institutions over time. Fourth, per-student unit costs were higher in 2-year institutions than other types of institutions. Fifth, among 4-year institutions, per-student unit costs were lower when enrollments rose, and higher when enrollments declined. These findings suggest the following conclusions: 1) there is a considerable dispersion of per-student unit costs among all IHEs; 2) median per-student unit costs tended to diverge in 1985 and converged in 1995; 3) per-student unit costs were about 10 times the 1987 Malian per-capita income, and 28 times the 1992 per-pupil expenditure in primary education; and 4) there is an imbalance between per-student unit cost and per-pupil expenditure and per-capita income.

Research Question 3: How can the internal and organizational efficiency in Mali's IHEs be improved?

Results obtained from the analyses to address research question 3 yielded the following findings. First, the findings suggest that the average attendance time to graduation from 1985 through 1995 in a 2-year, 4-year, and 6-year institution was 2.5, 4.6, and 6.5 years, respectively. Second, the average promotion rates were 82.3 percent for 2-year institutions and 52 percent for 4-year institutions in 1987. Third, increases and decreases in graduation, retention, and repetition rates have profound financial implications for Mali’s IHEs. Fourth, student/faculty ratio increased from 9.05:1 in
1987, to 15.03 in 1995. Based on these findings, the following conclusions were drawn:

1) the longer the attendance time to graduation, the lesser the efficiency in an IHE, the greater the cost to the government and the greater the wastage of resources; 2) the higher the promotion rate the greater the efficiency for IHEs; 3) an increase in faculty/student ratio may lead to an improvement of IHEs' internal efficiency; 4) the higher the per-student unit cost, the more desirable the cost recovery; 5) in the long run, the marginal benefits (improved quality of higher education) may exceed the marginal costs (more investment in human capital, e.g., faculty development program and instructional materials). For example, a reduction in repetitive rate and an increase in graduation will have more payoffs.

Research Question 4: What should be the major economic components of a cost recovery proposal (CRP) and what percentage of the overall per-student unit cost could possibly be recovered in Mali's IHEs?

Three major components were identified as integral parts of a cost recovery plan in Mali: tuition payment, student loan program, and the higher education package plan as partial or full cost recovery mechanisms. Based on the real per-student unit cost for a given year, the ability and willingness to pay, and a number of assumptions including the tuition price, a certain proportion of the per-student unit cost could be recovered. In 1995, for example, the per-student unit cost was estimated to be francs CFA 490,000. Assuming, for instance, that the annual amount of tuition charged was francs CFA 50,000 this year, about 10 percent of the per-student unit cost could have been recovered. If the annual amount of tuition charged was doubled to francs CFA 100,000, 20 percent of the
overall per-student unit cost could be recovered, resulting in a situation of partial cost recovery.

In a full cost recovery scenario, however, the total amount of the 1995 per-student unit would have been recovered. These findings suggest the following conclusions: 1) Many developing countries including Mali are in search of a desirable system of higher educational finance; 2) the determination of the appropriate magnitude for the price of tuition depends, to a large extent, upon the ability and willingness to pay of students and their families; 3) no country in the world, regardless of its political orientation or level of economic development, or the nature of its higher educational system (public or private), is currently implementing a full cost plan; 4) given the current economic conditions of Mali, a partial cost recovery appears to be more desirable; and 5) a cost recovery in Mali should be implemented gradually.

Research Question 5: What are the multivariate relationships among the set of independent variables and attitudinal measures of the different stakeholder groups toward the CRP for Mali’s IHEs?

Two major findings were derived from results of the set of stepwise regression analysis conducted to address this research question. First, a rather important portion of the variance attitude toward cost recovery was accounted for a combination of selected subscales of the HESS-SA0/PALFAO. Of the three HESS variables emerging in the regression analyses—Willingness to Pay (WTP), Ability to Pay (ATP), and Economic Values and Returns (EVR)—Willingness to Pay (WTP) was found to be the most important variable in terms of explaining and accounting for variation among stakeholders in attitude toward cost recovery. A second finding is that there is a stronger multivariate
relationship between the human variable of Willingness to Pay (WTP), rather than the economic variables of Ability to Pay (ATP) and Economic Values and Returns (EVR), and the set of dependent variable of indices of efficiency. The above findings suggest the following conclusions: 1) If Mali wants to move toward cost recovery, the variable Willingness to Pay (WTP) should be given the strongest consideration; 2) surprisingly, the variable Willingness to Pay (WTP) does not appear to be a major impediment to cost recovery; 3) Ability to Pay (ATP) and Willingness to Pay (WTP) complement each other; therefore, stakeholders may exhibit one of the following four combinations: high willingness and high ability; low willingness and high ability; low willingness and low ability; and high willingness and low ability.

Research Question 6: Are there significant differences among various stakeholder groups in attitudes toward the CRP for Mali's IHEs?

The major finding pertaining to this research question was that significant differences were found between groups regarding attitudes toward cost recovery, while no differences were found between groups regarding attitudes toward internal efficiency and downsizing and monitoring. The above finding suggests the major following conclusion: variation among stakeholder groups in their attitudes toward various indices of efficiency is primarily explained by the fact that Attitude toward Internal Efficiency (AIE) and Downsizing and Monitoring (DM) deal with a reallocation of resources within IHEs and did not require students and their families to pay any financial contribution, whereas Attitude toward Cost Recovery (CR) required either the payment of a financial contribution or a reduction in the stipend monthly rate.
Research Question 7: What are the philosophies and attitudes of the high-level administrators in Mali's IHEs toward the funding structures, efficiency measures, and elements of the CRP and what are the major determinants of these attitudes?

Question 7 of this study focused on further understanding the personal and family background, personal philosophy, major attitude determinants toward higher education funding, opinions about other funding models, attitudes toward efficiency indices in higher education, major elements of a cost recovery plan, and willingness to pay of five high-level higher educational administrators identified as extreme outliers in the total sample. Results from this initial qualitative probe of administrator outliers in the sample data provided the impetus for continuation of a more extensive qualitative probe. Results obtained from the qualitative analysis of the above question yielded six major findings that are presented below.

First, administrators were split into two camps: one camp was favorable to governmental full funding, while the other camp was favorable to a multiple funding formula. Second, the ideal higher education funding model appears to be a model which emphasizes shared funding responsibility among students and their parents, the government, philanthropist organizations, and the corporate world. Third, differences and commonalities were found between the funding structures of higher education in Mali, and those of the countries where the administrators attended college. Fourth, there was unanimous support of major efficiency measures in IHEs by administrators. Fifth, four of the five administrators were advocates of tuition payment by students, while one was against. In addition, two were proponents of a student loan program, while three were opponents. Sixth, all the administrators were willing to pay for their siblings'
college costs. Four major factors acted as determinants of their philosophies and attitudes. The first factor was their personal and family background. Second was the level of economic development of Mali. Third was student socioeconomic status. Fourth was the past political orientation of Mali. The above findings suggest the following conclusions: 1) there is a change taking place in public attitudes toward higher education funding; 2) the idea of cost sharing and cost recovery is gradually gaining grounds among higher education administrators; 3) there is a strong feeling among administrators that higher education funding should not be the sole responsibility of the government; and 4) creativity and innovation are required to bring about a desirable level of funding of higher education.

Research Question 8: Are there differences in the philosophies and attitudes of the top-level administrators in Mali’s IHEs based on gender, rank, and position?

The analysis of research question 8 produced the following findings. First, no gender, rank, or position differences were found relative to the philosophies and attitudes of top-level administrators. It can be concluded from the above finding that: 1) attitudes and philosophies describe the residues of past experiences; 2) attitude and philosophy formation does not always occur across gender lines; and 3) attitude has a directional quality and a level of intensity.

Discussion of Findings

The research impetus for this study centered on the perceived need for an increased analysis of higher education costs in developing countries. This view underscores a strong perception supported by economics of education scholars and cost theorists (Cohn and Geske, 1990; Bowen, 1980; Adams, Hanks, and Schroeder, 1978;
and Brigham and Pappas, 1976), that the application of the tool of cost analysis may be important for a better management of higher education finance. As scholars have become more cognizant of the usefulness of cost analysis, increased recognition has emerged of its utilization by administrators in making improved decisions about resource allocation in higher education. Cost analysis plays a central role in the corporate world, in that every managerial decision requires a comparison between the cost of an action and its benefits. Although, higher education is different from the corporate world, the use and usefulness of cost analysis was abundantly demonstrated.

Taxonomy of Educational Costs

The categorization of costs in this study—recurrent, direct, indirect, capital, and hidden—requires additional scrutiny. First, findings indicate that the component of one particular cost may also be an integral part or subcategory of another cost. For example, factor costs—the prices of the inputs going into the higher education production process—are associated with both recurrent costs and direct costs. In addition, both recurrent and direct costs are also major components of social costs which are costs borne by society in general. Private costs incurred by the individual are part of direct costs.

Second, it appears that some of the costs of higher education are more important than others. Based on their magnitude, the scope of their function, and the nature of their objective, direct and recurrent costs are undoubtedly the most important type of higher educational costs in Mali. Because of marked differences among its recipients (low-income/high income, qualified/underqualified students), direct costs are the most controversial type of cost, and as such are attracting more attention from the general public. Alchian (1968, as cited in Adams et al., 1978) argued that the issue represents a
classic topic for applied economics—the effects of different means of allocating scarce resources among competing claimants. Although it is recognized by cost experts (Alchian, 1968, as cited in Adams et al., 1978; Court, 1991) that free tuition—a component of direct costs, has a real economic and social impact in terms of enhancing educational opportunities—it is, nonetheless, at the center of the controversy. This controversy, in the final analysis, raises the issue of how one strikes the balance between the right amounts of direct and recurrent costs.

