

Primary Completion Rates

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Introduction

Indicators of educational quality are increasingly important as factors in high stakes decisions about resources, strategies, and donor support. Such measures strongly influence determinations of the success or failure of programs and donor investments. Therefore, it is important that both countries and donors clearly understand the accuracy and validity of the measures. One such measure is the primary completion rate, currently favored by some donors as the principle measure of a country's progress towards universal primary education (UPE).

To improve our understanding of the completion rate as an effective indicator of this progress, this paper utilizes data from the DHS conducted in 15 countries and administrative data from three countries.

Findings are as follows:

- The magnitude and timeframe of expected changes in the completion rate can vary considerably depending on the particular country circumstances and policy changes or interventions. Unlike enrollment and intake rates, it is a lag indicator of the effect of changes in entry-level access, but captures immediately the effect of changes occurring at the end of the primary school cycle.
- In eleven of the fifteen countries included in this analysis, on-time completion was less than 15%. The greater the ages of completers, the lower the completion rate. This finding suggests not a flaw in the indicator so much as an area of intervention: children who start school on time are more likely to complete.
- Completion and survival rates can move in opposite directions. This phenomenon results from the dynamics of the education cycle, which spans as much as eight years. When this situation occurs, policy makers must look to the underlying causes to determine its desirability.

Background

Two measures of completion are typically cited by countries and international organizations, each of which provides a different indicator of yield: the adult primary completion rate and the "primary completion rate" defined by the World Bank (hereafter referred to simply as the completion rate). The adult primary completion rate, which has been used for many years, is defined as the percent of adults (typically age 25+) who have finished primary school. It is considered a "status" indicator because it measures

the educational status of the population regardless of when the individual completed the primary school cycle.¹

The completion rate proposed as the central indicator of quality by the World Bank is defined as the ratio of the number of children graduating from primary school each year to the population of official graduating age. This indicator differs from the first because it is a measure of an annual event rather than a reflection of the status of the population. The rationale for this choice of indicator is given as follows:

Why measure primary completion rate? ... Although not officially included as one of the MDG indicators, primary completion rate is increasingly used as a core indicator of an education system's performance. Because it measures both the coverage of the education system and the educational attainment of students, the primary completion rate is a more accurate indicator of human capital formation and the quality and efficiency of the school system than are gross and net enrollment ratios. It is also the most direct measure of national progress toward the Millennium Development Goal of universal primary education.²

To explore the characteristics and behavior of the completion rate, two sources of data are used in this paper: recent the Demographic and Health Surveys (DHS) and administrative education information systems. The DHS provides household-level information about the school-aged population. The following countries are included in the analysis: Armenia, Benin, Dominican Republic, Ethiopia, Ghana, Haiti, Kenya, Malawi, Mali, Nepal, Nicaragua, Nigeria, Uganda, Zambia, and Zimbabwe. Of these countries, Armenia follows the pattern of a developed country education system, thereby providing a benchmark against which the others countries are measured.

In addition, school-level data from administrative systems provide an excellent source for studying trends in access, efficiency and completion. These databases were available from Namibia for a ten-year period and for Uganda, and Zambia for five-year periods.

Note that criticisms of the completion rate not taken up in this paper are as follows. As UNESCO and others note that the primary completion rate has limitations as an indicator of quality of an education system. It does not capture any measure of actual student learning, or estimate how many graduating students master a minimum set of cognitive skills.³ There are also issues of measurement. "Systems of graduation vary by country (e.g., examinations, automatic promotion, diplomas), limiting international compa-

¹ This statistic is often embedded in an adult attainment distribution, which shows the percent of adults reaching different levels in the education system, from attainment of some primary to completion of tertiary.

² <http://www.developmentgoals.org/Education.htm>.

³ Education for All, The Quality Imperative, EFA Global Monitoring Report, UNESCO, 2004, p 17.

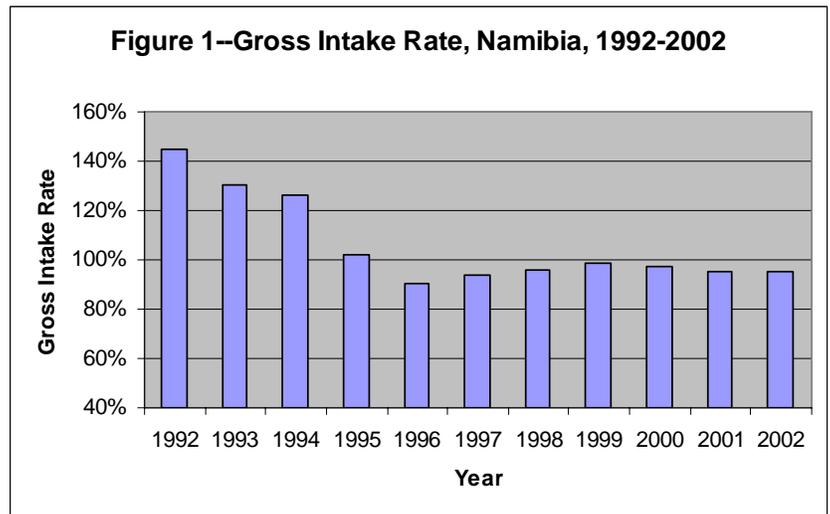
rability.”⁴ Also, when using administrative data, the measurement requires an estimate of a single age group of the population, which is problematic.⁵

