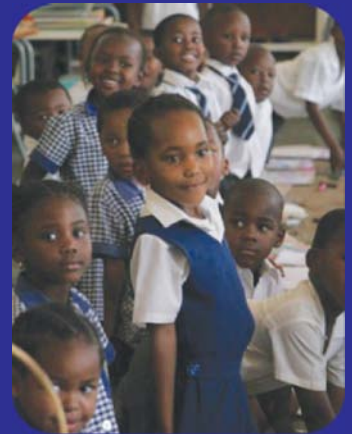# Social spending, poverty and gender equality in Kenya: a benefit incidence analysis

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Social Spending, Poverty And Gender Equality In Kenya: A Benefit Incidence Analysis

Revised Edition

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CONTENTS

Abstract

The Kenya government devotes a significant proportion of its resources to investments in human capital—in healthcare and education. In 2006/07, more than a third of the government budget was allocated to these social sectors. This paper uses a benefit incidence approach to estimate who gains from these services, both on average and at the margin, using data from the 2005/06 Kenya Integrated Household Budget Survey (KIHBS).

Households clearly benefit from government social spending in Kenya. Our estimates suggest that government spending on education overall amounts to about 10 percent of household income/consumption, and health spending to just over 2 percent. The benefits to the poorest groups (the poorest 20 percent) are even more significant. The in-kind transfers they gain by sending children to school and using government subsidized health facilities amount to over 40 percent of their income. For the richest quintile, it is only 6 percent of income. The education subsidy is better targeted to the poorest groups—17 percent of the subsidy benefits the poorest quintile, while just 14 percent of health spending reaches the poorest. At the other end of the income scale, the richest quintile of the population gets 27 percent of the health recurrent budget and 24 percent of education spending.

In general, our estimates of the incidence of marginal changes in spending on education and health follow a similar pattern to those observed on average. They confirm that additional spending on primary education and primary health-care are likely to benefit the poorest groups in Kenyan society. There is no evidence of a gender imbalance or bias in the marginal benefits from education spending, and females are predicted to benefit more than males from an expansion in primary health spending. And whilst the richest females are shown to benefit most from an expansion of hospital services, their counterparts in the poorer quintiles gain far, far less—even less than the males in the quintile.

Greater policy effort is called for if poorer households are to benefit significantly from any expansion in secondary education and hospital-based health care. Without such effort, increments in spending on these sub-sectors are likely to benefit predominantly the better-off. Such policies should be based on a better understanding of the household behaviour in seeking health care and in sending children to school.

I.   INTRODUCTION

The Kenya government devotes a significant proportion of its resources to investments in human capital—in health-care and education. In 2006/07, more than a third of the government budget was allocated to these two sectors. The objective of such spending is to subsidize the delivery of education and health-care services which will benefit in a profound way the population at large—improving health status, preventing avoidable death, reducing morbidity, raising literacy and numeracy, and expanding opportunities for economic and social wellbeing.

The reasons why governments are called upon to subsidize such services rather than leaving it to the market are complex. The case rests on both efficiency and equity grounds. Governments are often required to subsidize services that the market will not provide, or provides insufficiently. Pure public goods, where the marginal cost of additional consumption is zero, usually call for full state financing. Other private services may be subject to significant external benefits or costs, and thus merit some form of government intervention. For example the treatment of a communicable disease (such as tuberculosis) would not only benefit the individual concerned but also those who would otherwise contract the disease. Typically, the market would under-provide such treatment, and a government subsidy would be justified on efficiency grounds[1]. Subsidies might also be justified because of failures in related markets, such as education subsidies arising from credit market failure, and health subsidies where there is insurance market failure. Left to themselves, markets would under-provide such services, resulting in sub-optimal resource allocations. Governments therefore subsidize some services for efficiency reasons.

But equity is another fundamental rationale for government subsidies. The fact that poor people are disadvantaged in gaining access to important services which would help them escape from poverty suggests that the state should seek to target the provision of these services to such groups. The equity motive is particularly important for social spending, as education and health are seen as central in the escape from poverty. Typically poor people are trapped in poverty in part because of their limited human capital. Poor education prevents them from accessing better-paid employment, and ill health can seriously impair productivity and earning power—especially in a rural, farming setting. Both were highlighted by the communities themselves in the Kenya's Fourth Participatory Poverty Assessment (see Ministry of Planning and National Development, 2008).

Even though governments set clear policy objectives of equity and poverty reduction, it is quite another matter to translate these into public spending actions. Kiringai (2006: 47) concludes, that for the Kenyan government, 'at the planning stage, inequality is a priority but there is no link between the plans and the budgets'. She also highlights the institutional features of the budget process which constrain the gender sensitivity of government spending—even in the context of social spending (Kiringai, 2004). So from both the poverty and gender perspectives institutional features of the budget process make it difficult for the government to achieve its stated objectives through public expenditure policy. It is therefore important to assess empirically whether social spending in Kenya does in fact benefit poorer sections of Kenyan society, including poorer females. A useful technique for such an assessment is ***benefit incidence*** analysis (Demery, 2003). This has been previously applied to the social sectors in Kenya (Dayton and Demery, 1994, Demery and Verghis, 1994, and Castro-Leal et al, 1999). But the data on which these assessments were made were limited[2] , and in any event, the

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[1] This is the rationale for Kenya's health fee exemptions, which apply to some communicable diseases.

[2] For example, the benefit incidence of health spending estimated by Dayton and Demery (1994) was for rural areas only, and based on a several key assumptions in manipulating the data.

findings are somewhat dated. The 2005/06 Kenya Integrated Household Budget Survey[3] (KIHBS) provides an opportunity to revisit this issue, and to inform public policy on the extent to which government social spending benefits poorer Kenyans.

II.   WHAT IS BENEFIT INCIDENCE?

II.1   Average benefit incidence

Benefit incidence tells us who is benefiting from public services, and describes the welfare impact of government spending on different groups of people. It does this by combining information on the **unit subsidy** of service provision with information on the **use** of these services—bringing together public expenditure accounts and survey data. In effect, the analysis imputes to those households using the service that portion of the cost of providing that service that is met by the government. This imputation is the amount households would have to pay if they had to meet the full cost of providing the service.[4] Because these are seen as current transfers, only the recurrent budget of the government is relevant for this purpose.

Taking the example of government spending on education, this can be formally written as:

$$X_j \equiv \sum_{i=1}^{3} E_{ij} \frac{S_i}{E_i} \equiv \sum_{i=1}^{3} \frac{E_{ij}}{E_i} S_i \tag{1}$$

where **Xj** is the amount of the education subsidy that benefits group **j, S** and **E** refer respectively to government education spending and the number of public school enrolments, and the subscript **i** denotes the level of education (three levels are specified in (1)—primary, secondary and tertiary). The benefit incidence of total education spending imputed to group **j** is given by the number of primary enrolments from the group **(E$_{pj}$)** times the unit cost of a primary school place, plus the number of secondary enrolments times the secondary unit cost, plus the number of tertiary enrolments times the unit cost of tertiary education. Note that **S$_i$/E$_i$** is the mean unit subsidy of an enrolment at education level **i**.

There are several ways in which households and individuals are grouped for the purposes the benefit incidence estimates. The most common grouping is by income (or total household consumption). Frequently individuals are ranked by the consumption per adult equivalent of the household to which they belong. Given this ranking, individuals are divided into five groups or quintiles of equal size. The poorest quintile (the poorest 20 percent of the population) comprises those belonging to households with the lowest consumption per adult (quintile 1), and the richest quintile (quintile 5) live in households with the highest consumption per adult (quintiles 2, 3

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[3] The KIHBS was a large scale household survey conducted by the Kenya National Bureau of Statistics between May 2005 to May 2006. Data were collected across a range of issues (covering household characteristics, economic activities, consumption and other measures of wellbeing) on a sample of over 13,000 households. The survey obtained information on the use by household members of health and education services provided by the government, making it particularly useful for benefit incidence analysis. For further details see KNBS (2008a and 2008b)

[4] As households incur some costs when educating their children, the imputation is that portion of the full cost that the government meets—that being the unit subsidy. In what follows we use the terms unit cost and unit subsidy interchangeably, though this distinction needs to be kept in mind.

and 4 representing in ascending order the intermediate ranges of the consumption ranking). In much of what follows, we take this as the basic empirical construct, grouping the Kenya population into these consumption quintiles. The analysis can also group individuals by gender, which can provide insights into why government services are used differently by males and females.

The share of total education spending imputed to group j (x_j) is:

$$x_j \equiv \sum_{i=1}^{3} \frac{E_{ij}}{E_i} \left(\frac{S_i}{S} \right) \equiv \sum_{i=1}^{3} e_{ij} s_i$$

(2)

It can be seen that this depends on two major determinants:

- The e_{ij}'s which are the shares of the group in total service use (enrolments in this case). These reflect household behaviour.

- The s_i's or the shares of public spending across the different types of service, reflecting government behaviour.

Understanding how the benefits of public spending are distributed, and doing something about it, requires, therefore, an understanding of how both governments and households behave—including how they are constrained in making choices. But data limitations often circumscribe how far benefit incidence analysis can take us in understanding these choices. For example, to analyze the gender dimensions of health spending would require distinguishing between those services used mostly by females (such as perinatal health care) from those services used by both sexes. Typically it is difficult to obtain such information—and in the Kenyan case data are available only at the health facility level, not for the type of treatment provided. In the analysis that follows, government behaviour is captured mainly in terms of budget allocations across broad sub-sectors. So for example, we show that one fifth of health spending is devoted to referral hospitals, which are used very little by poor Kenyans, and hardly used at all by poorer females.

Equation (2) defines only one unit subsidy for each level of service. In some applications regional variations in subsidies are also taken into account. (2) would then become:

$$x_j \equiv \sum_{k=1}^{n} \sum_{i=1}^{3} \frac{E_{ijk}}{E_{ik}} \left(\frac{S_{ik}}{S} \right) \equiv \sum_{k=1}^{n} \sum_{i=1}^{3} e_{ijk} s_{ik}$$

(2a)

where the k subscript denote the region specified in the unit cost estimate, there being n regions.

II.2   Marginal benefit incidence

It is important to recognise that the above approach is based on simple accounting—all the above equations are identities. As such, the method simply describes the situation as it is—how spending by the government is distributed across the groups on average. There is no guarantee that changes in spending will be distributed in the same way. Yet often the important policy question concerns who would benefit from an expansion (or contraction) in the services subsidized in a particular sector. There are two broad approaches which can provide answers to this more difficult question. The first is to use historical data tracing how changes in service use and government spending are distributed across the quintiles. A second approach is to use cross-sectional analysis of the survey data, assuming that the variations we observe across households and regions will apply to over time changes in public spending. These estimate the marginal benefit incidence of government spending (Lanjouw and Ravallion, 1999, and Younger, 2003). In what follows we focus on the second of these.

Average and marginal odds of participation

In order to relate estimates of the marginal benefit incidence to what has gone before, and following Lanjouw and Ravallion (1999), we define the average participation rate as the proportion of the population of a particular group (here quintile or male/female quintile) that participates in a government sponsored program. For example, for education services we can define a quintile's average participation rate as the proportion of its population currently enrolled in a publicly funded school.[5] The average odds of participation are defined as the ratio of the quintile enrolment rate to the overall average enrolment rate (across all quintiles). The marginal odds of participation are defined as the change in the quintile enrolment rate divided by the change in the overall enrolment rate.

