

**Education, Macroeconomic Adjustment and the Role of Government
Micro Evidence from Sudan**

*Paper prepared for Oxford International Conference on the Quality and
quantity of Education
Centre for International Education and Research
University of Birmingham
UK*

Introduction to the Doctorate degree in Business Studies

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September 2003

Education, Macroeconomic adjustment and the Role of Government Micro Evidence from Sudan

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Developing countries are educating more of their population than ever before, enrollment ratios at all levels have risen and the public spending in the sector has also steadily increased. In the Sudan, the slogan of “education for all” by the year 2000 since 1970s and supported by Jometian in1991, and Dakar (1994) facing difficulties at the micro levels particularly in the case of poor population with inaccessibility to productive assets. These difficulties can express in term of policies, values rigidities, and the absent of good governors that formulating and implementing appropriate policies. The country is widely diversified among its population. Adding to that the efforts that have been made to improve the efficiency and the quality of education system emphasis in the rush on expanding of construction basic education schools resulting in wasting resources allocated to the sector. Recently, there has been much interest in analyzing the impact of macroeconomic adjustment on the education sector. But, considerable uncertainty remains about the impact of macroeconomic adjustment in the demand and supply of education. The literature makes few attempts to establish causality link between adjustment policies and changes in the education sector. Did the decline in education demand result from the cut in public spending caused by externally induced recession and structural problems, or adjustment policy design to offset economic difficulties? What is the counterfactual, i.e., were condition of the sector better or worse under the implementation of adjustment process. Most analysis in the literature is superficial and based only on trends and macroeconomic indicators of education during the period after 1980 – the adjustment period. Using qualitative data obtained from an integrated survey in El Gash province. Our paper offers micro evidence by using qualitative indicators as an attempt to assess such impact in one hand, and to assess the role of government intervention in other hand. Different methodological techniques available in the literature and compatible with our analysis are used to capture the desired results. It finds evidences that, non-economic factors play a vital role in determining the factor affecting the demand for education. Other empirical results are reported and policy implications are drawn.

1. Introduction:

Developing countries are educating more of their population than ever before, enrollment ratios at all levels have risen and the public spending in the sector has also steadily increased.

In the Sudan, the slogan of “education for all” by the year 2000 since 1970s and supported by Jometian in1991, and Dakar (1994) facing difficulties at the micro levels. These difficulties can express in term of policies, values rigidities, and the

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absent of good governors that formulating and implementing appropriate policies. The country is widely diversified among its population. Adding to that the efforts that have been made to improve the efficiency and the quality of education system emphasis in the rush on expanding of construction basic education schools resulting in wasting resources allocated to the sector.

The principle objectives of this paper are to review the literature of the education and to assess the effect of adjustment and government policies on the education sector with particular emphasis at the micro level in El Gash Delta province in Kassala State (Eastern Sudan). This analysis is particular important for designing and implementing appropriate policies intervention for promoting long-term human development. The rest of the paper organized as follow: section (2) provide literature review, section (3) describe methodology and data interpretation, while section (4) report the empirical results, and finally, section (5) offers concluding work.

2. Education, Development and Macroeconomic adjustment a Review:

People with more education have higher wage and income opportunities. This is probably the second fact (after Engles' law) most well established fact in economics. It would seem to follow naturally that if more individuals are educated, average income should rise by even more than the sum of the individual effects (Pritchett 2001). The believe that, expanding education promote economic growth has been a fundamental tenet of development strategy for at least 40 years. The post – World War II period has seems a rapid, historically unprecedented expansion in educational enrollments. Since 1960s, average developing countries (gross) primary enrollments have risen from 66 to 100 percent and (gross) secondary school enrollments from 14 to 40 percent (Pritchett 2001). The conclusion that education contributes to economic growth, and that spending on education should therefore be considered productive investment and not merely the satisfaction of consumer demand, is now widely accepted (Hyneman1985).

It is clear that education was once regarded primarily as a means of raising political and social consciousness; melting pot of culture fertilization and transformation. Finally, education come to be seem as a basic human need, and as an activity that sustain and accelerate overall development.

It is now generally recognized that developing of country human resources is essential for growth and to the effective use of its physical capital. Thus investment in education must cover a wide spectrum in content and form.

