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*June 2010*

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# Aid and Universal Primary Education

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## **Summary:**

Universal Primary Education (UPE) is one of the main objectives of development aid. However, very little empirical evidence of its effectiveness actually exists. Until very recently, the quality of available data was not sufficient to obtain robust results regarding the relationship between international aid and educational achievements. In this article, the latest, more disaggregated and more reliable data is used to study the relationship between aid to education and educational achievements. The focus here not only on educational variables in term of coverage, but also in term of equity and process. The year of Fast Track Initiative (FTI) endorsement is used as an original instrument to tackle the endogeneity problem of aid. Our results are very robust and indicate that aid to primary education has a strong effect on primary school enrollment and gender parity. A negative impact on repetitions rate is also indicated while no effect on the pupil teacher ratio can be observed. Diminishing return in the effectiveness of aid to primary education may also be highlighted. Finally, the governance variables do not appear to have an impact on this relationship.

**Keywords:** Aid effectiveness, Education, Sector-specific aid

**JEL-codes:** I2, F35, O11

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## I. INTRODUCTION

For over half a century, education has been the focus of the priorities of development policies and international cooperation. Since 1945 and the constitution of the United Nations, the signatories expressed their beliefs "in full and equal opportunities for education for all, in the unrestricted pursuit of objective truth and in the free exchange of ideas and knowledge". Education is then seen as a universal right and as a major determinant of economic growth in the long run. However, it was only in 1990 that the first World Conference on Education in Jomtien took place. On this occasion, a shared vision was developed to meet the basic learning needs. Here, the international community committed itself to reach Universal Primary Education before the end of the millennium. Ten years later, the Forum of Dakar (2000) highlights that, for many countries, Universal Primary Education (UPE) was still far from being a reality. During this Forum, a framework for action in education was designed and a number of new commitments were made by the international community to strengthen the international financing of basic education, to improve the predictability of aid flows, to ensure more effective coordination among donors and to develop a real sectoral approach. A firm commitment was made that "no countries seriously committed to education for all will be thwarted in their achievement of this goal by a lack of resources" (Dakar Framework for Action, *Education for All: Meeting Our Collective Commitments*, 2000). In return, developing countries are committed to implement plans for Education for All (EFA) and to take all necessary steps to achieve the Dakar's goals. The main objectives to be achieved before 2015 are the Universal Primary Education and the elimination of gender disparities<sup>1</sup>; objectives that would be reinforced few months later by the Millennium Development Goals<sup>2</sup> (MDG). To support countries at risk of not achieving these goals, the "Fast Track Initiative" (FTI) was established in 2002 by 22 bilateral and multilateral donors. It consists of a global partnership to accelerate the achievement of Universal Primary Education by 2015, to provide more support to primary education and to improve its effectiveness. In a broader context, the Monterrey Conference (2002), Rome (2003) and Paris (2005) declarations have also tended to reinforce commitments to the MDGs and to formalize the efforts of the international community for harmonization and aid effectiveness. Finally, the G8 summit in Gleneagles (2005) has put forward the objective of doubling international aid and has specifically targeted education as a priority sector.

If the strategies of the international community to support national efforts in education have evolved over time, basic education remains a priority area for international assistance. However, there is very little empirical evidences on the effectiveness of aid at the macroeconomic level. Indeed, the debate on the effectiveness of official development assistance (ODA) has long been focused mainly on the macroeconomic impact of total development assistance. The lack of robust results and the many unsolved methodological shortcomings have prevented all forms of consensus on this particular issue. However, the literature has recently shifted to circumvent these difficulties. Researchers are moving gradually away from highly aggregated variables and broad problematics to focus on the effectiveness of specific instruments on less ambitious targets. The few recent studies on the effectiveness of aid to health (Masud and Yontchev (2005) and Mishra and Newhouse (2007))

<sup>1</sup> The Other goals set in Dakar are the development of protection and education of early childhood and the acquisition of skills needed in everyday life, an improvement of 50% of the level of adult literacy and a rise in all aspects of the quality of education. These goals, however, were less highlighted than gender disparities and the UPE.

<sup>2</sup> It involves the objective n°2 "Achieve Universal Primary Education for all" and n°3 "Promote gender equality and empower women".

and aid to education (Dreher et al. (2008), Michaelova and Weber (2007)) belong to this new trend. So far, the results obtained tend to demonstrate the effectiveness of aid to improve living conditions in developing countries. These studies, however, remain scarce and methodologically fragile. Indeed, one explanation for this lack of empirical evidence on the effectiveness of aid on educational outcomes is derived from the data. Concerning aid to education, the reliability of data has long been a major impediment to the conduct of serious studies on these subjects. Thus, although available since the 70s, the use of sectoral data is only possible for the most recent period (from 1995 for commitments and from 2002 for disbursements). Similarly, the UNESCO Institute for Statistics (UIS) is gathering reliable data on different indicators related to education since 1999. The limited time span and the quality issues of available data limit the leeway of development economists, compelled to formulate very restrictive assumptions.

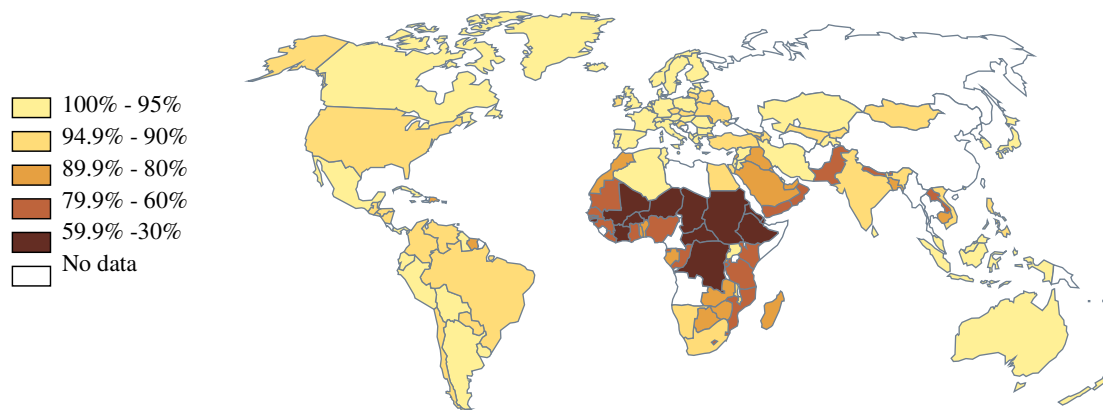
In this article, the most recent (1999-2007) and disaggregated data (aid to primary education) are used and their consistency is verified. The educational outcomes are classified in three categories: coverage (rate of admission, enrollment, and completion rate), gender parity (parity of enrollment, parity of completion) and process (repetition rate and pupil teacher ratio). The year of Fast Track Initiative endorsement is used as an original instrument to take into account the endogeneity of aid to primary education. The remainder of the article is organized as follows. Firstly, the current states and recent evolutions of Universal Primary Education and international aid to education are described. We then review the related literature on aid effectiveness. The data issue related to education and aid is discussed. The instrumentation method, the empirical analysis as well as the results are then explained. Finally, having checked for the robustness of the results, a conclusion on the implications of this research is drawn.

## II. GLOBAL CONTEXT

### A) Current state of Universal Primary Education:

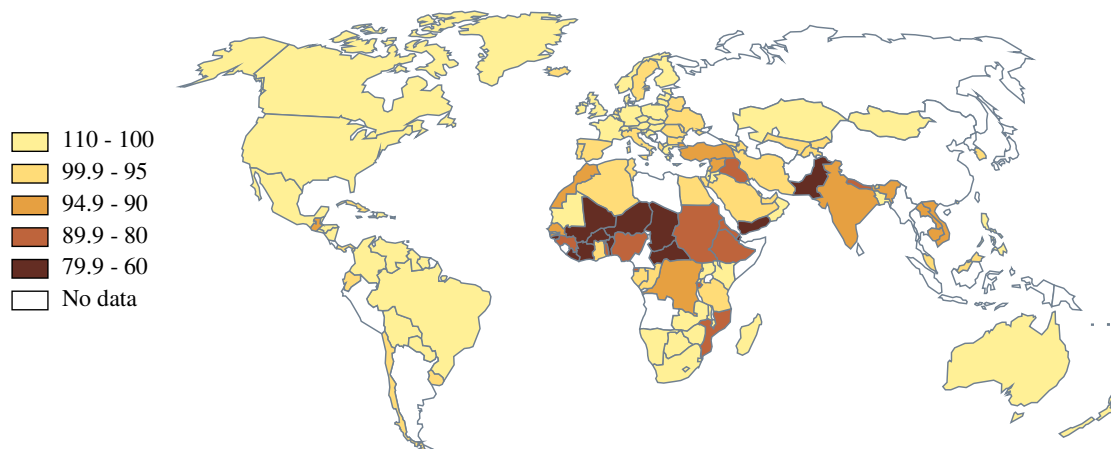
The analysis of global statistics in terms of enrollment in primary education shows that most of the children that are not attending primary school are mainly located in Sub-Saharan Africa and in few Asian and Middle East countries. On average over the period 1999-2007 about a dozen countries in sub-Saharan Africa appear to really lag behind by enrolling less than 60% of their school-aged children in primary school. Thirty countries, including 4 in Asia and 2 in the Middle East, leave more than 20% of their children not attending schools.

*Figure 1: Adjusted net enrollment ratio in primary education, average 1999-2007*



However, recent developments show a significant improvement in the global situation. Between 1999 and 2007, the net enrollment ratio in primary education in the world has increased from 84.2% to 89.5%. The number of countries enrolling less than 8 pupils of the official school age for every 10 children has also decreased from 32 to 23 over the same period. If the situation has improved considerably between 1999 and 2004, there has been some stagnation in the achievements between 2004 and 2007 (see Appendix: Figure 1). In terms of gender parity in primary education, some countries also appear to lag behind. On average, over the period 1999-2007, 23 countries educate less than 90 girls for every 100 boys and a dozen exhibit gender parity ratio lower than 80 girls for every 100 boys. Once again, countries that lag in term of enrollment of girls in primary school appear to be located mostly in sub-Saharan Africa and in few Asia and the Middle East countries.