The average odds of participation closely relate to the benefit incidence shares defined above (equation 2). Lanjouw and Ravallion (1999) state that multiplying the average odds of participation by one fifth (the quintile share of the population) gives the average benefit incidence share. This only applies when the participation rate is expressed in per capita terms (the number of people participating in a program divided by the population). In their case participation in primary schooling was normalized on the school-aged population, so to obtain benefit incidence shares from the average odds of enrolment, the former must be multiplied by the quintile's share of the school-aged population (and not by a fifth as they assumed). When the average and marginal odds are obtained from participation measures normalized on the total population, quintile shares are obtained by dividing the average (and marginal) odds by five. Our preference is to define all participation behaviour in per capita terms—normalizing school enrolments on the total (rather than school-age) populations. And similarly for health, normalizing health consultations on the quintile population.

As with average benefit incidence, the analysis of marginal incidence is restricted to public facilities—that is schools and health facilities financed by the government. This is because our interest is in estimating how much each quintile gains from an increase in government spending in the respective sector. We estimate

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[5]Lanjouw and Ravallion (1999) normalize school enrolments in India on the school-aged population (using the net primary enrolment rate as the measure of the average participation rate). Younger (2003) normalises enrolments (in his case secondary enrolments in Ecuador) on the total population. Because the school-aged population varies significantly across the quintiles, our preference is to normalize on the total population (defined to be equal in all quintiles).

benefit incidence at the margin by utilizing cross-sectional variations in both average and quintile-specific participation rates. The implicit assumptions of this approach are that firstly variations in average participation rates mirror differences in public spending in the respective (sub-) sectors, and that secondly cross-sectional variations can be used as a basis for predicting changes over time. Regression analysis can then shed light on the quintile-specific responses to an increase in public funding to the (sub) sectors. Following Younger (2003) this can be done using either grouped or individual-level data.

Grouped data

Using grouped data we estimate the following regression equation:

$$p_{d,r,j} = \alpha_j + \beta_j p_r + \mu_{d,r,j} \qquad \text{for } j = 1,...,J \qquad (3)$$

where **d** denotes a district, **j** a group (there being **J** groups) and **r** a province. The left-hand side variable is the average participation rate for a given district and group. The right-hand side variable is the average participation rate at the provincial level.[6] Lanjouw and Ravallion (1999) normalize school enrolments in India on the school-aged population (using the net primary enrolment rate as the measure of the average participation rate). Younger (2003) normalises enrolments (in his case secondary enrolments in Ecuador) on the total population. Because the school-aged population varies significantly across the quintiles, our preference is to normalize on the total population (defined to be equal in all quintiles). The regression is estimated separately for each group **j**. Using OLS to estimate the above equation would result in an upward bias of the βj coefficients because the district-quintile specific participation rates are also captured under the province-level participation rates. Following Ravallion and Lanjouw (1999), we use a TSLS estimation, in which the 'left out mean' (excluding the respective district and quintile) serves as an instrument for the province-level participation rate.

An alternative approach to running separate regressions by quintile is to run one regression with group-fixed effects **(Q_j)** and group-specific interaction effects **(p_rQ_j)**:

$$p_{d,r,j} = \alpha + \beta p_r + \sum_{q=2}^{J} (\alpha_j Q_j + \beta_j p_r Q_j) + \mu_{d,r,j} \qquad (4)$$

Finally, in order to ensure that the group-specific responses account for the total changes in participation, we fit a constrained linear regression model, with the following linear constraints:

$$\alpha + \frac{N_j}{N} \sum_{2}^{J} \alpha_j = 0 \qquad \text{and} \qquad (5)$$

$$\beta + \frac{N_j}{N} \sum_{2}^{J} \beta_j = 1 \qquad (6)$$

where **N_j** is the population in group **j** and **N** is the total population.

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[6] To include Nairobi district (which corresponds to Nairobi province – thus not being embodied into a larger geographical unit) into the analysis we create four artificial districts for Nairobi by grouping together between 15 and 20 primary sampling units.

Individual data

Using grouped data comes at the expense of small sample sizes and hence reduced precision in the regression estimates. This can be avoided by using individual level data and estimating the following regression model:

$$p_{h,d,j} = \alpha_j + \beta_j p_d + \mu_{h,d,j} \qquad \text{for } j = 1,...,J \tag{7}$$

where the left-hand side variable indicates individual participation in the program. For education, this is an indicator variable which equals to 1 if the individual is currently enrolled in a public primary or secondary school, otherwise 0. For health, the variable is simply the number of visits to the respective publicly funded health facility. The right-hand side variable is the average participation rate at the district level. Again, we estimate this as one regression with group-specific fixed and interaction effects and constrain the marginal effects to account for the total change:

$$p_{h,d,j} = \alpha + \beta p_d + \sum_{q=2}^{J} (\alpha_j Q_j + \beta_j p_d Q_j) + \mu_{h,d,j} \tag{8}$$

$$\alpha + \frac{N_j}{N} \sum_{2}^{J} \alpha_j = 0 \qquad \text{and} \tag{9}$$

$$\beta + \frac{N_j}{N} \sum_{2}^{J} \beta_j = 1 \tag{10}$$

Both grouped and individual data are drawn from the 2005/06 Kenya Integrated Household Budget Survey. In what follows, the sections begin with a description of the situation as it is—providing estimates of the average benefit incidence of social spending in Kenya, including incidence by gender. Estimates of the marginal benefit incidence are then reported. We begin with the education sector, followed by health.

III.   THE BENEFIT INCIDENCE OF PUBLIC SPENDING ON EDUCATION

Education outcomes in any country are the result of two main influences: household behaviour in deciding to enrol their children in school; and government behaviour in subsidizing education at different levels. Both have changed over the recent past in Kenya, influencing how education spending is distributed across the population.

III.1   Household decisions to enrol children.

Faced with the advantages of educating their children, and the costs involved (both direct costs, opportunity costs in terms of foregone earnings, and loss of help in home care), it is the households who make decisions about sending their children to school. In this paper and the benefit incidence approach more generally, these decisions are taken as given. Yet many policies would benefit from a better understanding of the factors underlying these decisions. In this section we examine the outcome of those decisions in the past. [7]

Enrolling in primary school

We observe the following major features of primary school enrolment behaviour in Kenya:

There has been a significant historical increase in schooling: Since independence in 1963, the number of students enrolled at various levels of education has increased substantially. Enrolment at the Early Childhood Development and Education level, has grown 85 percent, from 483,148 children in 1982 to 894,295 children in

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[7] In addition to the KIHBS we use the data from repeated rounds of the Kenya Demographic and Health Survey (KDHS), as well as information from the Ministry of Education.

2003 (47 percent girls and 53 percent boys), which corresponds to a net enrolment rate of about 30 percent. Primary enrolments grew from 0.89 million pupils in 1963 to 7.6 million in 2006 pupils of which, 3.7 million were girls and 3.9 million were boys.[8] The gender gap in primary schooling had almost closed by 2005.

Most provinces have seen increases in primary enrolments since the early 1990s: The gains have been geographically widespread.(Table III.1)

Table III.1 Primary school gross enrolment rates, 1993 – 2005/06, by residence, province and wealth quintile (percent of primary school aged children)

	1993			1998			2003			2005/06		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Residence												
Urban	93	95	91	102	105	100	104	106	102	114	115	112
Rural	103	107	99	113	115	112	112	115	109	120	122	119
Province												
Nairobi	82	82	81	100	102	98	102	105	99	110	105	115
Central	109	108	110	117	117	117	123	123	123	122	120	123
Coast	82	91	74	86	92	80	95	100	88	114	121	108
Eastern	103	105	100	118	117	119	123	127	120	127	124	129
Nyanza	108	116	102	123	130	116	118	124	112	127	134	121
Rift Valley	100	105	95	106	107	106	101	102	100	116	117	114
Western	106	113	101	111	108	113	125	125	125	127	127	127
North Eastern	na	na	na	na	na	na	55	70	36	73	89	55
Wealth quintile												
Lowest	86	94	79	100	103	97	91	97	85	115	117	114
Second	101	105	97	113	113	113	115	117	114	128	131	124
Middle	108	112	104	119	120	118	120	124	116	121	122	119
Fourth	111	115	107	119	120	117	125	127	122	120	119	121
Highest	106	107	105	110	113	106	106	108	104	110	112	108
All Kenya	102	106	98	112	113	110	111	114	108	119	121	118

Notes: DHS wealth quintiles based on asset index; KIHBS wealth quintiles based on consumption. The KIHBS and the DHS ask about primary school attendance rather than enrolment. However, we do not distinguish between enrolment and attendance rates as part of this study. Data refer to attendance at both public and private schools.
Source: Authors' computations from DHS 1993, DHS 1998, DHS 2003 and KIHBS 2005/06.

Enrolment trends have been uneven over time: There were gains in the 1990s, but only marginal changes in the early 2000s (urban enrolment rates improved slightly, while rural rates marginally declined). Since 2003, with the implementation of the policy of Free Primary Education, households have responded by enrolling more children in primary schools. It is during this latter period that gender gaps narrowed considerably.

The increase in primary enrolments since 2003 has come mainly from poorer groups: The gross enrolment rate among the poorest quintile increased sharply in the early 2000s—from just 91 percent in 2003 to 115 percent in 2005/06 (Table III.1).

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[8] These data are from the Ministry of Education. The 2005/06 KIHBS estimates primary school enrolments to be 8.1 million in that year (see Table III.5)

The surge in primary enrolments among the poorest has involved both boys and girls: The gross primary enrolment rate among the poorest quintile increased by 7 percentage points for boys and 10 percentage points for girls (Table III.1).

Kenya is similar to other countries: Overall (net) primary enrolments in Kenya compare favourably with other countries, including enrolments among the poorest groups (Table III.2).

Table III.2 Net primary enrolment rates by wealth quintile, selected countries

	Kenya (2005/06)	Tanzania (2004)	Mozambique (2003)	Uganda (2006)	Bangladesh (2004)	Colombia (2005)
Poorest quintile	71	58	65	72	78	68
2nd Quintile	80	66	68	80	88	76
3rd Quintile	82	73	69	82	89	81
4th Quintile	86	82	72	86	92	83
Richest quintile	87	88	79	89	92	85
All quintiles	81	73	71	82	87	78

Source: For Kenya, KIHBS 2005/06. Other countries, DHS reports

Enrolling in secondary school

From survey evidence, households have recently enrolled significantly more children in secondary school. The gross secondary enrolment rate increased sharply in the early 2000s, with all provinces experiencing substantial increases (Table III.3). Overall, the gender gap, though not large, has widened marginally over the period. Clearly more needs to be done to encourage girls to enrol in secondary schools, especially in the light of their increased enrolment at the primary level. The surge in secondary enrolments appears to have occurred across the full income spectrum, but the better-off groups (quintiles 3, 4 and 5) experienced the greatest increases (Table III.3). The gross enrolment rates for the upper three quintiles roughly doubled between 2003 and 2005. Nonetheless it is encouraging to find increased secondary enrolments even among the poorer households.