In another level of the discussion, the largest component of the workforce in most developing countries is engaged in self – employed farm work (Jolliffe 1998). Jamison and Lau (1982) review the results of more than 35 studies that measure the return to education of farmers in Africa, Asia and Latin America. Most of these studies suggest that education has a positive effect on farm production, but the statistical significant effect of this result is often weak. In particular, Jaminson and Laus' review finds no supports for the hypothesis that there are any returns to education for farmers in Africa. The other component of household income of the farmers (at least that resulting from labor) is self-employed and off-farm income. This component has been some what ignored in the human capital literature, in spite of the fact that self-employed, off-farm income is at least as significant as wage income in many developing countries (Jolliffe 1998).

Penrose (1993) argued that, "by universally recognized that public education system in most African, South Asian, Caribbean and Latin American countries are severely under funded in relation to what thy are trying to achieve, the mechanisms for improving efficiency are not in place. Progress can only be made if planning and budgeting are improved".

But this not always the case as in El Gash province, the problem is further exacerbated by institutional and socio – economic constraint (for further details see the empirical results section 4).

The literature frequently suggests that declining trend during the "adjustment" period post (1980) implies causality, and offer hypotheses about how macroeconomic or sector adjustment policies translate in to sector effects. However, concrete evidence that explains the process of sector adjustment to sector or macroeconomic reform and that supports general statement is lacking (Noss1991).

Adjustment programs have incited strong debate since their inception. The effects of adjustment on education depend on the external environment as well as on conditions within the country and within the sector before the adjustment period (Noss 1991).

In many African countries, in spite of public expenditure restraint under various program of macroeconomic adjustment, there has been a steady increase in government expenditure on education (Sahn 1992). Along similar line, Sahn (1989)

suggests that the variability in performance and outcomes observed in adjusting countries largely reflect: (1) External and domestic circumstances that precipitated the need for such change (insufficient domestic policies, external shocks, the debt crisis), and under which reform program are applied); the character of the policy package (macro versus sector specific measures; 3) the degree and pace of implementation; and 4) the choice of the year as the starting point of adjustment.

Most critics argue that adjustment negatively affects incomes and living of the poor. Evidence to support these arguments is not conclusive (Noss1991).

Although critics say little about education directly, their arguments do apply indirectly to education: deteriorating incomes and living conditions may reduce demand for education, while improved education may help improve incomes and living conditions. One argument is that adjustment programs stem from a strictly economic outlook that considers recurrent expenditures on education to be the same as any other recurrent spending (Noss 1991). Thus education is simply one more source of public spending that aggravates budgetary disequilibrium. However, human capital theory views recurrent education spending as productivity – raising investment in human resources. Adjustment policies that reduce education spending may reduce investment in human capital if spending doesn't become more efficient, and may have long – term costs outweigh short – term cost saving (Noss1991). Another important arguments are that in practice policy changes under adjustment are guided by political rather than the design of adjustment programs. In this respect, Sorageldin (1989) asserts that a common tendency is to cut back on social spending at basic levels (primary education) in favor of areas where political constituencies are more powerful (universities).

Although adjustment policies do have certain direct and indirect implications for education, current trend in El Gash Delta province often have their roots in pre – adjustment policies.

Adjustment measures affect education through changes both at macro and micro levels of the economy. At the macro level adjustment effect often implies a combination of budget containment measures for the public education system, limited access to post primary public education, and higher user fees for education services at secondary and tertiary levels. At the micro level, changes in household incomes and prices (user fees, reduced student subsidies) directly influence the demand for education by altering the opportunity cost for attending school (UNDP, 1989).

Household incomes also affect health and nutrition status, and thus indirectly influence (World Bank 1990b).

2.1. Education Supply:

The most obvious impacts of adjustment policies on education are short - term changes in public expenditure (Noss 1991). Education supply need not decline if private resources replace public resources, as the case of Sudan after liberalization policies of 1990s, when the number of private school education is substantially increased particularly in the urban centers. However, even in the case of the public budget deficit in rural areas, it was compensated by efforts of NGOs. Illustrative examples of this compensation are the fund sponsored by Plan Sudan Organization and the UNICEF Initiative of Child Friendly Villages in Kassala State.

