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APPENDIX TO: "HOW AMERICA
GRADUATED FROM HIGH SCHOOL,
1910 TO 1960", CONSTRUCTION
OF STATE-LEVEL
SECONDARY SCHOOL DATA

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ABSTRACT

A new state-level series on secondary-school data demonstrates that graduation and enrollment rates increased greatly in the 1920s and 1930s in most regions. An 18-year old male in 1910 had just a 10% chance of having a high school diploma but by the mid-1930s the median 18-year old male was a high school graduate. This Appendix describes the procedures used to construct the state-level secondary school enrollment and graduation numbers contained in the NBER Working Paper "How America Graduated from High School: 1910 to 1960."

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This Appendix describes the procedures used to construct the state-level secondary school enrollment and graduation numbers contained in NBER Working Paper "How America Graduated from High School: 1910 to 1960." The graduation and enrollment rates by region are given in Table A1 and are graphed in Figures 1, 2, and 3 for the Middle Atlantic, East North Central, and Pacific regions. The main features of the data, discussed in detail in "How America Graduated from High School," are:

- Graduation and enrollment rates increased greatly in the 1920s and 1930s in most regions. In 1910 an 18-year old male had just a 10% chance of having a high school diploma but by the mid-1930s the median 18-year male was a high school graduate.

- Increases were particularly large during the Great Depression in the industrial North.

- Enrollment and graduation rates increased to such high levels during the 1920s and 1930s that they did not again advance until after 1960, in most regions. There were substantial decreases in secondary schooling during World War II.

- In every region, more girls graduated from high school than boys.

- The South is anomalous and lagged behind the other regions for the entire period considered, but the gap between North and South narrowed in the 1940s and 1950s.

- The states with the highest graduation and enrollment rates were in the Pacific and New England regions. Many states in the West North Central and Mountain regions also had high rates of graduation. The three states of the Middle Atlantic had the lowest rates outside the South. New England was a diverse region with some states having low rates and some high rates of secondary schooling. If one travelled West on just about any latitude in the 1920s and 1930s one would have encountered successively higher secondary schooling rates.

General Comments

Data on the number of individuals enrolled in and graduating from secondary schools were

collected by the U.S. Commissioner of Education, who requested such data from each secondary

school on record with the U.S. Bureau of Education.[1] Grades nine through twelve were included

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[1] The Bureau of Education, the forerunner to today's Department of Education, was established in 1867 as a department of education and became the Office of Education in 1869, an agency of the Department of the Interior where it stayed for 70 years. It was known as the Bureau of Education for those 70 years, but in 1929 it was formally renamed the Office of Education. In 1939 it became part of the Federal Security Agency and was, in 1953, included in the new agency of Health, Education, and Welfare (HEW). The Department of Education became a separate cabinet-level agency in 1980.

in the secondary school group.[2] Such data were collected as early as 1870 and were published in the annual Reports of the Commissioner of Education and, after 1917, in the Biennial Surveys of Education. I will term these "the school survey data." Each state independently collected similar data, although coverage varied by state and over time.

The secondary school data in "How America Graduated from High School" begin with 1910 because before that date the proportion of secondary schools responding to the Bureau of Education's request for data was low (see Table A2, col. 5) and evidence for many states is difficult to obtain. Further, before 1910 secondary students were often not in graded programs.

The intent of both the states and the U.S. Bureau of Education was to survey all public schools and as many private schools as could be found. The Bureau of Education received lists of public and private schools from the states which it checked and augmented in various ways. Not all states collected information on private schools for each of the years, and the U.S. Bureau of Education recognized that the private school data were probably the most deficient.

Undercounts present the greatest potential problem with the school survey data collected by the U.S. Bureau of Education. Before 1920 the U.S. Bureau of Education relied solely on its school survey data. Enrollment data in various state reports exceeded those in the Bureau's school survey data. But there is scant commentary in the annual reports of the Bureau regarding the possibility of an undercount. There was mention that the number of schools responding was less than the total, generally somewhere around 85 percent in the 1910 to 1920 period. But comment was also made that most schools not responding were small, and by implication, therefore, that the undercount of students was far less than the undercount of schools.

In 1920 the U.S. Bureau of Education attempted to bring their data into line with those reported the states by requesting information from the states and publishing it in a separate section of the Biennial Surveys called "Statistics of State School Systems." Thus the Biennial Surveys from 1920 to 1938 contain two sets of numbers for both the public and private schools. One is from the

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[2] Summer school and night school are generally omitted.

