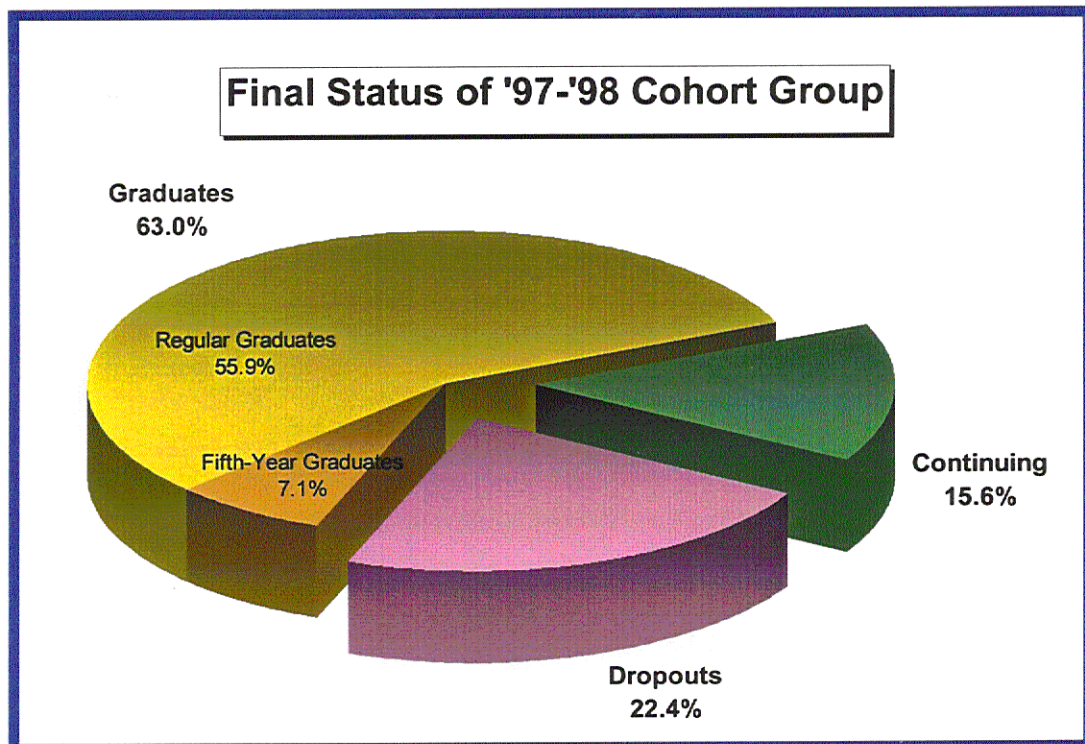


RESEARCH BRIEF

Department of Research Services

Calculating Graduation and Dropout Rates: *Following the Process*



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Calculating Graduation and Dropout Rates: *Following the Process*

Introduction

The Importance of Graduation and Dropout Rates

Graduation rates and dropout rates have traditionally assumed a high importance as barometers of school district effectiveness. Those wishing to understand better how and why students progress or fail to progress through their school careers have always turned to graduation and dropout indicators. Recently, these measures of educational outcome have taken on increased significance. In Florida, the system established by the State for the grading of the schools, with its potential impact on improvement programs and opportunity scholarships, has contributed, for better or worse, to the preeminence of these measures.

Differences in Definitions

Among different reporting agencies, any discrepancies in the procedures for calculating, reporting, or interpreting graduation and dropout rates can lead to misunderstandings with serious consequences. Yet, discrepancies have abounded. Differences in reference time frames, outcome status designations, and classmate definitions have resulted in an abundance of graduation and dropout rates with very little comparative value. In recent legislative efforts, the State has tried to clarify the definitions of the graduation and dropout rates. These new definitions were applied for the first time to the 1998-99 statistics.

Problems with Recent Recommendations

In trying to reproduce the State's graduation and dropout rates locally, we found the details of the calculation procedures still to be unclear. Furthermore, the two naturally contrasting notions of graduation rate and dropout rate were unnecessarily derived from different bases such that they could not be related to each other.

Purpose of this Paper

In this paper we try to elaborate, in a nontechnical way, the State's procedure for calculating the graduation rate by following the process in a year-by-year framework. Additionally, we suggest a procedure for computing the dropout rate using the same framework, so that the two rates may be considered parts of the same whole. In reference to these calculations, we note possible areas of confusion, methodological routines, and interpretive issues.

Graduation Rate Methodology

Previous Graduation Rate Method

In previous years, the State's procedure for calculating the graduation rate for a district involved dividing the number of students who graduated during the school year by the number of first-time ninth graders in the fall membership four years prior. Thus, this method compared the size of a summary population several years ago with the size of another, more current summary population.