Third, the government may want to make tough choices between the containment of direct costs and an increase in recurrent costs by recruiting and retaining more faculty, and acquiring more instructional materials. Thus, a case can be made for recovering part of direct costs and investing this money in innovative faculty development programs, in an improvement of the condition of the physical plant, and in the construction of new structures. The rationality of this option may be unquestionable, if enrollments continue to rise and Mali experiences a limited sustainable economic development that would considerably hamper the financial capacity of the government to award all college students a scholarship, maintain its current rate, and continue to provide free tuition. This option, if correctly applied, may help keep direct costs under control.

Fourth, the real costs of higher education costs lie beyond total monetary expenditures of the system. They can further be viewed as opportunity costs. This point was highlighted by Bowen (1980) who argued that: "The real cost of higher education, then, consists of the benefits that might have been realized from these resources, but were sacrificed, because these resources were committed to higher education" (p. 2). These alternative benefits would have been in the form of consumer goods such as rice,
bicycles, shoes, clothes, and social goods such as road networks, hospitals, and street lighting. Bowen (1980) concluded that, "These are the kinds of benefits that are sacrificed when resources are devoted to higher education. These sacrificed opportunities represent the real costs, or opportunity costs" (p.2).

Fifth, because of the centralized nature of budgeting process, there is an egalitarian resource allocation practice relative to cost functions, such as instructional materials and supplies, and equipment that make up the recurrent costs of IHEs, regardless of their mission, type, and size. These cost functions, however, have remained fairly constant over time. In addition, the presentation of broad categories of costs, such as personnel costs, makes the analysis of certain costs harder, since these costs are not broken down into cost objectives. Similarly, the same centralization considerably limits the ability and autonomy of the IHEs to have a direct control over their financial resources from a resource management perspective.

Finally, in Mali, like in many other developing countries, there is a big gap between actual aggregate educational expenditures and the desired education expenditures to achieve, for example, universal education. Jimenez (1983) referred to the gap as the "legitimacy gap". Even if in practice, the "legitimacy gap" cannot be filled given the current conditions of the economy, the demand factors, and the supply of teachers, internal reallocation of resources through cost recovery and efficiency in higher education, may help narrow the gap. And this may translate into adequate funding to hire the appropriate number of faculty, to acquire the appropriate quantity of materials and supplies, and equipment.
Major Determinants of Higher Educational Costs

The findings relative to the major determinants of the costs of higher education suggest that higher education costs in Mali are primarily determined by three basic factors: 1) aggregate demand factor, 2) revenue factor, 3) inflation, and 4) the policy factor. In general terms, cost determinants are more dynamic than static.

First, the major aggregate demand factor is characterized by a rising popular demand for higher education that has significantly affected the size of the system since the mid-1960s. Bowen (1980) argues that one of the most settled economic principles is that the size or scale at which a business or other organization operates is likely to affect its cost. The size of Mali’s system of higher education expanded fast over the past two decades. Enrollments increased by nearly 290 percent between 1977 and 1996. The number of Malian faculty has also increased, but not in the same magnitude—all types and categories—rose from 578 in 1987 to 718 in 1995, an increase of nearly 25 percent. This, of course, has had important cost implications for the system as a whole. As a result, in nominal terms, aggregate higher education costs increased from francs CFA 2.3 billion in 1985 to francs CFA 5.3 billion in 1996.

Second, the ultimate determinant and limit on educational costs in general, and higher educational costs in particular, is the amount of revenue an educational system has available for spending each fiscal year. This amount is determined by society and is influenced by such economic indicators as growth, inflation, unemployment, and the diversity and elasticity of funding sources. This point is emphasized by Bowen (1980) who argued that: "The educational expenditures of IHEs in the aggregate are ultimately determined by the amount of money our society is willing to devote to them" (p. 10).
For example, a given society may value the returns to higher education more at some times than at others. When this happens, society may be more willing to increase the costs of higher education. In the final analysis, it is the interaction between demand and cost, as conceived by "society" at any given time, that determines total expenditures of IHEs.

Third, inflation is the last major cause of the increase in higher educational costs over time. A significant portion of the impressive rise in total costs of higher education between 1985 and 1996 was not "real" and should not be attributed to the previously stated factors only. Between 1985 and 1993, the average annual inflation rate in Mali was 4.4 percent, a cumulative rate of 39.6 percent. That high rate, coupled with subsequent high rates of 35 percent in 1994, 9 percent in 1995, and 8 percent in 1996, added up to a cumulative rate of 90.6 percent. In nominal terms, total higher educational costs (recurrent and direct costs mainly) were estimated to be francs CFA 2.3 billion in 1985 and 5.2 billion in 1996. When adjusted for inflation, however, the increase in total higher education costs between 1985 and 1996 was estimated to be francs CFA .5 billion.

Fourth, policy decisions are also determinants of higher education costs. A case in point is the 1991 and 1993 Malian government decisions pertaining to a 75 percent-across-the board increase in the scholarship monthly rate and the allocation of allowances to the faculty, respectively. Since all students and faculty members were basically affected by these decisions, dramatic incremental cost ensued as a result of the policy change. The impact of policy decisions of this nature is profound on higher education costs. In addition, since total scholarship costs and total personnel costs are
proportionally related to the number of students and faculty, total higher education costs increased dramatically as a result of these decisions.

Behavioral Characteristics of Educational Costs

Although the expenditure patterns of higher education have remained fairly stable, the behavioral characteristics of costs have changed considerably over time. In fact, two distinct phases characterize higher education cost trends from 1984-1985--a base year--through 1995-1996. During this ten-year period, significant variations were found at the aggregate, categorical, as well as the institutional levels of costs. During the first phase (the 1984-1985/1988-1989 period), cost trends were characterized by periods of increase and decline. For instance, aggregate costs increased from 1985 to 1987, then declined in 1989. Categorical costs, such as recurrent and direct costs, followed the same pattern over the same time period. In addition, both overall and institutional per-student unit costs followed the same patterns over the same time period. Finally, the decline in higher educational expenditures as a percentage of the national education budget was consistent from 1985 through 1989; 20 percent in 1985, 19 percent in 1987, and 17 in 1989.

Therefore, the magnitude of the change in higher education costs (francs CFA 1.1 billion) from 1985 through 1987 was significant. The second phase (1991-1992/1995-1996) that can be considered the "golden years" of the Malian higher education is characterized by steady increases in aggregate, categorical, and institutional costs. The 1991 significant raise in student stipend monthly rate policy decisions that impact the behavior of higher education costs and the 1993 financial implication of the faculty ranking policy constitute the two major turning points of this period.
Aggregate, categorical, and institutional costs behavior was unstable over time. For example, institutional costs changes relate to institution type, size, geographic location, and mission. Therefore, one can conclude that costs may: 1) remain constant over a given period of time, 2) decrease during this period of time, and 3) increase then decrease during the same period of time. Thus, cost behavior is dependent on 1) the higher education production function, 2) the changing economic conditions, 3) the market-supply function for the inputs of higher education, 4) the size of operation of the system, and 5) the institutional type and location.

Per-Student Unit Cost

The exploration of per-student unit costs in Mali’s IHEs revealed three important conclusions. First, there is a certain dispersion of both overall and institutional per-student unit costs over time. This dispersion, with the increasing differentiation of institutions by functions may become even more pronounced in the long run, because of the current open admission policy, and the introduction of the "compartmentalization" of students by academic level among undergraduate, advanced graduate, and professional students. In this respect, heavier weights could be assigned to advanced students. For example, doctoral students could be assigned three times as much weight as entering freshmen.

Second, the median per-student unit cost for high enrollment years was lower than that for low enrollment years. The variance of unit costs for high and low enrollment years remained quite significant. It could further be argued that the degree of dispersion of per-student unit costs could conceivably be due to institution size, number of faculty and staff, and distribution of students among various academic levels. Beginning in 1989 and continuing through 1996, median overall per-student unit costs levelled off at around
francs CFA 450,000, with 1991 being the only exception when unit cost was estimated to be francs CFA 508,000 when total enrollments were at 7750 students. Three basic factors provide an explanation for this phenomenon: 1) institution enrollments were lower in 1987 than in 1995; 2) since higher education expanded in 1995, appropriations were larger in 1995 than in 1987. Bowen (1980) referred to this phenomenon as the revenue cost theory. Since revenues are allocated to IHEs based on total enrollment and personnel size, these factors become the major determinants of per-student unit cost; 3) of importance are IHE location and the change in its activity level. IHEs incur specific types of costs depending on their location. For example, the National School for Agronomy (IPR), a rural IHE, requires higher expenses for travel, support staff such as farm workers, laboratory technicians, and extra services such as room and board.

These results provide enough empirical support to both Coombs and Hallak’s (1972) and Psacharopoulos’s (1986) conclusions that per-student unit costs decline as enrollments increase and increase as enrollments decline. Undoubtedly, there is sufficient evidence to prove rather than disprove the cost-size relationship. The relationship between cost and size seems to be negative in small institutions, moderately positive and strong in medium institutions, and strongly positive in large institutions. There are conceptual, methodological, economic, and sociopolitical issues relative to unit costs. Conceptually, students are considered both inputs and outputs, depending on the type of cost analysis involved. Further, from an economic perspective, if a student is considered an output, then input/output matching and methodological problems arise. Finally, from a sociopolitical perspective, society wants to maximize the returns on its investment in
higher education by producing more outcomes and while keeping inputs constant. That is referred to as social efficiency.