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school surveys and has considerable detail on students, teachers, and schools. The other is from the states and although it lacks detail, it has been treated as more accurate by subsequent researchers at the Bureau of Education. Oddly enough, there is no discussion in the Biennial Surveys about the two series and their differences. Thus from 1920 to 1938 the Biennial Surveys contain two sets of state enrollment estimates, often with large differences but with no explanation. In 1932-34 the U.S. Bureau of Education began to augment their school survey information with data from the records of the various state departments of education and the enrollment data from the two surveys are nearly identical.

To summarize, the data on enrollments and graduation before 1920 were obtained by the Bureau of Education through their school surveys. From 1920 to 1938 the Bureau obtained data both from schools and from the states. The data obtained from the states contain only enrollments, not graduates, although enrollments are given by grades. Therefore, for the 1920 to 1938 period the state data can be used to revise those from the school surveys, but there are no easily obtainable state-level data for the period before 1920.

Graduation rates have attracted the most interest, in large measure because they are considered the single most important statistic regarding secondary school performance. Graduation rates have also received attention because Historical Statistics, series H 598-601, contains historical data on graduation rates for the entire United States going back to 1870. The data from 1870 to 1930 are substantially different from those in the original reports from the U.S. Bureau of Education for those years. The source in Historical Statistics for 1870 to 1930 is table 15 of the "Statistical Summary of Education, 1929-30," an obscure document which provides no information on the exact method for the adjustment.[3] One has to go back to earlier documents of the Bureau of Education to find the source and even then, the exact adjustment is elusive.

The earliest note on an adjustment appears in the Biennial Survey of Education, 1918-

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[3] The "Statistical Summary of Education, 1937-38," is chapter I of the Biennial Survey of Education, 1936-38.

1920, table 2, and states that the table is "largely estimated" and that the "enrollment in 1912, 1918, and 1920 reported to the Bureau of Education from the departments of the several states" forms the basis for the adjustment. "Enrollment for other years [is] computed from enrollment reported to the bureau ... multiplied by the ratio (1.175) which the high school enrollment reported for 1918 by the departments of education of the States bears to the enrollment for that year reported by the high schools [to the U.S. Bureau of Education]." These enrollment numbers, however, were not largely incorporated in a subsequent document ("Statistical Summary of Education, 1929-30," chapter I of Biennial Survey of Education, 1929-30, table 3). The only revision been adopted was that for 1920.

Thus the adjustment to the enrollment data appears to have come from a belief that the undercount was about 85% or that the state data were 1.175 times those collected by the Bureau of Education. As Table A2, col. (3) indicates, there were times when the ratio of the state to the school survey numbers was above that figure and there were times when it was below. It should also be noted that the ratio is much closer to one (1.065 in 1930) as the number of schools reporting (col. 5) increases. The percentage of schools reporting and the ratio of state to school survey numbers, cols. (4) and (5) in Table A2, are very similar. But if the smaller schools disproportionately did not report, the actual undercount will be less than that given in column (3).

It appears that Bureau of Education then took the 1.175 adjustment from the enrollment numbers and also applied it to the graduation numbers for both public and private secondary schools. Although there is no mention that this was the procedure used, one can virtually duplicate the national graduation numbers with such a procedure (additional corrections must be added for the private school data). But there is no reason that the undercount of graduates would be the same as the undercount of enrollments.

I have, thus far, only commented the possibility of undercounts. There are also problems with missing data, particularly the number of graduates in certain years. These adjustments are detailed below and are based on straightforward extrapolation procedures, some using independent

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evidence from Catholic schools.

Adjusting the State Education Data

Public Schools: 1910 to 1922

The adjusted data were published by the U.S. Bureau of Education only on the national level for the 1910 to 1920 period. Interest in the present work centers on the data at the state or regional level. There are various ways of adjusting the state numbers. One could use the ratio of the enrollment reported by the state to that reported by the schools for each of the states in an suitable year and apply it to the 1910 to 1920 period. The state data are conveniently listed for 1920s in the various Biennial Surveys. The earliest year for secondary school enrollments by states is 1920 but both it and that for 1922 produce inconsistent ratios for various states, possibly due to the impact of World War I on enrollments. Because of that, I have used the 1924 state data, constructed a ratio to the numbers from the schools in the Biennial Surveys, and applied the undercount (there were some overcounts) by state to all data for the 1910 to 1922 period.