Problems with the Old Graduation Rate Method

The old method could not account for the transfer of students into and out of the district during the intervening four years. Because of this, graduation rates greater than 100 percent were possible and sometimes reported. Additionally, districts with high student mobility were likely to have their graduation rates severely underestimated. With the potential for distortion being higher for smaller populations, the State did not attempt to provide *school-level* graduation rates.

New Graduation Rate Method

The State's revised procedures for calculating the graduation rate are substantially different from previous methods. The base group is still the first-time ninth graders. However, that initial "cohort" group is augmented by incoming transfer students scheduled to graduate at the same time. Similarly, the cohort group is diminished by the number of deceased students or students who have transferred out to attend school elsewhere. The number of students graduating, including standard diplomas, special diplomas, and GED's, is divided by the net cohort group number to arrive at the graduation rate.

Advantages of New Method

The new method used by the State attempts to account for all students enrolled during a four-year "tracking" period. Previous distortions resulting from high numbers of unaccounted for transfers and withdrawals are eliminated. This results in a fairer, more accurate measure of district performance. Because the procedures are markedly different, the new graduation rates are not comparable to previous rates computed by other means.

Extending the Tracking Time

It has long been observed that students who don't graduate at the traditional end of their fourth year often graduate sometime during the following calendar year. This group might include students who were short only a few credits, students whose schooling was interrupted for a short time, or students who were successfully addressed by dropout prevention intervention. Because this number is considerable, any attempt to describe the final disposition of a cohort group that doesn't consider fifth-year graduates would substantially

underestimate the graduation rate. In fact, students continue to graduate in some fashion well beyond even the fifth year, including many who have left the cohort for home or adult education programs. However, these numbers decline and tracking becomes so difficult that graduation rate investigations would routinely stop at five years.

Fifth-Year Graduates

For the above reasons, in this paper we extend the tracking period for a fifth year. Because some readers might consider fifth-year graduation as beyond “normal” time limits, we will keep the fifth-year graduates separated so that they can be easily backed out of the overall graduation rate, if desired.

Dropout Methodology

Previous Dropout Rate Method

In previous years, the dropout rate was calculated by dividing the number of students in grades nine through 12 who were classified as dropouts *and* at least 16 years old by the total grade 9-12 October (fall) membership count.

Problems with the Old Dropout Rate Method

By restricting the reference group to the October membership data, it was not possible to account for the students who transferred into the 9-12 grade population during the year. As these transfer students may have, in turn, become dropouts, it would have been appropriate to count them in the denominator. Additionally, there was no firm justification for limiting the dropout count to include only students greater than 16 years of age.

New Dropout Rate Method

The new dropout rate procedures proposed by the State require very little revision. The numerator is all dropouts in grades 9-12 (not just those 16 and over), and the denominator is the all-year enrollment of students (not just the October membership count). The all-year enrollment should help account for transfers into the population after the fall count. This is a relatively minor refinement in procedures resulting in modest changes to the calculated dropout rates.

Rethinking the Dropout Rate

The dropout rate as described is a ratio of the total number of dropouts in a current year divided by the total membership in four different concurrent cohort groups. As such, it may be loosely considered as an average annual dropout rate for any single cohort group. This “cross-sectional” dropout rate may be a useful statistic. It was born from the observation that dropping out (as opposed to graduating) does not principally occur at any one time in the high school experience, but is distributed rather evenly throughout the secondary years. But, because dropouts accumulate over time

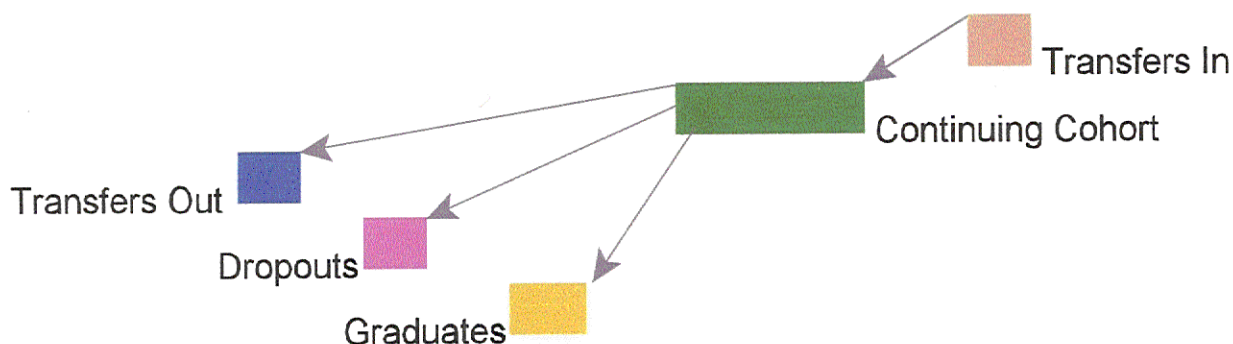
for any one cohort group, it is a gross underestimate of final status for any given exiting class. The actual dropout rate for the four year cohort tracking will be approximately four times as large as the cross-sectional rate.