Figure 2: Parity of the adjusted net enrollment ratio in primary education, average 1999-2007



However, recent developments in gender parity show a worldwide improvement in the situation of girls in primary education. The average parity index rose from 94.8 in 1999 to 98.7 in 2007 while the number of countries under 90 fell from 24 to 9 (see Appendix: Figure 2). The evolution appears to remain steady throughout the period 1999-2007.

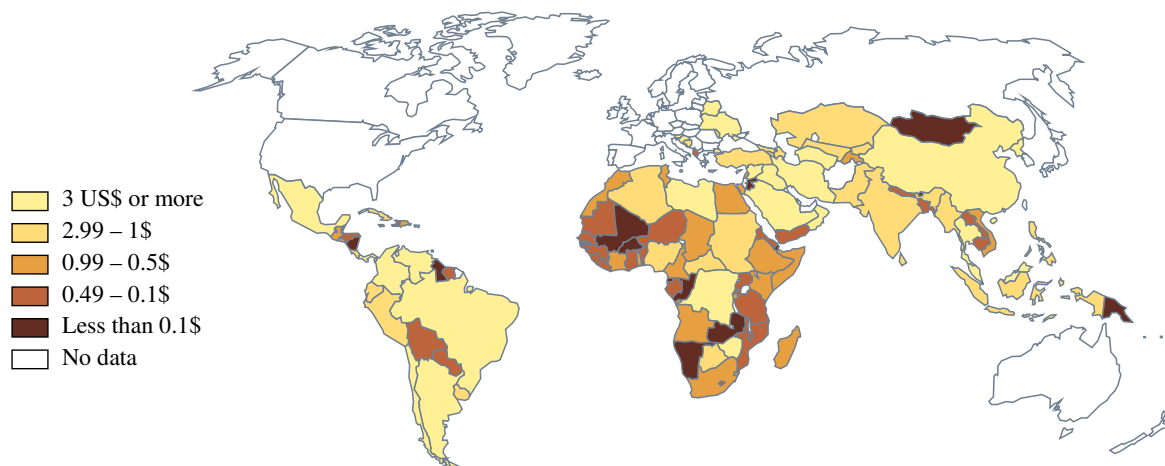
## B) Location of international aid to education:

Although the concept of universal right to education has been strongly present in international discourses since the end of the Second World War, it began to be effectively supported by flows of development assistance since the early 90s. Following the Forum of Dakar and the implementation of the MDGs, the share of total aid allocated to education and primary education in particular have not really increased (see Appendix: Figure 3). Aid to primary education increased from 1.48 billion dollars in 1999 to 3.73 billion in 2004<sup>3</sup> (see Appendix: Figure 4). Since 2004, one can witness a certain slowdown in aid flows to primary education as well as overall aid to education. It is also important to note that the share of total aid allocated specifically to the education sector is relatively low (between 5.2% and 9.6%). The allocation to primary education in total aid to education is also very small (between 19% and 35%) and did not increase during the period. Consequently, the assistance aimed specifically

<sup>3</sup> These figures are different from those presented in the reports "Education For All" (UNESCO), as they allocate 20% of budget support in total aid to education, from which half to aid to primary education. Similarly 50% of unspecified aid to education is allocated to aid to primary education.

toward primary education remains between 1.4% and 3.4% of total aid. In per capita terms, over the period 1999-2007, total aid to basic education represented less than US\$ 0.4 per year for the first four deciles of countries and it is only from the sixth decile that countries receive more than US\$ 1 of aid to basic education per capita (see Appendix: Table 3). Although the new guidelines for ODA specifically target primary education, in practice the composition of aid spending on education has only slightly evolved (see Appendix: Figure 5). Similarly, with regards to the geographical distribution of aid to primary education, the recent period has been characterised by major changes in the allocation of resources (see Appendix: Figure 6). If Sub-Saharan Africa is by far the region lagging the most behind the goals of UPE, it receives only half of the total amount of international aid to primary education. Considering either the amounts of aid to education, or the allocation of aid to primary education or its geographic targeting, it should be noted that there is some instability over time.

Figure 3: Aid to primary education (commitment per capita), 1999-2007



When comparing the allocation of aid to primary education with the net enrollment ratio in primary school, some facts are worth noting (see Appendix: Figure 7). A number of countries particularly lagging in terms of enrollment in primary education receive very little assistance to primary education. On the contrary, other countries (mainly small island states) appear very close to SPU but continue to receive high amounts of aid per capita. Thus, while there is a negative correlation, it seems mostly insignificant. Consequently, aid to primary education appears actually rather poorly focused on the needs.

### III. LITERATURE REVIEW

Since the late 90s, issues related to the effectiveness of Official Development Assistance (ODA) have generated a large number of studies and debates without reaching any form of consensus. Following the implementation of the Millennium Development Goals (MDGs) and the various calls for a doubling of resources allocated to development policies, the positions of various experts have been radicalized (as illustrated by the often heated exchanges between Jeffrey Sachs and William Easterly). At the origin of these positions, we find what the empirical literature describes as the micro-macro paradox. On the one hand, the various projects at the local level often display very positive and encouraging results while from the macroeconomic or aggregated point of view, it is very difficult to demonstrate a clear relationship between the achievements of developing countries and ODA. Based on the observation that ODA does not influence the mean GDP growth rate, the scientific

community has started to look for the necessary conditions for its effectiveness. While the work of Burnside and Dollar (2000), Hansen and Tarp (2001), Guillaumont and Chauvet (2001) showed that the relationship between aid and growth was influenced by factors such as institutions, the quality of governance or macroeconomic instability, other studies such as those of Hadjimichael et al. (1995), Lensink and White (2001) indicate that due to the presence of non-constant returns to scale, the relative non-effectiveness of aid was due to inadequate amounts of disbursements. More recently and following the work of Clemens et al. (2004) a new trend of research has emerged. Assuming that because of the multitude of instruments and targets for policy development, it was unnecessary to seek results at the aggregate level. This led to the first studies on the effectiveness of aid at sector level. For the health sector, several studies have focused on the effect of aid to health on infant mortality (Masud and Yontchev (2005), and Mishra and Newhouse (2007)). However, empirical evidences remain yet again limited.

The literature on the effectiveness of aid to education is still very recent. The work of Michaelov and Weber (2007) analyze the effect of aid to education on rates of achievements in primary school and gross enrollment rates in secondary and tertiary education. The authors use aid data to each level of education and allocate a fixed percentage of budget support and unspecified aid to education<sup>4</sup>. The total expenditure on education is used and they rely on annual data or on periods of two or five years. The period covered is from 1975-2000 to 1999-2004. Aid is instrumented through lagged variables and aid to energy sector. Using GMM, panel fixed effects OLS and 2SLS, Michaelov and Weber (2007) show a significant and positive effect of aid, but of relatively small magnitude. The authors also stress the existence of decreasing returns to scale of the effectiveness of aid as well as interactions with institutional quality. Dreher and al. (2008) focus on primary education and the period 1970-2004. They use total aid committed to education as well as total expenditure on education to explain the net enrollment ratio in primary education. OLS, 2SLS and GMM system methods are used on a panel of 61 to 94 countries. As instruments for aid, they use governance variables (ICRG), variables from the economic freedom index (Fraser index) and child mortality data. Their results suggest some effectiveness of aid to education in order to achieve UPE, but the effect is also relatively small. Public expenditures on education do not appear to have any significant impact as well as governance or democracy variables. Studies by Wolf (2007) and Asiedu and Gyimah-Brempong (2008) also attempt to link international aid and human capital formation. The study by Wolf (2007) uses a simple cross section OLS while Asiedu and Gyimah-Brempong (2008) use GMM and data on aid disbursed between 1990 and 2004. Both studies exhibit a positive and significant effect of aid to education, but not significant for total aid. To date, the empirical evidences on the effectiveness of sectoral aid and aid to education in particular remain limited. Moreover, as we shall see later, some limitations appear in past researches particularly with regards to methods and data used.

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<sup>4</sup> The budgetary aid is then allocated according to the following rule 10% to primary education, 4% to secondary and 6% to tertiary education. Similarly, unspecified aid to education is allocated as follows 50% to primary education, 20% to secondary and 30% to tertiary education. These allocation rules are fixed across countries and years.

## IV. DATA ISSUES

### A) Data on Primary Education:

International data on education is mainly produced by the UNESCO Institute for Statistics (UIS) on the basis of questionnaires filled out by Ministries of Education in each member country<sup>5</sup>. In 2003, estimates have been completely revised resulting in extremely large differences in time series for some countries (Dreher et al. 2008). Consistent data on education is thus available only since 1999. Measuring a country's educational achievements is a difficult task, since education has multiple dimensions. The countries educational achievements can be divided into three categories: coverage, equity and quality. The coverage indicators aim at answering the question of whether children are in school or not, the equity variables reflect different characteristics of children being in school and those that are not. Finally, the quality variables record what children learn during their stay in school. Regarding coverage, it is a measure of whether children of the proper age are enrolled in school. The flow of entry into first grade can be apprehended through the net intake rate (NIR), which is the number of new entrants in the first grade of primary education who are of the official primary school-entrance age (usually 6 years), expressed as a percentage of the population of the same age. This variable fluctuates rapidly depending on the implementations of new policies, but gives information on the proportion of children starting primary school. In order to evaluate the flow of children completing primary education, an approximation of the rate of completion is usually obtained using the gross intake rate in the last grade of primary school. This rate measures the total number of new entrants in the last grade of primary education, regardless of age, expressed as a percentage of the population at the theoretical entrance age to the last grade of primary (usually 12 years). This approximation of the primary completion rate moves slowly, following improvement in the NIR and in retention rate in primary schooling. Because of repetitions and late entries in primary school, it should be noticed that this rate may exceed 100%. The quantity of children actually enrolled in primary school can be measured through the net enrollment rate (NER), which is the enrolment of the official age group for primary education expressed as a percentage of the corresponding population (usually between 6 and 12 years). The adjusted NER takes into account the children that have started school early, or are enrolled in other types of educational structures. Consequently, the deviation from 100% reflects accurately the proportion of children who remains out of any educative structures. To effectively register the achievement of UPE, adjusted primary NER is the best available variable to measure enrollment in primary education. However NIR and completion rate also take into account the flow of children starting school and completing primary education.