Efficiency

Public higher education is by nature a non-profit organization. Savings realized when efficiency measures are implemented are not deposited in a profit-loss account like in a private company, but are invested in the system for the acquisition of more instructional materials and equipment, or to give faculty and staff a pay raise. Furthermore, higher education incurs large aggregate costs and provides benefits to both the individual and society. Resources, especially financial resources, can be wasted in higher education. Most importantly, the degree of efficiency of any human endeavor is a measure of the ratio between costs on one hand, and the benefits on the other. The greater the outputs achieved with given inputs, or the fewer the inputs used to achieve given outputs, the greater the efficiency. Although, this study is not basically a cost-benefit analysis of higher education in Mali, it does provide a framework for examining the costs and benefits of the system in a new light. This is why an attempt was made not to assess efficiency in relation to costs only, but also assess it in relation to some outcomes. This approach, although limited to graduation and promotion, expands an understanding of the cost-benefit relationship in IHEs.

In 1995, whereas ENA and ENMP could educate a student for francs CFA 414,000, and 371,000 a year, respectively, IPR spent francs CFA 884,000 (almost three times as much) per student. Clearly, the question of which—ENA or IPR—is more efficient can only be answered when something is known about the outcomes of the two institutions. Conversely, efficiency cannot be assessed only in relation to outcomes. The
cost-benefit relationship is central to the efficiency debate. Bowen (1980) emphasized this point when he asserted that it should be recognized that internal efficiency is a relationship between two variables: cost and outcomes. He further posits that: "To cut costs would not be efficient if the outcomes sacrificed were more valuable than the opportunity cost of the resources saved; however, to add cost would not be efficient if the outcomes added were less valuable than the forgone benefits of employing the resources in another use" (p. 230).

To give full consideration to the internal efficiency issue, a number of efficiency indices such as graduation rates, grade promotion rates, and student/faculty ratios were identified and examined in an attempt to better assess the degree of internal efficiency of IHEs, and suggest solutions for improving their internal efficiency. Because of data limitations and the methodological problems involved in accurately measuring various outcomes of higher education, attention has been focused on IHEs grade promotion and graduation rates for 1987 and 1995. For example, the differential internal rate of efficiency—that represents the percentage of students enrolled in an IHE graduating from a particular final grade level was estimated to be 54.2 in 1987. The same year, overall per-student unit cost was estimated to be francs CFA 608,000. Was higher education efficient in 1987?

The absence of a rigorous cost-outcome comparison precludes a definitive answer to this question. From an economic standpoint, however, it was not efficient to graduate only 54 out of 100 students at a per-student unit cost of francs CFA 608,000 a year. Findings about the cohort survivorship rate suggest that of a total of 622 freshmen enrolled in 2-year institutions in 1984, 547 returned for their sophomore year—a
promotion rate of 82.3 percent. Of a total 2705 freshmen enrolled in 4-year institutions in 1984, 1407 returned for their senior year in 1987, a promotion rate of only 52 percent. Two-year institutions were educating about 82 percent of their students at francs CFA 700,000 a year, whereas 4-year institutions spent francs CFA 621,000 a year per-student. Two-year institutions were more efficient than 4-year institutions because they promoted more students at a slightly higher per-student unit cost. Nonetheless, total resource wastage was estimated to be francs CFA 5.6 million for 2-year institutions and 490.6 million for the rest of the IHEs combined, a total resource wastage of nearly half a billion francs CFA in 1985.

Finally, in 1995, ENA was graduating 73 percent of its students at a per-student unit cost of francs CFA 399,000 a year, and ENMP was graduating 83 percent of its students at a slightly lower per-student unit cost than ENA at francs CFA 371,000. ENA and ENMP were the most efficient institutions in 1995, with ENMP being somewhat more efficient than ENA. ENA total resource wastage was estimated to be francs CFA 280 million in 1995, whereas ENMP's was estimated to be only 94 million. Total resource wastage at these two schools was estimated to be francs CFA 374 million, with ENMP wasting less resource than ENA.

It can be concluded that the main causes of this wastage were beyond the authority of IHEs over which they did not have any control. The fact that Mali's IHEs are open admission institutions, considerably limits their ability to select their own clientele. In addition, students with inadequate academic preparation are sometimes admitted to institutions which limits their chances of success, and also extends the time it takes them to graduate. The more time it takes to graduate, the more significant the increase in
resource wastage. Finally, the elitist nature of higher education, a legacy of the French colonization, reinforces the notion that every student cannot graduate from college because of their limited intellectual ability—a rather rigorous and fallacious conception.

When the faculty/student ratio is used as an index of efficiency, there was an improvement in Mali’s IHEs efficiency level from 1987 to 1995. Faculty/student ratio increased from 9.05:1 in 1987 to 15.03:1 in 1995, a significant increase over time. The major explanation lies in the fact that enrollment growth exceeds faculty growth in IHEs. This ratio may improve as long as faculty growth rate does not exceed enrollment growth rate or remains stagnant. Numerous impediments have recently hampered IHEs’ efforts to provide quality education. The first impediment appears to be the limited effect of the faculty ranking policy on faculty recruitment and retention four years after its implementation. The policy does not appear to curtail the basic problem of faculty attrition. Experienced and highly qualified faculty left the profession in search for better opportunities. Therefore, student achievement has been negatively affected.

Cost Recovery

At some point in the future, Mali may need an overhaul of the financing of post-secondary education. Cost recovery has been identified as one way of financing higher education and could be implemented in three forms: 1) tuition and fees payment and a reduction in the monthly rate of student stipend, 2) implementation of a student loan program, and 3) implementation of a higher education package plan. Since price has played a very limited role in generating resources for Mali’s system of higher education, the implementation of a tuition policy may be a step in the right direction. The importance of pricing as a major cost recovery mechanism has been underscored by many
higher education cost analysts (Jimenez, 1986; Bowen, 1980; and Adams, et al. 1978).
The problem exists in education, as in other service industries, of being unable to
determine a true market value based on consumer preferences and demand. The
determination of the type of tuition—partial, full, or differential—for the type of students
(low socioeconomic status, high socioeconomic status) has also been central to the cost
recovery debate. Adams et al. (1978) made a case for this point when they posited that,
"faced with the absence of an external market mechanism, IHEs have disregarded
consideration of the value of their outputs and established prices on the basis of the cost
of production" (p. 56). For example, in IHEs in the United States, the tuition rate
established for most public institutions have reflected, to some degree, the cost of
instruction, although political and social considerations may dictate the actual rates.

Basically, the amount of cost recovered through tuition payment achieves three
major objectives for an institution: 1) it creates favorable conditions for an income-
expenditure equilibrium in the context of a financial autonomy for an IHE; 2) it generates
more resources for IHEs; and 3) it alleviates the financial burden of higher education
borne by the central government. Also, from an economic standpoint, it channels income
from students and their families, and as such, becomes an important element of the cost
redistribution policy in higher education. Theoretically, the percentage of overall per-
student unit cost to be recovered depends basically on two variables: 1) the overall per-
student unit cost for a given year, and 2) the level of tuition to be charged. For instance,
in 1995, the overall per-student unit cost in Mali was estimated to be francs CFA
488,000. Assuming that the tuition level was fixed at francs CFA 50,000 a year, the
percentage of unit cost that could have been recovered would be estimated to be about 10 percent.

Development and Refinement of the HESS-SA0/PALFAO

When considering the set of independent variables and the three indices of efficiency, the human and economic dimensions of Willingness to Pay, Economic Values and Returns, and Cost-Benefit Beliefs, appear to be the variables having the most utility for understanding Cost Recovery in IHEs. The findings suggest that the HESS subscale of the motivational variable of Willingness to Pay (WTP), rather than the sociodemographic variable of Ability to Pay (ATP), is the most important predictor of stakeholder groups’ attitudes toward cost recovery.

The items contained within the Willingness To Pay (WTP) dimension primarily focus on the sharing of higher education costs among the government and various beneficiaries of the system, mainly students and their parents.

The items contained in the Ability to Pay (ATP) dimensions dealt with stakeholders’ financial capability. The ATP was not found to be a strong predictor of stakeholders’ attitudes toward cost recovery. To measure the magnitude of the financial capability of stakeholders’ groups at the individual, group, or institutional level, the Ability to Pay Index (API) was developed. Three levels of income and wealth, family expenses, and family size were used to compute the API. Comparisons of APIs within and between groups revealed striking similarities. While median APIs were different across groups, modes tended to be similar. In fact, APIs were found to be moderately and very weak.
Two major factors account for APIs weakness: 1) the low level of net wealth, and 2) the extensiveness of family network. Since people have a tendency to understate income and overstate the number of dependents, this might have led to deflated APIs.

From an economic perspective, two major conclusions can be drawn: 1) the API belongs to the realm of positive economics in that economic data can be utilized to test its magnitude across socioeconomic groups; and 2) by doing so, the unit of analysis becomes the individual households that make economic choices, given their preferences, their incomes, and the prices of goods and services that they desire to purchase.

The items contained in the Economic Values and Returns to higher education were basically concerned with three major ways of estimating the monetary yields of a college education: 1) earnings differentials, 2) net present value of a college education, and 3) the private rates of return. In this study, stakeholders adhered to the Economic Values and Returns to higher education and viewed this dimension as important. There may be three major reasons for explaining adherence to this concept.

First, in the context of a developing country such as Mali, evidence suggests support to the differentials in earnings between college graduates and less educated people. Psacharopoulos (1980) revealed that income differences in developing countries by educational level, based on an index of 100 for primary education, was 239 for secondary education, and 639 for higher education in 1975. In addition, although the market value of a college degree has a tendency to currently decrease due to a high unemployment rate and "overeducation"—a situation where college graduates cannot find jobs commensurate with their training (Cohn & Geske, 1990)—among college graduates, higher education is still believed to be a major contributor to upward social mobility.
Second, findings relative to the net present value suggest that a college degree still remains a good investment for the individual. In the final analysis, a college degree still has a net present value—the balance after costs are subtracted from benefits, when both costs and benefits are adjusted for inflation over time—for the Malian college graduate. Third, because of the free provision of higher education, private internal rates of return are quite high in Mali.