Behavior Across Time

Countries that are experiencing rapid increases in enrollment at primary entry level as a result of UPE or similar policies can expect a considerable time lag between implementation of policy and measurable improvements in the completion rate. For countries that have moved beyond the issue of entry-level access, however, the completion rate may be a very effective indicator of progress or lack thereof. This is best shown by example.

Namibia embarked on its program to provide universal basic education in the early 1990s, adopting a number of strategies to increase access. As a result, the gross intake rate exceeded 140 in 1992, then gradually declined until 1996 when it more or less leveled off at around 95 (figure 1).

Meanwhile, in 1994, Namibia’s Ministry of Education implemented a policy to reduce repetition. As a result, repetition rates declined in all grades from 1994 to 1996, and continued to decline in the final grade of primary until 1999.

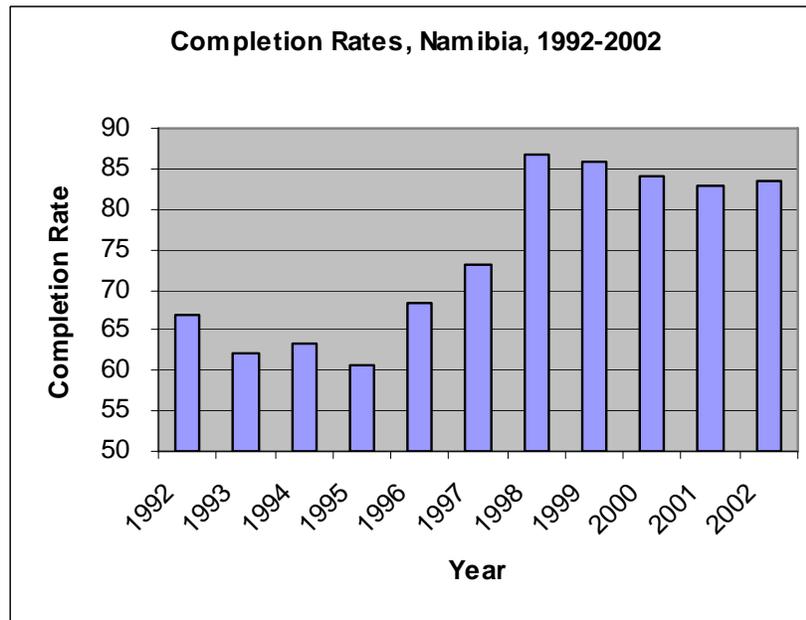
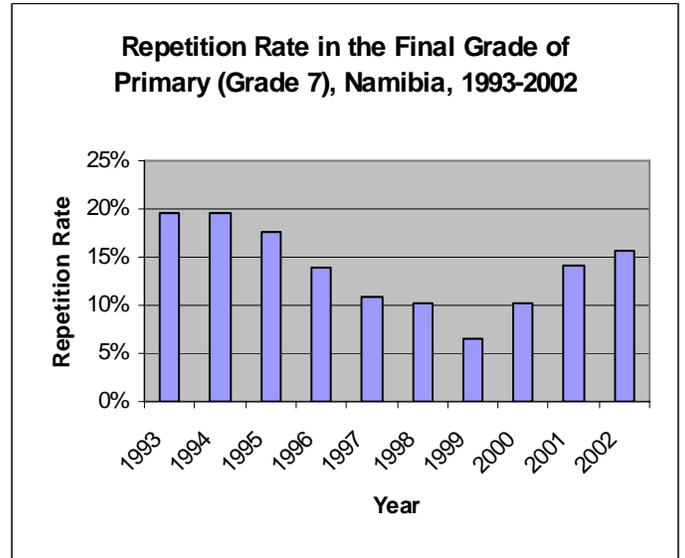
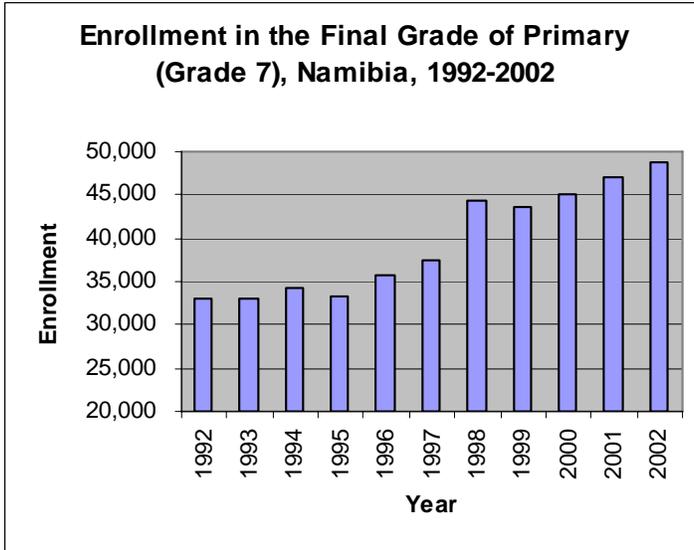