It is likely that the procedure overstates the enrollment in and graduation from public high schools. The implied undercount of students is almost identical to the percentage of schools not reporting (see Table A2, compare cols. 4 and 5), yet the schools that did not report were smaller than average. In the Biennial Survey of Education, 1924-26 the Commissioner of Education noted that the schools not reporting (of which there were 3,064 or 14.1% of the total for that year) were "small schools" (p. 1037). Thus the adjustment to the number of students should be less than the undercount of schools. The question thus arises whether the data reported by the schools to the states were in excess of those reported by the same schools to the U.S. Bureau of Education. The schools had little incentive to overstate their enrollments and graduation numbers to the federal government, but they may have had an incentive to do so at the state level. One cannot assess the possibility by comparing the responses of identical schools because there are no known surviving records. Because the size distribution of the nonreporting schools is also unknown, I

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cannot use an adjustment that weights the schools by their student populations. The data suggest that the undercount of students is probably less than the undercount of schools.

It should also be emphasized that the use of the state data results in larger corrections than would be obtained by other procedures, such as the undercount of schools adjusted by size. Statisticians and others at the Bureau of Education in the 1920s and 1930s may have been sensitive to the desires of the state commissioners of education to claim high enrollments, and they may have chosen this particular procedure for that reason. Because there is no discussion of the adjustment procedure, we may never know.

I have mentioned the possibility that the state survey data overcounted secondary school enrollments, but the reason is somewhat elusive. One possibility is that the U.S. Bureau of Education may have requested "first-day" enrollments, but the states could have included those who enrolled throughout the year. There is also the possibility of double-counting enrollments if a student dropped out and then re-enrolled. The number of graduates would not be affected by the procedure, but was not included in the state-survey information.

The results that I obtain from the various procedures outlined in more detail below, virtually duplicate at the national level the data given by the Bureau of Education in their eventual revision of the numbers on graduates. I repeat that the Bureau of Education gave very little information on their adjustments and thus I am not merely following their formulae. By using the state data to correct the data reported by the schools, I have followed the lead of those who lived very close to the period of interest and who worked for the U.S. Bureau of Education. It is most likely that they knew better than do we the answers to many of the questions I have raised and made their computations with those answers in mind. Why no one left a record of the answers is another question.

If my corrected data err, they probably do so on the high side, particularly the graduation numbers. Because much of my work demonstrates a large increase over time in secondary

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schools, a bias that increases rates early in the period would be preferred to one that lowers rates. Particularly when I compare the data with those from the 1940 census, I would much prefer that any bias in the contemporaneous data create an upper bound to the actual estimates.

Private Schools: 1910 to 1922

Table A3 compares the private school data in the school and state surveys of the U.S. Bureau of Education. The undercount, shown in col. (3), is somewhat larger than that for public schools. Private schools were apparently harder to track than were those in the public sector. As in the data for public schools, the U.S. Bureau of Education published state data on private schools beginning with 1920. The adjustment uses the data by state for 1924 for the entire 1910 to 1922 period similar to the correction for the public school numbers.

Public and Private Schools: 1924 to 1940

The adjustments for the 1920s are based entirely on the data reported by the states in the Biennial Surveys for 1924 through 1938. After 1930 the Commissioner of Education used the state data to adjust their own when schools were missing. Therefore after 1930, the differences between the state reports and those from the schools are very small. The difference -- about 5% -- seems to be due entirely to the fact that the Bureau of Education did not report data from schools with fewer than 10 pupils.

Public school graduation data are missing for various years in the 1930s and have been estimated from the data for 12th grade students using the relationship in previous years between enrollments in the last year of high school and graduates in that year. The adjustments are summarized below.

Private Schools: 1950s

Graduation and enrollment data for private schools are given in the Biennial Surveys but

the graduation data terminate in 1934. Data on private school enrollments continue for 1936 to 1940, 1946 to 1950, and 1958, but there are no data on grades in private schools for the years missing the graduate information. The private school enrollment data are used to estimate the number of graduates. I have computed the number of private school graduates in 1952, 1954, and 1956 based on Catholic school data from the Summary of Catholic Education (National Catholic Welfare Conference various years).