Girls are often severely disadvantaged with regards to access to education. Gender equity in primary education appears also as an explicit goal of UPE. The results in terms of girl's enrollment can be apprehended through the gender parity of the adjusted NER or completion rate. Those variables are girls relative to boys ratios for NER or completion rate. It is not possible at that time to take into account other forms of equity. However, an adjusted NER close to 100% means that all children, regardless of their characteristics are indeed being educated.

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<sup>5</sup> The UIS data are used as primary source of educational data for the "World Development Indicators (WDI) of the World Bank.



The variables mentioned so far can quantify whether children are at school, but say nothing about what they learn. Measuring the quality of education is one of the major challenges of educational statistics and to date, it is not possible to evaluate it consistently for several years and many countries. Therefore, it is only possible to verify that the quantitative achievements are not at the expense of some process variables of the educational system such as the repetition rate and the pupil-teacher ratio. Indeed, an improvement in the coverage variables could be caused by a rise in the number of repetitions or in the pupil-teacher ratio. The share of pupils who remain in the same class from one year to another captures the internal effectiveness of an educational system. Moreover, the number of pupils per teacher takes into account both the human resources allocated to education and the average time a teacher spends on one of their students. However, these two variables give only a very crude approximation of the quality of education as they are potentially subject to artificial improvements<sup>6</sup>. Given the multidimensional nature of educational achievements and the set of available data, it appears, essential not to focus only on coverage variables.

### **B) Data on international aid to education:**

The Development Assistance Committee (DAC) of the OECD is the main organ in which donors seek to coordinate their bilateral cooperation activities for development. Since its creation in 1961, the DAC is also responsible for collecting statistics on the global effort of cooperation. DAC members agree on eligibility of financial flows to ODA but also on the definitions and reporting guidelines. They also undertake to provide the DAC statistics on aid flows. Data collection relies primarily on declarations by DAC members, multilateral organizations and other donors. The data is collected through two reporting systems: the aggregated DAC includes a breakdown by type of aid, donor countries and sectors, and data from the Creditor Reporting System (CRS), which contains detailed information on individual projects and aid programs. The CRS data thus allows analyzing the sectoral distribution of aid by sector, donor and recipient countries. Therefore CRS data cover only those activities undertaken by individual DAC member countries within the framework of their bilateral ODA and aid activities funded by some multilateral institutions on their regular budget. This database provides a detailed overview of aid activities. The data on aid to education are themselves broken down into 11 categories, grouped into 4 sub-sectors (basic education (code 112), secondary education (Code 113), post-secondary education (code 114) and education unspecified (code 111)). To focus specifically on primary education, it is possible to withdraw from aid to basic education both aid to basic life skills for youth and adults and early childhood education. Indeed, these variables have an effect before and after but not directly on primary education. Then, we can focus on assistance targeted specifically and exclusively on primary education (code 11220).

Although the CAD and CRS database are the main sources of information on development assistance, they impose a number of limitations that are often ignored. Firstly, from the point of view of recipient countries, it is more relevant to focus on aid that is actually disbursed; nevertheless it is very difficult to do so in practice. Indeed, although the non-DAC multilateral institutions are not required to report their activities to the CRS database, they carry out this task properly for commitments. However, this is unfortunately not the case for disbursements where only DAC members and the European Commission routinely report their activities. Thus, using this data results in considering only part of the activities of multilateral

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<sup>6</sup> Some educational policies aim to the automatic promotion from one class to another, to the prohibition of any repetition or to the massive recruitment of contract teachers with little training.

institutions like the World Bank or the UN, and therefore causes measurement errors that can be really significant. For 2007, disbursements of multilateral donors (non EU) accounted for approximately 24% of total ODA. Furthermore, the coverage ratio of the total ODA by the CRS is the main limitation of the system. Coverage ratio is calculated by comparing the data using the CRS database with the corresponding data reported in the annual DAC statistics. With regards to aid commitments for education, the coverage ratios appear to be lower than 80% before 1999 (see Appendix: Figure 8). The OECD itself discourages the use of this data for analysis before 1995. Given these limitations, special attention is needed when choosing the data as well as the period of analysis.

## V. ECONOMETRIC ANALYSIS

### A) Methodology:

In this study, we investigate the impact of aid to education on educational achievements. The estimated equation takes the following form:

$$\ln(Educ_{it}) = \alpha + \beta_1 Aid_{it} + \beta_2 X_{it} + \eta_i + \varepsilon_{it}$$

where  $Educ_{it}$  represents the country's educational achievements at year  $t$ ,  $Aid_{it}$  is the international aid to the education sector,  $X_{it}$  is a vector of control variables,  $\eta_i$  a country fixed effect and  $\varepsilon_{it}$  an error term. As we study the effect of aid to education specifically on Universal Primary Education, the most disaggregated data are used. Causality is then more direct and less disruptive factors come into play. Thus, for both educational achievements as for aid to education and control variables, we focus on data exclusively related to primary education. With respect to aid data, we use only the aid to primary education category (code 11220). Aid data corresponding to other educational cycles and those that do not explicitly target primary education are not used. Similarly, data for budget support and debt relief that could possibly be considered as additional resources for primary education are not taken into account. This approach, although more restrictive, appears much more precise and conceptually superior to those implemented in the studies mentioned above<sup>7</sup>.

We used data on aid commitments per capita for primary education expressed in constant U.S. dollars of 2007. Similarly, educational data with respect to coverage, equity and process of primary education are namely the net intake rate, the adjusted net enrollment rate, the approximated completion rates, the parity of NER, the parity of completion rates, the repetition rate and the pupil-teacher ratio. The gender parity variables were capped to 100% in order to take into account only improvement in the situation of girls. The approximated completion rate is left unchanged despite the fact that it may exceed 100%. The broad spectrum of educational achievements covered by our set of variables allows us to investigate precisely the effect of aid on primary education and also to check the robustness of our results. In order to obtain semi-elasticities, the educational achievements are expressed in logarithms. To control for the impact of domestic expenditures, data on public education spendings per student in primary education are used. These data are expressed as percentage of GDP per capita and have been recovered from the UIS (2009). The other control variables used are from the WDI (2009), namely the constant GDP per capita in purchasing power parity in constant dollars of 2005, the percentage of 0-14 years old and the percentage of rural

<sup>7</sup> Dreher *et al.* (2008) « Using aid and spending on primary education is conceptually superior but would leave an insufficient number of observations for estimation » p.297

population in the total population. The fixed effect estimation allows us to take into account all the countries specific variables with no over time variability. To focus on the most reliable and most recent data available, we only used data for the period 1999-2007. Since the effect of aid on education can hardly be observed in the short run, we use three-year averages. We then have three three-years-periods 1999-2001, 2002-2004 and 2005-2007. Given this little number of available years, lagged educational achievements cannot be included in our models. Likewise we will not be able to produce GMM estimations. The inclusion of a lagged variable of educational outcome would take into account some persistence in terms of educational outcomes. However, the inclusion of GDP per capita seems sufficient to capture this persistence. Given the short time period covered by this study, the serial correlation does not appear as a fundamental problem, it does not then seem useful to use dynamic estimation techniques. Therefore we focus on fixed effects OLS and 2SLS.

### **B) Instrumenting international aid to education:**

The central problem when estimating the effectiveness of aid concerns the endogeneity issue. Indeed, it seems clear that aid cannot be considered as exogenous with respect to the economic achievements of the recipient's countries and that some variables, such as institutions or governance, could influence both the level of aid and the achievements. To capture the specific effect of aid on educational achievements it is therefore important to find an instrument, that is to say, a variable that explains the level of aid to education, but not the educational achievements themselves. Such instruments are extremely difficult to find and academic research has often been forced to rely on theoretically unsatisfactory variables as lagged aid variables as well as geographical, geopolitical or institutional variables, infant mortality or aid to other sectors. The assumptions underlying the use of such variables are clearly fragile.

In the particular context of aid to education for recent years, the year of endorsement of eligible countries into the Fast Track Initiative (FTI) emerges as a potentially reliable instrument for explaining changes in the level of aid to primary education. The FTI, founded in 2002, is specifically designed to support low-income countries in achieving UPE. This initiative is a concrete response to the commitment of the international community taken at the Forum of Dakar that no country with a credible plan should be delayed by lack of resources. The full objectives, principles and procedures of the initiative, were recorded in a framework document (FTI, 2004). The FTI aims specifically to increase aid to primary education and improve its effectiveness through a better coordination of technical and financial partners. This initiative is open to all low income countries<sup>8</sup> with an approved Poverty Reduction Strategy Papers (PRSP) and a comprehensive program of the education sector approved by the donors in the country<sup>9</sup>. In cases where national capacities are insufficient for the design of these materials, a specific fund has been established to support the efforts of these countries and to fund the necessary studies and consultations (see Appendix: Figure 9). The FTI endorsement of a country takes place after positive assessments by local partners of the educational strategy, according to an assessment guide (see Appendix, Figure 10). The approval of countries' plans depends on their credibility. It is evaluated over criteria of national ownership, national capacities, political and financial commitments, compliance with a guiding framework and on the availability of statistics to monitor the

<sup>8</sup> The low-income countries are here determined by their eligibility to IDA set by the World Bank.

