The cost of getting books read in rural Africa: Estimates from a survey of library use in Burkina Faso

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Abstract: Estimates of the impact of libraries on reading in eight villages in Burkina Faso and costs of running libraries enable us to suggest that the cost of getting an extra book read a year varies from $.74 to $1.30, according to the size of the school in the village, and the cost of an extra school year equivalent likewise varies from $43.42 to $75.98 per year. These costs are comparable to the costs of increasing schooling, and suggest the desirability of more careful assessment of the choice between schooling and book availability.

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Introduction

This paper answers a simple question: What is the cost of generating greater reading by establishing small village libraries in rural Africa? The answer is $.74 per book read. The answer is entirely reasonable, since the cost of a decent novel in many African countries often is around $10.00. So buying books and giving them away, and assuming the owner will share with nine other persons, would generate about the same number of books read as establishing and maintaining a small library. The library has the virtue of also serving other clients, of becoming a valuable social institution building social capital, of gainfully employing an educated villager in the dignified occupation of librarian, and of eventually promoting reading through programs that complement the accessibility of books. (Issak 2000)

The body of the paper consists of an analysis of results from a survey of eight villages in Burkina Faso, four with libraries and four without. The survey generates reasonable estimates of how the number of books read in a year might increase with the availability in the village of a library oriented to secondary schoolchildren. The costs of running a small library are also estimated with precision by the budget data of a small non-profit organization that supports village libraries. Full disclosure: one of the authors of the paper (Kevane) is the president of the non-profit; more on that later.

The premise, unquestioned in this paper, is that a schoolchild reading more books is a good thing. Accepting the premise generates another useful cost-benefit comparison. Suppose that an education policy specialist were indifferent between having a secondary school student read a book as opposed to going to school for three days. (Informal observation suggests that is about how long it takes a student to read a decent novel.) Then the cost of generating a year's worth of schooling (by having students read more books) is $43.42. This estimate is within the range of "cost of schooling" estimates that are widely cited, though far below the benefits of obvious interventions such as deworming schoolchildren or launching anti-malaria campaigns.

Estimating the cost of getting a book read calls for big boots, and the research here has been conducted with bedtime slippers. The sample

of villages is small, the sample is from only one region in one country, the endogeneity of library placement is always an issue, respondent bias is possible, and interpretation of results may be open to dispute. But research has to start somewhere, and no one else seems to have bothered to estimate the cost.

The plan of the paper is as follows. The next section reviews the survey results that form the basis for our belief that village libraries can double the average number of books read in a year, from six to twelve, by secondary school students in a typical village. The following section reviews budget data from village libraries, leading to the conclusion that it costs about $2,700 per year to run a village library. We then present the simple cost-benefit analysis showing other necessary assumptions to generate an answer to our question. We then turn to a discussion and contextualization of our results. As might be anticipated, we believe that revitalization of African village libraries through public expenditure is long overdue (Amaral and Rosenberg 2000; Carnegie Corporation of New York 2000).

2. How many more books are read?

We conducted a survey of secondary school students in eight villages in Burkina Faso. Our budget was limited, and so we adopted the expedient sampling methodology of choosing villages along the main paved highway that runs through southwestern Burkina Faso. There are very few villages in Burkina Faso with functioning libraries. Our base was to choose two villages where we knew there were well-functioning libraries that served the secondary school population extremely well. We then chose the two nearest comparably sized villages that had secondary schools but no village libraries. Then we picked two larger villages that had rural information centers established more than a decade ago. These rural information centers are multi-purpose centers that offer a great many services to the larger villages where they have been established (there are 31 in the country). Many have yet to realize their potential, though, existing as rooms in the public education administrative offices and serving the educators more than the students. Their emphasis is not on providing interesting books to be read by secondary students. We again matched these two villages with nearby large villages that had secondary schools but no libraries.

Seven of the eight villages also had small school libraries. These school libraries are often a large metal cabinet with a few shelves of

books. Their accessibility depends on the good-will of a teacher. Sometimes students get real benefit from these small libraries, and sometimes they stay closed the entire school year.