The effect of these policies on the completion rate is shown in figure 2. From 1992 to 1995, when gross intake rates were well over 100, there was no apparent effect on the completion rate. From 1995 to 1998, the completion rate increased dramatically from 61 to 87. The increase resulted from two reinforcing effects: the decline in repetition and the increase in enrollment as the enrollment bubble that started in the early 90s finally making its way through the system. Finally, from 1998 to 2005, the completion rate declined modestly despite the continued increase in enrollment in grade 7 because of a steady increase in the repetition rate.

⁴ UIS Technical Guides.

⁵ See “Indicator Handbook for Primary and Secondary Education, Abridged”, <http://www.equipl23.net/docs/e2-MissionHandbook.pdf>, for a discussion of issues related to population estimates.

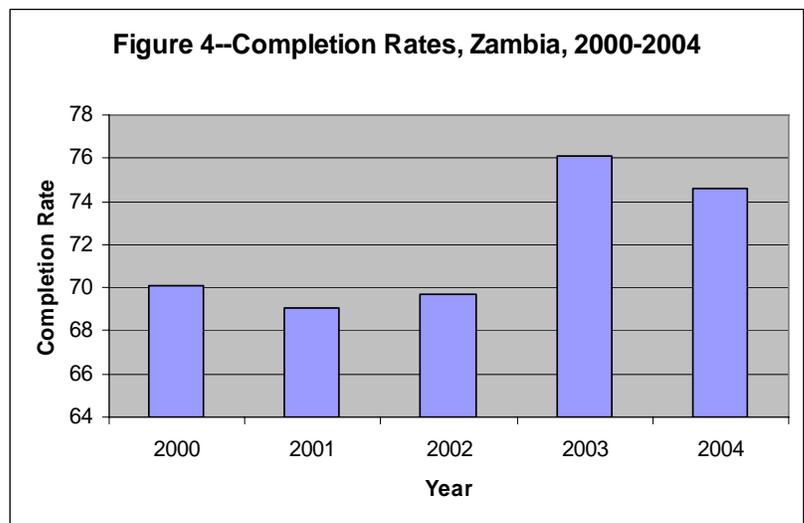
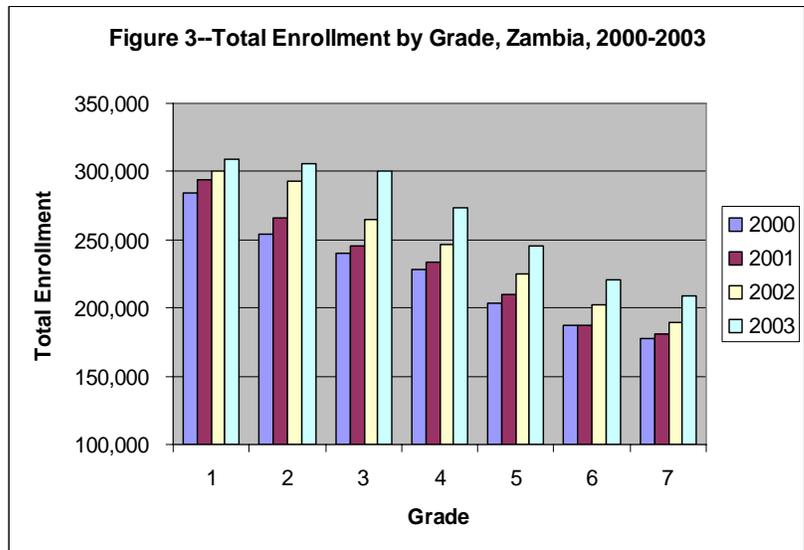
Figure 2 -- Total Enrollment, Repetition Rates in the Final Year of Primary, and Completion Rates, Namibia 1992-2002



Another example of the effect of policy changes on the completion rate is provided by Zambia's recent experience. In February 2002 the Ministry of Education announced free primary education. In addition, it began the process of expanding access to education in grades 8 and above.