<sup>9</sup> FTI-eligible countries in 2002 and 2003 benefited from a slightly simplified procedure through an application explaining the country's strategy for achieving UPE by 2015.

implementation. Once endorsement to FTI is validated, an additional catalytic fund is made available to finance the approved educational sector plan. The objective is then to accelerate the implementation in order to rapidly show results and then attract other long term supports. Between the launch of FTI in 2002 and 2007, 33 countries<sup>10</sup> have gradually been granted into the initiative (see Appendix: Table 4). Out of them, twenty are in Africa, the others being in Latin America, Asia, the Middle East and even Eastern Europe. Thus, if theoretically all low-income countries are eligible for FTI, only a certain number of them have been endorsed between 2002 and 2007, and this in different years. When the situation before the initiative (1999-2001) is compared between countries to be endorsed to FTI between 2002-2007 and those who will not be, several facts are worth mentioning (see Appendix: Table 5). FTI endorsed countries presented at that time significantly lower educational achievements and lesser government effectiveness. Differences in the level of aid to primary education and in political stability variables appear to be non-significant. Thus, it seems that the FTI has been primarily targeted toward countries that are lagging behind both in terms of educational achievements and government efficiency. Concerning the year of FTI endorsement, when the first wave of countries admitted (2002-2004) is compared with the second (2005-2007), the differences in NER, NER parity, government effectiveness and in political stability are not significant (see Appendix: Table 6). Only differences in aid to primary education appear weakly significant as the first wave of FTI countries was already receiving a little more aid during the 1999-2001 period compared with countries that later entered the initiative.

To verify that the year of FTI endorsement could be used to instrument aid to primary education, we must at first see if the year of FTI endorsement actually coincides with an increase in aid level. Similarly, we must also verify that the implementation of the initiative did not affect educational outcomes through other channels other than its effect on the level of aid to education. A variable “FTI endorsement” is built which takes the value 1 if the country was endorsed during the period and 0 otherwise. Initially, we examine the effect of the year of FTI endorsement on the level of aid to education, by regressing the logarithm of aid to primary education per capita on our instrument. We also include all control variables of our main equation. From the OLS results (see Appendix: Table 7) we can see that the year of FTI endorsement influences significantly and positively aid to primary education. The inclusion of one or more governance variables does not influence this relationship. We also note that our instrument is particularly appropriate to study the effect of aid to primary education, as the year of FTI endorsement does not influence the level of aid to secondary education, nor total aid to education nor the total amount of ODA received.

In order to check that the year of FTI endorsement was not influenced by variables that can also improve educational achievement, we investigate into the relationship between our instrument and a set of governance variables. The study of some simple correlations (see Appendix: Table 8) shows that the year of FTI endorsement does not appear to be correlated to the government effectiveness or the political stability variables. However, these measures of governance do not specifically reflect the quality of the educational institutions. To check that year of FTI endorsement was not driven by good governance specific to the education sector, it is possible to see if the year of FTI endorsement also coincides with an improvement in achievements related to secondary education. Indeed, education ministries are generally in charge of both the primary and secondary education. If the quality of educational institutions is the cause of the year of FTI endorsement, we would certainly have observed improvements in outcomes related to secondary education. When secondary education spending and

<sup>10</sup> Endorsements are still granted today. At the end of 2009, 40 countries are receiving assistance from FTI.

achievement of primary education are taken into account, we were not able to detect any significant effect of the year of FTI endorsement on the net enrollment ratio in secondary education (see Appendix: Table 9). Thus, the year of FTI endorsement has positively and significantly influenced the amount of aid allocated to primary education without any apparent interactions with the quality of governance. The year of FTI endorsement therefore appears as a valid instrument to test the effectiveness of aid to primary education on the achievement of UPE.

### C) Results:

In a first step, the results for panel fixed effects estimations are presented without taking into account the endogeneity of aid to primary education (see Table 1). The fixed effects OLS estimates show a significant and positive effect of aid to primary education on the NIR, the NER and the parity of NER but not the completion rate or any proxy variables for the quality of education.

Table 1: Educational achievements and committed aid to primary education, Panel OLS estimates

FIXED EFFECT	COVERAGE			EQUITY		PROCESS	
	Net intake rate	Net enrolment rate	Primary completion rate	NER gender parity index	Gender completion parity index	Repetition rate	Pupil teacher ratio
Aid to primary education (commitments per capita.)	0.015 (0.003)***	0.012 (0.006)*	0.003 (0.005)	0.004 (0.002)**	-0.002 (0.001)	-0.000 (0.007)	0.001 (0.001)
Public expenditure on primary education (% GDP per capita.)	0.002 (0.006)	0.004 (0.006)	0.002 (0.007)	0.001 (0.001)	0.001 (0.001)	-0.007 (0.014)	-0.005 (0.003)
GDP per capita	0.104 (0.198)	-0.099 (0.178)	0.094 (0.182)	-0.021 (0.049)	0.129 (0.095)	-0.510 (0.428)	-0.270 (0.066)***
Population under 15	-0.025 (0.026)	-0.023 (0.020)	-0.016 (0.019)	-0.005 (0.005)	0.008 (0.006)	0.079 (0.049)	0.019 (0.011)
Rural population	-0.022 (0.018)	-0.010 (0.010)	-0.018 (0.011)	-0.005 (0.003)	-0.010 (0.005)*	-0.027 (0.045)	-0.005 (0.010)
Constant	5.248 (2.020)**	6.485 (1.922)***	5.019 (1.928)**	5.115 (0.516)***	3.681 (0.971)***	4.734 (4.414)	5.249 (0.740)***
Number of observations	140	166	181	156	179	175	176
Number of countries	70	82	88	80	88	86	87
R-squared	0.38	0.21	0.20	0.21	0.16	0.19	0.30

Notes: Robust standard error in parenthesis. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

In a second step, the year of FTI endorsement is used to instrument aid to primary education (see Table 2). Under-identification and weak instrument tests are used to verify the validity of our instrument. Our instrument is relatively strong according to the rule based on the first stage F-statistic. Indeed, except from the estimation of the NIR, the statistics calculated are all close to 10. The equations involving the NER and the parity of the NER seem particularly robust, displaying F-statistics of respectively 12.46 and 11.15. The results show a significant and positive effect of aid to primary education on educational achievements. Aid to primary education thus significantly improves the coverage of primary education for both the entry and completion as well as for the enrollment. Gender equity is also improved while the repetition rate is also significantly reduced. These achievements do not appear to have taken place at the expense of the pupil-teacher ratio as it is not significantly influenced by the flow of aid to primary education.

Table 2: *Educational achievements and committed aid to primary education, Panel 2SLS estimates*

INSTRUMENTED FIXED EFFECT	COVERAGE			EQUITY		PROCESS	
	Net intake rate	Net enrolment rate	Primary completion rate	NER gender parity index	Gender completion parity index	Repetition rate	Pupil teacher ratio
Aid to primary education (commitments per capita.)	0.178 (0.089)**	0.120 (0.040)***	0.145 (0.069)**	0.018 (0.010)*	0.036 (0.021)*	-0.248 (0.111)**	0.004 (0.034)
Public expenditure on primary education (% GDP per capita.)	-0.018 (0.025)	-0.014 (0.010)	-0.014 (0.020)	-0.002 (0.002)	-0.003 (0.006)	0.026 (0.038)	-0.005 (0.005)
GDP per capita	-1.083 (0.983)	-0.385 (0.325)	-0.393 (0.450)	-0.086 (0.068)	0.001 (0.140)	0.629 (1.103)	-0.280 (0.115)**
Population under 15	-0.094 (0.051)*	-0.045 (0.028)	-0.055 (0.037)	-0.009 (0.006)*	-0.002 (0.011)	0.156 (0.079)**	0.017 (0.016)
Rural population	-0.026 (0.042)	-0.016 (0.017)	-0.011 (0.021)	-0.005 (0.003)	-0.008 (0.007)	-0.037 (0.066)	-0.005 (0.010)
Number of observations	118	137	150	123	147	144	146
Number of countries	48	53	57	47	56	55	57
Under-identification test (p-value)	0.05	0.00	0.02	0.01	0.02	0.02	0.01
Weak instruments test (Wald F statistic)	4.76	12.46	7.97	11.15	7.90	7.26	9.14

Notes: Robust standard error in parenthesis. Aid to primary education has been instrumented by the year of FTI endorsement. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

An increase of US\$ 1 per capita of aid to primary education leads to an average improvement of 12.7% of net enrollment ratio and 1.8% of the gender parity index. The size of the coefficients has to be apprehended with regards to the importance of an increase of aid to primary education of US\$ 1 per capita. For the period 2005-2007, this extra dollar means an increase of 803% of aid to primary education for the first quarter of the sample and more than 154% for half of the countries (see Appendix: Table 3).

#### D) Robustness:

Firstly, the non-linearity of the aid effectiveness can be tested by introducing the square of our aid variable in the equation<sup>11</sup> (see Table 3). The results demonstrate very clearly diminishing returns of aid. Thus, aid to primary education becomes less and less effective as the amount of aid increases. However, if the marginal effectiveness of aid is declining, it remains positive up to about US\$ 10 per capita, an amount more than fifteen times the amount of aid received by the median country for the period 2005-2007. It is interesting to note that for this period only six countries, mostly small islands, exceed this threshold.

<sup>11</sup> Due to a lack of valid instrument, we were not able to find a robust instrument for this variable.