The items contained in the Cost-Benefit Beliefs dimension were primarily concerned with stakeholders' beliefs about the costs and benefits of higher education. Some believe that the government should be solely responsible for the costs of the system, and the individual reaps the benefits, whereas others believe that the individuals should share some of costs with the government. Since the benefits are higher than the costs, the ratio between benefits and costs is greater than 1. Therefore, the individual is the great beneficiary.

Attitudes Toward Indices of Efficiency

Of interest were relationships between the human concepts of willingness and ability to pay, the economic concepts of economic values and returns to higher education, cost-benefit beliefs, and three indices of efficiency. Stakeholders' perspectives of one of the three indices of efficiency—cost recovery—were positively and strongly related to the key dimension of the human concept: willingness to pay. These findings suggest that willingness to pay is a strong predictor of stakeholder groups' attitudes toward cost recovery, an index of efficiency. Stakeholder groups' (especially administrator, faculty, and parents to a lesser degree) willingness to pay was supported in this study. Willingness to pay can be understood in terms of the administrator, faculty, or parent's
readiness to pay part of their siblings' college costs. Willingness to pay can further be understood in terms of stakeholders' values, beliefs, and interests. It can be argued that strongly held beliefs about the values of higher education may mediate linkages between their willingness to pay and cost recovery. Similarly, their values and interests in higher education, may in many respects, reinforce their willingness to pay. Therefore, the economic condition of Mali and the stakeholder's socioeconomic status did not negatively affect his or her willingness to pay. Thus, willingness to pay was found to have a statistically significant relationship with the efficiency index of cost recovery. The findings support the assertion that although the economic capacity of a given stakeholder may determine the amount of his or her financial contribution, it does account for only a small proportion of the variance in his or her attitudes toward cost recovery.

One major goal of this study was to examine relationships between multiple human and economic concepts and various indices of efficiency in IHEs. Overall, the findings suggest that human and economic dimensions, separately except for willingness to pay, do not account for significant variation in indices of efficiency. The findings further suggest that there are positive relationships between attitude toward internal efficiency, downsizing and monitoring, and ability to pay.

Although statistically significant differences between groups were found, one may argue that the substantive significance (the magnitude of the effect) of the findings was rather limited, if comparisons of means expressed as a percentage of the maximum possible score of 20 are made. The largest percentage was 13.05, the net differential between administrators' and students' means.
Qualitative Interviews of Top-Level Administrators

The seven interview variables (personal background, family background, attitudes toward efficiency indices, various attitude determinants, comparisons of higher education funding models, major components of a CRP, and willingness to pay) were condensed into three main underlying constructs: 1) attitudes, 2) attitude determinants, and 3) comparison of higher education funding models. Since the qualitative interview results were primarily seen as confirmation of the administrator survey results, probes were conducted on the same dependent variables: 1) attitudes toward internal efficiency and 2) attitudes toward cost recovery with the exception of downsizing and monitoring. In addition, new constructs such as willingness to pay, and attitudes toward higher education funding emerged as complements of the above set of variables.

First, the attitude variables identified provide support for differences and commonalities among top-level administrators. Top-level administrators were split into three groups or camps based on the direction of their attitudes: positive, neutral, and negative. Findings further suggest that the intensity of their attitudes appears to vary along a continuum from very strong, lukewarm, to very weak. Thurstone (1929) referred to attitude as the sum total of a man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specific topic. There is general agreement among attitude researchers that attitude connotes preference regarding outcomes involving the object or evaluation of the object. As people constantly assess situations, topics, and objects, they arrive at an evaluative belief about the topic or object that is ultimately viewed as acceptable or unacceptable, good or bad, valuable or not valuable. From this psychological perspective about attitude, stakeholders consider
each efficiency measure to be acceptable or unacceptable, based on their beliefs about this topic. This also constitutes the foundation of their predisposition to react to this topic. Therefore, positive, negative, or neutral attitudes toward internal efficiency, cost recovery, willingness to pay, and funding of higher education were held, depending on the evaluation made by each individual stakeholder. It appears that the boundaries among various camps were not tight. This loose delineation is further indicative of administrators fluctuating views regarding the study variables.

Second, individuals' attitudes are grounded in group affiliation. The simplest nucleus of the group is the family. Families make up the clan, and the clan the tribe in the traditional Malian society. So attitude is subject, in several ways, to social determinism, the theory that human actions, attitudes, and frame of reference are mainly caused by antecedent variables that happen to be the frame of reference of the social group to which the individual belongs. In modern society, the school and various institutions such as political parties to which the individual is affiliated also shape his/her attitudes. Other factors such as personal background, peer influence, economic norms, the changing social environment, and the cognitive stock of a stakeholder also act as determinants of attitude. There is general agreement that some of these determinants are more powerful for some individuals than others. The major reason is that the degree to which individuals were exposed to these factors within their frame of reference varies considerably from one person to another. For example, long exposure to collectivism, self reliance, and strong family values might affect with various degrees of intensity, a person's attitude. In the final analysis, there were marked differences and similarities among administrators regarding these determinants considered separately or in
combination. For some, family and personal background were very powerful determinants, whereas for others political orientation and Mali’s stage of economic development were compelling.

Third, both developing and developed countries around the world differ in the way they fund their systems of higher education. In most countries, public higher education funding is primarily a governmental function. Findings suggest that the diversity of funding models is reflected in the views of top-level administrators that have been shaped by historical, economic, social, and cultural factors, relative to the funding models implemented in the countries where they attended college. Findings further suggest that some administrators were strongly influenced by the funding model of the countries where they attended college, some were moderately influenced, and others were not influenced at all.

Most qualitative interview findings of this study, relative to the attitude variables, are consistent with the quantitative findings. They primarily underscore the importance of cost recovery and willingness to pay variables, and thus, are congruent with the quantitative findings about these two variables for stakeholder groups in Mali.

Implications of Findings

The results of this study when viewed within existing literature on educational costs and cost recovery, along with stakeholders’ attitudinal reactions toward a CRP suggest a number of important implications both for theory and practice that need to be considered in future studies of educational costs and cost recovery in developing countries. First, from a theoretical perspective, it is possible to examine the linkage between motivational constructs and macro- and microeconomic concepts within a
common conceptual framework to better understand the nature of this relationship. When attempting to relate the complex human, sociodemographic and economic variables and stakeholders' attitudes toward indices of efficiency, cost analysts, however, must be conceptually and operationally clear about definitions of variables. Second, it is further possible to develop a CRP that integrates various components that have bearings on educational resources in terms of macro and microallocation policies. Third, it is feasible to develop a content valid measure of the conceptual variables of the study. In its current form, the modest reliability of the subscales limit more adequate understanding of the relationships among the study variables. The development of different forms of the measure can be undertaken, in a way, that leads to common interpretations of the findings. Fourth, economic and motivational concepts may interact to lay the foundation of a reasonable theory that might provide more rational explanations about higher education costing.

From a practical perspective, the use of cost analysis as a tool for improving resource utilization in the Malian educational system has been extremely limited. Furthermore, the usefulness of cost analysis may be unquestionable if top-level administrators resort more consistently to cost analysis results to make better decisions about higher education financial management. From another practical standpoint and during the implementation phase of a CRP, it is important to know which stakeholder groups are favorable to cost recovery and which groups are opposed to it, since this valuable information may help decision makers undertake appropriate education campaigns toward the groups that exhibit greater resistance to the CRP.
There is a need to rethink higher education finance in Mali, and consider a funding formula that integrates various funding sources including the government, students and their parents, corporate Mali, and the governmental and nongovernmental organizations. Since higher education service is a public good, subsidization of higher education is desirable. From a cost recovery perspective, this study presents major implications for all developing countries where the free provision of higher education has been the norm over time, regardless of the country's conditions of economic development, sociopolitical orientation or sociocultural practices. The major obstacle is not cost recovery itself, but the amount of tuition and fee to charge, given the conditions of economic development of the country. Mali is no exception.

Therefore, cost recovery is feasible in Mali. Costs are a vital part of any policy change. In Mali, the shift of part of direct costs from the government to students and their families can encounter a lot of resistance in its implementation stage. Several factors, however, mitigate in favor of the feasibility of cost recovery in Mali. First, fee payment in private primary and secondary schools provides enough evidence that cost recovery can and does work in the Bamako Metropolitan area, and that most parents are willing to pay for primary and secondary education. Second, the determination of an optimal level of tuition, affordable to students and their families will maximize the chances for success of cost recovery in higher education. Third, willingness to pay does not appear to be an impediment to cost recovery. Since for most students the marginal benefits of education (increased lifetime earnings due to additional years of education, net present value of a college degree, high private rates of return) exceed marginal costs (payment of part of direct costs), cost recovery may not be totally rejected. Fourth, if
students and their families are confident that the funds generated in a cost recovery plan are utilized appropriately (e.g., upgrade computer centers, acquire more instructional materials, upgrade the library, and the like) they may be supportive of the program.

Fifth, various combinations of willingness and ability to pay interactions among higher education stakeholder groups may be favorable or unfavorable to cost recovery in Mali (e.g., high ability, high willingness; low ability, high willingness; low willingness, high ability; low willingness, low ability).

Since cost recovery is primarily dependent on the economic conditions of Mali, two types of feasibility need to be given careful considerations: 1) the economic feasibility, and 2) the political feasibility. As far as the stage of economic development, Mali belongs to the group of low income developing countries with per-capita income averaging U.S $300 in 1993 (World Development Report, 1995). The overall low level of householders' Ability to Pay Index (API) requires the formulation and implementation of accompanying measures during the implementation phase of the plan. The central government may ten put in place a student financial aid program for those students who qualify academically but are low socioeconomic background. This raises the issue of vertical equity that relates to expenditure differences justified by the differing education needs of students. Further, vertical equity questions relate to which kinds of students should be eligible for additional aid and the appropriate size for these supplements. The amount of tuition and fees should be congruent with the gradual growth in households' level of net wealth.