Because SAPs focus on correcting imbalances in the economy and laying the foundations for growth rather than equity, the particular program taken by cuts in subsidies, real wages, and real education expenditures have high social cost, at least until the economy begin to grow (Cornia, et. al, 1987). Griffen and knight (1989) argue that in many Third World countries human development program are "savagely" cut and long – term prospect for development diminish while inequality and poverty increase. Lower public education expenditures may result in lower quality and quantity of education services, fewer school amenities (school lunches), or higher user of fees. Further more, any change in civil service wages or employment has particularly strong effects of teachers, if not cause an exodus of experienced teachers (UNDP, 1989). Noss (1991) argued that even if adjustment policies do not cause deterioration in social conditions directly, they are criticized for not reversing declining trends.

On the other hand, Kakwani, (et.al. 1990) Suggest that, the need to cut expenditures provide an opportunity to increase efficiency and equity in the use of resources. This means that the government should take policies that protect the poor, shielding public expenditures on key education and basic welfare services, by reorienting government spending in the education sector.

In another level of the discussion the need to restructure the public budget under liberalization policies and adjustment programs offer an opportunity for government to assess social programs particularly in the education sector. If the policies of the government is appropriate, the quality and quantity of education services could improve even when sector resources decline. Granting access to education service to

the poor in rural communities not always require raising the public expenditure as in the case of El Gash Delta province.

2.2 Education Demand:

Declining household incomes, higher unemployment levels, and change in relative prices raise the opportunity cost of time spent in school, relative to time spent in economic or household activities (Noss 1991). Demand for education also decline if poor health and nutrition reduce attendance and the capacity to gain from education. Demand effects of adjustment policies are also positive. If children has less attractive labor market options, the opportunity cost of attending school declines. Demand also increases in response to more attractive labor market option: adjustment in the long – term increases the expected private rate of return to education in response to expected improvement in the long – term prospects of the economy if the adjustment programs is successful (UNDP 1989).

Adjustment policy is successful (economic growth resumes, employment increases, and wage rise). If it is, then as compared with the situation that would The long – term effects depend very much on whether the have prevailed without the adjustment program, the private returns to education and the supply of resources for education will probably be greater (Noss 1991). Generally the former effect is expected to dominate, though it is far from obvious that it will in all cases (UNDP, 1989). According to Turok (1989), "education is a slow process requiring sustained effort which can not be made up for by crash – courses when funds once more become available". Likewise, Simai (1989) warns that unavoidable cuts in social expenditures should be made with extreme caution and with long – term policy view, even of shorter – term measures, may be excessively high. Disinvestment in human capital threatens country's future development potential.

3. Education and adjustment in the Sudan: (Evidence, Methodology and Data Limitation)

The methodological difficulty is that of understanding how the macroeconomic environment affects the sector: what happens within the sector? Aggregate data provide few answers. One must study the micro level of schools, village, household, and individual.

An ideal methodology would need to identify exactly what adjustment is: what are the specific measures and how do they, independently from other simultaneous influences on the sector, translate in to affects effects measurable by indicators (i.e.

establish causality), (Noss 1991). Analysis must determine how adjustment programs affect the factors governing education supply and demand factors translate into sector outcome, in other words to establish causal link between indicators and adjustment programs. UNDP report concludes that "problems of data and methodology have thus far been so severe as to preclude any systematic evaluation of social impacts of adjustment programs" (Chapelier and Tabatabai, 1989).

3.1. Methodology:

Most analysis in the literature is superficial and based only on trends on education indicators during the period after 1980 – the adjustment period – or on anecdotal evidence (Berstecher, 1989).

Sahn (1989) compares education indicators for countries "before" and "after" World Bank supported adjustment (see table 1-6). This methodology implies that any change between the two periods are the result of adjustment lending, where as any number of other factors could be responsible. Gallagher (1990) compares "fiscally duress" countries – which were forced to adjust during the 1980s by sustaining reduction in real government expenditure as a share of GDP, with or without World Bank Assistance. Neither Sahn nor Gallagher find any strong evidence that adjustment has affected public education financing and enrollment rates either positively or negatively. Methodologies that compare adjusting to non-adjusting countries facilitates cross – country comparisons of changes in the education.