III.2 Government decisions in the education sector

Education outcomes result also from government decisions—in allocating its spending in the sector, and in implementing key education policies. Given the centrality of education and human capital deepening for economic development, the provision of education is considered fundamental to the Government of Kenya's overall development strategy. It is embodied in the Vision 2030, the 2005 Sessional Paper I, and related strategic documents for action. Education in Kenya is organized around 8 years of primary schooling, 4 years of secondary/technical education, and 4 years of tertiary education. Since January 2003, the Government has implemented a policy of Free Primary Education, with an associated budget shift, and is currently implementing a similar initiative for secondary education.

Table III.3 Secondary school gross enrolment rates, 1993 - 2005/06, by residence, province and wealth quintile (percent of secondary school aged children)

	1993			1998			2003			2005/06		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
Residence												
Urban	45	58	36	43	53	35	36	43	30	55	59	51
Rural	16	17	14	19	21	18	20	21	20	38	40	36
Province												
Nairobi	47	59	38	57	70	47	44	52	37	79	85	71
Central	21	25	17	22	24	20	31	32	30	53	56	51
Coast	17	19	14	22	22	22	15	18	12	23	26	21
Eastern	12	12	12	15	15	14	14	16	13	35	36	33
Nyanza	18	21	15	24	26	21	29	31	28	47	47	47
Rift Valley	17	17	16	21	26	15	17	19	15	41	43	38
Western	25	27	23	21	20	22	29	28	29	36	41	31
North Eastern	na	na	na	na	na	na	5	7	2	15	20	9
Wealth quintile												
Lowest	8	7	8	9	10	8	9	10	8	15	16	14
Second	12	14	10	18	21	14	18	19	17	28	30	25
Middle	19	23	16	21	21	21	22	24	19	44	49	39
Fourth	17	20	14	24	26	21	29	28	31	57	59	56
Highest	38	44	34	43	53	36	41	49	34	76	80	72
All Kenya	19	21	17	23	25	20	23	24	21	41	43	38

Notes: DHS wealth quintiles based on asset index; KIHBS wealth quintiles based on consumption. Data refer to attendance at both public and private schools.
Source: Authors' computations from DHS 1993, DHS 1998, DHS 2003 and KIHBS 2005/06.

Government spending on education is summarized in Table III 4. The following are the key points:

- *Nominal government spending on education has increased during the first half of 2000s:* It has almost doubled between 2000/01 and 2005/06
- *But as a percentage of the overall government budget it has declined more recently.* Between 2002/03 and 2005/06, the share of spending on education has fallen from 34 percent to 30 percent.
- *Budget allocations between sub-sectors have remained fairly stable over recent past:* The share of primary spending has increased marginally, while that of secondary has declined. Tertiary remained unchanged (Table III.4).
- *Government is now emphasizing free secondary schooling:* Since 2008 the government has embarked on a policy of free secondary education, which should further build on the gains observed in secondary enrolments especially among poorer Kenyans. It could also imply future shifts in budget priorities.

These features of government and household behaviour combine to influence the way that government spending on education has been distributed across the Kenyan population. The following sections analyze the incidence of public education spending—using both public accounts data on spending and the KIHBS on the use of education services. First we assess the suitability (and accuracy) of the KIHBS data for this type of analysis.

Table III.4 Allocation of government recurrent spending on education, 2000/01—2005/06

	2000/01	2001/02	2002/03	2004/05	2005/06
Primary	54.0	51.4	49.4	55.5	na
Secondary	23.8	28.0	25.3	21.4	
University	12.3	12.1	11.3	12.3	
General admin and planning	7.0	5.4	11.5	8.0	
Technical	1.6	1.7	1.4	1.8	
Other miscellaneous items	1.3	1.4	1.0	0.9	
Total	100	100	100	100	
Total education budget (KShs m)	48,636	53,587	63,377	80,934	92,601
Education budget as percent of total government spending	28.6	31.1	33.8	30.6	29.7
Education budget as percent of GDP				5.9	

Source: Ministry of Finance: Quarterly Budget and Economic Reviews, various issues

III.3 Estimates of school enrolment

Tables III.5 and III.6 compare the information on enrolments from the KIHBS with that of the Ministry of Education (MoE). The large sample means that KIHBS obtained robust estimates of school enrolments in public schools. There is an acceptable correspondence between the survey and the MoE estimates of both primary and secondary enrolments. Survey estimates tend to be higher than MoE data for all provinces (except primary enrolments in Nyanza and Central). The estimates are substantially higher in North Eastern province. The reasons for this are not entirely clear and call for further investigation. The differences may be due to weaknesses in school enrolment reporting, or to sampling (or nonsampling) errors in the household survey. Investigating which of these applies is beyond the scope of this paper. The objective here is to demonstrate that the KIHBS enrolment data are sufficiently accurate as the basis of benefit incidence estimates.

Finally, the KIHBS 2005/6 estimates enrolments at the tertiary level to be 94,273. This compares with the enrolments in public universities reported by the Ministry of Education for 2004/05 of 81,491. Given that tertiary enrolments are a relatively rare event in national surveys, these data (along with the survey estimates of primary and secondary enrolments) give confidence in the use of the 2005/06 KIHBS in assessing the benefit incidence of government spending on education.

Table III.5 Primary school enrolments:. survey versus Ministry of Education estimates, 2005/06

| | Gross primary enrolment rate (percent)s | | Primary enrolments | |
	KIHBS	MoE	KIHBS	MoE
Nairobi	62.5	37.0	254,856	216,228
Central	107.2	104.8	900,366	904,029
Coast	103.2	90.1	724,718	559,325
Eastern	120.0	125.2	1,520,002	1,359,981
Nyanza	112.6	124.2	1,235,188	1,295,415
Rift Valley	105.8	113.8	2,050,642	2,019,077
Western	119.2	140.9	1,206,592	1,160,915
North Eastern	70.8	28.0	223,417	82,316
Country	107.1	107.2	8,115,781	7,597,286

Sources: Ministry of Education, KIHBS, 2005-06

Table III.6 Secondary school enrolments: survey versus Ministry of Education estimates, 2005/06

| | Gross secondary enrolment rates (percent) | | Secondary enrolments | |
	KIHBS	MoE	KIHBS	MoE
Nairobi	39.3	20.4	64,434	28,536
Central	45.2	42.7	203,014	181,610
Coast	18.5	19.4	62,630	48,824
Eastern	29.7	33.0	187,101	173,591
Nyanza	42.0	31.0	226,636	170,557
Rift Valley	32.0	26.6	279,771	206,897
Western	30.5	29.6	148,617	118,051
North Eastern	14.2	4.9	16,393	6,084
Country	33.0	29.3	1,188,596	934,149

Sources: Ministry of Education, KIHBS, 2005-06

III.4. Unit subsidies in public education

The evolution of the government education budget, its allocation across the different levels of education, and the enrolment decisions of households play their part in determining unit subsidies in public education. Using government recurrent spending by level of education and survey-based estimates of school enrolment, unit subsidies are obtained for the three broad levels of schooling in Kenya—primary, secondary and tertiary (Table III.7).

Tertiary education attracts much larger public subsidies per pupil than other levels: The tertiary unit subsidy was some 22 times the primary subsidy in 2005/06. This estimate is of a similar order to estimates from the Ministry of Education (based on school enrolment data). These place the tertiary weight to be 23 times the primary subsidy.

The high relative weight to tertiary has declined: In the early 1990s the tertiary unit subsidy was over 30 times the primary subsidy, so this imbalance in sub-sector allocations has reduced somewhat.

The secondary weight has been more stable: This has declined only marginally from 2.8 times the primary subsidy to a factor of 2.4. Ministry of Education data give the secondary weighting as 3 times the primary unit subsidy.

In sum, these unit subsidies, which in effect act as weights when computing the benefit incidence of government spending, correspond well to Ministry of Education estimates (based on institutional data).

TABLE III.7 EDUCATION PUBLIC SPENDING UNIT SUBSIDIES BY SUB-SECTOR, 1992/93, AND 2005/06

	1992/93		2005/06					
	Unit subsidy	Ratio of subsidy	Public spending***		Enrolments	Unit subsidy	Ratio of subsidy
			(KShs)	(Percent share)		(KShs)	
Primary	1,368	1	57,182,887,969	59.6	8,115,781	7,046	1
Secondary*	3,868	2.83	23,903,477,494	24.9	1,401,696	17,053	2.42
Tertiary**	42,050	30.74	14,836,641,203	15.5	94,273	157,380	22.34

* Includes technical education; **Includes teacher training
*** Actual recurrent public spending on primary education in 2005/06, and estimates for other sub sectors based on sub-sector ratios in 2004/05. Administration spending assigned pro-rata to the three sub-sectors.
Source: Authors' estimates based on Ministry of Finance expenditure data and KIHBS enrolments; Castro-Leal et al, (1999).

III.5. The distribution of government education spending

Given the decisions by the government in allocating the education budget and by households in enrolling children to school we can now estimate the distribution of the education budget across households—grouping households into quintiles of the distribution of income/consumption.

Poor people lay claim to a growing share of primary spending: The Free Primary Education policy has seen a sharp increase in primary enrolments, especially among poorer Kenyans. This has meant that poorer groups have secured a larger share of the primary budget by raising their primary school enrolments. The share of the poorest quintile of the primary budget increased from 22 percent in 1992/93 to 25 percent in 2005 (Tables III.8 and III.9). At the other end of the wealth spectrum, the richest quintile enrolled far fewer children at the primary level, and saw its share of the subsidy fall, from 15 percent in 1992/93 to 10 percent in 2005/06 (Table III.9). A major factor behind the distribution of the primary subsidy is that poorer Kenyans simply have more children of primary-school age children compared with the better-off (Table III.10). Whereas 30 percent of such children live in households in the poorest quintile, just 8 percent are from the richest quintile.

The poor have also seen their share of the secondary subsidy increase: Changes in enrolment behaviour have seen the share going to the poorest quintile rise (from 7 to 10 percent between 1992/93 and 2005/06). The share to the richest quintile fell—from 30 percent to 27 percent—still more than proportionate to its population share.

Poor people get little from tertiary spending: As is typical in Africa, the poorest groups do not benefit from spending on tertiary education, with no change over time (at about 2 percent of the tertiary budget). The

growth in university enrolments has clearly come from better off households. The richest quintile has seen its share of the tertiary budget increase sharply since the early 1990s.

The distribution of education spending is very progressive: Relative to income the poor gain far more than the better off from education subsidies (Table III.11). The benefit the poorest quintile gains from primary spending alone represents almost a third of its income/consumption. For the richest quintile it represent hardly one percent. The gains for the poorest from secondary education are much lower (at just 5 percent of income) and are negligible for tertiary education.

Overall, the distribution of education spending has been unchanged: Given the relative weights implied by the unit subsidies and the changes in enrolment behaviour, there have been only marginal changes in the distribution of the overall education budget. The share of the poorest quintile in overall education spending is unchanged, while there has been a small increase in the share of the education budget going to the top quintile (Table III.9).

Table III.8 Average benefit incidence of public spending on education, by level and welfare quintile, 2005/06 (percent)

	2005			
	Primary	Secondary	Tertiary	All education
Poorest quintile	24.7	9.5	1.9	17.4
Quintile 2	25.2	15.9	2.0	19.3
Quintile 3	21.6	21.9	7.0	19.4
Quintile 4	18.2	25.5	19.1	20.2
Richest quintile	10.2	27.2	70.0	23.7

Note: Based on unit costs derived from KIHBS enrolment estimates (see Tables III.6 and III.7)
Source Authors' estimates based on budget data and KIHBS 2005/06.