Finally, the political feasibility of cost recovery must be considered in adopting various policies. The specific sequence and timing of the cost recovery plan should take
into consideration the following steps: 1) develop a marketing strategy by targeting groups that show great resistance to the cost recovery proposal through appropriate education campaigns, e.g. students; 2) identify students eligible for financial aid based mainly on need and academic achievement; 3) phase in the policy gradually; 4) evaluate the policy and disseminate the evaluation results; and 5) develop accountability for the utilization of funds generated. In the final analysis, and for the above mentioned reasons, partial cost recovery is more desirable in Mali than full cost recovery.

Directions for Future Research

The results of this study suggest a variety of implications for further research. First, there is also a need to develop various types of data bases: faculty data base, administrator data base, and most importantly, recurrent cost data base, direct cost data base, and capital cost data base. This might result in eliminating the serious limitations and pitfalls of the central budgets and financial records of the Ministry of Higher Education, and improving decision making relative to educational expenditures over time.

Second, there appears to be a need for further breakdown of higher educational costs. For instance, personnel costs fail to present costs by specific objectives such as administrative, faculty, and staff. The further broad categories of costs are broken down into meaningful subcategories, the more versatile, useful, and accurate the cost analysis may be. Unless cost breakdowns are more specific, valuable information that could expand an understanding of costs by category, function, and/or objective are lost in the process. Similarly, a wealth of knowledge would be available if the analysis is taken a step further by revealing various types of institutional (e.g., college and major fields: humanities vs. science, medicine vs. business, law vs. engineering, and agriculture vs.
arts), departmental (e.g., various departments within a college), program, and academic level costs (e.g., lower division vs. upper division, undergraduate student vs. graduate student, professional vs. nonprofessional students).

Third, there appears to be a need to decentralize the budgeting process to the institutional rather than the central level, by giving IHEs more autonomy in the development of their budget, increasing their control and autonomy over their financial resources, and making them more accountable of resource management. In addition, resources may be allocated based on a formula funding.

Fourth, there appears a need for further study of unit costs. Although the focus of this study has been on per-student unit cost, there is a variety of unit cost measures that may be useful for certain purposes. They include, but are not limited, to the following: the unit cost per graduate, the capital cost per student place, the capital cost per occupied student place, the average faculty cost, the cost per classroom, the cost of one credit hour, and the cost per square or cubic foot. In addition, further research needs to be conducted to expand an understanding of various aspects of the cost-size relationship by comparing and contrasting institutions by type—2-year, 4-year, 5-year, and/or 6-year, and by size, and over time.

Fifth, since there is a gap in knowledge about higher education outcomes to date, there appears to be a need for further study of efficiency as it relates to outcomes. Therefore, appropriate outcomes such as graduation, promotion, and repetition rates, the acquisition of cognitive and noncognitive skills, need to be further studied for a better understanding of relationships among input and output.
Sixth, of interest may be studies about cost recovery to assess the impact of tuition payment on student enrollments. Several researchers (Hoenack and Collins 1990; Jimenez 1986; and Leslie and Brinkman 1988) have underscored the price elasticity of demand, that is, the tendency of enrollments to decline as the tuition price increases. Not to penalize academically talented low-income students, studies should further focus on the design and implementation of selective student financial aid programs to remove financial barriers that could prevent individuals from enrolling in college or bring about their premature departure from college.

Furthermore, there is a need for continued development and refinement of the HESS, particularly within the dimensions of the HESS subscales exhibiting low internal consistency reliability coefficients: Cost-Benefit Beliefs ($r = .38$), Ability to Pay ($r = .50$), and Attitudes Toward Cost Recovery ($r = .53$). It should be noted that the Cost-Benefit Beliefs dimension has the lowest internal consistency reliability. Therefore, continued efforts to increase the internal consistency reliability of the above subscales may focus on the formulation of the items as well as increasing the number of items on the subscales (currently five on two and four on one of them).

Since the dimension of Ability to Pay seems to be broad and includes economic as well as sociodemographic factors, further studies are needed to explore and understand all aspects of this dimension and much effort needs to be undertaken to improve the way this variable was measured. From an economic perspective, the API is the product of household net wealth by family size. Since net wealth is the value of all the assets each household owns minus any liabilities or debts owed, there should be a better way of accurately measuring household’s level of net wealth.
Seventh, there is also a need to explore the linkages among the indices of efficiency and the human and economic concepts relative to stakeholder groups in each institution of higher education considered separately, through advanced triangulation of quantitative and qualitative methodologies. There appears to be a need, however, for more qualitative follow-up to further elaborate the quantitative findings. Since there was a limited sample size for parent, student, faculty, and legislator, there is a need for further studies to explore attitudinal perspectives toward cost recovery within a larger sample of stakeholders. Additionally, these facts highlight the need for continued investigation of relationships among human and socioeconomic concepts, and attitudes toward various indices of internal and organizational efficiency. Further studies exploring differences in various stakeholders' attitudes toward the CRP may need different methodologies. Case studies of specific institutions and stakeholder groups seem warranted.

Summary

The overall purpose of this study can be partitioned into three basic components: 1) Identify and analyze the taxonomy of higher educational costs, scrutinize major factors that influence these costs, and examine their behavioral characteristics (changes over time) in developing countries, but with a specific emphasis on Mali; 2) design a cost recovery proposal for Mali in light of the main features of higher educational costs; and 3) test the reactions of major stakeholder groups such as parents, students, faculty, legislators, and higher education administrators toward the CRP. The independent variables in this study were four dimensions of human and economic concepts: 1) Willingness To Pay, 2) Ability To Pay, 3) Economic Values of and Returns to higher education, and 4) Cost-
Benefit Beliefs about higher education. Dependent variables in the study were stakeholders' attitudes toward three indices of efficiency: 1) Internal Efficiency, 2) Cost Recovery, and 3) Downsizing and Monitoring.

First, four major taxonomies of higher educational costs were identified: 1) Recurrent, 2) Direct, 3) Capital, and 4) Indirect. Recurrent and direct constitute the vast majority of higher educational costs in Mali because combined they account for more than 95 percent of the aggregate costs of the system. Second, four major factors affect their behavior over time: 1) Demand factors characterized by steady and significant rise in resource costs; 2) the amount of revenue available to higher education; 3) the cumulative effects of inflation; and 4) significant increase in faculty allowances and student stipends following government policy decisions. Third, the change in costs over time has been dramatic. Over the past decade, costs have tripled, in nominal terms, from 1985 through 1996. Although there has been a relative decline in overall per-student unit costs, institutional per-student unit costs have increased in the face of declining enrollments on one hand, and declined in the face of rising enrollments on the other hand.

The study used both quantitative and qualitative methods, through a variety of research methods to analyze the data. Major findings of the study included: First, direct costs are the most important costs of higher education and increased at a considerably fast pace. Second, Mali's IHEs are not operating at an efficient level. Per-student unit costs relative to graduation rates in specific institutions indicate that: 1) Per-student unit costs are too high relative to outcomes—mainly graduation rates, and 2) resource wastage is considerable as a result of various grade repetitions or low graduation rates in IHEs. Third, multivariate correlational analyses and multivariate analyses of variance were
conducted to examine the research questions. Findings suggest that Willingness to Pay accounted for a significant amount of variance in attitudes toward cost recovery. Findings also further suggest that there were significant differences among various stakeholder groups relative to their attitudes toward cost recovery. Fourth, the findings of the qualitative research section indicate that 1) administrators'—the only group of stakeholders interviewed—perspectives on cost recovery and other study variables are influenced by their personal philosophies, attributes, and antecedent variables such as the economic context of Mali; and 2) that no rank, gender, or position effects were found among top-level administrators' attitudes toward the CRP whether they belong to the apex (top rank) or middle rank.

Finally, the implication of findings section of the chapter discussed a variety of issues and concerns for a cost recovery proposal, instrument development and refinement, the cost of higher education from both a theoretical and practical perspective, and for conducting future meaningful studies about higher educational costs and attitudes toward cost recovery.
REFERENCES


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APPENDIX A

HIGHER EDUCATION SURVEY/STUDENT ATTITUDE OPINIONNAIRE
GENERAL INSTRUCTIONS

The purpose of this questionnaire you are going to answer is only educational. It is not a report on yourself, your family, wealth or the amount of incomes you make annually. The survey is confidential. Therefore, do not write your name on the questionnaire forms. You are requested, however, to answer all the questions freely, frankly, and honestly. I am working on a Dissertation about Educational costs and cost recovery in developing countries: the case of Mali. To complete this study, I would like you to answer some questions about the costs and funding structure of higher education in Mali. Please read and follow the directions at the beginning of each section. Most questions ask you to check one of several numbers that appear on a scale to the right of the item. Choose or circle the ONE number that best matches with your situation. For example, if you were asked how much you agree with the following statement:

I enjoy the weather in this area

and you strongly disagree, you would fill in the number < 1 > for "Strongly Disagree" like this:

SD  Disagree  Agree  SA

I enjoy the weather

SA stands for Strongly Agree
SD stands for Strongly Disagree
STUDENT QUESTIONNAIRE

PART I

BACKGROUND & DEMOGRAPHIC INFORMATION

DIRECTIONS: Please complete the following items by checking the appropriate space or by writing in any relevant information.