As a result, overall enrollment increased from 2001 to 2003 by 15%, and in grades 7 and 8 by 18% and 16% respectively (figure 3). Much of the increase appear to be the result of drop-ins—children who had attended at least some primary and had dropped out, returned to school in these years.⁶

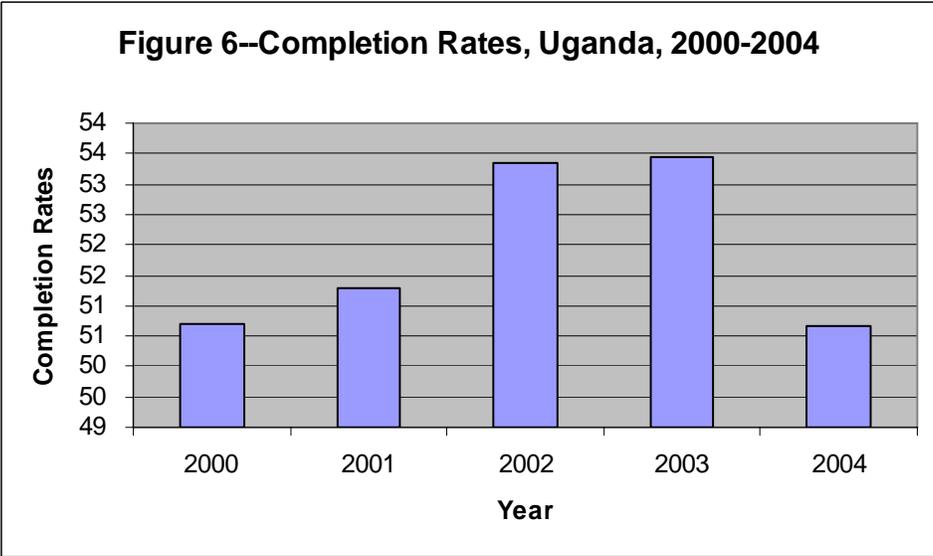
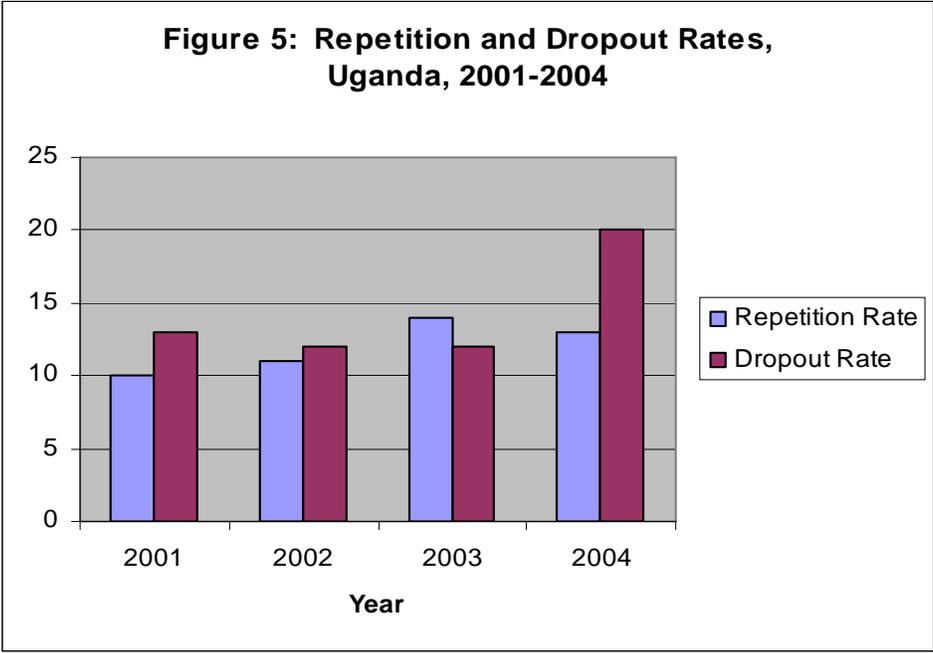
As a result of this jump in enrollment, not just in grade 1, but in all grades, the completion rate increased in from 2001 to 2003 by 10 percentage points (figure 4).



Finally Uganda's experience exemplifies how easily the enrollment bubble, and with it expectations of progress, can burst. Uganda eliminated school fees and launched an educational promotion campaign in 1996, causing a three-fold increase in enrollment from 1997 to 1999. Enrollment continued to increase during the period from 2000 to 2003 both in absolute terms and relative to population growth.

The completion rate, which was roughly 50 in 2001, was expected to increase as the enrollment bubble worked through the system. Unfortunately, repetition rates, which are often an early warning sign of systemic problems, climbed steadily from 2001 to 2003. This was followed by a sharp increase in the dropout rate from 12% to 20% in 2004 causing overall enrollment to decline. The completion rate declined accordingly (figures 5 and 6).