Our survey form had five components: we asked students about their socio-economic background; we asked them about the accessibility of books in their village; we inquired about their reading habits; we tried to collect indicators of their attitudes and aspirations towards school, reading and literature; and we conducted a short reading test. Filling out the survey form took less than two hours, and was conducted in the classroom, at a time chosen by the school director and teacher. In each village we asked the entire class of *troisième* (equivalent to 10^{th}-11^{th} grade) to fill out the questionnaire and reading test. We wanted to avoid problems of response bias due to selection effects and the cost a confusing *in situ* random selection of students. Since coding costs were small, there seemed no reason not to survey the entire class. Surveying more than one class level would increase the logistics costs of running the survey, but would be highly desirable in the future.

The total number of respondents is then 496 students, 67% boys and 33% girls. The students are distributed across the three types of villages as follows: 235 are in the four villages with no libraries, 173 are in two large villages with rural information centers, and 73 are in two small villages with village libraries.

Table 1 presents some averages of responses regarding accessibility of reading material. Evident is the low profile of the reading centers, in whose villages almost half of the students seem to be unaware of their presence. Also sad to remark is the very low number of students having access to private book collections of more than 25 books. No visitor of rural Africa fails to remark upon the virtual absence of books in private homes. The problem is not at the retail end. The traders of second-hand clothing- known in Burkina Faso as *yuugu-yuugu*- are waiting to make the market in castaway books. The middlemen have unfortunately jumped straight from used t-shirts to Pentium IIs, bypassing *My Friend Flicka*.

Table 1: Accessibility of books in different villages according type of village (Percent of students responding affirmatively)

Village has what kind of public library?	My village has a public library	My school has a library	I have access to a private library of more than 25 books
None	28%	77%	10%
Rural information center	52%	97%	8%
Small village library	97%	82%	7%

Table 2 continues with statistics on the usage of village library facilities. The responses accord with our knowledge of the actual infrastructure, though not exactly. Some students may have confused the question about frequenting the public library with their school library. Nevertheless, the villages with small village libraries see much greater usage of the public library than those students in larger villages with rural information centers. The latter rely more often on their small school library for books.

Table 2: Usage of libraries (Percent of students responding affirmatively)

Village has what kind of public library?	I use the village public library regularly	I use the school library regularly	I use a library regularly	I am a subscriber at a village or school library
None	16%	47%	49%	41%
Rural information center	24%	50%	59%	55%
Small village library	88%	33%	93%	92%

In our survey we asked students to mark how many books they had read on a list of 25 fairly well known novels by African authors of the region and the country. We also asked how many books they had read in the past 30 days, and in the past year. The answers to these questions on numbers of books read are presented in Table 3.

Table 3: How many books do students say they have read?

Village has what kind of public library?	How many of 25 African novels have read?	How many books read in last 30 days?	How many books read in last year?
None	5.60	1.51	6.94
Rural information center	5.77	1.64	6.96
Small village library	8.77	2.18	12.67

There is almost no difference between the responses of those students with access to rural information centers and those with no library whatsoever, but there is a sizable increase in books read by students living in the two villages with small public libraries. Although the second and third columns do not concord (the thirty-day rates are excessive compared with the annual rates), the gap is consistent. On a monthly basis, students in villages with small public libraries read on average a half a book more than other students, and on an annual basis about 6 books more.

This increment is not a spurious correlation resulting from students in the small village library villages being different from other students. It does seem to be caused by the easy and encouraging accessibility of books. Table 4 shows that on various measures of socio-economic status of the families there are no strong differences across the villages except in electrification. Two of the large four villages are partially electrified, and consequently many of the families have light bulbs. The low levels

of reading in these villages is then doubly surprising. Otherwise, similar are the education levels of parents, the ownership of radios (near universal, though reception is a different matter altogether) and ownership of assets generally (measured by a crude index of counting up four different kinds of assets). Two of the smaller villages without libraries have more oxen than other villages, and this may be somewhat important in explaining their lower levels of reading (younger men should be expected to be working with the oxen and reading less).

Table 4: Socio-economic status of families of student respondents

Village has what kind of public library?	Mean years of education of father	Mean years of education of mother
None	2.56	1.05
Rural information center	2.78	1.70
Small village library	2.86	1.41

	Percent owning oxen	Percent owning radios	Mean of index varying from 0-4 of household assets	Mean number of lightbulbs
None	0.38	0.85	2.52	0.85
Rural information center	0.16	0.82	2.31	2.05
Small village library	0.14	0.92	2.40	0.73

Nor are the differences in reading volume due to differences in attitudes towards reading. While the responses reported in Table 5 suggest that slightly fewer students in the small library villages think reading is an anti-social activity, and slightly fewer of their peers spend time on social activities, they are more agnostic about the value of

reading for schooling success. (On the whole students are not that confident of the value of reading, much to our surprise and perhaps to that of any avid reader or teacher who takes such a relationship to be self-evident.)