Preparatory Departments of Colleges and Universities: 1910 to 1936

Another undercount concerns students in the preparatory departments of colleges and universities. These students were counted by the Bureau of Education in the college category because schools were surveyed by type in the commissioner's reports. The college and university data, therefore, have not been included in any of the enrollment and graduation data in the Biennial Surveys and it is not clear whether they were included in the data revised by the U.S. Bureau of Education in the 1920s and 1930s.

In the nineteenth and early twentieth centuries when the public high school system was in its infancy, many colleges and universities trained secondary school students. These preparatory departments were founded to ensure that colleges and universities received students with appropriate training. Many preparatory students were in denominational schools, included in the college survey because they had graduate programs. These were often schools with hundreds of secondary school students and only a few graduate student priests. Many of these institutions were in the Midwest and it may be that local boosterism favored calling them colleges rather than high schools. Other high schools in this group (such as Hunter High School in New York City) had once been part of system in which the high schools were governed by the state higher education bureaucracy.

The national figure for preparatory students in college and universities is given in the Biennial Surveys, but without grades and graduation data. Enrollment data by state also exist for

various years. I have used those for 1910, 1922, and 1928 in making the adjustments. For each of these benchmark years the proportion of the national total for preparatory students is allotted to each state. The aggregate number is then assigned to each state according to the closest benchmark year.

The number of preparatory students, as a fraction of all high school students, was quite large until the 1920s when the high school movement took off. In 1910 preparatory students in colleges and universities were 31% of all high school students and in 1920 they were 22% (see Table A4). There are, then, important adjustments.

I have not included preparatory students in normal schools because the figures appear inconsistent from year to year, and I have not been able to find estimates of the grade distribution and graduation rates from these schools. Omitting the normal schools will decrease the enrollment and graduation rates of girls far more so than of boys. The understatement is likely to be quite small even before 1920 (see Table A5, col. 2).

To obtain the number of graduates from the preparatory departments one must know the percentage of the total enrollment that the graduates formed. Such figures were not collected by the U.S. Bureau of Education, but I have located them for one state -- New York. Graduates in these data formed about 16% of the total enrollment in a given year. The 16% figure is used in Table A4, column (4) to estimate the number of graduates from preparatory departments. For the period 1910 to 1930 the preparatory departments provided a substantial fraction of all private school enrollments and graduates, although the fraction declines over time (see Table A5, col. 3). Public high schools increased significantly during the period, making preparatory students a far smaller fraction of the total. And with the expansion of public high schools many colleges and universities no longer had reason to have their own preparatory departments to train youths for college.

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Summary

Secondary school enrollment and graduation data collected by the U.S. Bureau of Education from the various schools in the period prior to 1920 require adjustment because about 15% of public and private schools did not return the surveys. Further, the preparatory departments of colleges and universities were never included in the Bureau's surveys on secondary schooling. Complicating the matter is that the states performed their own surveys, and the enrollment and graduation numbers of the states were often higher than those from the U.S. Bureau of Education school surveys, even allowing for the school surveys that were not returned. Sometime in the 1920s, the Bureau began to accept the state data and adopted a method for making revisions to the national data. That procedure was never fully described, although the method was hinted to in various reports. The method that I have devised results in estimates that are very much in line with those of the Bureau.

As Table A4, column (1) shows, the percentage difference between my revisions of the number of graduates (col. 6) and those revised by the U.S. Bureau of Education (and adopted by Historical Statistics, col. 1) is very small for the 1910 to 1930 period (see col. 7). The difference between the two series is at most 5% and the average across all years is a mere 0.4%. Because high schools were growing so rapidly during the period, a difference of 5% means that the series are off by just one year in the number of graduates or enrollments. After 1930 the Bureau of Education began to fill in missing data with information from the states and the adjustments become less important.

The adjustments made by the Bureau of Education prior to 1930 were very poorly documented in the Bureau's reports. So meager was the documentation that extremely able personnel at the current Department of Education made fundamental errors in interpreting them. An otherwise informative publication, 120 Years of American Education: A Statistical Portrait (U.S. Department of Education 1993) gives a largely inaccurate historical series on graduation rates. The revised data (such as that found in Historical Statistics) are used for the total, but graduates

from private high schools are computed by subtracting from these the number graduating from public high schools, as given in the original Annual Reports and Biennial Surveys. This procedure results in an extremely large, and erroneous, figure for the private graduation numbers for the period to the mid-1920s. I have just shown, the public graduation numbers were largely revised by the U.S. Bureau of Education on the basis of state survey data. Therefore the total graduation data in Historical Statistics already reflect revisions to the published data of the U.S. Bureau of Education. Thus, if the adjustments in this Appendix appear beyond comprehension for those unfamiliar with education data, they have been equally unintelligible for those in the agency that originally produced the data.