1. Gender: Female Male
2. Ethnicity: Bambara Fulani Sonrhai Tamasheq Sarakole Other
3. What is your religion Moslem Christian Non-believer Other
5. Type of institution in which you are currently enrolled: 2-year institution 4-year institution 5-year institution Over 6-year institution
6. Total number of years of schooling: 13 14 15 16 17 18 19 Over 20
7. Marital Status: Single Married Separated Divorced
8. Class: Freshman Sophomore Junior Senior Master’s Doctorate Other
11. Which of the following is your parents’ residence? 1. Region Capital 2. Cercle Capital 3. Arrondissement Capital
4. Sikasso  
5. Mopti  
6. Timbuktu  
7. Gao  
8. Kidal  
9. District of Bko

12. What is your major field of study:
   1. Agronomy  
   2. Veterinary Medicine  
   3. Engineering  
   4. Medicine  
   5. Dentistry/Pharmacy  
   6. Law  
   7. Administration  
   8. Economy  
   9. Postal Studies  
   10. Sciences  
   11. Arts and Social Sciences  
   12. Secretarial Studies  
   13. Accounting/Business  
   14. Marketing  
   15. Management  
   16. Other

13. What is the highest level of education attained by your father or guardian?
   1. No schooling  
   2. Primary education (Cycle I)  
   3. Primary education (Cycle II)  
   4. 2-year professional school  
   5. 4-year professional school  
   6. High School  
   7. College  
   8. Other

14. What is the highest level of education attained by your mother/guardian?
   1. No schooling  
   2. Primary education (Cycle I)  
   3. Primary education (Cycle II)  
   4. 2-year professional school  
   5. 4-year professional school  
   6. High School  
   7. College  
   8. Other

15. What is the approximate amount of wealth including annual disposable income bracket of your family (father/guardian and mother)?
   (All sources combined)
   1. 137,000 CFA francs or less
2. 138,000- 1.2 Million CFA francs
3. 1.3 Million CFA francs or above.

16. What is the occupation or the work of your father or male guardian?
   1. Peasant
   2. Pastoralist
   3. Civil Servant
   4. Military
   5. Craftsman
   6. Salesperson
   7. Manual worker
   8. Private sector worker
   9. Self-employed
   10. Other ______________

If your father or male guardian is a Civil Servant go to question 17 if not go to question 18.

17. What is his rank?
   1. Rank A
   2. Rank B
   3. Rank C
   4. Rank D
   5. Other __________

18. What is the occupation or the work of your mother or female guardian?
   1. Peasant
   2. Pastoralist
   3. Civil Servant
   4. Military
   5. Craftsman
   6. Salesperson
   7. Manual worker
   8. Private sector worker
   9. Self-employed
   10. Housekeeper
   11. Other ______________

If your mother or female guardian is a Civil Servant go to question 19, if not go to Part II of the survey.

19. What is her rank?
   1. Rank A
   2. Rank B
   3. Rank C
4. Rank D
5. Other

PART II:

STUDENT OPINIONNAIRE #1: WILLINGNESS AND ABILITY TO PAY

DIRECTIONS:
Use the scale provided below to respond to each of the opinionnaire items. Choose the scale point that best reflects the extent to which you personally agree or disagree with each statement. Circle one and only one number for each item.

SCALE:
1 = STRONGLY DISAGREE (SD)
2 = DISAGREE (D)
3 = AGREE (A)
4 = STRONGLY AGREE (SA)

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In the future, the Malian government should not continue to provide for the full costs of higher education for its citizens.</td>
<td>&lt; 1 &gt; &lt; 2 &gt; &lt; 3 &gt; &lt; 4 &gt;</td>
</tr>
<tr>
<td>2. Increasing the general level of education of Malian citizens is important for Mali’s future economic growth and development.</td>
<td>&lt; 1 &gt; &lt; 2 &gt; &lt; 3 &gt; &lt; 4 &gt;</td>
</tr>
<tr>
<td>3. The well-being of Malian society goes hand in hand with increased educational levels of its citizens.</td>
<td>&lt; 1 &gt; &lt; 2 &gt; &lt; 3 &gt; &lt; 4 &gt;</td>
</tr>
<tr>
<td>4. A key value of increasing the quality and level of education in Mali is developing a better citizenry.</td>
<td>&lt; 1 &gt; &lt; 2 &gt; &lt; 3 &gt; &lt; 4 &gt;</td>
</tr>
<tr>
<td>5. In general, the higher one’s education the greater one’s earnings.</td>
<td>&lt; 1 &gt; &lt; 2 &gt; &lt; 3 &gt; &lt; 4 &gt;</td>
</tr>
<tr>
<td>6. Those attending institutions of higher education in Mali should pay for part of the costs of their education.</td>
<td>&lt; 1 &gt; &lt; 2 &gt; &lt; 3 &gt; &lt; 4 &gt;</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
7. If the Malian government decreases the amount it will pay for the operation of Mali's institutions of higher education, I am willing to pay part of the costs.

8. The cost of higher education in Mali should be the primary responsibility of those seeking higher education degrees... not the Malian government.

9. If the Malian government did not pay for the costs of higher education, I would be willing to contribute to the cost of higher education for myself.

10. All Malian high school graduates should be eligible for free higher education paid for by the Malian government, regardless of need, merit, or parents' socio economic status.

11. If higher education was not free, I would be able to contribute to the cost of higher education for myself.

12. The Malian government, rather than individual citizens, should be responsible for the total costs of higher education in Mali.

13. Current levels of funding for higher education in Mali are inadequate enough to meet the needs of all Malian citizens.

14. The total costs of higher education should only be paid by the Malian government for Mali's most academically qualified and meritorious students.

15. The lower a student's academic qualification, the less financial support the student should receive for higher education from the Malian government.

16. Increasing the number of Malians with higher education degrees will be beneficial to all the sectors of the national economy.
17. The single most important contributor to Mali's socioeconomic development is higher education. 

18. Malian citizens who do not have children/relatives enrolled in institutions of higher education should not have to pay to support higher education. 

19. If those seeking higher education degrees paid part of the costs, more money would be available to improve the quality of higher education in Mali. 

20. If those seeking higher education degrees paid part of the costs, more money would be available to improve K-12 education in Mali. 

21. Malian citizens would support a new government policy that required those seeking higher education degrees to pay a reasonable share of the total costs. 

22. In the future, Malian citizens should accept greater responsibility for the costs of their own and their relatives' higher education. 

23. Free tuition and student grants and/or scholarships to institutions of higher education in Mali should be awarded based on student needs. 

24. A student's personal and/or family wealth should be a primary factor determining how much of the costs of higher education should be supported by the Malian government. 

25. The amount of free financial support provided for higher education for any student in Mali should be based upon a student's financial status (e.g., socioeconomic status).
26. If the Malian government developed a policy that required individual students to pay for part of the total annual costs of their higher education, what percentage of those costs do you think students should be required to pay? (Check only one).

a. 0 - 25% ______
b. 26 - 50% ______
c. 51 - 75% ______
d. 76 - 100% ______

27. The Malian government should spend a greater portion of the total national budget on higher education than it now spends. <1> <2> <3> <4>

28. Students in Mali should not expect the total costs of higher education to be paid for by the Malian government. <1> <2> <3> <4>

29. I would support a new policy in Mali that required students to pay proportional costs of their higher education based upon financial need. <1> <2> <3> <4>

30. Higher education should be free for any qualified Malian citizen, regardless of socioeconomic status and financial need. <1> <2> <3> <4>

31. I would support a policy that required all students seeking higher education degrees in Mali, regardless of socioeconomic status to pay part of the costs of their education. <1> <2> <3> <4>

32. If I or my relatives had to pay for the costs of their higher education, the length of time to obtain a degree would be considerably lengthened. <1> <2> <3> <4>

33. If I or my relatives had to pay for a large portion of the costs of their higher education degree, I (they) would probably decide not to pursue one. <1> <2> <3> <4>

34. If my family and my own expected contribution to the costs for my higher education degree exceeded annually the following amounts below, I would probably drop out (Check only one).
35. I approve of higher education students’ using part of their government stipend to support their family members. 

36. The Malian government needs to develop a stronger program to provide students with repayable student loans to support the costs of higher education.

37. If the Malian government provided a higher education student with a repayable student loan, a portion of (or perhaps all) of the loan should be forgivable if the student seeks a degree in a critical need area (e.g., education, medicine, engineering, public health, etc.).

38. Given the following four categories (wealth, income, family size, and household expenses). If 1 is low, 2 average, and 3 high relative to wealth and income; and 1 is small (2-5), 2 middle (6-8) and 3 large (9 or above) relative to the size of your household; and 1 is low, 2 average, and 3 high relative to the level of your expenses then, answer all items by filling in the bubble next to the appropriate response.

<table>
<thead>
<tr>
<th>Wealth</th>
<th>Incomes</th>
<th>Family Size</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

PART III

OPINIONNAIRE #3: RECEPTIVITY TOWARD COST RECOVERY MODEL

DIRECTIONS: Imagine that a new policy is about to be formulated and implemented in the IHEs of Mali in order to reduce costs and improve efficiency. Imagine that this policy known as Cost Recovery plan aims at reducing dropout rates in IHEs, increasing graduation rates, introducing the payment of tuition and fees in Mali’s IHEs, shifting students’ travel expenses from their hometowns to the locations of the IHEs to students and/or their families, restructuring and downsizing the IHEs, and so forth. Using the
scale below, please fill in one number on the scale which best represents the extent to which you would support or oppose the proposed policy.

Rating Scale:  
1 = I definitely would not support (DWNS) the proposed policy. I am very opposed to the idea.
2 = I probably would not support (PWNS) the proposed policy. My initial feeling is that it is not a good idea.
3 = I probably would support (PWS) the proposed policy. My initial feeling is that the suggestion is a good idea.
4 = I definitely would support (DWS) the suggestion. It is obviously a good idea and should be done.