Table III.9 Benefit incidence of education spending by level, and poorest and richest quintiles, 1992-93, and 2005 (percent)

	Poorest quintile				Richest quintile			
	Primary subsidy	Secondary subsidy	Tertiary subsidy	All education	Primary subsidy	Secondary subsidy	Tertiary subsidy	All education
1992-93	22	7	2	17	15	30	44	21
2005	25	10	2	17	10	27	70	24

Sources: Castro-Leal et al, 1999

Table III.10 Benefit incidence of public spending on primary education, and share of primary school-aged children, by quintile, 2005 (percent)

	Share of primary school aged children	Share of Primary subsidy
Poorest quintile	30.2	24.7
Quintile 2	26.3	25.2
Quintile 3	20.6	21.6
Quintile 4	14.8	18.2
Richest quintile	8.1	10.2

Source: Authors' estimates based on KIHBS 2005/06 data.

III.6 Gender differences in the distribution of education spending

Because we know which children the households enrol in school from the KIHBS data, we can assess whether there are differences in the distribution of the education budget by gender. While boys only have a slight advantage over girls in the distribution of the primary education budget, biases against girls are greater for the other subsectors.[9] Girls gain 47 percent of the total secondary budget, and just 38 percent of the tertiary budget (Table III.12). Gender inequality in secondary education seems to be due to girls in quintiles 2 and 3 being particularly disadvantaged. Similarly, gender biases in the distribution of the tertiary education budget appear to come mainly from a couple of quintiles—in this case quintiles 3 and 4. For the education sector overall, there are marginal gender differences—boys gaining 53 percent of the budget. Given the emphasis in the budget on primary education (where gender differences are minimal) education spending overall is not subject to marked gender inequality.

III.7. Geographical inequality in public education subsidies

The basic benefit incidence estimates presented above was based on equation 2 above, and assumed that government spending per enrolled pupil does not vary geographically—it remains the same wherever the child is enrolled. The objective was to give public expenditure based weights to the different levels of schooling which enabled us to report how the education budget as a whole is distributed (summing across sub-sectors). The distribution of the public subsidy for each level of education was determined solely by the behaviour of households in their decisions to enrol their children. But another influence on the distribution of the subsidy has been neglected in these estimates—this being geographical inequalities in the way the education budget is disbursed. We therefore re-estimated benefit incidence of education spending based on equation 2a, taking into account regional variations in the unit subsidy.

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[9] How these biases arise is not explained by this analysis. The proximate cause is clearly household decisions to enrol girls versus boys, but what explains any gender difference in those decisions is not clear. They do not necessarily arise from biases in the education system itself.

Table III.11 Benefit incidence of education spending relative to mean household total consumption, 2005

	Mean annual subsidy				Mean annual household consumption	Subsidy as share of consumption			
	K Shs				K Shs	Percent			
	Primary	Secondary	Tertiary	All education		Primary	Secondary	Tertiary	All education
Poorest quintile	1,988	318	40	2,347	6,546	30.4	4.9	0.6	35.8
Quintile 2	2,033	537	42	2,611	11,950	17.0	4.5	0.3	21.8
Quintile 3	1,742	736	147	2,625	17,402	10.0	4.2	0.8	15.1
Quintile 4	1,469	860	399	2,728	26,665	5.5	3.2	1.5	10.2
Richest quintile	822	916	1,463	3,201	69,740	1.2	1.3	2.1	4.6
Kenya	1,611	673	418	2,702	26,457	6.1	2.5	1.6	10.2

Source: Authors' estimates based on budget data and KIHBS 2005/06

Table III.12 Gender differences in education sector benefit incidence (percent of total subsidies)

	Primary			Secondary			Tertiary			All education		
	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females
Poorest quintile	24.7	12.8	11.9	9.5	4.8	4.7	1.9	1.9	0.0	17.4	9.1	8.3
Quintile 2	25.2	12.9	12.3	15.9	9.2	6.8	2.0	1.4	0.6	19.3	10.2	9.1
Quintile 3	21.6	10.8	10.9	21.9	12.7	9.2	7.0	5.8	1.2	19.4	10.5	9.0
Quintile 4	18.2	9.3	9.0	25.5	12.4	13.1	19.1	15.6	3.5	20.2	11.0	9.2
Richest quintile	10.2	5.1	5.1	27.2	13.6	13.6	70.0	37.6	32.4	23.7	12.2	11.4
Kenya	100	50.9	49.2	100	52.7	47.4	100	62.3	37.7	100	53.0	47.0

Source: Authors' estimates based on budget data and KIHBS 2005/06

Education spending data at the district level are not available. But using information on teacher salaries (which dominate the government education subsidy), and the KIHBS estimates of school enrolments, reasonable estimates of how the unit subsidies vary by district could be computed. They indicate a great deal of variation in spending per pupil across the provinces (Table III.13). Central and Nyanza Provinces appear to benefit the most, while North Eastern received the lowest subsidy per pupil. These data, following closely on a significant increase in primary enrolments, will among other things reflect different surges in primary school enrolments. There is significant variation across the districts. Figure 11.1 ranks districts according to the primary subsidy per pupil enrolled. Although 34 districts are within +/- 20 percent of the average primary subsidy, 35 are outside these bounds. 17 of these receive unit subsidies that are less than KSh 5,600. The disadvantaged districts are reported in Table III.14. Despite these variations the impact on overall average benefit incidence is only very limited (Table III.15). A similar exercise for secondary schooling gives the same result—disaggregating unit subsidies makes little difference to the benefit incidence across quintiles. (Table III.16)

Table III.13 Unit subsidies in primary education by province, 2005/06

	Average unit subsidy (KSh per enrolled child)	Ratio to mean
Nairobi	5,557	0.79
Central	8,023	1.14
Coast	5,065	0.72
Eastern	7,732	1.10
North Eastern	1,995	0.28
Nyanza	7,935	1.13
Rift Valley	7,431	1.05
Western	6,326	0.90
All Kenya	7,046	1.00

Source: Authors' estimates based on KIHBS 2005-06, Ministry of Finance and Ministry of Education data.

Table III.14 Primary school unit subsidies in 17 disadvantaged districts

District	KShs	District	KShs
Wajir	1,467	Samburu	4,737
Garissa	1,903	Teso	5,173
Mandera	2,981	Marsabit	5,196
Turkana	3,557	Mt. Elgon	5,357
Malindi	4,314	Busia	5,365
Tana River	4,418	Kilifi	5,455
Kwale	4,471	Kiambu	5,529
Mombasa	4,487	Nairobi	5,557
Moyale	4,569	Kenya mean	7,045

Source: Authors' estimates based on KIHBS 2005-06, Ministry of Finance and Ministry of Education data.

Figure III.1 Ranking of districts by level of unit subsidy for primary education, 2005

Source: Authors' estimates based on KIHBS 2005-06, Ministry of Finance and Ministry of Education data.

Table III.15 Benefit incidence of primary school spending compared: uniform versus district–specific unit subsidies, 2005

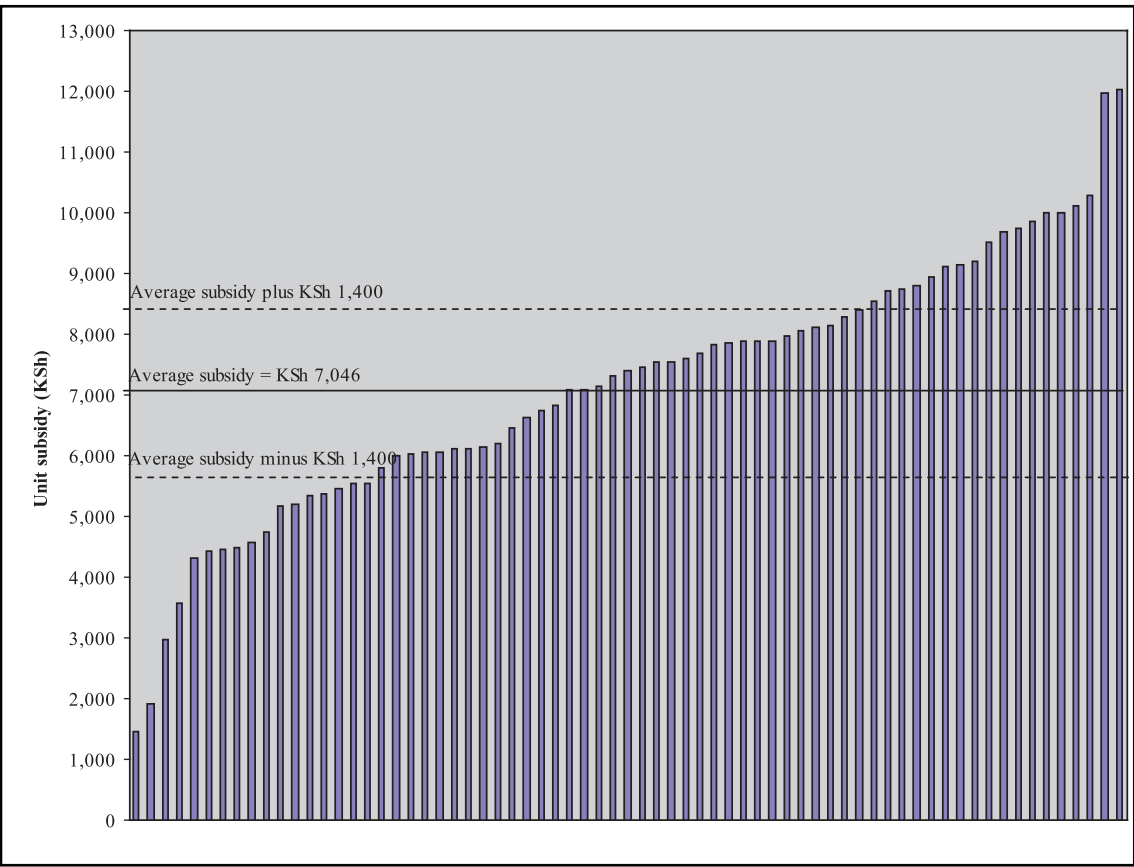| Quintile	District-specific unit subsidies				Uniform subsidy			
	Primary subsidy (M Ksh.)	Share of subsidy (percent)			Primary subsidy (M Ksh.)	Share of subsidy (percent)		
		Both sexes	Males	Females		Both sexes	Males	Females
Poorest quintile	13,499	23.6	11.9	11.7	14,128	24.7	12.8	11.9
Quintile 2	14,531	25.4	13.0	12.5	14,423	25.2	12.9	12.3
Quintile 3	12,719	22.2	11.0	11.2	12,370	21.6	10.8	10.9
Quintile 4	10,741	18.8	9.5	9.3	10,427	18.2	9.3	9.0
Richest quintile	5,693	10.0	4.9	5.0	5,835	10.2	5.1	5.1
Kenya	57,183	100	50.3	49.7	57,183	100	50.9	49.2

Source: Authors' estimates based on KIHBS 2005-06, Ministry of Finance and Ministry of Education data.