Most of the above analysis in education and adjustment used methodologies offer only economic indicators such as the share of education budget of GDP. The methodology employee here is both analytical and quantitative in order to capture the different economic and non-economic factors affecting the demand of education by households and the supply of education by the government. In other words assessing various policy package affect the education and the efforts of government to develop the sector.

3.2. Data Availability:

An important obstacle to assessing the effect of adjustment policies on the education sector is the lack of aggregate data. Data on quality and equity indicators are much scarcer.

The literature makes few attempts to establish causality link between adjustment policies and changes in the education sector. Did the decline in public spending result from externally induced recession and structural problems, poor management, or

adjustment policy design to offset economic difficulties? What is the counterfactual, i.e., were conditions better or worse under the implementation of the adjustment process (Noss 1991). According to Chapelier and Tabatabai (1989), many countries that needed economic stabilization and adjustment (particularly those in sub-Saharan Africa) had already been through a protracted period of mounting economic stress, during which social services deteriorated, before they undertook adjustment programs.

The research heavily depends on the integrated baseline survey (IBS) conducted in the period of June 2002 and available time-series data. Cross-section data from 96 were collected by using a comprehensive questionnaire which was developed to serve the all purpose of research. The (IBS) generate an exact profile of rural life and enabling us to look further inside of such impact. The policy orientation of the first hand data is obvious robust. The survey information also include observation, interview, focus group discussion with headed-household in order to assess their perception among the education issues and recalling back their opinion during the 1970s.

The sample technique designed carefully in order to make comprehensive coverage for the major settlers in the area. For the purpose of analysis and the heterogeneity of society the three villages *O'laib*, *Tendilai*, and *Wager* are selected.

Some difficulties were faced as far as the primary and secondary data are concerned. With regard to primary data, *Beja's* was very reluctant to give frank answer particularly among questions of historical prospective and those relating to the native system. With regard to the secondary data two problems emerged. These are the scarce of systematic time-series data and due to the process of decentralization in Sudan it is become difficult to recall the education expenditure, because the education partly financed from central government, and partly from local government, public efforts and NGOs. This issue should be treated with caution.

3.2.1. Data Interpretation:

The most common education indicators used in the reviewed literature are education spending as a share of GDP or public budget, and the gross enrollment. These indicators, by themselves, explain little. Whether or not a decline in education's share of total budget reflects specific government priorities depends on central, regional or local government financing. We use local government budget as major indicator for evaluating the microanalysis, since the primary education is locally financed after the process of recent decentralization in Sudan).

In addition to those indicators we used other indicators (e.g. non-economic indicators) to facilitate self –evaluation at the household level.

4. Education in Sudan Macro and Micro Evidence:

This part of methodology based on causal link between education and adjustment in one hand and education and the role of government in other hand as an attempt to contribute in the analysis of SAPs and the various policies adopted by the government and its impact to the education at a micro level particularly, of El Gash province as a case of poor people have not sufficient access to productive assets.

In spite of ambitious literacy and education goals set during the 1970s and largely pursued in Jometian 1991 and Dakar 1994 – school attainment in Sudan and particularly in rural areas still very low.

Sudan wielded strenuous efforts in the field of education during the last decade. The number of schools of basic education has increased from 7720 to 11962 and the number of the students increased from 2 millions to 3.5 with an annual growth rate of 5.6 percent. In spite of this, the aim of absorbing all students at the school age has not been achieved (Sudan plan of Action 2001). A long similar line the chapter one of the education sector on the budget amounted in 2002 to some 13.2% of total chapter one (17.75 billion of Sudanese Dinnar) which constitute the second largest one after the budget of the defense, security and police.

The quality of education is rather tenuous with respect to the standard level of writing, reading, mathematics and other skills. Added to this are increased rates of school dropouts.

The level of illiteracy is increased with an estimated number of 7 millions persons and efforts fell short of absorbing not more than 19 % of pupils at the pre – school education stage. The percentage of untrained teachers for all Sudan in basic education is about 40.4 % for primary school (Sudan plan of Action 2001).

**Table 1. Sudan Educational Achievements of the Total Population Over 15
Years: 1980 – 2000.**

YEARS	POPULATION OVER 15Years (million)	% No schooling	% First level	% Post secondary	Average of years of schooling
1980	10.3	74.3	19.0	0.7	1.14
1985	11.8	69.5	23.7	0.6	1.34
1990	13.6	65.9	24.7	0.9	1.64
1995	15.8	62.8	26.1	1.4	1.93
2000	18.3	60.0	27.4	1.9	2.14

Source: Ali A. Ali 2002 based on Barro and Lee (2000).