The Adjustments in Detail

There are three main types of adjustments: those to the public secondary school data, those to the private secondary school data, and those to the preparatory school data from colleges and universities. Most of the adjustments render the school survey data consistent with the data from the states. Others produce numbers that were never collected for certain years.

The school year is taken to be the end year given in the documents and of the school term. For example, the enrollment number for 1924 is from the Biennial Survey of Education, 1922-24 which reports data for the school year 1923-24. The number of graduates is often given in the surveys for both the current and preceding year, but only the current year is used here. Secondary students are those in grades 9 through 12.

1910 to 1922: Public and private secondary schools

The data from the school survey are used in each year as a base for enrollments by grade and sex and the number of graduates by sex (all by state, for public and private schools separately). The adjustments for the 1920s make the total enrollment numbers consistent with those from the state-level data. But the Bureau of Education did not conduct state surveys in the

1910 to 1920 period. The ratio of the state numbers in the 1924 report (by sex) are used to adjust the public and private from 1910 to 1924 (each year of secondary school and the graduation numbers). In most cases there is an undercount, although in a few there is an overcount. The largest undercount is in the South, although some non-South states (e.g., California and New York State) also have large undercounts. I chose not to use 1922 to make the adjustment, even though the Bureau conducted a survey in that year, because there are large differences between this survey and that for 1924 in many states.

For the public secondary schools, the state survey contains data on total enrollments and for each of the four grades (9 through 12), although not by sex. The state survey data do not contain graduation numbers. The school survey graduation data were revised using the state and school data for 12th grade.

Private school state data exist only for enrollments. Enrollments for each grade and for the number of graduates are all adjusted using the ratio of total enrollments in the state survey to those in the school survey. The Utah private school numbers are not adjusted and are left at the levels reported by the schools. Adjustments make them unreasonably large. The data for the Mountain region were overly inflated using the procedure outlined and all its numbers are divided by 1.12 to bring them in line with the data for 1926.

1924 to 1958: Public and private secondary schools

The state data in the Biennial Surveys are used to adjust the public and private school data in each year. The procedure is similar to that for 1910 to 1922, but the contemporaneous year is used for the adjustment.

Public and private school graduate numbers are missing for various years. The public school data were often extrapolated on the basis of information on 12th grade enrollment and the fraction, by region, that advanced from 12th grade to graduation. The private school data were generally obtained by constructing a ratio (by sex) of graduates to enrollments for each region

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during a prior survey year and multiplying it by the enrollment data for the missing year (by sex and region). The missing years and data are:

- o 1932 public and private school graduates
- o 1934 private school graduates
- o 1936 public and private school graduates
- o 1938 private school graduates
- o 1940 public school graduates by sex
- o 1952 public school graduates by sex.

Private school enrollment and graduation data are added for 1952, 1954, and 1956 using data on Catholic schools, mentioned above. The ratio of total private school enrollments and graduates to those in Catholic schools were obtained from the nearest year with data on all private schools and Catholic schools. Private school data for the three years were obtained by multiplying the ratios by the Catholic school numbers.