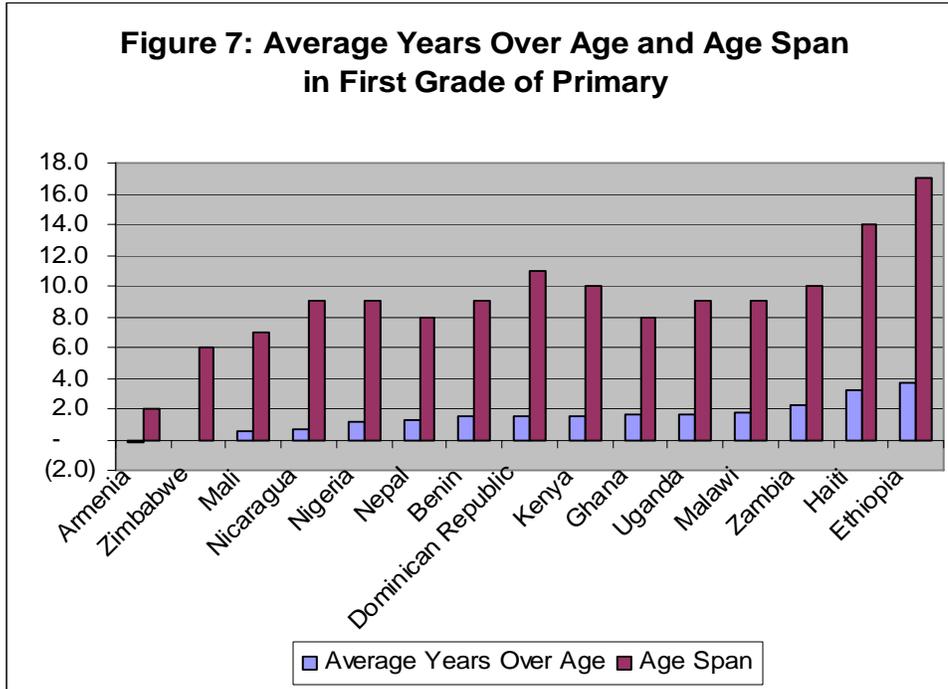
⁶ Although drop-out (and drop-in) rates are not measured directly in an EMIS but derived as the residual of promotion and repetition, the very low rates in the rural areas and negative rates in the urban areas indicate that some proportion of the overall increase resulted from drop-ins.



The experiences in these countries demonstrate the behavior of the completion rate in a number of circumstances. There can be a considerable lag from policy implementation to measurable changes in this indicator when such policies target access and play out at the entry-level of the primary cycle. However, successful interventions and system failures have a more immediate impact on and are measurable with the completion rate.

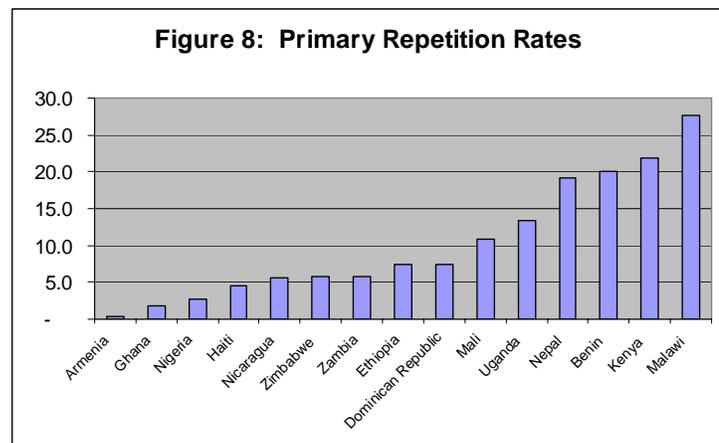
Age at Completion

Whereas it is well-known that children typically enter school late and often repeat in many developing countries, the extent of this phenomenon and its implication for the completion rate is perhaps less well understood.



Household-level data from the DHS reveal the enormous age spread of children in primary school. With the exception of Armenia and Zimbabwe, the average age of students in grade 1 exceeds the official starting age by 1.5 to 3.5 years, with age spans ranging from six to seventeen years. For example, in Kenya, where the official starting age is six, the average age in first grade is 7½ and the ages of students range from five to fourteen (figure 7).

Late starting ages alone lead to late ages at completion. In addition, many of these countries also have high repetition rates. Figure 8 shows that repetition rates range from as low as 2% for Ghana to nearly 28% for Malawi.



The greater the repetition rate, the

more likely the graduating class will be overage and have a large range in ages. For example, in the Dominican Republic where the official graduating age is 13, the average age of students in the graduating class is sixteen, and the age span ranges from 11 to 24 (figure 9). Perhaps the most dramatic illustration of this phenomenon is the comparison of the “on-time” completion rate with the primary completion rate, where “on-time” completion is the percent of children at graduation age who are completing primary school. This is shown in Table 1.