A policy proposed to:

<table>
<thead>
<tr>
<th>Proposed Policy</th>
<th>DWNS</th>
<th>PWNS</th>
<th>PWS</th>
<th>DWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. require students to pay their own travel expenses from their hometowns to the location of IHE they attend.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>2. require students and their families to pay the majority of the costs for higher education degrees.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>3. improve (increase) student/teacher ratios in Mali’s Institutions of Higher Education.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>4. improve current graduation rates in Mali’s Institutions of Higher Education.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>5. reduce current dropout rates in Mali’s IHEs.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>6. reduce current repetition rates in Mali’s IHEs.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>7. gradually (over three to four years) reduce the amount of government support (monthly stipend) for students by fifty percent.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
</tr>
<tr>
<td>8. require students to pay the tuition costs of higher education.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
<td>&lt;4&gt;</td>
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9. require the Malian government to pay monthly stipend (basic living expenses costs). <1> <2> <3> <4>

10. reduce the number of higher education employees that provide institutional support services (e.g., secretarial, maintenance, etc.). <1> <2> <3> <4>

11. monitor/improve the internal (organizational) efficiency of Mali’s IHEs. <1> <2> <3> <4>

12. require periodic financial audits (revenues and expenditures) of Mali’s IHEs. <1> <2> <3> <4>

13. redesign colleges and consolidate academic programs. <1> <2> <3> <4>

14. reduce the number of higher education administrators if necessary. <1> <2> <3> <4>

15. develop a Cost of Living Index for higher education in Mali. <1> <2> <3> <4>

Thank you for taking the time to complete this packet. Any comments that you wish to make are welcome.
APPENDIX B

HIGHER EDUCATION SURVEY/_PARENT, FACULTY, ADMINISTRATOR, AND LEGISLATOR ATTITUDE OPINIONNAIRE
GENERAL INSTRUCTIONS

The purpose of this questionnaire you are going to answer is only educational. It is not a report on yourself, your family, or the amount of income you make annually. Do not write your name on the questionnaire forms. You are requested, however, to answer all the questions freely, frankly, and honestly. I am working on a dissertation about Educational costs and cost recovery in developing countries: the case of Mali. To complete this study, I would like you to answer some questions about the costs and funding structure of higher education in Mali. Please read and follow the directions at the beginning of each section. Most questions ask you to check one of several numbers that appear on a scale to the right of the item. Choose the ONE number that best matches with your situation. For example, if you were asked how much you agree with the following statement:

I enjoy the weather in this area

and you strongly disagree, you would fill in the number <1> for "STRONGLY DISAGREE" like this:

SD  D  A  SA

I enjoy the weather in this area......  <1>  <2>  <3>  <4>

1 = STRONGLY DISAGREE  (SD)
2 = DISAGREE  (D)
3 = AGREE  (A)
4 = STRONGLY AGREE  (SA)
PARENT QUESTIONNAIRE

PART I

BACKGROUND & DEMOGRAPHIC INFORMATION

Please complete the following items by checking the appropriate space of by writing in any relevant information.

1. Gender: Female  Male
2. Ethnicity: Bambara  Fulani  Sonrhai  Tamasheq  Sarakole  Other ____
3. What is your religion? Moslem  Christian  Nonbeliever  Other ________
4. Age:  35-40  41-45  46-50  51-55  56-60  Over 61
5. Marital Status: Single  Married  Separated  Divorced  Other
6. Family Size:  2-5  6-9  10-14  Over 15
7. Do you have dependent children living at home? No  Yes
   How many? <0> <0> <1> <1> <2> <3> <4> <5> <6> <7> <8> <9>
8. Do you have dependent children attending fee paying schools? No  Yes
   How many? <0> <0> <1> <1> <2> <3> <4> <5> <6> <7> <8> <9>
9. Highest level of education
   No schooling  Primary ed. (Cycle I)  Primary ed. (Cycle II)
   2-year prof. school  4-year prof. school
10. In which commune is your residence?
   1. Commune I
   2. Commune II
   3. Commune III
   4. Commune IV
   5. Commune V
   6. Commune VI

11. Which region of Mali are you originally from?
   1. Kayes
   2. Koulikoro
   3. Segou
   4. Sikasso
   5. Mopti
   6. Timbuktu
   7. Gao
   8. Kidal
   9. District of Bamako

12. What is your current job status?
    Employed
    Retired
    Other______________

13. If currently employed what is your occupation?
    1. Peasant
    2. Pastoralist
    3. Civil Servant
    4. Military
    5. Craftsman
    7. Salesperson
    8. Manual worker
    9. Private sector worker
    10. Self-employed
    11. Other______________

14. Current Civil Service/or Private Sector Rank
    1. Rank A
    2. Rank B
    3. Rank C
    4. Rank D
    5. Other______________
15. Title of current position? ________________________________

16. If retiree, what was your last job? _______________________

17. If Professor, what is your category?
   1. Full-time
   2. Part-time
   3. Contractual
   4. Other _______________________

18. What is your current rank?
   1. Professor
   2. Associate Professor
   3. Assistant Professor
   4. Assistant
   5. Other ______________________

19. If you are retiree, what was the title of your last position? _________________

20. What is the amount of wealth including annual disposable income of your family?
    (All sources combined).
    1. 137,000 CFA francs or less
    2. 138,000-1.2 Million CFA francs
    3. 1.3 Million CFA francs or above

PART II:

PARENT OPINIONNAIRE: WILLINGNESS AND ABILITY TO PAY

DIRECTIONS:
Use the scale provided below to respond to each of the opinionnaire items. Choose the scale point that best reflects the extent to which you personally agree or disagree with each statement. Circle one and only one number for each item.

SCALE:
1 = STRONGLY DISAGREE (SD)
2 = DISAGREE (D)
3 = AGREE (A)
4 = STRONGLY AGREE (SA)
1. In the future, the Malian government should not continue to provide for the full costs of higher education for its citizens.

2. Increasing the general level of education of Malian citizens is important for Mali’s future economic growth and development.

3. The well-being of Malian society goes hand in hand with increased educational levels of its citizens.

4. A key value of increasing the quality and level of education in Mali is developing a better citizenry.

5. In general, the higher one’s education the greater one’s earnings.

6. Those attending institutions of higher education in Mali should pay for part of the costs of their education.

7. If the Malian government decreased the amount it will pay for the operation of Mali’s institutions of higher education, I am willing to pay part of the costs.

8. The cost of higher education in Mali should be the primary responsibility of those seeking higher education degrees... not the Malian government.

9. If the Malian government did not pay for the costs of higher education, I would be willing to contribute to the cost of higher education for my relatives.

10. All Malian high school graduates should be eligible for free higher education paid for by the Malian government, regardless of need, merit, or parents’ socio economic status.
11. If higher education was not free, I would be able to contribute to the cost of higher education for my relatives.
12. The Malian government, rather than individual citizens, should be responsible for the total costs of higher education in Mali.
13. Current levels of funding for higher education in Mali are inadequate enough to meet the needs of all Malian citizens.
14. The total costs of higher education should only be paid by the Malian government for Mali’s most academically qualified and meritorious students.
15. The lower a student’s academic qualification, the less financial support the student should receive for higher education from the Malian government.
16. Increasing the number of Malians with higher education degrees will be beneficial to all the sectors of the national economy.
17. The single most important contributor to Mali’s socioeconomic development is higher education.
18. Malian citizens who do not have children/relatives enrolled in institutions of higher education should not have to pay to support higher education.
19. If those seeking higher education degrees paid part of the costs, more money would be available to improve the quality of higher education in Mali.
20. If those seeking higher education degrees paid part of the costs, more money would be available to improve K-12 education in Mali.
21. Malian citizens would support a new government policy that required those seeking higher education degrees to pay a reasonable share of the total costs. <1> <2> <3> <4>

22. In the future, Malian citizens should accept greater responsibility for the costs of their own and their relatives’ higher education. <1> <2> <3> <4>

23. Free tuition and student grants and/or scholarships to institutions of higher education in Mali should be awarded based on student needs. <1> <2> <3> <4>

24. A student’s personal and/or family wealth should be a primary factor determining how much of the costs of higher education should be supported by the Malian government. <1> <2> <3> <4>

25. The amount of free financial support provided for higher education for any student in Mali should be based upon a student’s financial i.e., socioeconomic status. <1> <2> <3> <4>

26. If the Malian government developed a policy that required individual students to pay for part of the total annual costs of their higher education, what percentage of those costs do you think students should be required to pay? (Check only one).

   a. 0 - 25% ________
   b. 26 - 50% ________
   c. 51 - 75% ________
   d. 76 - 100% ________

27. The Malian government should spend a greater portion of the total national budget on higher education than it now spends. <1> <2> <3> <4>

28. Students in Mali should not expect the total costs of higher education to be paid for by the Malian government. <1> <2> <3> <4>
29. I would support a new policy in Mali that required students to pay proportional costs of their higher education based upon financial need. <1> <2> <3> <4>

30. Higher education should be free for any qualified Malian citizen, regardless of socioeconomic status and financial need. <1> <2> <3> <4>

31. I would support a policy that required all students seeking higher education degrees in Mali, regardless of socioeconomic status to pay part of the costs of their education. <1> <2> <3> <4>

32. If I or my relatives had to pay for the costs of their higher education, the length of time to obtain a degree would be considerably lengthened. <1> <2> <3> <4>

33. If I or my relatives had to pay for a large portion of the costs of their higher education degree, I (they) would probably decide not to pursue one. <1> <2> <3> <4>

34. If my family and my own expected contribution to the costs for my higher education degree exceeded annually the following amounts below, I would probably drop out (Check only one).

   a. 6,000 - CFA francs 10,000
   b. 11,000 - CFA francs 15,000
   c. 16,000 - CFA francs 20,000
   d. 21,000 - CFA francs 25,000
   e. Over CFA francs 26,000

35. I approve of higher education students' using part of their government stipend to support their family members. <1> <2> <3> <4>

36. The Malian government needs to develop a stronger program to provide students with repayable student loans to support the costs of higher education. <1> <2> <3> <4>
37. If the Malian government provided a higher education student with a repayable student loan, a portion of (or perhaps all) of the loan should be forgivable if the student seeks a degree in a critical need area (e.g., education, medicine, engineering, public health, etc.).