Table 3: Educational achievements, committed aid to primary education and non-linearities, Panel 2SLS estimates

INSTRUMENTED FIXED EFFECT	COVERAGE			EQUITY		PROCESS	
	Net intake rate	Net enrolment rate	Primary completion rate	NER gender parity index	Gender completion parity index	Repetition rate	Pupil teacher ratio
Aid to primary education (commitments per capita.)	0.169 (0.064)***	0.280 (0.132)**	0.169 (0.071)**	0.034 (0.026)	0.042 (0.022)*	-0.272 (0.096)***	0.005 (0.038)
Aid to primary education squared (commitments per capita.)	-0.003 (0.001)**	-0.014 (0.008)*	-0.003 (0.001)**	-0.001 (0.001)	-0.001 (0.000)**	0.005 (0.002)***	-0.000 (0.001)
Public expenditure on primary education (% GDP per capita.)	-0.013 (0.010)	-0.014 (0.014)	-0.011 (0.011)	-0.002 (0.003)	-0.002 (0.003)	0.020 (0.019)	-0.005 (0.004)
GDP per capita	-0.485 (0.464)	-0.341 (0.302)	-0.139 (0.311)	-0.079 (0.069)	0.069 (0.105)	-0.024 (0.766)	-0.272 (0.073)***
Population under 15	-0.055 (0.028)**	-0.028 (0.032)	-0.035 (0.029)	-0.007 (0.005)	0.003 (0.008)	0.116 (0.065)*	0.018 (0.012)
Rural population	-0.040 (0.031)	-0.027 (0.026)	-0.025 (0.017)	-0.006 (0.004)	-0.012 (0.006)*	-0.018 (0.060)	-0.005 (0.009)
Number of observations	118	137	150	123	147	144	146
Number of countries	48	53	57	47	56	55	57
Under-identification test (p-value)	0.01	0.06	0.01	0.04	0.01	0.00	0.00
Weak instruments test (Wald F statistic)	10.05	4.92	14.52	5.75	14.34	12.86	16.31

Notes: Robust standard error in parenthesis. Aid to primary education has been instrumented by the year of FTI endorsement. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Despite the reserves we exposed earlier, we can test the effect of aid that is actually disbursed, rather than just committed (see Table 4). The results are very robust and the coefficients appear even more important.

Table 4: Educational achievements and disbursed aid to primary education, Panel 2SLS estimates

INSTRUMENTED FIXED EFFECT	COVERAGE			EQUITY		PROCESS	
	Net intake rate	Net enrolment rate	Primary completion rate	NER gender parity index	Gender completion parity index	Repetition rate	Pupil teacher ratio
Aid to primary education (disbursements per capita.)	0.198 (0.090)**	0.177 (0.064)***	0.184 (0.078)**	0.025 (0.015)*	0.045 (0.028)	-0.345 (0.175)**	0.007 (0.046)
Public expenditure on primary education (% GDP per capita.)	0.017 (0.012)	0.006 (0.008)	0.009 (0.007)	0.002 (0.002)	0.003 (0.003)	-0.014 (0.020)	-0.005 (0.004)
GDP per capita	-0.030 (0.320)	-0.249 (0.193)	-0.039 (0.191)	-0.029 (0.053)	0.092 (0.100)	-0.200 (0.601)	-0.271 (0.070)***
Population under 15	-0.009 (0.032)	-0.020 (0.022)	-0.012 (0.019)	-0.003 (0.005)	0.009 (0.007)	0.087 (0.058)	0.019 (0.010)*
Rural population	-0.021 (0.029)	-0.001 (0.015)	-0.008 (0.015)	-0.003 (0.003)	-0.008 (0.005)	-0.058 (0.055)	-0.004 (0.009)
Number of observations	116	135	150	121	147	144	146
Number of countries	47	52	57	46	56	55	57
Under-identification test (p-value)	0.05	0.01	0.02	0.01	0.02	0.02	0.01
Weak instruments test (Wald F statistic)	5.48	9.21	8.01	8.90	7.92	5.89	8.48

Notes: Robust standard error in parenthesis. Aid to primary education has been instrumented by the year of FTI endorsement. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

To go further in the analysis of the robustness of our results, we can rather use aid data as a share of GDP (see Appendix: Table 10). This change only affects the results for gender parity, which are now just over the threshold of 10% of significance. Our results are also robust to the use of unadjusted data for the NER, unbounded parity variable or to the use of completion rate capped to 100%.

Still focusing on net enrollment rates, a number of changes can be made to further investigate the robustness of our results. First, it is possible to modify our sample by removing alternatively small country (less than one million inhabitants), large countries (more than 50 million inhabitants), countries receiving little aid (less than US\$ 0.1 per capita), those receiving a lot of aid (more than US\$ 3 per capita) and those close to achieving UPE (over 95% of NER). It is also possible to use a logistics functional form rather than a semi-log or to change the periods of our panel by using two years averages. As displayed in Table 5, our results are robust to these successive modifications.

Table 5: Net enrolment rate and committed aid to primary education, Robustness tests, Panel 2SLS estimates

EFFETS FIXES INSTRUMENTES	Countries with population > 1 million	Countries with population < 50 millions	Countries with aid to primary education > 3 \$ per capita	Countries with aid to primary education < 0,1 \$ per capita	Countries with NER < 95%	Logistic function	Two years panel (2000- 2007)
	NER	NER	NER	NER	NER	NER	NER
Aid to primary education (commitments per capita.)	0.119 (0.046)***	0.106 (0.040)***	0.099 (0.039)**	0.310 (0.104)***	0.113 (0.056)**	0.509 (0.245)**	0.099 (0.042)**
Public expenditure on primary education (% GDP per capita.)	-0.013 (0.011)	-0.012 (0.010)	-0.006 (0.010)	-0.018 (0.012)	-0.013 (0.014)	-0.072 (0.056)	-0.002 (0.007)
GDP per capita	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Population under 15	-0.031 (0.028)	-0.035 (0.026)	-0.033 (0.032)	0.000 (0.033)	-0.039 (0.036)	-0.191 (0.128)	-0.032 (0.025)
Rural population	-0.009 (0.015)	-0.016 (0.017)	-0.010 (0.023)	0.002 (0.011)	0.001 (0.019)	-0.073 (0.087)	-0.034 (0.022)
Number of observations	125	123	99	104	88	137	163
Number of countries	47	48	42	40	35	53	55
Under-identification test (p- value)	0.01	0.00	0.01	0.02	0.02	0.00	0.01
Weak instruments test (Wald F statistic)	10.71	11.20	9.59	7.53	6.85	11.57	10.38

Notes: Robust standard error in parenthesis. Aid to primary education has been instrumented by the year of FTI endorsement. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

The governance variables never appear significant in our results. Using more aggregated variables such as total aid to education or the total ODA, our instrument is no longer valid. Nevertheless even using simple OLS, it is no longer possible to observe any significant effect of aid on educational achievements (see Appendix: Table 11).

## VI. SUMMARY AND IMPLICATIONS

In this study, we try to see if international aid to education is truly effective for achieving Universal Primary Education. The analysis of the global state of education and aid to education around the world shows that despite the political commitments, international aid is poorly targeted toward primary education and countries in dire need. Aid to primary



education appears to be also volatile from one year to another. A review of the literature on the effectiveness of sectoral aid shows the limits of the researches previously conducted, particularly with regards to the methods and data used. The study of the reliability of both educational and aid data appears as a prerequisite for any study on the subject. Thus, it seems risky to use this data prior to 1999, to use aid to education data other than commitments, not to use variables specific to primary education and finally to focus on only one type of educational achievement. In response to these limitations, we provide an original and reliable instrument by using the year of endorsement to the "Fast Track Initiative". We focus on the period 1999-2007 and use the educational achievements not only in terms of coverage, but also in terms of equity and process. We finally rely on the most disaggregated data which have a direct impact on primary education.

Our results demonstrate a positive and very robust impact of aid to primary education on the educational achievements of the aid recipient countries. Thus, aid to primary education does significantly improve coverage in primary education and gender equity. The flow of access to first grade as well as the completion rate, the quantity of children enrolled in primary and the gender parity variables are significantly improved by a rise in aid specifically targeted on primary education. Achievements in terms of coverage and equity do not appear to have taken place at the expense of the quality of the process of primary schooling. The repetition rate is reduced and the pupil-teacher ratio is not altered by the flow of aid to primary education. The estimated coefficients appear very high even if it reflects an average impact. The use of the year of FTI endorsement as an instrument could also give more weight to countries that are far from achieving UPE. Indeed, countries endorsed to FTI appear to be those who lag the most behind in terms of educational achievements. Consequently the effectiveness of aid in these countries is likely to be higher given their initial conditions. Another possible explanation for the size of these coefficients could be that aid to primary education is only a fraction of the total aid allocated to education. Indeed, the aid allocated to other level of education or not explicitly targeted to primary education as well as budget support or debt cancellation could be possibly considered as additional resources for primary education. The coefficients associated with aid disbursement that represent only a fraction of the commitments are even greater and somewhat confirm this hypothesis. In the absence of a credible allocation rule, it seems unwise to use another measure than aid to primary education in its stricter definition. Returns of aid to primary education appear to be decreasing. Aid to primary education is less and less effective as the amount increases, the threshold is however large enough, approximately US\$ 10 per capita of aid to basic education. The governance variables do not appear to influence the effectiveness of aid to primary education. Using more aggregate data such as total aid to education or the amount of total committed aid, we were unable to find any significant impact.

The effect of aid on educational achievements is ultimately very important, and increased allocations to primary education could actually achieve the goals of UPE by 2015. Conversely, a reduction of the allocations could have extremely negative effects on the progress of developing countries towards the improvement of their primary education. Therefore, an increase in the amounts of aid actually disbursed, a rise of the proportion of aid allocated to primary education and a better focus on countries that lag the most behind appear as effective ways to accelerate the achievement of the targets for 2015. The extension of the Fast Track Initiative appears also as a particularly effective way to allocate more aid to primary education and improve the situation of primary education in countries that are lagging behind. Regarding research on aid effectiveness, this study demonstrates the utility of researches at the sector level, the need of a proper instrumentation and the importance of

using disaggregated data to overcome the micro-macro paradox and demonstrate the effectiveness of aid. For the future, additional studies could be made to investigate on the effect of aid to education on better proxies for quality or on secondary and tertiary education.