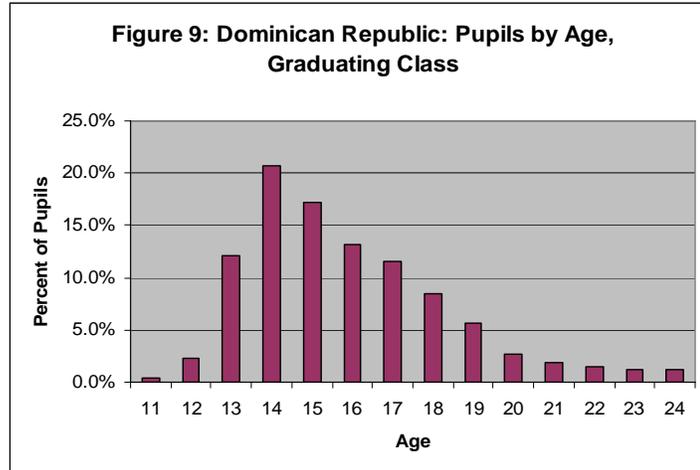
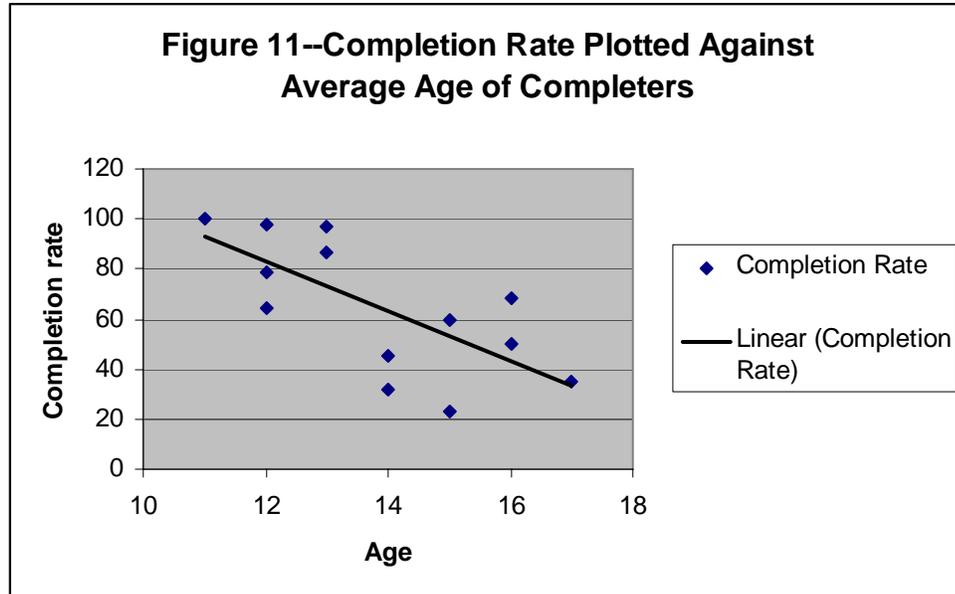


Table 1: Primary and “On-Time” Completion Rates

Country	Primary Completion Rate	"On-Time" Completion Rate
Armenia	100	74
Zimbabwe	98	36
Ghana	97	12
Dominican Republic	88	11
Nigeria	87	9
Haiti	82	3
Nicaragua	79	18
Kenya	68	6
Nepal	64	9
Zambia	60	5
Uganda	50	3
Benin	45	4
Mali	32	6
Ethiopia	23	3

But more importantly, late starting ages and multiple repetitions inevitably take their toll on the level of the completion rate: the older the graduating cohort, the lower the completion rate. This relationship is shown in figure 11 where the completion rate is plotted against the average age of completers.⁷

⁷ Thirteen of the fifteen countries were included in the chart. Exceptions to the pattern were the Dominican Republic and Haiti where the completion rate was high despite the high age of completers.



The importance of the effect of age on completion was noted by Namibia:

“Children starting school at the appropriate age appear to do better than their older or younger classmates. Classes with a large age spread pose problems for teaching and class dynamics. Finally, *the older the child is, the greater the chances of him/her leaving school before completing the basic education cycle*”⁸

The latter occurs because children are “completing their education at an age when constraints on school participation become stronger than during early childhood: more opportunities or pressure to work or get married and more limitations on girls’ mobility”⁹

Completion Rate versus Survival Rate

Typically, survival and completion rates move in the same direction across time, particularly with improvements in school retention. It is possible, however, for these two indicators to move in opposite directions. This phenomenon can happen because of the difference in their definition and/or the methodology of their calculation.

The most obvious possibility is when access increases at the cost of efficiency. So long as the increase in access sufficiently offsets the decline in efficiency, the completion rate, which is measured against population, will increase while the survival rate, which is measured against the grade 1 cohort, declines.