Table III.16 Benefit incidence of secondary school spending compared: uniform versus district-specific unit subsidies, 2005/06

Quintile	District-specific unit subsidies				Uniform subsidy			
	Secondary subsidy (M Ksh.)	Share of subsidy (percent)			Secondary subsidy (M Ksh.)	Share of subsidy (percent)		
		Both sexes	Males	Females		Both sexes	Males	Females
Poorest quintile	2,237	9.4	4.7	4.7	2,262	9.5	4.8	4.7
Quintile 2	3,842	16.1	9.3	6.8	3,807	15.9	9.2	6.8
Quintile 3	5,512	23.1	13.1	9.9	5,229	21.9	12.7	9.2
Quintile 4	6,408	26.8	13.3	13.6	6,105	25.5	12.4	13.1
Richest quintile	5,904	24.7	12.3	12.4	6,501	27.2	13.6	13.6
Kenya	23,903	100	52.7	47.4	23,903	100	52.7	47.4

Source: Authors' estimates based on KIHBS 2005/06, Ministry of Finance and Ministry of Education data.

Education benefit incidence at the margin

Estimates of the average and marginal odds of enrolment for primary and secondary schooling confirm that marginal benefits from education spending are subject to large variations across quintiles (Table III.17). The results confirm Younger's (2003) point that the use of individual observations in analyzing marginal benefits from surveys of this kind is to be preferred, with greater precision in the estimated coefficients.[10]   Using individual observations, it is clear that the poor quintiles benefit more at the margin from primary school spending, and less at the margin from secondary school spending. If per capita spending on primary schooling were raised by KSh 100, the poorest quintile would benefit on average by KSh 135 (based on the marginal odds of enrolment estimated using individual data—Table III. 17). And at the other end of the distribution the richest quintile would at the margin get an average of just KSh 66. A very different distribution is predicted for marginal changes in secondary school spending—the richest quintile gain the most, while the poorest would benefit the least at the margin. If per capita spending on secondary schooling were raised by KSh100, the mean benefit to the poorest quintile would amount to just KSh 58. Generally, the differences between marginal gains to the poorest quintiles and those to the better-off quintiles are statistically significant.

These distribution patterns also apply when we distinguish by gender. In fact, most differences between boys and girls in the marginal benefits from primary and secondary school spending are not statistically significant. But for what it is worth, the point estimates obtained from the marginal odds of enrolment regressions suggest larger gains for poorer girls (in the bottom two quintiles) at both the primary level and secondary levels, compared with poor boys. Marginal gains from primary school spending are less for better off girls than boys, but the marginal gains from secondary school spending are greater for girls than boys at most income levels. The advantage of girls over boys in marginal secondary spending is striking in the richest quintile.

Table III.18 translates these estimates into shares—underscoring how marginal changes in education spending are likely to be distributed across the population. The poorest quintile is predicted to benefit greatly from increments in spending on primary education—even more so that it does on average. From the perspective

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[10]   We therefore focus on the more precise estimates obtained from individual-level data in what follows.

of the poorest Kenyans (and especially poor girls), therefore, it makes sense to continue the public effort in providing free primary schooling. Any let up in the implementation of this policy is predicted to affect the poorest sections of the community most, and the continuation of the policy to benefit them the most. Using individual data (which gives the most precise estimates), the poorest quintile would gain 27 percent of any increment in primary school spending, up from the 25 percent they have received on average. And girls get the larger share of these gains. Interestingly, the 'not-so poor' Kenyans (those in the second quintile, are not predicted to benefit as much for marginal changes in primary spending (21 percent) than they have on average (25 percent).

While there is some improvement in the imputed share of increments in secondary school spending going to the poorest quintile (compared with average benefits), the shape of the marginal distribution is very similar to the average. At 27 percent, the richest quintile gains at the margin what it currently gets on average, but at the margin, it is the better off girls who are predicted to gain the most.

In sum, from these results the poorest Kenyans are likely to benefit even more than at present from an increment in primary school spending. And it is the richest sections of the population (especially girls) that will benefit from an increase in spending on secondary schools

Table III.17 Average and marginal odds of school enrolment

Quintile	Average odds			Marginal odds					
				Grouped data			Individual data		
	Both sexes	Boys	Girls	Both sexes	Boys	Girls	Both sexes	Boys	Girls
Primary education									
Poorest quintile	1.23	1.26	1.21	1.74***	0.90	1.81**	1.35***	1.26*	1.44***
Quintile 2	1.26	1.28	1.25	0.87	1.07	0.82	1.03	0.89	1.16
Quintile 3	1.08	1.06	1.10	0.46***	1.17	0.80	0.97	1.03	0.91
Quintile 4	0.91	0.92	0.91	0.95	0.93	0.77	0.99	1.09	0.89
Richest quintile	0.51	0.49	0.53	0.97	0.91	0.82	0.66***	0.74***	0.58***
Mean	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Secondary education									
Poorest quintile	0.41	0.46	0.49	0.73	0.59	0.88	0.58***	0.45***	0.71*
Quintile 2	0.71	0.87	0.71	0.74	0.49	1.25	0.74*	0.64**	0.83
Quintile 3	1.08	1.21	0.97	1.22	1.09	1.02	1.21	1.43*	0.99
Quintile 4	1.34	1.19	1.38	1.16	0.95	0.88	1.11	1.16	1.06
Richest quintile	1.77	1.27	1.46	1.14	1.25	1.60	1.36*	1.19	1.54**
Mean	1.0	1.0	1.0	1.0	0.9	1.1	1.0	1.0	1.0

*** indicates statistical significance at 1% level; ** at 5% level and * at 10% level, testing whether the coefficients are significantly different from unity.
Source: Authors' estimates, based on KIHBS, 2005-06 data

Table III.18 Average and marginal shares in public spending on education

Quintile	Average shares			Marginal shares					
				Grouped data			Individual data		
	Both sexes	Boys	Girls	Both sexes	Boys	Girls	Both sexes	Boys	Girls
Primary education									
Poorest quintile	24.7	12.8	11.9	34.9	8.8	18.4	27.1	12.5	14.7
Quintile 2	25.3	12.9	12.3	17.5	10.5	8.3	20.6	8.7	11.8
Quintile 3	21.6	10.8	10.9	9.2	11.5	8.2	19.4	10.2	9.3
Quintile 4	18.2	9.3	9.0	19.0	9.1	7.8	19.7	10.7	9.0
Richest quintile	10.2	5.1	5.1	19.5	9.1	8.2	13.2	7.4	5.8
All	100.0	50.8	49.2	100.0	49.1	50.9	100.0	49.4	50.6
Secondary education									
Poorest quintile	9.5	4.8	4.7	14.7	5.8	9.0	11.6	4.4	7.2
Quintile 2	15.9	9.2	6.8	14.7	4.8	12.7	14.7	6.2	8.5
Quintile 3	21.9	12.7	9.2	24.4	10.7	10.3	24.2	14.1	10.1
Quintile 4	25.6	12.4	13.1	23.3	9.3	9.0	22.2	11.4	10.8
Richest quintile	27.2	13.6	13.6	22.9	12.5	15.9	27.3	11.9	15.4
All	100.0	52.7	47.3	100.0	43.1	56.9	100.0	48.0	52.0

Source: Authors' estimates, based on KIHBS, 2005-06 data

IV   THE BENEFIT INCIDENCE OF PUBLIC SPENDING ON HEALTH

We now consider how the distribution of government spending on health-care is distributed across the population.

IV.1 Context

The following are the main themes emerging from the current situation of health care provision in Kenya:

Health outcomes and poverty are closely linked: Poor health is known to be a major cause of poverty in Kenya. Several recent studies (for example Krishna et al, 2004, World Bank, 2009) have found this to be the case. According to the Fourth Participatory Poverty Assessment, health shocks are frequently responsible for households falling into poverty (Ministry of Planning and National Development, 2008). And the escape from poverty is often made extremely challenging because of ill health. At the same time, poverty is seen as a possible cause of ill-health—households unable to afford a healthy life style, access clean drinking water, and preventive and curative health-care will be more prone to chronic sickness.

Health outcomes have improved recently: Between 1990 and 2003, life expectancy in Kenya fell by about five years. Infant mortality increased (from 60 to 77 per 1000 live births) and the under-five mortality rate rose from 100 to 115 (Central Bureau of Statistics, 2004). Since then, there has been a sharp improvement—infant mortality is estimated to be just 52 in 2009, and under-five mortality 74 deaths per 1000 (Kenya National Bureau of Statistics, 2009). Malaria continues to be the leading cause of morbidity and mortality. Other major causes include acute respiratory infection, malnutrition, diarrhoea disease, HIV/AIDS (with at least 1.2 million

Kenyans now living with HIV/AIDS) and tuberculosis (TB). The estimated TB incidence rate of 620 per 100,000 is one of the highest in the world.

Gender and other inequalities in health have persisted: Health outcomes vary significantly by gender, socio-economic group and geographical area. The 2003 Kenya Demographic and Health Survey reports that HIV prevalence among women 15 to 49 years old is almost twice that of men in the same ages, and the HIV infection rate of girls 15 to 19 years old is more than seven times higher than that of boys in the same age (Central Bureau of Statistics, 2004). According to the same survey, the infant and under-five mortality rate among the lowest socio-economic quintile was 50 percent higher than in the richest quintile. The incidence of moderate and severe malnutrition was almost four times greater. Geographical health disparities are also profound. Poverty mapping, which includes health indicators (HIV/AIDS, malnutrition, immunization, and access to safe drinking water and health facilities), indicates that 60 percent of the rural poor live in 35 percent of the 422 divisions in the country, with unfavourable health outcomes and limited access to health services (World Bank, 2007). Health indicators are particularly worse in Nyanza Province which borders Lake Victoria. Average life expectancy in Nyanza Province is 16 years less and under-five mortality four times higher than in Central Province. One child out of five born in Nyanza does not live to see his/her fifth birthday.

Health financing is inadequate: The health sector has been constrained by inefficient financing mechanisms and inadequate funding. Table IV.1 reports major spending trends in health. More recent data (reported in World Bank, 2007) indicate that Government allocations for health in 2007/08 are now about US$11 per capita, or 7.3 percent of the national budget. While this compares favourably with other East African countries, it is still below both the Abuja (15 percent) and ERS (12 percent) targets for public expenditure on health. The goals set in Kenya's long term planning strategy—Vision 2030—also will require significant increases in spending. Between 2002 and 2005, government expenditures on health increased by 37 percent (Table IV.1), and are projected to increase by a further 50 percent between 2006/07 and 2009/10. Much of the increase has been in the development budget, while recurrent expenditures have tended to increase more gradually.

Resource constraints are deeper than just financing: Human resources for health are a major constraint to improving service delivery and health outcomes. Ensuring that adequate numbers of qualified health staff with appropriate skills are available in the right places remains a considerable challenge. The distribution of staff across provinces is uneven. A study in 2005 indicates overstaffing in provincial and district hospitals, and acute understaffing in many rural health facilities.[11] Unattractive working and living conditions in rural areas, poor incentives (including allowances), and weak deployment procedures all contribute to the staffing imbalances. Another major issue concerns the weak management capacity of the sector. The 2003 Public Expenditure Tracking Survey found that 85 per cent of health facilities have inadequate medical supplies (Nafula et al, 2004),. In 2001/2002 only 70 per cent of the drugs released by the districts reached the health facilities, and only 59 per cent and 88 per cent of the drug supplies (respectively) reached dispensaries and health centres. The more recent 2007 Public Expenditure Tracking Study also concluded that funding (especially development funding) is not reaching the operations units because of inefficient financial management. And this has constrained the disbursement performance of the sector. Despite increases in development allocations, actual expenditures for development have not grown commensurately. The Ministry of Health spent only Ksh.2.475 billion (or 22 percent) of a targeted development budget of Ksh 11.029 billion in 2006/07.