Longitudinal Dropout Rate

In this paper, we follow a procedure for calculating a “longitudinal” dropout rate similar to that for the graduation rate. From a base cohort group, dropouts are accumulated over the years in the same manner that graduates are. The cohort group increases from students transferring in at the same time that it decreases from students transferring out and withdrawing. The procedural definition of a dropout remains the same. At the end of the tracking period, the final status of the net cohort group can be classified into three mutually exclusive and exhaustive subgroups: graduates, dropouts and continuing students.

Following the Process
Explaining the Graphic

The attached graphic at the end of this report portrays the suggested process of tracking a single class-year of students over time in order to construct both the graduation rate and dropout rate for that cohort group. The schematic below illustrates the major features of the graphic.



The Starting Cohort Group

We start with an original class of first-time ninth graders represented in dark green at the top center of the page. Ninth grade repeaters are eliminated as they are part of a previous cohort group. In this case, the original ninth grade class as of October 1994 consisted of 21,715 students.

Increases and Decreases to the Cohort

As we go down the page, we go forward in time. During each year, the cohort group is decreased by transfers-out and withdrawals, represented in blue on the left side of the page. Likewise, the cohort group is increased by transfers-in at that same grade level of the cohort group, represented in beige on the right side of the page. As students leave the cohort, they

are no longer considered for purposes of dropouts and graduates. Students coming into the cohort are thereafter tracked as regular students, with the potential of being designated as dropouts, graduates, or continuing students.

Accumulating Graduates and Dropouts

At the end of each tracking year, the end-of-year designation for each student is checked to determine their status as graduate, dropout, or continuing student. The dropouts, represented in pink in the graphic, and the graduates, represented in yellow, are accumulated over the years. Additionally, the continuing students are followed into a fifth year, where any extra graduates, represented in gold, are included in the overall graduate count.

Final Status

At the end of the tracking period (June 1999 for this cohort group), after adjusting for additions to and subtractions from the cohort, there are 22,812 students accounted for. Of these, 5,117 are designated as dropouts, 14,368 as graduates, and 3,327 as continuing students. As these are mutually exclusive and exhaustive parts of the net cohort group, their percentages can be calculated, as is depicted in the pie chart on the cover page of this report. The results show a graduation rate of 63% and a dropout rate of 22.4%.

Calculation Details Specifying the Details

There are many fine points that have gone into producing these graduation and dropout rates. Even the careful explanations that have been provided by the State have, necessarily, left out details that would normally be encountered only in the actual programming of the procedures.

Trivial Cases

In some cases, these details are inconsequential and rules for handling them are decided in a somewhat arbitrary fashion. Consequences of these rules, even if they result in unexplainable results, are sometimes left standing if they have a negligible impact on the reported graduation and dropout rates. For example, it is difficult to understand how students may graduate within the first two years of their high school careers. The few cases reported here have been allowed to remain because there is no support for classifying them otherwise and because the small numbers would have no effect on the final percentages. In the interest of establishing a systematic approach to calculating graduation and dropout rates that would be generally applicable in subsequent years, such trivial incongruities must be allowed to stand.

Important Details

In other cases, apparently minor programming decisions can have far-reaching results. How one decides

exactly who belongs in the initial cohort group, for example, can have a major impact on all subsequent decisions. As another example, student end-of-year codes can be clearly classified into categories of withdrawals, dropouts, and continuing students. However, interpreting the many possible permutations of such codes over several years is not straightforward. These and other procedural judgements can have substantial effect on the final graduation and dropout levels.

Students Continuing after Four Years

As an additional example of possible serious ramifications, the group of students designated as "continuing" at the end of four years deserves special consideration. These students were merely *scheduled* to return as regular students in their fifth year. Whether they, in fact, returned, dropped out, entered adult education programs, or withdrew to other school systems was not determined in this investigation. There is considerable likelihood that many of these students did not return and, while not part of the regular four-year dropout rate, could be classified as non-finishing cohort members.