The table (1) shows that, the rather relatively modest educational achievements in Sudan since independence. In terms of human capital, the table also shows that the average years of schooling for the relevant population category in Sudan was only 1.14 years in 1980 but increased to reach an estimated 2.14 years by 2000. For the year 2000 the educational achievement of Sudan was much lower that that of the world (an average 6.7years), that for the developing world (an average 5.1years), that for South Asia (with an average of 4.6 years) and that for Sub- Saharan Africa (an average of 3.5years). With this level of achievement the Sudan is still far below the 4 years threshold beyond which increasing returns to scale for human capital begin to accrue (World Bank 1998, Ali 2000).

4.1.1. Social Aspect of Education in El Gash Delta:

Although the percentage of the children enrolled in basic education in El Gash has risen strikingly since the 1970s; since the school – age population has been rising also the number of school has been rising during the last decade of the 1990. The other side of the coin, however, about 25.4%, 17.7% of the pupils in basic school only reached eight level in Aroma rural locality and North Delta rural locality respectively. Dropouts are common among *Beja* and pupils of West African origins.

Although there are substantial increase in the number of school and the school existing in any nearly large village, but also the number of the dropouts increasingly. The dropout in 1978 estimated at 46.6% and the number of the student at the first class were 1000 compared with dropout rate in year 2001/2 77.4 %out of total pupils at the first class 2078 (increasing in the number of pupils by almost 107.8%). In some

instances, low enrollment may reflect not so much in equality of opportunities as social or cultural consideration that keep parent from taking advantage of the availability of near schools in one hand. In another dimension, it's early being recognized that girls in *Beja* nation are vulnerable to socio – cultural constraints on school attendance, the situation between the two groups of settlers are similar among the non-economic factors affects the demand of education. Arrangement such as sex – segregated school, may be necessary to a dress the problem. Low utilization may also reflect views concerning the quality or types of education: where quality is perceived to be low, parent may feel that the benefit of education may be very low. Moreover early marriage is one of the most obstacles confronting girls education in El Gash Delta Province.

Finally, the process of religious socialization of headed – household coupled with the influence of solid religious institution and leaders (*Faki*) play a vital role in the high percentage of dropouts, particularly among the population of West African origin.

Using data obtained from the survey in major three villages in order to find link between the high level of education of headed households and the high level achievement by one of the parents we have obtained the results presented in table (1-2).

The contentions for selecting these villages are the following:

- 1- The population in *O'laib* village are completely homogenous (*Hausa*) and less integrated into social institution, therefore we assume that their aspiration and method of thinking are consistent and sharing the same factors affecting the demand for education.
- 2- The populations exist in *Tendilai* village are much integrated, but partial with population immigrant from Western Sudan and develop solid relation with the resident.

Wager is country – side and the socio- economic condition is much better and there were high provisions of social services is relatively better than the two villages. In the case of *Hadalia* we rely heavily on the secondary data and key informant. Although *Hadalia* village is the capital of Hadendowa native system we have excluded it out of our experiment for two reasons: First the nature and behavior of people is likely to deceive and not tell the truth. Second, the excessive surveys conducted by the NGOs in the *Hadalia* have developed a culture of needs among the population. These three villages share the socioeconomic factors of the population exist in El Gash Delta.

Table 2. Qualitative Factors affecting the Demand for education

Village	High level achieved by headed household	High level achieved by parents	Factors affecting the demand for education	Sample size
O'laib				
Khalwa	100%	20%	unwillingness low level of aspiration	32
Primary	-----	66.7%		
Secondary	-----	13.3		
University	-----	-----		
Tendelai village			Economic Factors Unwillingness	32
Khalwa	100%	a		
Primary	-----	80%		
Secondary	-----	20%		
University	-----	-----		
Wager Village			Unwillingness Low level of aspiration level	32
Khalwa	80%	72%		
Primary	13.3%	13.3%		
Secondary	6.7%	8%		
University	-----	6.7%		

Source: Own calculation based on data obtained in the three major villages.

a-This case refers to pupils study in khalwa after the formal time of school.