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[11] This was a Human Resource Mapping and Verification Study, which mapped a total of about 41,000 employees in the public sector, and 9,000 health workers in the private-not-for-profit (PNFP) sector. The findings are quoted in World Bank (2007).

Health access is uneven: According to a number of recent studies (including the National Health Sector Strategic Plan II (Ministry of Health, undated) and the 2003 Household Health Expenditure and Utilization Survey), access to health services has been limited, particularly in rural areas, and the quality of services has been inconsistent and generally poor. The Kenya Service Provision Assessment Survey of 2004 found that only 57 percent of facilities could provide a basic package of child, maternal, reproductive health and HIV/AIDS services, and only 10 percent of clinics were able to provide 24-hour delivery services (NCAPD, 2005). Distance to facility, and facility access in general appears to be a major constraint for rural households. The uneven distribution of facilities geographically is clear from Table IV.2. While most facilities serve large numbers (on average each facility in Kenya serves over 15,000 people), this varies by province, with Central, Rift Valley, Coast and Eastern being better placed than the others.[12]

These data on the distribution of facilities point to deep-seated inequalities in the provision of health care in Kenya. Because it is rural areas that are typically poorly served, such inequalities often compound existing inequalities in Kenya society—in access to clean water and sanitation, in access to well-paid employment, in livelihood opportunities more generally, and income inequality. Information obtained in the recently conducted KIHBS allows us to investigate such inequality further. The survey not only obtained information on the living standards of the Kenyan population, it identified which households used the health services subsidized by the government. By combining this information on the use of health services with data on how the government subsidized these services, we are able to estimate the benefit incidence of health spending in Kenya—at least for the year of the survey, 2005-06. We do this along similar lines as with education spending.

Table IV.1 Ministry of Health actual expenditure (Gross) KSh million

	2001/02	2002/03	2003/04	2004/05	2005/06
Recurrent	12,715	14,405	15,438	17,417	19,765
Development	2,519	945	1,003	1,741	3,242
Total	15,234	15,351	16,441	19,158	23,007
Per Capita KSh	488.44	481.97	506.05	578.28	681.78
Per Capita $	6.28	6.29	6.52	7.48	9.47
As % of Total Government1					
Recurrent	8.23	8.69	7.76	7.66	6.29
Development	17.18	5.12	2.77	2.01	3.73
Total	9.01	8.33	6.99	6.1	5.73
As % of GDP					
Recurrent	1.38	1.4	1.41	1.41	1.29
Development	0.27	0.09	0.09	0.14	0.21
Total	1.65	1.49	1.51	1.55	1.5

Source: Ministry of Health Public Expenditure Review, 2007

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[12] Note, these data refer only to public facilities. Clearly, development planning in health takes into account the private sector activity across the regions.

Table IV.2 Distribution of public health facilities by province, 2004

Facility type	Central	Coast	Eastern	Nairobi	North Eastern	Nyanza	Rift Valley	Western	Total
Dispensaries	205	144	325	18	43	180	540	81	1,536
Health Centres	57	33	58	8	6	80	136	62	440
District Hospitals	12	11	26	1	10	24	21	13	118
Provincial hospitals	1	1	2	-	1	1	1	1	8
National/Specialized hospitals	1	-	-	2	-	-	-	-	3
Rural Health Training & Demonstration Centres	1	15	7	-	5	6	12	7	53
Total facilities	277	204	418	29	65	291	710	164	2,158
Percent distribution	12.8	9.5	19.4	1.3	3	13.5	32.9	7.6	100
Population (000)	3,918.5	2,860.6	5,180.1	2,657.0	1,235.6	4,868.0	8,077.5	3,954.1	32,751.5
Population per facility	14,095	14,022	12,393	91,620	19,009	16,728	11,376	23,964	15,176
Facilities per 100,000	7	7	8	1	5	6	9	4	7

Source: Human Resource Mapping Report, 2004

IV.2   Household responses to illness.

The KIHBS obtained information on the recent (past 4 weeks) health status of all members of the households sampled, and on the treatment options the household took (Table IV.3). It also identified members of the household who were not ill or injured but who nevertheless visited a government subsidized health facility (peri-natal care, vaccination, etc). The survey found very even patterns of reported illness across the income groups in Kenya (Table IV.3). Just over a quarter of the population in all quintiles reported being ill or injured over the 4 weeks prior to the survey interview.[13]   Differences emerge in the response to the illness. Overall, the KIHS reports that just over two thirds of those who are sick seek treatment (Table IV.3), which is lower than the Ministry of Health 2007 Household Health Expenditure and Utilization Survey reported (84 percent). Poorer Kenyans are far less likely to seek treatment when sick. The better off are not only more likely to seek care, but typically chose private care. The poor are more likely to seek treatment in the public sector. Interestingly, the patterns are not as clear as one might think: many better-off Kenyans still use government health facilities. Similarly, poor Kenyans often use private providers, many of whom (62 percent) are modern rather than traditional. In Kenya at least, traditional health care providers treat the rich and the poor, though mostly the latter. When poorer Kenyans get sick and go to a government facility, in most cases (79 percent) they visit a primary facility—either a dispensary or a health centre. Better-off Kenyans are more likely than their poorer counterparts to use hospital facilities—just under a half of those in the richest quintile seeking care in government facilities go to a hospital.

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[13] This is somewhat higher than estimates from the Ministry of Health Household Health Expenditure and Utilization Survey of 2007, which reported 15 percent being sick during the 4 week reference period.

Table IV.3: Household responses to illnesses, 2005/06

	Share of population sick	Share of sick seeking treatment	Of those seeking treatment, share seeking		Of those seeking private treatment, share seeking		Of those seeking public treatment, share seeking treatment at			
			private treatment	public treatment	modern treatment	traditional treatment	referral hospital	district/ provincial hospital	dispensary	health center
Poorest quintile	27.6	60.5	48.9	52.6	61.8	38.5	2.9	19.9	50.8	27.8
Quintile 2	26.0	68.8	51.3	49.9	67.7	32.8	2.8	20.7	50.9	27.1
Quintile 3	28.3	71.2	47.7	54.0	73.5	27.3	3.1	26.9	45.3	26.3
Quintile 4	28.4	73.8	51.6	49.6	82.5	18.0	4.5	31.1	36.2	29.5
Richest quintile	27.0	77.5	59.5	42.4	89.4	11.3	12.8	33.0	32.9	23.2
All Kenya	27.4	70.4	52.0	49.5	76.4	24.2	5.1	26.5	43.1	26.8

Source: Authors' estimates, based on KIHBS, 2005-06 data.

Table IV.3 already suggests persistent inequality in health care in Kenya. Pursing this further, we investigate how the household treatment behaviour exhibited in these data translates into the way the government health budget is distributed across the income/consumption groups.

IV.3   The benefit incidence of government health spending

KIHBS reports the use by households of four main categories of publicly subsidized health care providers—referral hospitals, provincial/district hospitals, dispensaries and health centres. Such use of government subsidized services represents an in-kind transfer to the household—the transfer being what the household would need if it was required to pay the costs incurred by the government in providing the service. For each visit to a subsidized health facility the household gains the unit cost (or subsidy) attached to that visit. Because such costs vary by facility, households who use high-cost facilities gain a greater in-kind transfer.

Unit subsidies in government health care provision

Estimating unit subsidies in the government health facilities requires spending estimates for the different types of facility distinguished in the survey. Government spending data are only available for primary facilities as a whole (i.e. dispensaries and health centers combined). A breakdown of health spending across the three types of facility (referral hospital, district/provincial hospital and primary facility) is not available directly from the public accounts. However, the Shadow Health Budget, prepared for 2007, provides this information. We therefore applied the distribution of the shadow budget across the three facility categories to the level of government health spending in 2005-06. In this way we were able to obtain a reasonable estimate of government health spending across the facilities distinguished in the KIHBS. To obtain unit subsidies, we simply divided this spending estimate by the number of facility visits as estimated by the KIHBS. The results are given in Table IV.4.

Each visit to a referral hospital costs on average KSh 1,463, 13 times more than a visit to a primary facility. A visit to other hospitals was about 8 times more costly than to a primary facility. Clearly those able to seek a consultation at a referral hospital gain an in-kind transfer from the government which is many times greater than those who are only able to visit a dispensary or a health center. This spread in unit subsidies is of a similar order to that estimated for 1992/93 (Castro-Leal et al, 1999). Households using referral hospitals therefore gain a much greater in-kind transfer than those using primary facilities. What are the implications for inequality in Kenya?

Table IV.4 Estimated unit subsidies for health care by facility, 2005/06

	2005/06 health budget a/		KIHBS estimate of facility visits	Unit subsidy		
	(KSh000)	Percent share		(KShs)	Ratio	Ratio in 1992-93
Referral hospitals	3,862,888	19.5	2,640,742	1,463	13.0	10.1
Provincial/district hospitals	12,019,283	60.8	13,949,650	862	7.7	
Primary facilities	3,882,829	19.6	34,590,478	112	1.0	1.0
All facilities	19,765,000	100.0	51,180,870			

Sources: For 2005/06: authors' estimates based on Public Expenditure Tracking Survey, 2007, Health Shadow Budget, 2007, and KIHBS, 2005/06. For 1992/03: Castro-Leal et al (1999).

The distribution of government health sending

Bringing together the unit subsidies reported in Table IV.4 and the reported use of facilities from the KIHBS, estimates are obtained of the in-kind transfer to households across the income/consumption distribution (Table IV.5).

Table IV.5 Distribution of benefit incidence of government health-carespending by facility, 2005/06

	Referral hospitals	District/ provincial hospitals	Primary facilities	All public facilities
Poorest quintile	9.5	13.9	20.0	14.3
Quintile 2	9.6	14.1	20.2	14.4
Quintile 3	12.8	23.8	22.2	21.3
Quintile 4	18.8	24.6	21.5	22.9
Richest quintile	49.3	23.5	16.1	27.1
All Kenya	100	100	100	100

Source: Authors' estimates based on budget data and KIHBS 2005/06

Poor people hardly use referral hospitals. Half the consultations at referral hospitals are from the richest quintile. Poor people gain little directly from the significant subsidies at the highest level of health care delivery. Even poor residents of Nairobi did not consider use of the referral hospitals a viable option. The PPA-IV found that 'most of the Nairobi communities felt that Kenyatta National Hospital was not really a public facility because of the high payments for medication and the harsh and negative attitude of the medical personnel.' (Ministry of Planning and National Development, 2008: 79).

The use of other hospitals is more widespread: But even here, the better-off use the facilities far more than the poor. Note that the distinction here is between the bottom two and top three quintiles—within these groups the shares are similar, but they are quite different between them (the latter each gaining about a quarter of the subsidy, and each of the bottom two quintiles gaining just 14 percent).

Poor people rely on primary care: They get a proportionate share of spending on primary facilities (the poorest 40 percent gain 40 percent of the primary subsidy).

Poorer Kenyans benefit less from overall health spending: The poorest 20 percent of Kenyans receive just 14 percent of the government health budget. By using publicly subsidized health facilities, the richest quintile received an in-kind transfer amounting to 27 percent of the government health budget.