1910 to 1936: Preparatory students

The data on preparatory schools is added to the private secondary school enrollment and graduation numbers. Total figures for preparatory school enrollments exist for 1910, 1911, 1913, 1914, 1918, 1920, 1922, 1924, 1926, 1928, 1930, 1932, 1934, and 1936. The distribution of enrollment by state was obtained for 1910, 1922, and 1928. The nearest year is used to distribute the totals by state. Data from New York State indicate that graduates were about 16% enrollments, and that fraction is used to estimate the number of graduates for the 1910 to 1936 period.
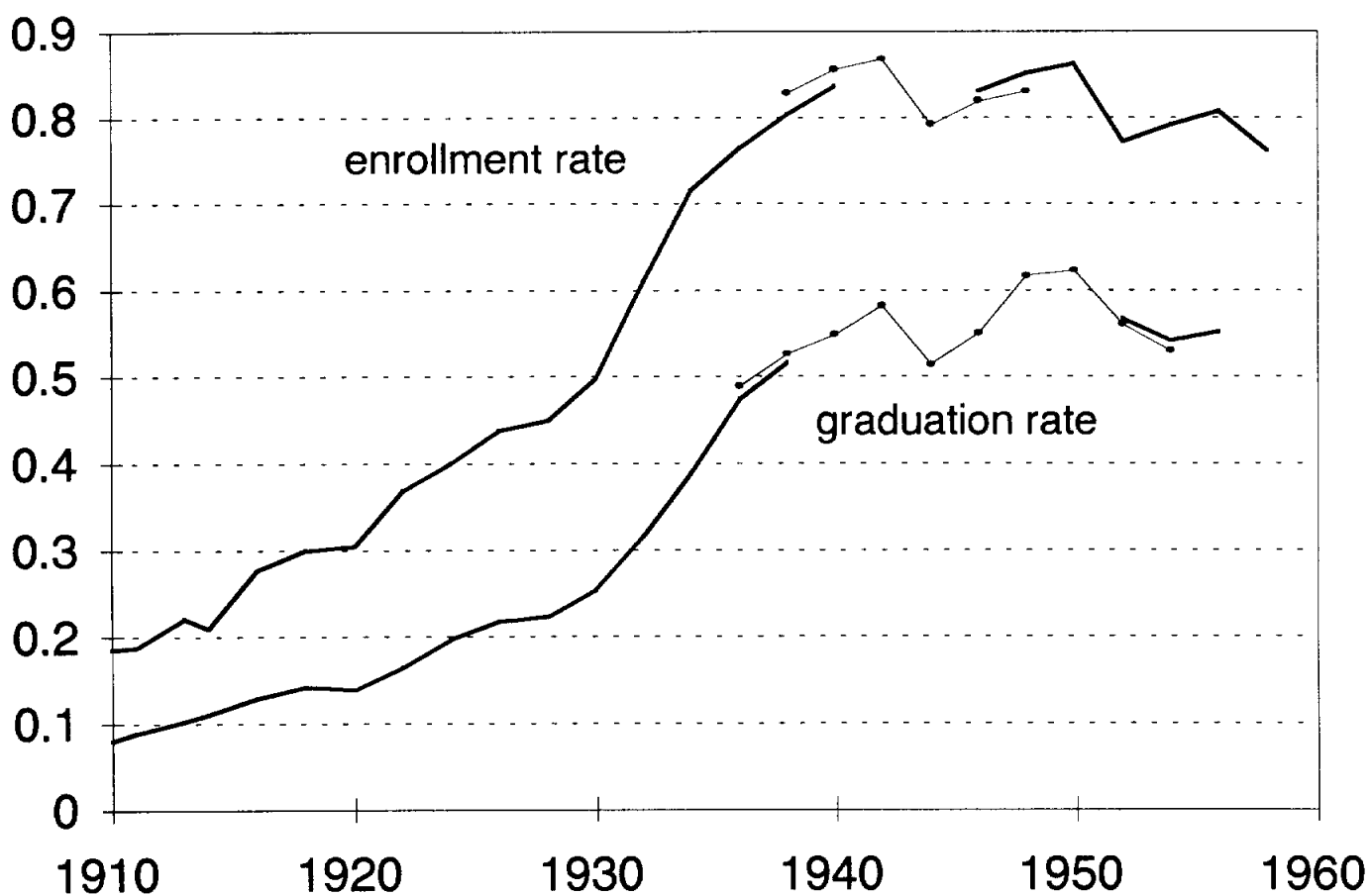
Figure 1: Public and Private Enrollment and Graduation Rates in the Middle Atlantic Region

Sources:
U.S. Bureau of Education, Reports of the Commissioner of Education, Biennial Surveys of Education (various years). See Appendix text for details.

Notes:
Private school graduation and enrollment numbers are missing for the 1940s. The line with the dots is for the enrollment and graduation rates of public schools, shifted up by 0.06 for the graduation rate and by 0.09 for the enrollment to mesh with the total data before and after.

Figure 2: Public and Private Enrollment and Graduation Rates in the East North Central Region

Sources:
U.S. Bureau of Education, Reports of the Commissioner of Education, Biennial Surveys of Education (various years). See Appendix text for details.

Notes:
Private school graduation and enrollment numbers are missing for the 1940s. The line with the dots is for the enrollment and graduation rates of public schools, shifted up by 0.05 for the graduation rate and by 0.08 for the enrollment to mesh with the total data before and after.