As shown in the table (2) above show that, Islamic education constitutes a tradition institution to elucidate the principles and features of Islam to the people. However, the shiekh (the transmitter of knowledge), play a vital role in the process of socialization and partially responsible for the high rate of dropouts, and partially stand for the long conflicts between the formal education and traditional institution similar to the role of the native system discussed the paper.

4.1.2. Institutional Aspect of Education in El Gash Delta:

Management is a major weakness of rural school supervision system. Thus the task for managing the sector in Kassala State is formidable. The educational system is generally most sizable activity. Most educational system urgently needs to improve administration and management. While access to education in El Gash has been increased, the quality and enrollment of rural education remain precarious. Thus, the rapid expansion of basic education has increased the complexity of the education, much of the expansion has been taken without an appreciation of what is required to run the enlarged system efficiency. One of the bad results of misleading policies is that, It was considered that, increasing the enrollments ratios and increasing utilization is to bring school closer to communities that lack facilities. It can not assume that a service will be used simply because it exist. Moreover, senior level managers are usually drawn from the teaching profession without any adequate understanding of requirements of rural society such like the "*Beja culture trap*" and have no sufficient managerial training. Every community in Sudan is unique, presenting features that are individual, having been shaped by its geography, history and culture. Such feature affects the design and implementing macro policies and achieving the national objectives in other hands. By contrast, the responsibility is typically fragmented and its division unclear, both at the center and state and down the line. In El Gash province the relationship between the state education ministry and community group and the schools themselves are often not well defined. In this respect, unfortunately the native system was silent and did not co-operated with the local initiatives. It's appeared clearly that, educational activities that are locally initiated and managed do not receive political support from the Hadendowa native system and other Islamic *shiekh* of all ethnically groups, enthusiasm is likely to evaporate rapidly and the quality of education remains low.

Figures on budget shares in table (3) indicate priorities within the local government budget, but do not reveal expenditure changed. The state education financing figures often ignore public (central government) and NGOs support.

Table 3. Education Share of Total Kassala State Government Budget

Years	1996	1997	1998	1999	2000
Total budget	64533059	102992376	111583748	42393409	118906237
Education spending	170061613	270890207	493156000	401040973	577042841
share of education from total spending	38%	38%	23%	10.5%	21%

Source: own calculation based on data obtained from the State Development and Planning Management (2002).

Table 4. Dropout Rates Before First Adjustment Supported by IMF in 1978 and Home-grown Adjustment Program 1993 in El Gash Province

Year	1978/79	2001/2002
Dropouts	46.6%	77.4%
Number of Pupils in the first class	1000	2078

Source: own calculation.

Many observations that can be made from table (4), it is hard to attribute the high dropout's rate in 2001/2 to low or cut on government spending. I believe that the deterioration condition and the low levels of income monetization, job opportunities to the headed-household and socialization process constitute the major obstacle among children to enroll. From the focus group discussion and interview with population we have found that there were a degree of awareness towards education

and they believe that the problems of problem facing them now attributed to historical distance of being non-educated at that time.

4.2. Some Additional Evidence:

There are a number of methodological difficulties in rigorously assessing the impact of adjustment. The methodology used here is simple and likes the previous studies, but we have add qualitative and non-economic variables at household level, which ignored in the previous studies, (aggregate data leads to limitations, as discussed below). We attempt to establish facts whether the socioeconomic indicators significant at the period of adjustment at the micro level or not, free of fads and technicalities jargon.

4.2.1. Model Specification:

The empirical specification considered here consist of one equation Incorporating factors that effect the demand for education at the micro level particularly, in Kassala State. The equation structure given by the following variables.

$$N = N (GS, SN), \text{ Where: } N > 0, GS > 0, SN > 0$$

Where N is the number of enrollments; GS is the government spending; and SN denoted for number of school. The equation suggests the entire variable have positive effect in the enrollment. As long as small holder's activities in El Gash labor intensive, thus we exclude the total income in the model specification, because it is available only at cross – section data. For more elaborate presentation that captures the social constraints peculiar to the area, we have using qualitative data obtained from household survey in El Gash villages to see whether there are correlation between the level of headed household education and the level reached at least by one parent. Also, to find the correlation between the household income and high level attained by one parent.