38. Given the following four categories (wealth, income, family size, and expenses). If 1 is low, 2 middle, and 3 high relative to the degree of your wealth and income; and 1 is small (2-5), 2 middle (6-8), and 3 large (9 and above) relative to your family size; and 1 is low, 2 middle, and 3 high relative to the household expenses; then answer all items by filling in the bubble next to the appropriate response.

<table>
<thead>
<tr>
<th>Wealth</th>
<th>Income</th>
<th>Family size</th>
<th>Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

PART III

OPINIONNAIRE #3: RECEPTIVITY TOWARD COST RECOVERY MODEL

DIRECTIONS: Imagine that a new policy is about to be formulated and implemented in the IHEs of Mali in order to reduce costs and improve efficiency. Imagine that this policy known as Cost Recovery plan aims at reducing dropout rates in IHEs, increasing graduation rates, introducing the payment of tuition and fees in Mali’s IHEs, shifting students’ travel expenses from their hometowns to the locations of the IHEs to students and/or their families, restructuring and downsizing the IHEs, and so forth. Using the scale below, please fill in one number on the scale which best represents the extent to which you would support or oppose the proposed policy.

Rating Scale: 1 = I definitely would not support (DWNS) the proposed policy. I am very opposed to the idea.
2 = I probably would not support (PWNS) the proposed policy. My initial feeling is that it is not a good idea.
3 = I probably would support (PWS) the proposed policy. My initial feeling is that the suggestion is a good idea.
4 = I definitely would support (DWS) the suggestion. It is obviously a good idea and should be done.
A policy proposed to:

<table>
<thead>
<tr>
<th></th>
<th>DWNS</th>
<th>PWNS</th>
<th>PWS</th>
<th>DWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>require students to pay their own travel expenses from their hometowns to the location of IHE they attend.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>2.</td>
<td>require students and their families to pay the majority of the costs for higher education degrees.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>3.</td>
<td>improve (increase) student/teacher ratios in Mali’s Institutions of Higher Education.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>4.</td>
<td>improve current graduation rates in Mali’s Institutions of Higher Education.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>5.</td>
<td>reduce current dropout rates in Mali’s IHEs.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>6.</td>
<td>reduce current repetition rates in Mali’s IHEs.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>7.</td>
<td>gradually (over three to four years) reduce the amount of government support (monthly stipend) for students by fifty percent.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>8.</td>
<td>require students to pay the tuition costs of higher education.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>9.</td>
<td>require the Malian government to pay monthly stipend (basic living expenses costs).</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
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<td>10.</td>
<td>reduce the number of higher education employees that provide institutional support services (e.g., secretarial, maintenance, etc.).</td>
<td>&lt;1&gt;</td>
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<td>&lt;3&gt;</td>
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<tr>
<td>11.</td>
<td>monitor/improve the internal (organizational) efficiency of Mali’s IHEs.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
</tr>
<tr>
<td>12.</td>
<td>require periodic financial audits (revenues and expenditures) of Mali’s IHEs.</td>
<td>&lt;1&gt;</td>
<td>&lt;2&gt;</td>
<td>&lt;3&gt;</td>
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</tbody>
</table>
13. redesign colleges and consolidate academic programs.

14. reduce the number of higher education administrators if necessary.

15. Develop a Cost of Living Index for higher education in Mali.

Thank you for taking the time to complete this packet. Any comments that you wish to make are welcome.
APPENDIX C

INTERVIEW GUIDE WITH OUTLIER ADMINISTRATORS OF THE INSTITUTIONS OF HIGHER EDUCATION OF MALI
INTERVIEW PLAN

I) BACKGROUND AND DEMOGRAPHIC INFORMATION

1. Would you introduce yourself please?

2. How long have been in higher education?

3. How did you get into higher education administration?

4. What is your current position?

5. How long have been in this current position?

6. What position did you hold prior to the present appointment?

7. What is the highest university degree you obtained?

8. What is your subject area speciality?

9. Where did you go to college and graduate school?

10. How long did you stay in the country or countries where you attended college?

II). Funding structures of higher education?

11. What is your philosophy of the funding of education in general, and higher education in particular?

12. Why do you think that higher education should be funded in this way? (Answer to the previous question).

13. What categories or sub-categories of higher education costs, should the government, students and their families, tax payers, international governmental or non-governmental organizations be responsible for? In other terms, who should pay what?

14. Should students be charged tuition and fees in the institutions of higher education? Why or why not?

15. Can you tell me the most important factors that might have shaped your personal philosophy of the funding of higher education in Mali? Would you say that it is your family background, personal experience, level of educational attainment, the level of economic development of Mali, its former political orientation, student socioeconomic status, others or all the above?
16. Rank these factors as to their importance then justify and explain your choice?

17. Have you whatsoever been influenced by the funding structures of higher education of the country or countries where you went to college?

18. What is in your opinion, the ideal funding structure of higher education?

19. How would you implement a student loan program as an alternative funding source of higher education in Mali?

20. How satisfied are you with the quality of our system of higher education given the current financial resources?

21. Are you willing to pay part of the college costs of your siblings if the Malian government decided to significantly reduce its financial contribution to higher education?

22. You reported that if the government developed a policy that required individual students to pay for part of the total annual costs of college, that percentage should be between 25 and 50 percent? (Whatever the case may be.)

23. What are the organizational and internal efficiency measures that could be enforced in Mali's IHEs, especially your institution?

24. Did you know that the cost of grade repetition in Mali's IHEs was estimated to be about CFA francs 1 billion in 1994/1995 and 1995/1996? What would you do to reduce grade repetition in IHEs, and consequently their dramatic financial implications?

25. You reported that you definitely would not support a policy aiming at redesigning colleges and consolidating academic programs? Why?

26. Did you know that student travel costs the government an estimated CFA francs 300 million in 1995/1996. Why do you think that students should not be responsible for their own transportation costs from their hometowns to the location of the IHEs?

Head of Section: HC

27. You indicated that you definitely would not support a policy that requires the Malian government alone to be responsible for the full cost of higher education. Why?
28. Why do you think that all Malian high school graduates should not be eligible for free higher education paid by the Malian government regardless of need, merit, or parents' socioeconomic status?

29. Why do you think that students whose academic achievement is below average should not be eligible for a full tuition and scholarship awarded by the Malian government?

30. Why do you think that free provision of higher education, free tuition, and student grants/scholarships to institutions of higher education in Mali should be awarded based on student needs?

Department Chair: DC

27. You indicated that the Malian government alone instead of Malian citizens should be responsible for the full cost of higher education. Why?

28. You indicated that all Malian high school graduates should not be eligible for free higher education paid by the Malian government regardless of need, merit, or parents' socioeconomic status. Why?

29. Do you think that students whose academic achievement is below average should be awarded full scholarship and tuition? Why? Why not?

30. You indicated that students from high socioeconomic status should be responsible for part of their college cost. Why?

Assistant Director: ADI

27. You indicated that parents regardless of their socioeconomic status should be responsible for part of the college costs of their siblings. Why?

28. Why do you believe that free provision of higher education and the eligibility for scholarship should be based on students' financial needs?

29. Why do you think that students who are not in good academic standing should not qualify for the scholarship award?

30. You indicated that all Malian high school graduates should not be eligible for free higher education paid by the Malian government regardless of age, need, merit, or parents' socioeconomic status. Why?
Male Director: Madi

27. You indicated that parents regardless of their socioeconomic status should be responsible for a significant portion of the college costs of their siblings over time. Why?

28. You indicated that higher education should not be totally free for Malian students regardless of their parents’ socioeconomic status, financial need, or academic merit. Why?

29. Why do you think that students who are not in good academic standing should not be eligible for the scholarship award?

30. You indicated that all major higher education stakeholders’ groups should be involved in the funding of higher education. Can you elaborate on this?

Female Director: Fedi

27. Why do you think that students and their families should be responsible for a very limited portion of their college costs?

28. If the institutions of higher education of Mali could generate resources by greater efficiency, how do you think these resources could be utilized?

29. Why do you think that students who are not in good academic standing should not be eligible for the scholarship award?

30. You indicated that higher education should not be totally free for Malian students regardless of their parents’ socioeconomic status, financial need, or academic merit. Why?
Mohamed C. Diarra was born in Mali (West Africa) to a family of three brothers and three sisters. Mohamed is married to Assitan Sanogo.

Mohamed graduated from both Timbuktu Franco Arabic High School (1st Baccalaureate) and Askia Mohamed High School (2nd Baccalaureate) in Bamako, Mali. He holds a Bachelor of Arts degree in English Literature from the University of Nice, France, and a diploma in the teaching of English as a foreign language from the National Teachers’ Training College (ENSUP), Bamako, Mali. He also holds a Master of Education in Educational Administration and Supervision from Louisiana State University (LSU), Baton Rouge, Louisiana.

Mohamed has served as an English language teacher at various high schools (Lycees) across Mali. He has also served in various institutions of higher education (IHEs), including the School of Business Administration and Secretarial Studies (EHEP), the National School of Public Administration (ENA), and the National School of Engineering (ENI), in Bamako, Mali. While completing his doctoral studies at LSU, Mohamed worked as a graduate assistant in the Department of Administrative and Foundational Services and as a Resident Manager in the Department of Residential Life.

Mohamed Diarra can speak fluently four languages: his native tongue, Bambara or Mandingo—a lingua franca in West Africa, French, English and Arabic.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Mohamed Cherif Diarra

Major Field: Educational Administration and Supervision

Title of Dissertation: Educational Costs and Cost Recovery in Developing Countries: The Case of Mali

Approved:

[Signatures]

Major Professor and Chairman

[Signature]

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination: April 2, 1997

[Signature]