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**APPENDIX***Table 1: Definition and descriptive statistics of educational achievements*

VARIABLES	DESCRIPTION	Mean	Min.	Max	Countries
<b>COVERAGE :</b>					
Net Intake Rate (NIR)	New entrants in the first grade of primary education who are of the official primary school-entrance age, expressed as a percentage of the population of the same age (UNESCO, 2009).	64,55	10,88	99,97	140
Net enrolment rate (NER)	Enrolment of the official age group for primary education expressed as a percentage of the corresponding population. (UNESCO, 2009).	87,14	32,60	99,97	173
Primary completion rate (=Gross intake ratio in the last grade of primary)	Total number of new entrants in the last grade of primary education, regardless of age, expressed as a percentage of the population at the theoretical entrance age to the last grade of primary. (UNESCO, 2009).	85,18	24,84	141,28	177
<b>EQUITY :</b>					
NER gender parity index	Ratio of the NER corresponding to the female and the NER corresponding to male (UNESCO, 2009)	96,73	66,39	107,32	165
Gender completion parity index	Ratio of the primary completion rate corresponding to the female and the primary completion rate corresponding to male (UNESCO, 2009)	94,99	38,83	137,33	174
<b>PROCESS :</b>					
Repetition rate	Proportion of pupils from a cohort enrolled in a given grade at a given school year who study in the same grade in the following school year (UNESCO, 2009).	8,35	0,51	35,45	151
Pupil teacher ratio	Average number of pupils (students) per teacher at a specific level of education in a given school year (UNESCO, 2009).	26,76	5,85	87,57	187

*Notes: Variables are averaged over the period 1999-2007.*

*Table2: Definition and descriptive statistics of explanatory variables*

VARIABLES	DESCRIPTION	Mean	Min.	Max	Countries
<b>AID</b>					
Aid to primary education (commitments per capita.)	Aid to primary education committed per capita in constant US \$ 2007 (OCDE/CAD, code SNPC 11220)	2,1149	0,0005	26,995	135
Aid to primary education (disbursements per capita.)	Aid to primary education disbursed per capita in constant US \$ 2007 (OCDE/CAD, code SNPC 11220)	1,3903	0,0005	22,746	135
Aid to primary education (commitments in % GDP.)	Aid to primary education committed in % GDP (OCDE/CAD, code SNPC 11220)	0,22733	0,00001	1,5884	132
Total aid to education (commitments per capita.)	Total aid to education committed per capita in constant US \$ 2007 (OCDE/CAD, code SNPC 110)	10,5460	0,06834	156,192	142
Total aid (commitments per capita.)	Total aid committed per capita in constant US \$ 2007 (OCDE/CAD)	96,2221	0,30127	1425,77	145
FTI endorsement	Year of endorsement of the country in the Fast Track Initiative (= 1 if the country is endorsed to FTI during the period and 0 otherwise)	0.1675	0	1	197
<b>CONTROLS</b>					
Public expenditure on primary education (% GDP per capita.)	Public current expenditure on primary education per pupil as % of GDP per capita (UNESCO, 2009)	15,378	1,081	48,230	149
GDP per capita	Average income per capita in purchasing power parity and in constant US \$ 2005 (WDI, 2009)	11001,6	264,5	64482,5	178
Population under 15	Percentage of population under 15 years (WDI, 2009)	31,18	14,12	49,37	183
Rural population	Percentage of population living in rural areas (WDI, 2009)	45,08	0,00	90,96	196
Political stability	Political stability index (Worldwide Governance Indicators, 2009)	-0,0199	-2,086	2,235	193
Government efficiency	Government efficiency index (Worldwide Governance Indicators, 2009)	-0,0483	-2,6080	1,5918	193

*Notes: Variables are averaged over the period 1999-2007.*

Figure 1: Coverage in primary education, 1999-2007

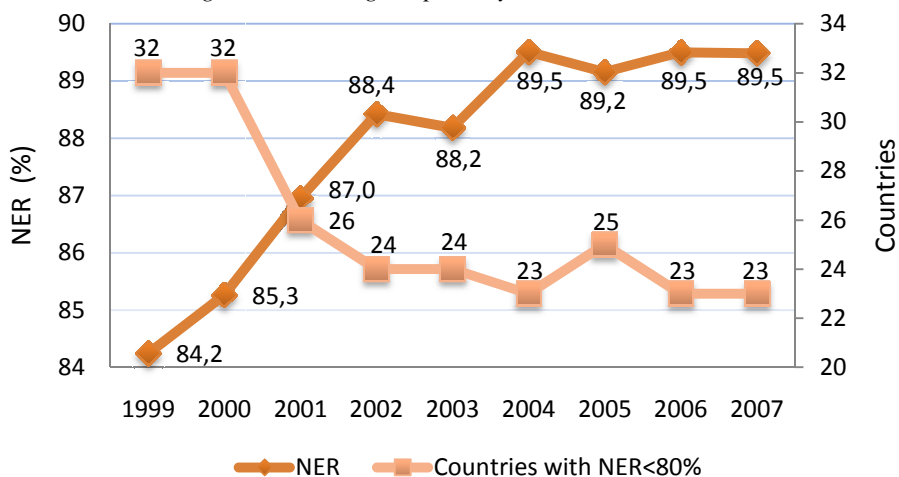


Figure 2: Gender equity in primary education, 1999-2007

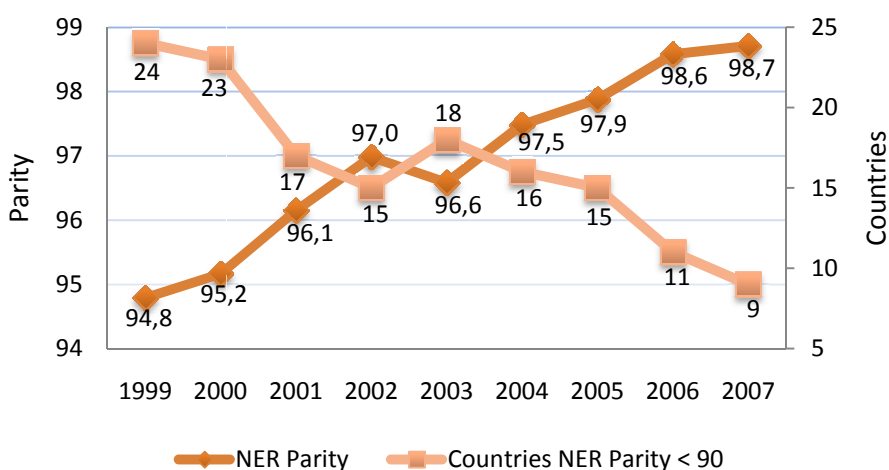


Figure 3: Total aid to education and aid to primary education in % of total aid, 1999-2007

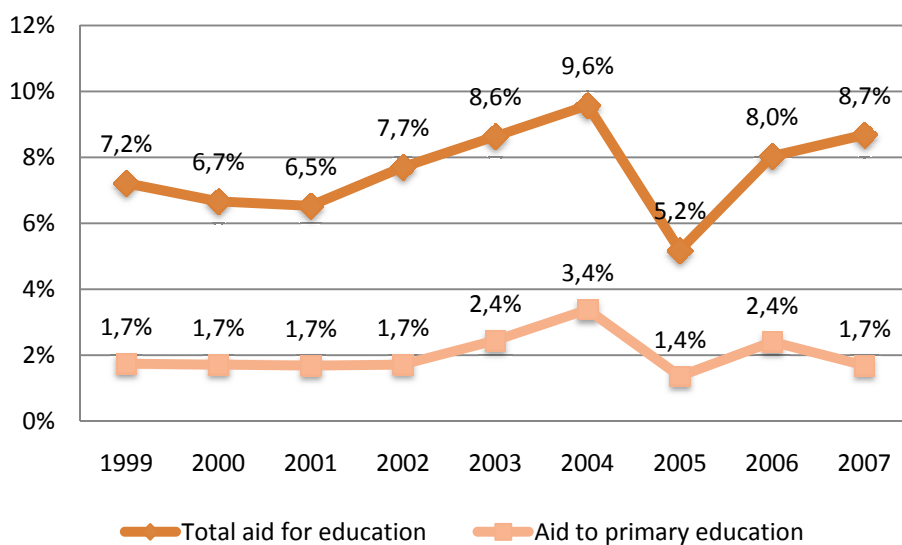


Figure 4: Total aid to education and aid to primary education, commitments in billion US \$, 1999-2007

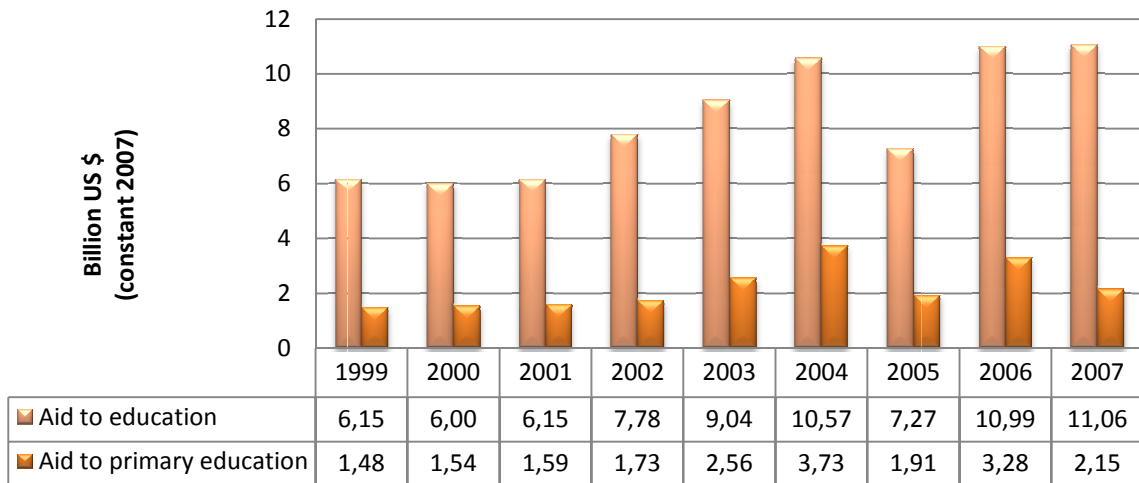


Table 3: Aid to primary education by decile of countries, commitments per capita, average 1999-2007

Deciles of countries	1	2	3	4	5	6	7	8	9	10
Aid to primary education (commitments per capita.)	0,0086	0,0532	0,1782	0,3698	0,6135	1,0077	1,6697	2,5107	3,8215	11,083