Table 5. Factors Affecting the Growth of Enrollments in Kassala State during the Period 1996 – 2000

Parameter	Constant	GS	SN	R2	F
Enrollment(N)	8460.6 (1.21)	0.75 (1.1)	0.46 (0.61)	0.33	0.51 (0.66)

Source: Data on Educational expenditure attained by Kassala State, Planning and Development Unit.

*Figures between brackets are T-ratios.

*Unfortunately, this is the only available systematic time-series data.

4.2.2. Interpretation, Comparison and Policy Implication of the Results:

In what follows we briefly comment on the empirical results in table (5) supported by other research techniques (focus group discussion, observation and interview with key informants), in order to have complete picture of the development landscape.

Although we have not used deflator for data limitation, but the crude data has also give reasonable results. As surprisingly as these insignificant results may seem, however, the result is reasonable according to the situation exist in El Gash. Moreover, the insignificant of results suggest that, there were stagnant demand for education. According to this result supported by other finding obtained by qualitative data, institutional and socialization process plays a vital role than government spending. We have found significant relation between the level of headed household education and the high level of education reached by parents (see table 2).

It's important to note that, the shortcoming of the model specified here is not capturing social constraints in which evaluated by qualitative and tabular summary (in order to have complete picture see section 4).

The co-existence of adjustment programs and declining enrollments and dropouts rates in El Gash does not imply causality in the impact of macro and adjustment policies, nor are the means of translating policies in the area coverage. Along similar line, the focus group discussion results, the multi village visits and questionnaire results suggest that, institutional and cultural factors aggravate the problem of education sector rather than the effect of adjustment. Also they believed that, historically the unwillingness, *khalwa* – as a central aspect – absent of leading motivated generation and the negligence of knowledge through education has caused the high dropouts rates despite their wealthier position at that time.

For example, the low level of enrollment and high dropout rates in *O'laib* village attributed to the exigencies of agricultural production, where the opportunity cost is high, associated with the family background and socialization process of the headed household, which prefer religious education. In *Tendilai* village change in demand for education resulting from the deterioration economic conditions and declining household income. Although the values and attitudes of children towards formal education but, their contribution to the households income increase the family opportunity cost for education. In other side, the deterioration of school environment

(activities) and the absent of leading teachers, reduce the overall incentives to education that already low.

Political consideration among the education of Hadendowa children was also there, for example, in *Hadalia* boarding primary school, the headquarter of *Hadendowa Nazarate* and the heart of the native system. The local leaders of native system were silent in addressing the problem of low enrollment and high dropout rates to headed-households. Unfortunately the dropout in this school is consider the highest one among the major school exist in Hadendowa nation after the case of *O'laib* School. There were motiveless to attract and incentive the children to school in order to gains permanent political polarization among the Hadendowa lineage in the long run.

4.2.3. What Evidence is missing?

Data for education during adjustment at the macro level is scarce and inconclusive; Information on transfers from the Federal Government or the States to the localities is scanty and consolidated. Salary payments to a large proportion of schoolteachers is regularly delayed or not made at all four parts of the year. Micro level may show us further inside about the factor affecting the demand and supply of education.

General conclusion, the low demand for education in El Gash Province is also influenced by the deterioration condition of El Gash scheme raising the opportunity cost for education and the viability and potentiality for the return for education as a long-run process

4.2.4. Comparing the Results with Those Obtained by Other Researchers:

We have earlier seen number of studies that have been undertaken to find causal link between macroeconomic policies particularly adjustment and their implication to education sector especially among the poor households. In other words how macroeconomic adjustment affect the demand and supply of education. We have found that, the nature of link of previous studies varies widely and the evidence limited to economic indicators only with trend of aggregate data (see table 6 bellow).

Macroeconomic indicators of education for example, education spending and gross of enrollment rates give few answers and no clear impact of adjustment is observed. According to the limitation of such indicators and the concentration in economic measures, our study offer micro evidence in order to corporate both economic and non-economic variables at micro level.