In absolute terms health spending is regressive in Kenya: Poor people benefit less that the better off. The mean health subsidy going to the poorest quintile is only about half that going to the richest (Table IV.6). The top three quintiles are far better placed.

Relative to income the subsidy is progressive. The in-kind subsidy the poorest quintile gains from using government health facilities represents 6 percent of their income/consumption. For the richest, the ratio is only 1 percent (Table IV.6).

Table IV.6 Per capita health subsidy relative to per capita total household consumption, by quintile, 2005/06

	Health subsidy per capita	Household consumption per capita	Health subsidy as percentage of household consumption
	(KSh)		(%)
Poorest quintile	397	6,546	6.1
Quintile 2	402	11,950	3.4
Quintile 3	594	17,402	3.4
Quintile 4	637	26,665	2.4
Richest quintile	754	69,740	1.1
All Kenya	557	26,457	2.1

Source: Authors' estimates based on budget data and KIHBS 2005/06

IV.4   Gender inequality in health care

Assessing how government spending was distributed across income groups in Kenya is important, but there are other ways the distribution can be assessed. One important distinction for health care in Kenya is gender (Tables IV.7).

Females get a larger share of health spending: Overall, females get more out of health spending than males (they get almost 60 percent of the subsidy—the males 40 percent). This does not necessarily mean that there is a bias in favour of females, as it is very likely that female health-care needs are greater than those of males.

Poor females do not do so well: Relative to better off women, poorer women (the poorest quintile) are disadvantaged in benefiting from health care subsidies—particularly with respect to referral hospital care. Poor males get more benefit from referral hospitals than poor females—the opposite pattern from the better off (better off females use all health facilities—including hospitals—more than better off males). Not surprisingly poorer females get most out of the primary subsidy.

Table IV.7 Public health spending benefit incidence by sex, facility and quintile, 2005–06 (percent)

	Share of referral hospital subsidy			Share of regional hospital subsidy			Share of primary subsidy			Share of overall health subsidy		
	All	Males	Females	All	Males	Females	All	Males	Females	All	Males	Females
Poorest quintile	9.5	5.6	3.9	13.9	6.0	8.0	20.0	8.0	12.0	14.3	6.3	8.0
Quintile 2	9.6	4.7	4.9	14.1	5.8	8.3	20.2	8.1	12.1	14.4	6.0	8.4
Quintile 3	12.8	5.0	7.9	23.8	10.0	13.8	22.2	9.4	12.8	21.3	8.9	12.4
Quintile 4	18.8	9.7	9.1	24.6	9.6	15.1	21.5	9.1	12.4	22.9	9.5	13.4
Richest quintile	49.3	20.6	28.7	23.5	8.9	14.6	16.1	6.8	9.3	27.1	10.8	16.3
All Kenya	100	45.5	54.5	100	40.3	59.7	100	41.4	58.6	100	41.5	58.5

Source: Authors' estimates based on budget data and KIHBS 2005/06

IV.5   Inequality in household spending

The benefit incidence estimates assess only the distribution of government health subsidies. But households themselves spend significant amounts on health care, which potentially increase inequality in health care provision. Household spending reported in Table IV.8 includes spending on both public and private providers of health care.

Households are responsible for the greater burden of health-care spending: Households account for just under three quarters of health care spending, and the government for just over one quarter.

The burden of spending varies systematically across quintiles: Poorest Kenyans contributed 58 percent and gained 42 percent from the government. The richest quintile contributed 85 percent, receiving 15 percent in government subsidies.

Inequality in private spending is far greater than in public spending: The mean public subsidy for health care received by the top quintile is 1.9 times that for the bottom quintile. For private spending the ratio is 6.7.

Burden of health spending is greater for the poor: Although poor people spend less in absolute terms on health care, such spending represents a greater burden to them. Households in the poorest quintile spend 8 percent of their income on health care (in contrast to the richest quintile, which spend 6 percent on health).

Bottom three quintiles have the same budget shares: The top two quintiles make very significant contributions to health care relative to government spending. For the poorest three quintiles the burden of total health care is more evenly spread between the households and the government (respectively 57 percent and 43 percent).

The current waiver system is not working: That the poorest households spend more of their income proportionately than the richest (even though they use mostly primary facilities) is clearly a cause for policy concern. These data would suggest that the current system of waivers and exemptions is not working—at least not well enough to make a difference to the relative burden of health care. The 2007 Public Expenditure Tracking Survey (Ministry of Health, 2008) concluded that 'the application of waivers and exemption guidelines at facility level is not standard and is subject to abuse by the facility staff. In particular and against the laid down procedures the well to do groups in the society are being exempted from payments an issue which works against the principles of equity and access to health services by the poor and the vulnerable groups' (quoted in Muchiri et al., 2008: 15).

Table IV.8 Accounting for the provision of public sector health care: private and public contributions

	Mean annual household spending on health care				Mean annual government health subsidy	Total mean annual health spending on publicly provided health	Share of total spending		Household and government spending as percent of household consumption	
	Frequent health items	Medical diagnosis and treatment	Other drugs	All household health spending			Household	Government	Household	Government
	(KShs)						(Percent)		(Percent)	
Poorest quintile	55	438	46	539	397	936	57.6	42.4	8.2	6.1
Quintile 2	89	307	126	523	402	924	56.5	43.5	4.4	3.4
Quintile 3	150	410	217	778	594	1,371	56.7	43.3	4.5	3.4
Quintile 4	214	610	553	1,377	637	2,014	68.4	31.6	5.2	2.4
Richest quintile	544	2,035	1,686	4,264	754	5,019	85.0	15.0	6.1	1.1
All Kenya	210	760	525	1,496	557	2,053	72.9	27.1	5.7	2.1

Source: Authors' estimates based on budget data and KIHBS 2005/06

IV.6   Benefit incidence of health spending at the margin

As with education spending, we also estimate how changes in health spending are likely to be distributed across the population in Kenya. We take the same approach by defining participation in government-financed health care as the percentage of the population that visited a public health facility during the year. Two levels of health care are distinguished—primary care delivered through public health centres and clinics, and hospital-based care through the network of provincial and district hospitals.[14]   And as with education we use two types of data construct, grouped data and individual data. To estimate the marginal distribution of health spending, equations (3) to (10) are applied to government spending on health-care—the results reported in Tables IV.9 and IV.10.

As with the average incidence, at the margin the poorest groups are predicted to use primary facilities as much as the richest, especially poor females. But poor males (those in the bottom two quintiles) gain the least—their marginal odds of participation being (statistically) significantly below unity. This is in contrast with the females in the poorest quintile. Their marginal odds are significantly (in the statistical sense) higher than their male counterparts. Interestingly whilst the poorest females fare reasonably well from an expansion in primary care, it is females in quintile 4 that would appear to benefit the most.

Distinctly greater inequality emerges in the distribution of marginal spending on hospital based care. As with average benefits, at the margin the poorest groups stand to gain the least from an expansion in hospital-based healthcare—and this applies as much to poor males as to females. If per capita spending on regional hospital care were to be raised by KSh100, the poorest quintile is predicted to gain on average by only KSh61, which is in striking contrast to the richest quintile, which is likely to gain KSh166 per capita. Females in the richest quintile gain by far and away the most from any expansion in hospital-based care. This inequality becomes strikingly clear from the marginal shares accruing across the quintiles (Table IV.10). Based on the results from the individual data, the richest females in Kenya (comprising about 10 percent of the population) are predicted to gain almost 20 percent of any increase in hospital-based care. The poorest females (also representing just 10 percent of the population), would gain just 6 percent.

In sum, the inequality patterns which emerged from estimates of the average benefit incidence apply to (and are indeed reinforced in) the marginal benefit incidence. Primary health care is evenly distributed on average, and at the margin. Even the poorest females are predicted to benefit from an expansion in primary spending. And the unequal distribution observed on average for hospital-based care, is even more distinct at the margin, with the richest quintile getting a third of the additional spending, and the richest females, one fifth. Increases in spending on hospital-based services is estimated to be even more unequal than average benefit incidence would suggest—and strikingly so.

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[14]   Since visits to the large teaching/referral hospitals are not common events in the KIHBS, we do not cover such care here.

Table IV.9 Average and marginal odds of participation in government-funded health care, by quintile and level of care, 2005-06

Quintile	Average odds			Marginal odds					
				Grouped data			Individual data		
	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females
Primary health care									
Poorest quintile	1.00	0.97	1.02	0.95	0.75	1.12	0.91	0.67**	1.16
Quintile 2	1.01	0.98	1.03	0.46*	0.51	0.73	0.73**	0.66**	0.79
Quintile 3	1.11	1.13	1.09	1.08	1.34	0.79	1.12	1.15	1.10
Quintile 4	1.07	1.10	1.06	1.40	1.13	1.29	1.24*	0.99	1.47***
Richest quintile	0.80	0.82	0.79	1.10	0.99	1.35	1.00	0.73	1.27
Mean	1.0	1.0	1.0	1.0	0.9	1.1	1.0	0.8	1.2
Regional hospital-based care									
Poorest quintile	0.70	0.74	0.67	0.99	1.19	0.67	0.61**	0.65*	0.58**
Quintile 2	0.71	0.72	0.70	1.17	1.16	1.06	0.78	0.63**	0.93
Quintile 3	1.19	1.25	1.15	1.02	1.00	0.94	0.79	0.66*	0.93
Quintile 4	1.23	1.19	1.26	0.87	0.74	0.90	1.15	0.93	1.36
Richest quintile	1.18	1.10	1.23	0.95	1.01	1.32	1.66**	1.33	1.98***
Mean	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.8	1.2

*** indicates statistical significance at 1% level; ** at 5% level and * at 10% level, testing whether the coefficients are significantly different from unity.
Source: Authors' estimates, based on KIHBS, 2005-06 data

Table IV.10 Average and marginal shares in government-funded health care, by quintile and level of care, 2005-06

Quintile	Average shares			Marginal shares					
				Grouped data			Individual data		
	Both sexes	Males	Females	Both sexes	Males	Females	Both sexes	Males	Females
Primary health care									
Poorest quintile	20.0	8.0	12.0	19.1	7.4	11.4	18.2	6.6	11.7
Quintile 2	20.2	8.1	12.1	9.3	5.0	7.4	14.6	6.4	8.1
Quintile 3	22.2	9.4	12.8	21.7	13.2	8.0	22.4	11.3	11.2
Quintile 4	21.5	9.1	12.4	28.1	11.1	13.1	24.7	9.7	15.0
Richest quintile	16.1	6.8	9.3	21.9	9.9	13.5	20.1	7.3	12.7
All	100.0	41.4	58.6	100.0	46.6	53.4	100.0	41.2	58.8
Regional hospital-based care									
Poorest quintile	13.9	6.0	8.0	19.7	11.8	6.8	12.2	6.4	5.9
Quintile 2	14.1	5.8	8.3	23.5	11.4	10.8	15.7	6.2	9.5
Quintile 3	23.8	10.0	13.8	20.4	9.8	9.6	15.8	6.5	9.4
Quintile 4	24.6	9.6	15.1	17.4	7.3	9.2	23.0	9.1	13.9
Richest quintile	23.5	8.9	14.6	19.0	10.1	13.2	33.3	13.3	19.7
All	100.0	40.3	59.7	100.0	50.4	49.6	100.0	41.6	58.4

Source: Authors' estimates, based on KIHBS, 2005-06 data.