Table 5: Attitudes towards reading (Percent responding affirmatively)

Village has what kind of public library?	Someone who reads a lot is an "anti-social" person	My friends are people who spend a lot of time in social activities and games	Those who read get good grades in school	Reading a lot, even comic books, will help me in school
None	15%	59%	45%	56%
Rural information center	16%	58%	54%	58%
Small village library	11%	48%	40%	52%

A simple regression analysis confirms the main results here. Table 6 presents the results of using the basic explanatory variables discussed above in explaining variation in reading of books. The three dependent variables are number of books by African authors read, number of books read in last thirty days, and the number of books read in last year. As may be seen, the primary result of interest is that in the two small villages with public libraries serving students there is a large and statistically significant increase in the number of books read, using all three measures. On an annual basis, the increase can be rounded up to six more books per year.

The regression results also show that access to a library in primacy years of schooling seems to be important in cultivating a life-long desire to read. Likewise, private book collections substitute very nicely for public libraries, though with smaller effects. Education of parents seems to not matter. Literacy is very low, as could be seen by

the low average levels of parental education, so there really is quite a lot of opportunity for first-generation readers. Even very literate and comparatively wealthy parents in rural areas have few books that can be used to cultivate the reading habit. Household assets and student age have predictable, though not robust, effects. The decrease in books read by female students is somewhat expected, but troubling considering the sample consists exclusively of enrolled students.

Table 6: Results of regressions with books read as dependent variable

	(1) How many of 25 African novels have read?	(2) How many books read in last 30 days?	(3) How many books read in last year?
Is student female?	0.192	-0.291	-1.771
	(0.56)	(2.18)*	(2.53)*
Age of student	0.256	-0.047	-0.506
	(2.17)*	(1.03)	(2.11)*
Index of assets owned by household, from 0-4	0.412	0.068	-0.051
	(3.04)**	(1.29)	(0.19)
Did student have access to library in primary schooling?	1.857	0.561	1.407
	(4.98)**	(3.87)**	(1.86)
Does student have access to private book collection?	1.358	0.452	2.389
	(2.42)*	(2.07)*	(2.09)*
Village with small public library?	3.249	0.630	5.758
	(7.31)**	(3.65)**	(6.37)**
Years education of father	0.037	0.011	0.058
	(0.91)	(0.69)	(0.69)
Years education of mother	0.078	0.004	0.116
	(1.26)	(0.18)	(0.92)
Constant	-0.853	2.187	16.163
	(0.39)	(2.58)*	(3.64)**
Observations	470	470	470
R-squared	0.19	0.08	0.12

Absolute value of t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

In summary, the section has presented the results of a survey of students in eight villages. Our finding that students in villages with small public libraries that serve students read about six more books per year is quite robust to other control variables, and is plausibly interpreted as an effect of the availability of books.

3. Calculating the cost of getting a book read

An increase in books read would be of little consequence if the cost of encouraging reading were excessive. Fortunately, the cost turns out to be quite modest. One of the authors of the paper (Kevane) has since 2002 been president of Friends of African Village Libraries, a small volunteer non-profit that helps establish and support small rural libraries. At present the organization supports five libraries in Burkina Faso and two in Ghana. The position of responsibility does have perquisites, and one is the easy availability of detailed data on the costs of supporting the village libraries.

The major expense in running a small village library is the salary of the librarian, set at roughly one half the salary of a primary school teacher. This turns out to be $65 per month at current exchange rates, and if a 13th month bonus is included (typical in the private sector) as well as the modest social security contributions the annual salary is on the order of $1000. The annual costs of equipping the librarian's desk and maintaining the library infrastructure (with occasional shelves or other modest maintenance) is approximately $500. Add to this a reasonable budget of $500 per year for renewing the stock of books (especially for replacing worn out novels by African authors, which are in high demand) and another $500 as amortization of the initial set-up cost of $5000 to establish the library, and annual costs total $2500. Of this amount, we suppose that 75% is directly attributable to serving the secondary school students. The other 25% we might attribute to the myriad other functions of the library.