The less obvious possibility reflects the differences in methodology in the calculation of the two indicators in a dynamic setting. The survival rate is calculated using the constructed cohort method and predicts the likelihood that a pupil will survive to a

⁸ “A Profile of Education in Namibia”, italics provided by author.

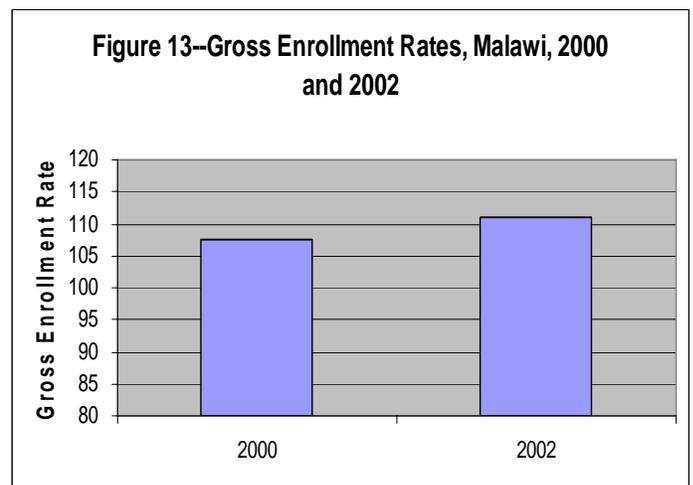
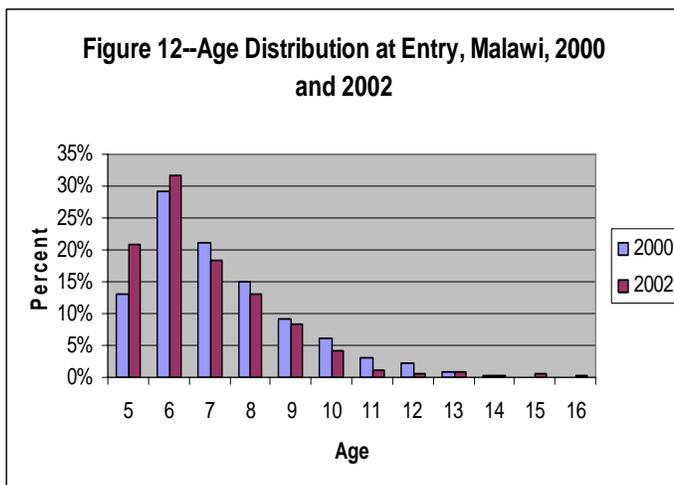
⁹ Education for All, the Quality Imperative, EFA Global Monitoring Report 2005, p 97.

particular grade assuming the current pattern of dropout and repetition. The completion rate measures the historic path already taken by the cohort.¹⁰ Thus the two indicators can pick up different effects at different points in the system.

This phenomenon is demonstrated in Malawi between 2000 and 2002. In its “2001 Education Sector Policy and Investment Framework”¹¹ Malawi articulated the following goals:

- Equal access for all children to quality primary education shall be the main thrust of Government policy on basic education access. Net enrolment ratio shall increase to 95 % by 2007.
- Minimum entry into primary education shall be 6 years of age while the maximum age of entry shall be 10 years. Average age range in a class will reduce from 10+ years to 5 years.
- The MoES&C shall put in place appropriate measures to reduce pupil repetition and early school withdrawal. Repetition rate shall decrease from an average of 15% to 5% in standards 1-7 and to 10% in standard 8. Dropout rate shall reduce to 5% in all standards during the plan period.
- The Government shall aim at increasing the percentage of primary school graduates who have access to secondary level education from the current 18% (approximately 200,00) in 1998 to 30% (400,00) by 2012.

The effects of these policies are readily seen in the data. The age distribution of pupils entering the system was noticeably lower in 2002 compared with 2000 and gross enrollment increased slightly (figures 12 and 13).



¹⁰ Note that the cohorts of the two indicators are not the same.