Our contention is that macroeconomic indicators fail to give clear picture of real changes during macroeconomic adjustment. In this respect, Enrollment rates trace

changes in sector coverage, had do not indicate whether supply or demand has changed. For example, real education spending increased, and the number of school and enrollments at a macro level has also increased. During the home grown adjustment, the number of primary school and the crude enrollment increase from 10898 school in 1999 to 11923 in 2000, and the number enrolled increased from 2927600 in 1995 to 3137494 in1999/2000, (National Comprehensive Strategy Report 2001) for whole Sudan. However, this aggregate data does not reflect the internal efficiency of education. In other words the percentage of dropout may reflect further inside the problem than aggregate measures and make the conclusion drawn before after adjustment acceptable and rising the question of quality and the internal efficiency of the sector management.

4.5. Methodologies Used to analyze the impact of adjustment on education

Sahn (1989), compares average public education spending “before” and “after and after the World Bank – supported adjustment. Sahn finds no conclusive evidence to suggest that countries reduce government expenditures, either in real terms or as a share of the government budget (for more methodologies that analyze the impact of adjustment on education see table 6 bellow).

Table 6.Methodologies to analyze the impact of adjustment on education

Methodology	Source	Number of Countries	Economic Indicators	Education Indicators	Conclusion
Before and after adjustment	Sahn	16	Public budget (real and %of GDP)	Education spending (real and share of discretionary public budget)	No clear impacts of adjustment
Fiscal duress	Gallagher	35	GDP	education spending(share of total and discretionary public budgets) Gross enrollment rates(primary and secondary)	No clear impacts of adjustment
Adjusting versus non adjusting	Kakwani, Makonne, Van Der	86	Public budget (total and discretionary as	education spending(share of total and discretionary	Intense adjustment related to

countries	Gaag		% of GDP) Per capita private consumption	public budget, GDP) Per capita Spending Primary enrollment rates(gross and net) Growth of primary school teachers Student/teacher ratios	declines in all education indicators
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Table 6. Continue

Methodology	Source	Number of Countries	Economic Indicators	Education Indicators	Conclusion
Adjusting versus Non adjusting Countries	World Bank (1990a)	78	GDP growth Public debt Public Deficit Savings, investment rates per capita private consumption	Education spending(% of discretionary public budget and GDP) Per capita expenditures(annual change) Gross primary enrollment rate	Intense adjustment related to decline in all education indicators

Source: Andrew Noss (1991), Education and Adjustment A Review of Literature World Bank, Working paper No.701.

5. Looking Ahead:

It has long been recognized that knowledge through education process constitutes an invaluable resource for the developing countries and enabling them to leapfrog some steps towards development. In the course of discussion of the paper we have recognized that, the effect of various policies on the education sector explicitly depends on large measures of non-economic factors which varies from village to other and from ethnical group to other.

The results demonstrate that information collected at the household level to assess the causal effects of macroeconomic policies on the demand for education is robust and better of using macroeconomic indicators. Macroeconomic adjustment and other macroeconomic indicators play little role in explaining the phenomena further. Our results may not be conclusive with other results obtained by Sudanese scholars. Many

Sudanese scholars believe that, the poor and small holders in rural societies of Sudan negatively affected by the macroeconomic policies particularly, the first adjustment programs supported by the IMF and the World Bank – for example see Ali (1993).

The results also demonstrate that government interested in improving access to education may find expansion of constructing new school to be one of the most effective policy tools in their kits – the supply-side. Bringing school to each village is not ended to itself, however, the other side of the coin, is the processes of socialization among the major ethnic groups exist, which has disadvantage among formal education and prefers religious education. Liberalization policies are blindly understood, and the policymakers ignoring concepts such as benefits costs analysis, cost-effectiveness and the trade -off between the hostel and constructing new schools. All this things has its implication in the process of development.

Finally, experience of education in El Gash provides clear warning that, no single road to the human development even within the country. Throughout this period the money disbursement and devoted to the sector improves little, and even failed to generate significant increase in enrollment and decrease in dropout rates. Mistakes and misfortunes can not explain the “tragedy of commons” in school enrollment; unless the problem should viewed in a comprehensive manner the policy makers will not see the wood of trees. Second generation of policy intervention – “Reinvigorating the State Capabilities” - is needed through change the structure of thinking and generate committed governors tackling such complexities problems prevailed in the sector and improve management efficiency.

Note: *Faki and Shiekh are local words used both to describe the religious transmitter of knowledge to children (teacher) and for those having high respectiveness in the society.*

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