We calculate our estimates for the two type of schools prevalent in rural Burkina Faso, the *Collège d'enseignement générale* (*CEG*) and the full-blown *lycée*. The CEG has four class levels and the *lycée* has seven. So the number of students potentially making use of the libraries differs. If the cost of the library is the same in both places, then obviously the per user cost is about double for the CEG since there are about half the students. We assume that the 6 extra books read are spread out over the 60 students in the typical school who are in *troisième*, and that reading a book is equivalent to three days in school. As Table 7 shows, the number of extra books read in a CEG is estimated to be approximately 1440, and this corresponds fairly closely with the number of books checked out in the two small village libraries, which are on the order of 1500 per year. Obviously some library books are read in

the library, and many checked out books are read by more than one person (so the librarians tell us!).

These assumptions and estimates enable us to suggest that the cost of getting a book read varies from $.74 to $1.30, and the cost of an extra school year equivalent varies from $43.42 to $75.98. We believe these figures are both reasonable and robust.

4. Libraries and reading in rural Africa

Our estimates of the cost of getting a book read are subject to some important caveats. As mentioned earlier, the sample is small and from one region of one country. Burkina Faso has a fairly low literacy rate, compared with southern and eastern Africa. Yet all the evidence suggests those higher literacy countries have very limited book availability in rural areas. Indeed, in neighboring Ghana, with a much higher literacy rate, the culture of reading seems less well entrenched than in Burkina Faso.

We do not want to minimize the possible response bias generated by conducting a survey in the same location as a project. Perhaps students in the village with small public libraries thought they should say they read a lot of books to try to please the project. It should be noted that the survey administration was actually conducted by co-author Sissao, and he has no involvement in the library project. Our survey form also made clear that there would be no direct effects of the survey, except for a modest contribution made to every school (not class) that participated in the survey. Another possible confound is that perhaps the placement of the small village libraries was endogenous, and they were located in villages with a strong culture of reading. Another perquisite of intimate involvement in the set-up of the public libraries is being able to reject this hypothesis. Both villages were chosen for essentially random reasons (research conducted years earlier on an entirely different matter, and by a different person, determined why these two villages ended up with libraries). Of course, it is always possible that our semi-random draw of villages is very unrepresentative. Only by increasing the sample size of villages (and countries) can we gain confidence in our measures. Introspection suggests they are probably not wildly off the mark: small public libraries in rural villages are a reasonably cost-effective method to promote high-quality literacy.

Finally, we do not want to conclude with our libertarian anti-government friends cotton-mouthed with anxiety. There are many steps that governments can take to reduce their burdensome regulations that throttle the private book trade. Nor is there anything wrong with private subscription libraries such as existed in the West before the advent of public libraries (and which continued in other forms, such as Readers Digest and Book-of-the Month Club, basically mechanisms for publishers to price discriminate, much as happens with a subscription library where poorer readers pay in kind or in quality rather than in cash). The simple fact of the matter is that the private sector in Africa has not really developed any alternative to the public library for promoting a culture of reading. It might happen sometime, for sure, but why wait for the long run when public monies will be spent anyway, on something less meretricious.

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Table 8: Estimates of the cost of obtaining an extra book read by a secondary school student, or an extra "year of schooling" equivalent

		lycée	*CEG*	
(1)	number of student in *troisième* class in secondary school	60	60	survey result
(2)	number of grade levels in secondary school	7	4	
(3)	increase in books read by students in village of library	6	6	survey result
(4)	reading one book equivalent to how many days of school?	3	3	assumption
(5)	total increase in books read brought about by library	2520	1440	(1)*(2)*(3)
(6)	total increase in "school days" brought about by library	7560	4320	(5)/(4)
(7)	amortization charge for $5000 setup cost of library	$500.00	$500.00	FAVL budget
(8)	annual salary and benefits of librarian	$1,000.00	$1,000.00	FAVL budget
(9)	normal annual expenses for supplies and maintenance	$500.00	$500.00	FAVL budget
(10)	Renewing the stock of books in the library	$500.00	$500.00	FAVL budget
(11)	share of library expenses attributable to offering reading services to secondary school students	0.75	0.75	assumption
(12)	expenditure needed to obtain one more book read per year per student	$0.74	$1.30	((7)+(8)+(9)+(10))*((11)/(5)
(13)	expenditure needed to obtain equivalent of a day of schooling	$0.25	$0.43	(12)*(4)
(14)	number of days in the school year	175	175	assumption
(15)	expenditure needed to obtain another "year of schooling" equivalent	$43.42	$75.98	(13)*(14)