Figure 5: Distribution of total aid to education, 1999-2007

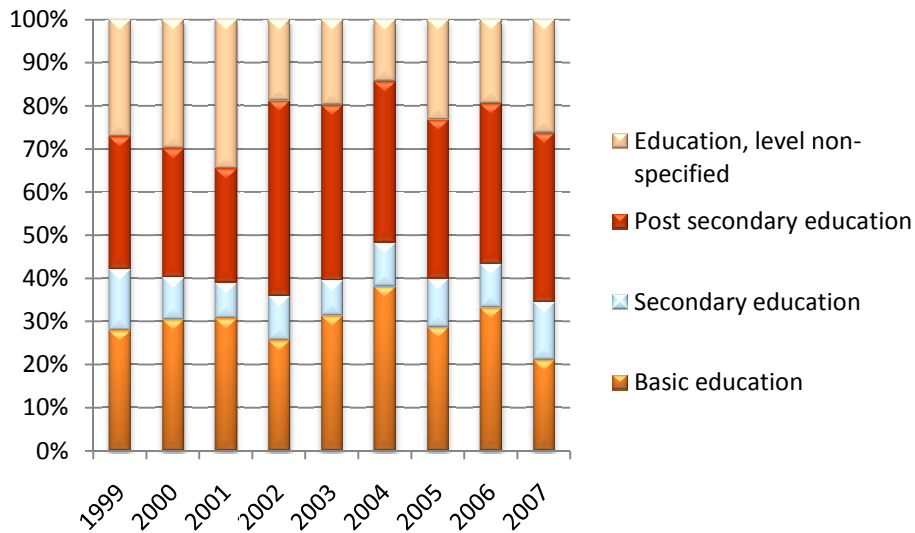


Figure 6: Aid to primary education, by region, 1999-2007

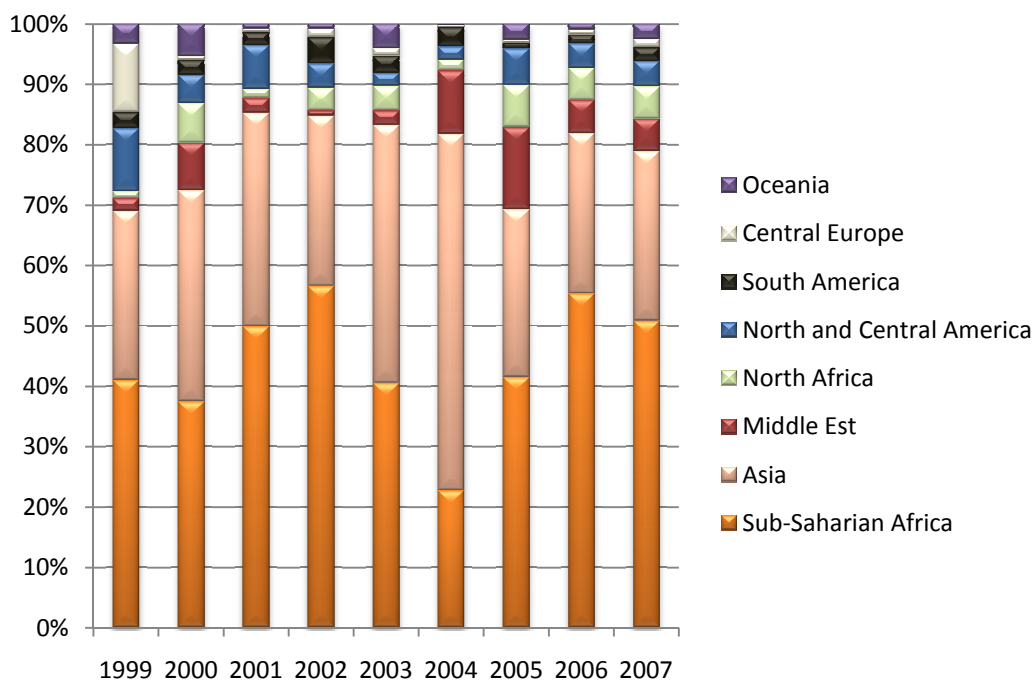


Figure 7: Aid to primary education and NER in primary education, average 1999-2007

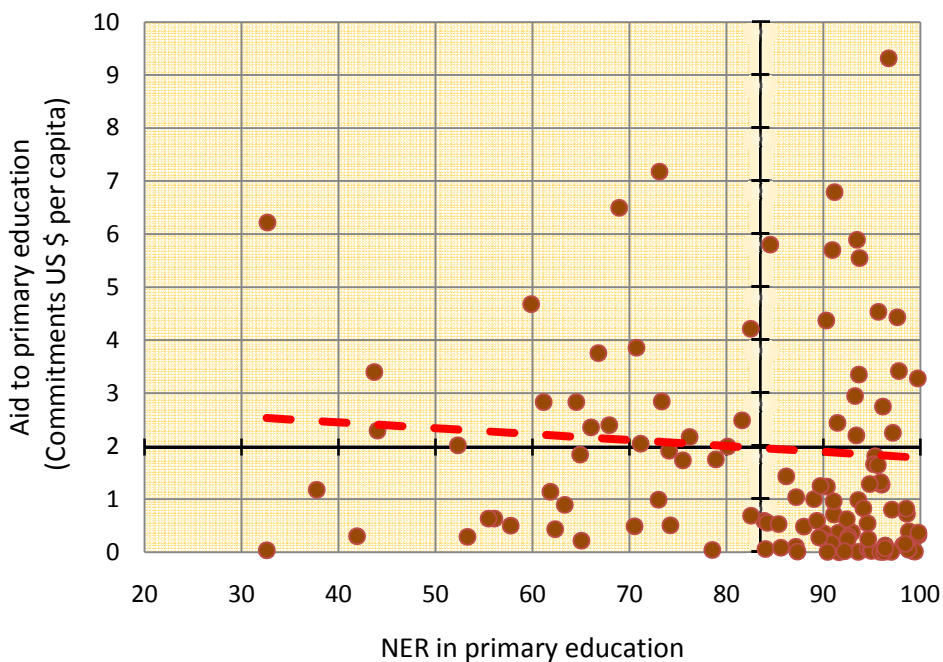
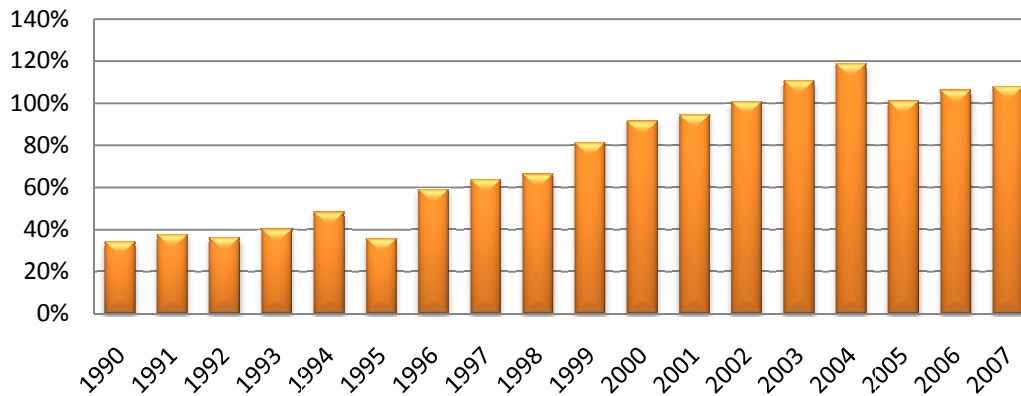




Figure 8: Coverage ratios of the total ODA from the CRS data base, aid commitments for education, 1990-2007

Table 4: Year of endorsement to the Fast Track Initiative, 2002-2007<sup>12</sup>

Year of FTI endorsement	Countries
2002	Burkina Faso, Guinea, Guyana, Honduras;Mauritania, Nicaragua, Niger
2003	Gambia, Mozambique;Vietnam, Yemen
2004	Ghana, Ethiopia
2005	Kenya, Lesotho, Madagascar; Moldova, Tajikistan, Timor-East
2006	Albania, Cambodia, Cameroon, Djibouti; Kyrgyzstan, Mali, Mongolia, Rwanda, Senegal
2007	Benin, Georgia, Liberia; Sierra Leone, Sao Tome and Principe

Table 5: FTI endorsed countries in the period 2002-2007 versus other countries receiving aid to primary education, average 1999-2001

	1999-2001		Test of difference (p-value)
	FTI endorsed countries in 2002-2007	Non-endorsed countries in 2002-2007	
Aid to primary education (commitments per capita.)	1.820392	1.342408	0.3182
Net enrolment rate	67.4379	84.25417	0.0001
NER gender parity index	89.10757	94.99808	0.0198
Government efficiency	-0.6597031	-0.3724525	0.0228
Political stability	-0.4237561	-0.4342611	0.9569

Note: Are retained in the sample only countries with aid to primary education and with NER data

Table 5: FTI endorsed countries in the period 2002-2004 versus FTI endorsed countries in the period 2005-2007, average 1999-2001

	1999-2001		Test of difference (p-value)
	FTI endorsed countries in 2002-2004	FTI endorsed countries in 2005-2007	
Aid to primary education (commitments per capita.)	2.403806	1.145891	0.0879
Net enrolment rate	61.14745	72.34998	0.1808
NER gender parity index	84.51728	92.19146	0.1581
Government efficiency	-0.58232	-0.7018229	0.4504
Political stability	-0.3674573	-0.463528	0.7715

Note: Are retained in the sample only countries with aid to primary education and with NER data

<sup>12</sup> Between early 2008 and late 2009, the following countries have also been admitted to FTI: Central African Republic, Haiti, Malawi, Bhutan, Zambia, Laos and Nepal.