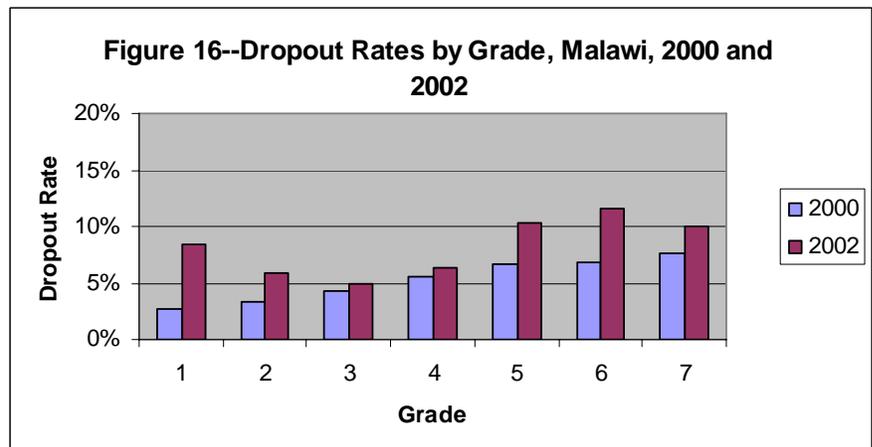
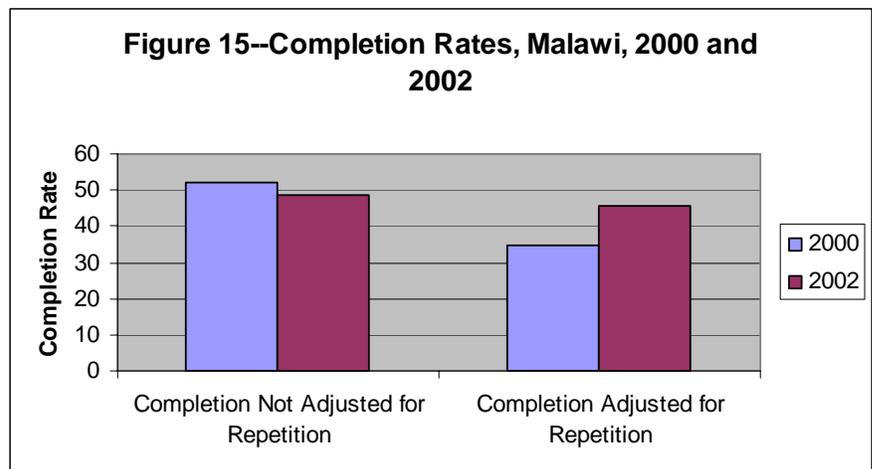
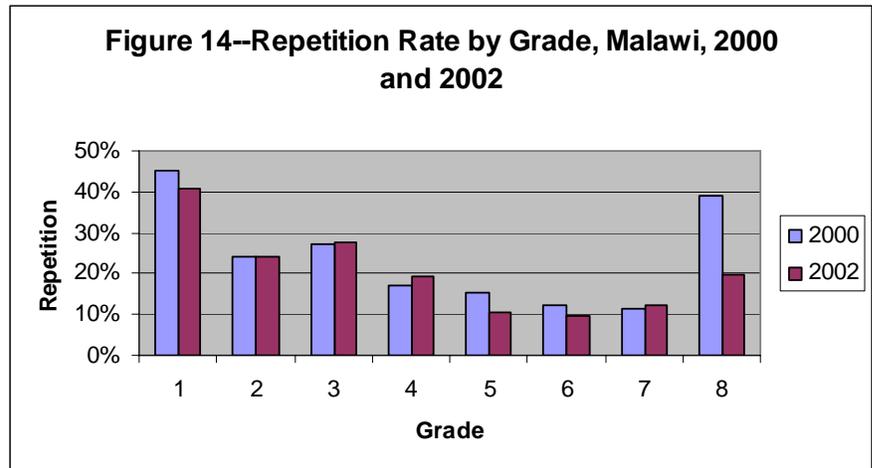
¹¹ <http://www.sdn.org.mw/~phindu/min-education/whole.htm>

Repetition declined in all grades, but most notably in the final grade of primary, which fell by nearly one-half (figure 14). It is not clear whether the drop in this rate was the result of the deliberate policy to reduce repetition or the interplay between the results of the leaving exam, which serves as a gate-keeper into secondary school, and increased access to secondary school.

Whatever the cause, completion increased solely as a result of the dramatic decline in repetition in the final grade of primary (figure 15).

Dropout rates, over which the Ministry had less control, increased across all grades (figure 16). The net result was a decline in the survival rate.

Malawi's experience demonstrated that survival and completion rates were affected by a set of interventions that had some expected and unexpected, or unplanned, results. That the two indicators moved in opposite directions should have served as a signal to policy makers to take a closer look at the effect of the set of interventions on the system.



Conclusion

Results of the analysis in this paper show that there is no single indicator adequate to monitor a country's progress towards the MDG. Much depends on the particular situation in a country. The completion rate will fail to show any immediate effect of an intervention aimed at increasing in entry-level access. Where the thrust of a country's interventions includes improvements in efficiency and quality particularly at upper primary, the completion rate appears to be a very effective indicator.

One very important attribute of completers that is not picked up by the indicator is the extent to which they are overage. Evidence from DHS data in 15 countries shows that the greater the share of pupils graduating on time, the greater the overall completion rate. The effect on the system of over-age students has been noted in some countries and efforts have been directed at encouraging on-time entry and completion.

Finally, whereas it is expected that educational indicators move in the same direction, such is not always the case with survival and completion rates. This phenomenon reflects the definitional differences—the cohort that comprises the denominator—and methodological differences between these two indicators. Both provide valuable information concerning progress towards the UPE.