V.   CONCLUDING OBSERVATIONS

Households clearly benefit greatly from government social spending in Kenya. Our estimates suggest that government spending on education overall amounts to about 10 percent of household income/consumption, and health spending to just over 2 percent (Table V.1). Education spending dominates—the overall subsidy being five times that of health. The benefits to the poorest groups (the poorest 20 percent) are even more striking. The in-kind transfers they gain by sending children to school and using government subsidized health facilities amounts to over 40 percent of their income. For the richest quintile, it is only 5 percent of income.

The education subsidy is better targeted to the poorest groups—18 percent of the subsidy benefits the poorest quintile, while just 14 percent of health spending reaches the poorest. At the other end of the income scale, the richest get the largest share of the health spending—27 percent of the health recurrent budget. Because they benefit little from spending on primary education, the richest quintile gets only its proportionate share (22 percent) of overall education spending.

Table V.1 Distribution of social spending by quintile, 2005/06

	Per capita subsidy		Share of the subsidy		Subsidy as percentage of household consumption		
	Education	Health	Education	Health	Education	Health	Both sectors
	(KSHs per annum)		(Percent)				
Poorest quintile	2,347	397	17.4	14.3	35.8	6.1	41.9
Quintile 2	2,611	402	19.3	14.4	21.8	3.4	25.2
Quintile 3	2,625	594	19.4	21.3	15.1	3.4	18.5
Quintile 4	2,728	637	20.2	22.9	10.2	2.4	12.6
Richest quintile	3,201	754	23.7	27.1	4.6	1.1	5.7
All Kenya	2,702	557	100.0	100.0	10.2	2.1	12.3

Source: Authors' estimates based on budget data and KIHBS 2005/06

Government spending on both health and education is regressive in absolute terms, but progressive relative to household income/consumption. Those in the poorest quintile gain massively from education, which represents over one third of their income. Their gains from health, though still progressive, are lower at just 6 percent of income. These findings are encouraging, but they also contain some important policy messages for both sectors, which will be discussed further below.

In general, our estimates of the incidence of marginal changes in spending on education and health follow a similar pattern to those observed on average. They confirm that additional spending on primary education and primary health-care are likely to benefit the poorest groups in Kenyan society. There is no strong evidence of a gender imbalance or bias in the marginal benefits from education spending, and females are predicted to benefit more than males from an expansion in primary health spending. And whilst the richest females are shown to benefit most from an expansion of hospital services, their counterparts in the poorer quintiles gain far, far less—even less than the males in the quintile.

V.1 EDUCATION

The incidence of government spending on education is generally progressive, in that the gains poorer household received relative to their income are far greater than the better-off. This comes mainly from the distribution of government spending on primary education. Although the primary net enrolment rates have been persistently lower among the poorest quintile than other groups, they have increased in recent years in response to the FPE policy (Table III.1). But it is the sheer weight of numbers that draws the primary subsidy heavily towards poorer groups. It is among these groups that most of the primary school-aged population is to be found (Table III.10).

The following education policy messages emerge from this analysis:

Continued efforts are needed to raise enrolments among the poorest: The KIHBS reports a net primary enrolment rate (that is, the proportion of children of primary school age attending primary school) of just 71 percent (for both girls and boys).[15] This needs to be raised. It is particularly low in Coast, Rift Valley and North Eastern provinces, where the policy effort should be focussed. Impact evaluation studies have shown that support to poor households does raise school enrolment. A recent study (Evans et al, 2008) concluded that proving school uniforms reduced school absenteeism by 30 percent—the effect being greater (64 percent) for poorer students.

Ensure that the gains in primary school enrolments are not lost: Poor people have responded to the FPE policy. The challenge now is to ensure the gains made are not lost. Poor quality of education and the failure to improve education attainment, might eventually discourage attendance at school among poorer groups. Schooling standards at the primary level should be enhanced. The marginal benefit incidence findings suggest that any weakening in the primary education policy effort would impact most on the poorest Kenyans—especially poor girls. As a corollary, any further advances would benefit them the most.

Raise secondary enrolments among the poor: The very poorest groups in Kenya (the bottom 20 percent) gain very little from secondary school spending. Our analysis suggests that even increased spending on secondary schooling is unlikely to benefit poorer households greatly—the greater share of spending still be captured by the better-off. The government has stated its aim to introduce free secondary schooling. To frame appropriate interventions, research is needed on the main constraints faced by poor people in enrolling children in secondary school—candidate factors are poor educational attainment at primary level, costs of schooling, access to secondary school facilities, perceptions of the benefits of secondary schooling in a farming context. There are close to 21,000 public and private primary schools in the country, but only about 4,800 at the secondary level. This sparse distribution is certain to make access difficult and costly to poorer Kenyans living in (often remote) rural areas. This is probably the reason why increases in secondary spending are predicted to continue to benefit richer groups. One policy under implementation is the introduction of secondary school bursaries. A recent evaluation of this suggests a number of weaknesses in the implementation of the policy. It found that it is non-transparent, inconsistent in providing support to poorer households, and generally inefficient in its implementation procedure. Clearly the implementation of the secondary school bursary scheme needs to be made more transparent and actions taken to ensure that poorer households get to benefit.

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[15] The gross primary enrolment rate for the poorest quintile is much higher (Table III.1), indicating that many children in the poorest quintile are late entrants and are older than primary school age.

V.2 Health

The pattern of health spending across the levels of health-care delivery has remained largely unchanged over the past decade. The share of the budget allocated to the higher levels of care has remained significant, with front-line rural services suffering in relative terms. Poor people tend to use those services which benefit least from budget allocations. Although poorer Kenyans gain proportionately from primary health care spending, the quality of the service they obtain when attending a primary facility might be limited compared with that obtained through hospital-based care. Given their limited access to hospital facilities, poorer people gain relatively little (compared with the better-off) from government subsidized hospital care. Overall women benefit more than men from health spending, but poorer women appear to be disadvantaged relative to men. The distribution patterns observed on average for health care apply also at the margin. An expansion in hospital-based services is predicted to benefit the richest the most—especially rich females. Inequality in household spending on health is significant, and public subsidies do little to correct for this.

The key policy challenge is to two-fold:

First improve the quality of care at the primary level: These are the facilities used mostly by poor people. According to the Fourth Participatory Poverty Assessment (PPA-IV), 'the communities described lower level health institutions (dispensaries and health centres) as offering inadequate services, mainly because some services were not available, while district, provincial and national hospitals have more qualified doctors, are normally better stocked with drugs, and offer more specialized services.' (Ministry of Planning, and National Development, 2008: 77)

Second encourage greater use by poor people of district and provincial hospitals. This in turn would call for two types of intervention. First improve access to district and provincial hospitals through better all-year roads. And second, improve the implementation of fee exemptions as fees are likely to discourage the poor more than the non-poor. Many communities covered by the PPA-IV survey reported that unofficial payments often were needed to obtain care—in addition to the scale of charges levied in public facilities. These and other costs (transport, waiting time etc) are likely to discourage use of these services by poor people.

References

Castro-Leal, Florencia, Julia Dayton and Lionel Demery. 1999. "Public Social Spending in Africa: Do the Poor Benefit?" ***World Bank Research Observer***

Central Bureau of Statistics, Ministry of Health, and ORC Macro (2004). ***Kenya Demographic and Health Survey 2003.*** Calverton, Maryland: CBS, MOH, and ORC Macro.

Dayton, Julia and Lionel Demery (1994) 'Public Health Expenditure and the Rural Poor in Kenya.' Education and Social Policy Department, World Bank (mimeo, January).

Demery, Lionel and Mathew Verghis (1994) 'The Incidence of Public Education spending in Kenya'. Education and Social Policy Department, World Bank (mimeo, April).

Demery, Lionel (2003) 'Analyzing the Incidence of Public Spending.' Chapter 2 in François Bourguignon and Luiz A. Pereira da Siva (eds.) ***The Impact of Economic Policies on Poverty and Income Distribution: Evaluation Techniques and Tools.*** World Bank/Oxford University Press, Washington D.C.

Evans, David, Michael Kremer and Muthoni Ngatia (2008) 'The Impact of Distributing School Uniforms on Children's Education in Kenya.' (Unprocessed mimeo, March)

Kenya National Bureau of Statistics (2008a) ***Kenya Integrated Household Budget Survey: Basic Report 2005/06.*** Republic of Kenya, Nairobi

Kenya National Bureau of Statistics (2008b) ***Kenya Integrated Household Budget Survey: Poverty Report 2005/06.*** Republic of Kenya, Nairobi

Kenya National Bureau of Statistics (2009) ***Kenya Demographic and Health Survey, 2009: Preliminary Report. Republic of Kenya,*** (Nairobi, June).

Kiringai, Jane (2004) 'Mainstreaming Gender in National Budgets: The Gaps in the Kenya Budget Process.' Institute of Economic Affairs, Nairobi, Kenya (November).

Kiringai, Jane (2006) 'Public spending in Kenya: An inequality perspective.' Chapter 2 in Society for International Development, ***Readings on Inequality in Kenya: Sectoral Dynamics and Perspectives*** (Nairobi, Kenya)

Krishna, Anirudh, Patti Kristjanson, Maren Radeny and Wilson Nindo. (2004) 'Escaping Poverty and Becoming Poor in 20 Kenyan Villages.' ***Journal of Human Development*** Vol. 5, No. 2 (July)

Lanjouw, Peter, and Martin Ravallion (1999) 'Benefit Incidence, public spending reforms, and the timing of program capture' World Bank Economic Review Vol. 13 No. 2, pp. 257-73 (May)

Ministry of Planning and National Development (2008) **Basic Report of the Fourth Participatory Poverty Assessment 2005/06.** Republic of Kenya, Nairobi.

Ministry of Health (2008). **Public Expenditure Tracking Survey 2007.** Republic of Kenya, Nairobi.

Ministry of Health (2009) **Household Health Expenditure and Utilisation Survey Report 2007** , Republic of Kenya, Nairobi.

Ministry of Health (undated) The Second National Health Sector Strategic Plan (2005-2010). Republic of Kenya, Nairobi.

Muchiri, Stephen, Thomas Maina, Nzoya Munguti, Adam Lagerstedt and Burkard Koemm (2008) 'Development of National Health Financing Strategy for Kenya' Health Sector Mid Term Review (Mimeo 6 June)

Nafula, N. N., P. K. Kimalu, J. Kiringai,, R. Owino, D. K. Manda, and S. Karingi (2004). **Budget mechanisms and public expenditure tracking in Kenya.** (KIPPRA Discussion Paper No. 37). Nairobi: Kenya Institute for Public Policy Research and Analysis.

National Coordinating Agency for Population and Development, Ministry of Health, Central Bureau of Statistics, Macro International (2005), **Service Provision Assessment Survey,** 2004 (Nairobi, November)

Younger, Stephen (2003) 'Benefits on the margin: observations on marginal benefit incidence' **World Bank Economic Review** Vol. 17 No. 1, pp. 89-106

World Bank (2007) **'Kenya: Health Sector Support Project: Project Appraisal Document.** Report No. 40610-KE, Draft November 15th, Human Development 1 AFTP2, Africa Region

World Bank (2009) **'Kenya Poverty and Inequality Assessment. Executive Summary and Synthesis Report'** Report No. 44190-KE, World Bank, Washington D.C.

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