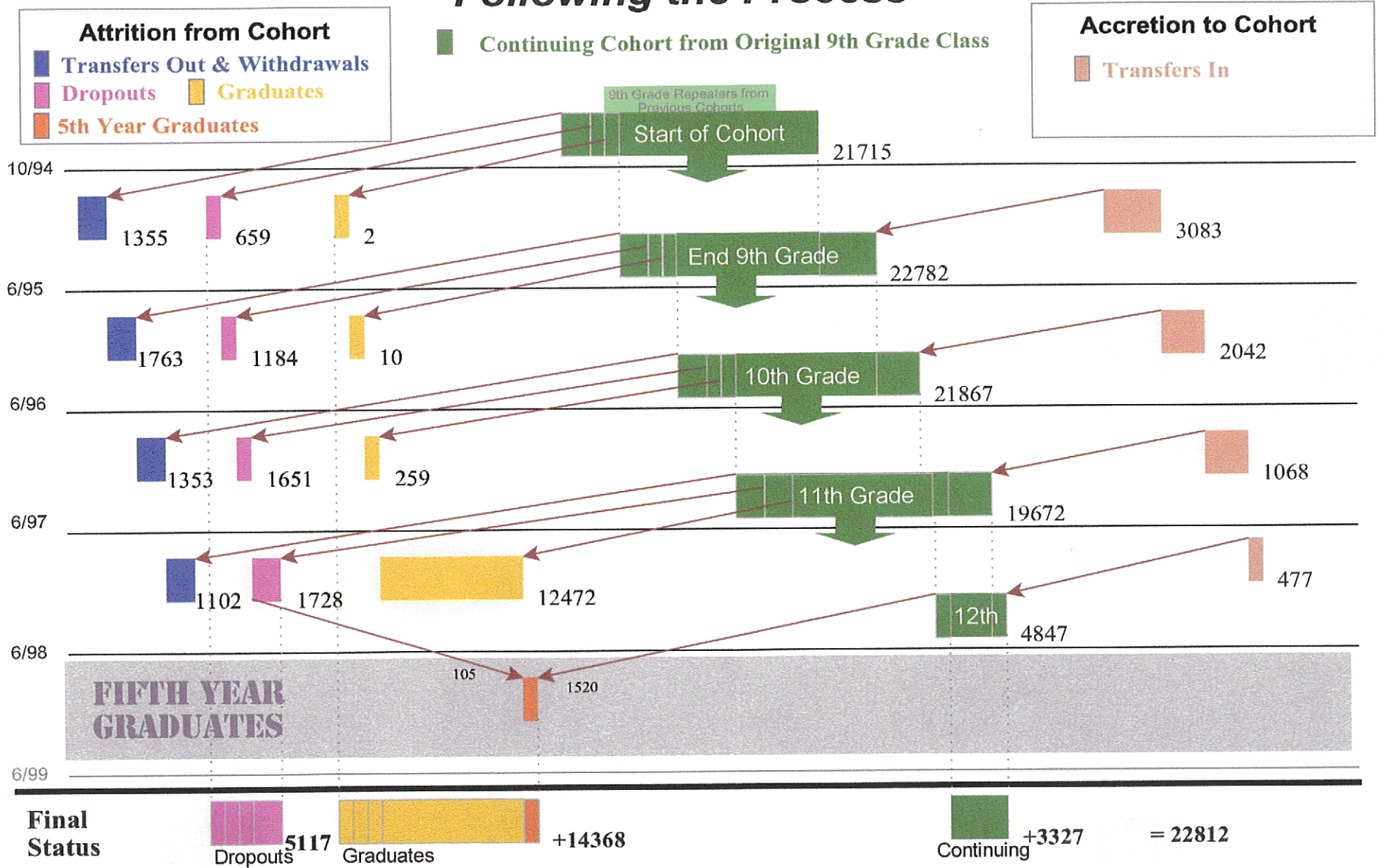
Recommendations

Most of what is presented here for graduation rate methodology is currently in practice and mandated by the State. The procedures used by the State for producing the graduation and cross-sectional dropout rates are valid and valuable. We endorse the continued calculation of these statistics in the same way on a yearly basis. In addition we make the following recommendations:

- (1) the exact specifications for producing these statistics, down to the programmer-level of detail, be agreed upon and published as operational definitions of the statistics,
- (2) the longitudinal graduation rate procedures be extended to include a supplementary fifth-year graduate component, and
- (3) a longitudinal dropout rate be computed in the same style as the longitudinal graduation rate, relating the two as cohort group outcomes.

Such changes would allow for significant district level comparisons and meaningful comparisons over time.

Calculation of Graduation and Dropout Rates: Following the Process



4-Year Graduation Rate: $(12743 / 22812) = 55.9\%$

5-Year Graduation Rate: $(14368 / 22812) = 63.0\%$

Dropout Rate: $(5117 / 22812) = 22.4\%$