Table 7: Panel OLS estimates of aid to primary education, total aid to education and total aid

<b>FIXED EFFECT</b>	<b>Aid to primary education (commitments per capita.)</b>	<b>Aid to primary education (commitments per capita.)</b>	<b>Aid to secondary education (commitments per capita.)</b>	<b>Total aid to education (commitments per capita.)</b>	<b>Total aid (commitments per capita.)</b>
FTI endorsement	1.465 (0.496)***	1.454 (0.537)***	-0.382 (0.791)	0.126 (1.846)	-4.101 (9.488)
Public expenditure on primary education (% GDP per capita.)	0.105 (0.153)	0.125 (0.147)		-0.313 (0.328)	-2.109 (3.200)
GDP per capita	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.001)	-0.001 (0.005)
Population under 15	0.125 (0.210)	0.183 (0.190)	0.140 (0.190)	-1.110 (0.766)	-1.429 (3.612)
Rural population	-0.019 (0.166)	-0.078 (0.158)	0.161 (0.142)	0.592 (0.454)	-4.073 (4.014)
Government efficiency		1.531 (1.520)			
Political stability		0.166 (0.980)			
Public expenditure on primary education (% GDP per capita.)			0.007 (0.142)		
Constant	-3.472 (11.105)	-2.571 (10.983)	-12.613 (12.342)	22.249 (22.909)	366.807 (274.348)
Number of observations	186	184	160	199	200
Number of countries	89	88	88	95	96
R-squared	0.02	0.03	0.08	0.04	0.01

Table 8: Correlation table between FTI endorsement and governance indicators

<b>Correlation coefficients</b>	<b>FTI countries</b>	<b>Countries with aid to primary education</b>
	FTI endorsement	FTI endorsement
Government efficiency	0.1516 (0.1191)	-0.0729 (0.1610)
Political stability	0.1148 (0.2368)	0.0270 (0.6040)
Observations	107-108	371-376

Notes: P-values in parentheses.

Table 9: Estimates of effect of the year of FTI endorsement on secondary education achievement

EFFETS FIXES	Net enrolment rate in secondary education
Primary completion rate	0.545 (0.137)***
Public expenditure on secondary education (% GDP per capita.)	-0.008 (0.003)**
GDP per capita	0.124 (0.187)
Population under 15	0.009 (0.021)
Rural population	-0.033 (0.008)***
Aid to secondary education (commitments per capita.)	-0.001 (0.003)
FTI endorsement	-0.002 (0.059)
Constant	1.873 (2.180)
Number of observations	120
Number of countries	72
R-squared	0.595

Table 10: Educational achievements and committed aid to primary education in % of GDP, Panel 2SLS estimates

INSTRUMENTED FIXED EFFECT	COVERAGE			EQUITY		PROCESS	
	Net intake rate	Net enrolment rate	Primary completion rate	NER gender parity index	Gender completion parity index	Repetition rate	Pupil teacher ratio
Aid to primary education (commitments in % GDP .)	1.095 (0.484)**	0.854 (0.258)***	1.034 (0.467)**	0.125 (0.080)	0.257 (0.165)	-1.383 (0.532)***	0.029 (0.226)
Public expenditure on primary education (% GDP per capita.)	-0.025 (0.019)	-0.020 (0.013)	-0.025 (0.018)	-0.003 (0.003)	-0.006 (0.005)	0.031 (0.025)	-0.005 (0.007)
GDP per capita	-0.833 (0.919)	-0.504 (0.523)	-0.368 (0.589)	-0.082 (0.092)	0.007 (0.168)	0.444 (1.132)	-0.280 (0.115)**
Population under 15	-0.065 (0.052)	-0.044 (0.037)	-0.045 (0.044)	-0.007 (0.006)	0.000 (0.013)	0.118 (0.080)	0.018 (0.012)
Rural population	-0.021 (0.027)	-0.003 (0.013)	-0.009 (0.015)	-0.003 (0.002)	-0.008 (0.005)	-0.030 (0.053)	-0.005 (0.009)
Number of observations	118	137	150	123	147	144	146
Number of countries	48	53	57	47	56	55	57
Under-identification test (p-value)	0.07	0.01	0.03	0.01	0.03	0.01	0.01
Weak instruments test (Wald F statistic)	4.61	9.94	6.49	9.61	6.40	8.58	8.74

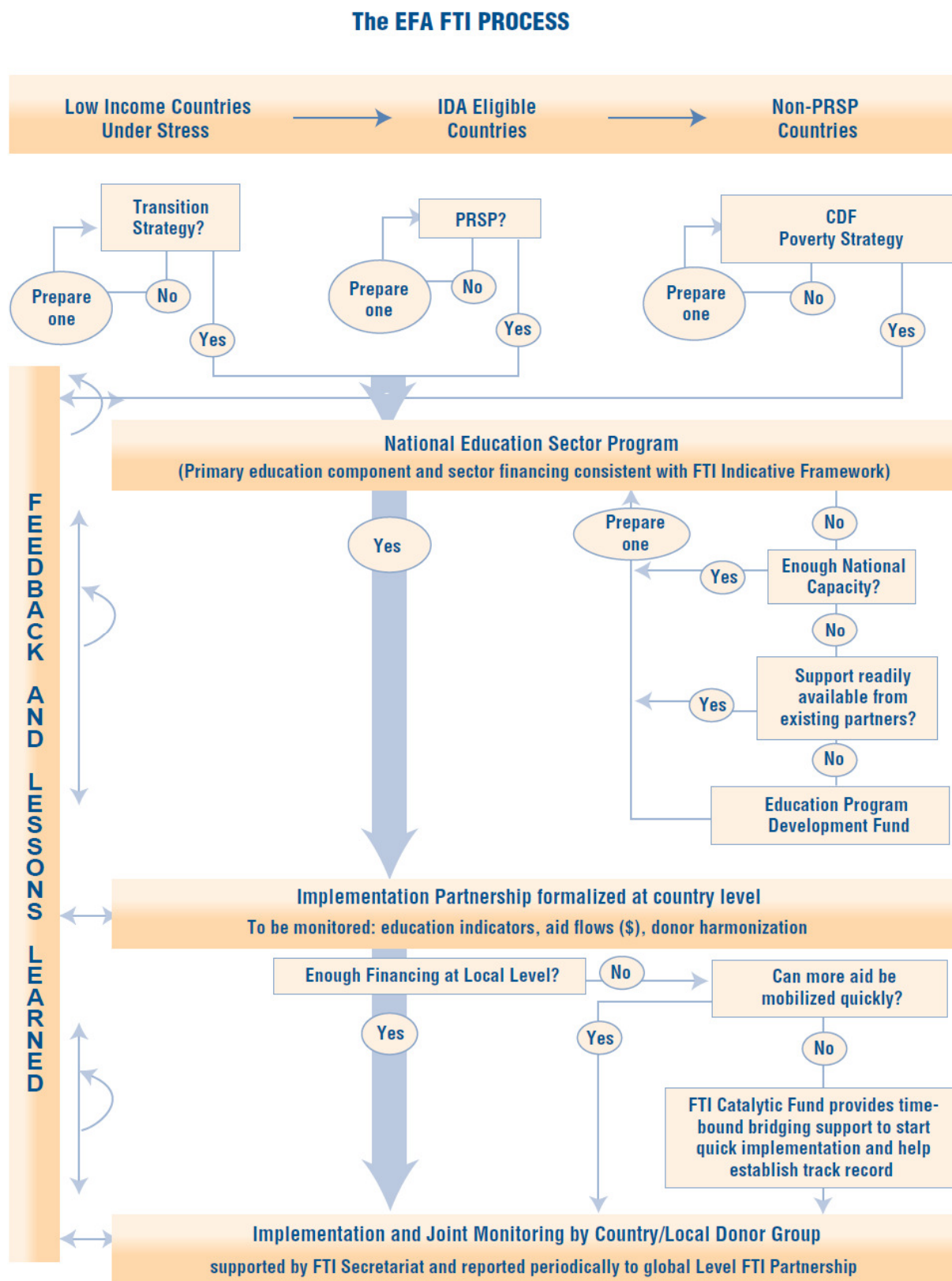
Notes: Robust standard error in parenthesis. Aid to primary education has been instrumented by the year of FTI endorsement. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 11: Net enrolment rate and aid, governance indicators, total aid to education and total aid

FIXED EFFECT	Gouvernance (2SLS)			Total aid to education (OLS)	Total aid (OLS)
	Net enrolment rate	Net enrolment rate	Net enrolment rate	Net enrolment rate	Net enrolment rate
Aid to primary education (commitments per capita.)	0.106 (0.042)**	0.107 (0.041)***	0.106 (0.039)***		
Public expenditure on primary education (% GDP per capita.)	-0.014 (0.009)	-0.014 (0.009)	-0.011 (0.009)	0.006838 (0.005742)	0.006601 (0.005756)
GDP per capita	-0.000 (0.000)*	-0.000 (0.000)*	-0.000 (0.000)	-0.000053 (0.000020)**	-0.000053 (0.000020)***
Population under 15	-0.044 (0.021)**	-0.045 (0.022)**	-0.034 (0.025)	-0.031974 (0.014752)**	-0.033880 (0.014328)**
Rural population	-0.009 (0.014)	-0.010 (0.014)	-0.012 (0.015)	-0.008748 (0.009436)	-0.007591 (0.009188)
Political stability	0.068 (0.075)				
Government efficiency		0.011 (0.122)			
Total aid to education				0.001382 (0.001273)	
Total aid					-0.000062 (0.000260)
Constant				6.212068 (0.506207)***	6.240382 (0.502082)***
Number of observations	135	135	137	176	176
Number of countries	52	52	53	87	87
Under-identification test (p-value)	0.00	0.01	0.01		
Weak instruments test (Wald F statistic)	11.41	11.16	10.16		
R-squared				0.25	0.24

Notes: Robust standard error in parenthesis. Aid to primary education has been instrumented by the year of FTI endorsement. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Figure 9: The EFA FTI Process (EFA-FTI, Framework, 2004)



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Figure 10: FTI endorsement process (EFA-FTI, Framework, 2004)

### What is the Purpose of FTI endorsement?

FTI endorsement is intended to give recognition to education sector programs /plans prepared by countries and to signal to potential investors, whether they be international or domestic, public or private, that the program /plan is credible, sustainable and, therefore, a good investment.

The FTI endorsement process encourages collaboration and harmonization among those supporting the sector program to lower transaction costs and ensure that all sources of support converge in support of the same Government plan.