Figure 3: Public and Private Enrollment and Graduation Rates in the Pacific Region

Sources:
U.S. Bureau of Education, Reports of the Commissioner of Education, Biennial Surveys of Education (various years). See Appendix text for details.

Notes:
Private school graduation and enrollment numbers are missing for the 1940s. The line with the dots is for the enrollment and graduation rates of public schools, shifted up by 0.04 for the graduation rate and by 0.05 for the enrollment to mesh with the total data before and after.

Table A1
Public and Private Secondary School Graduation and Enrollment Rates, By Region
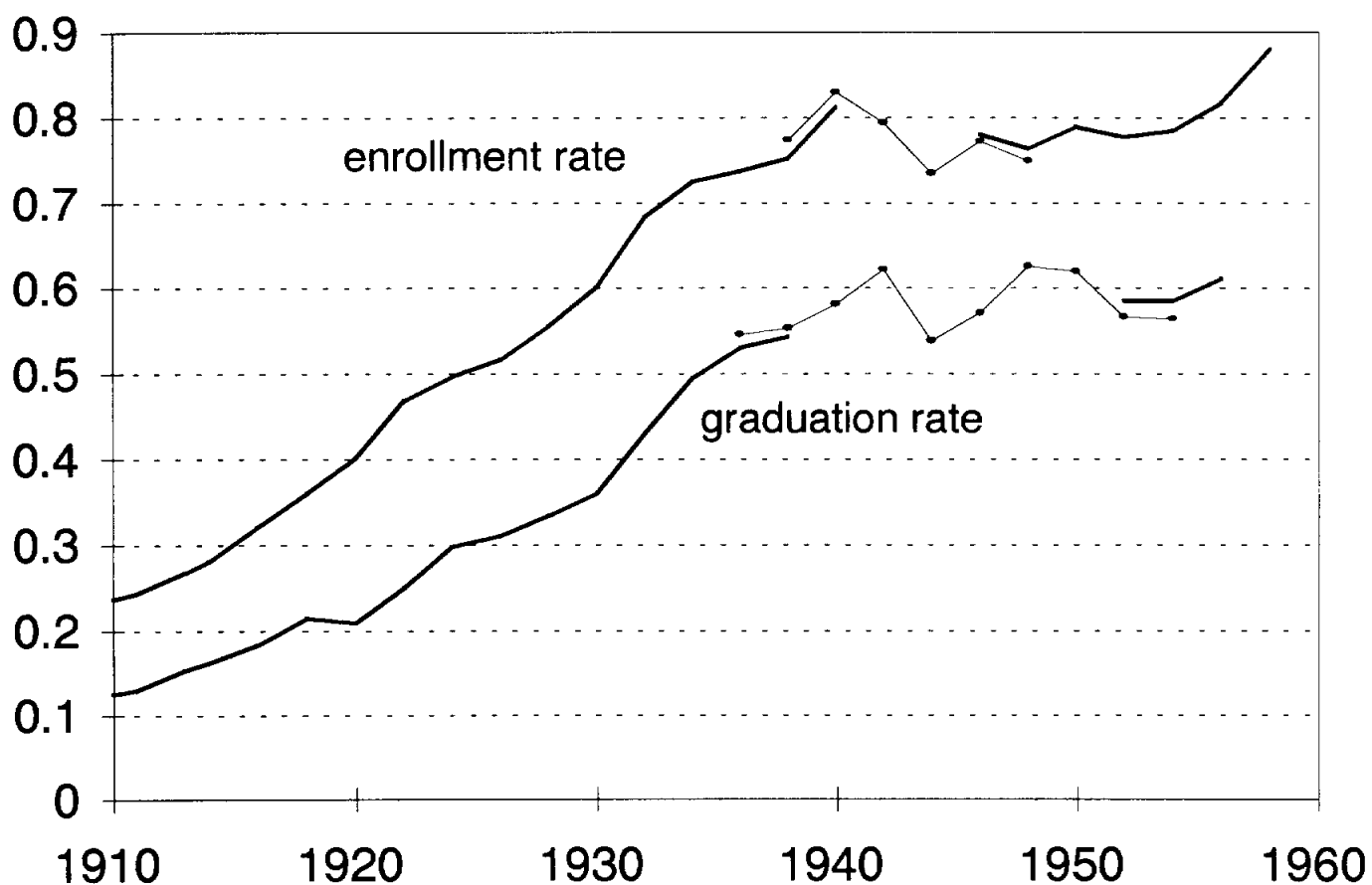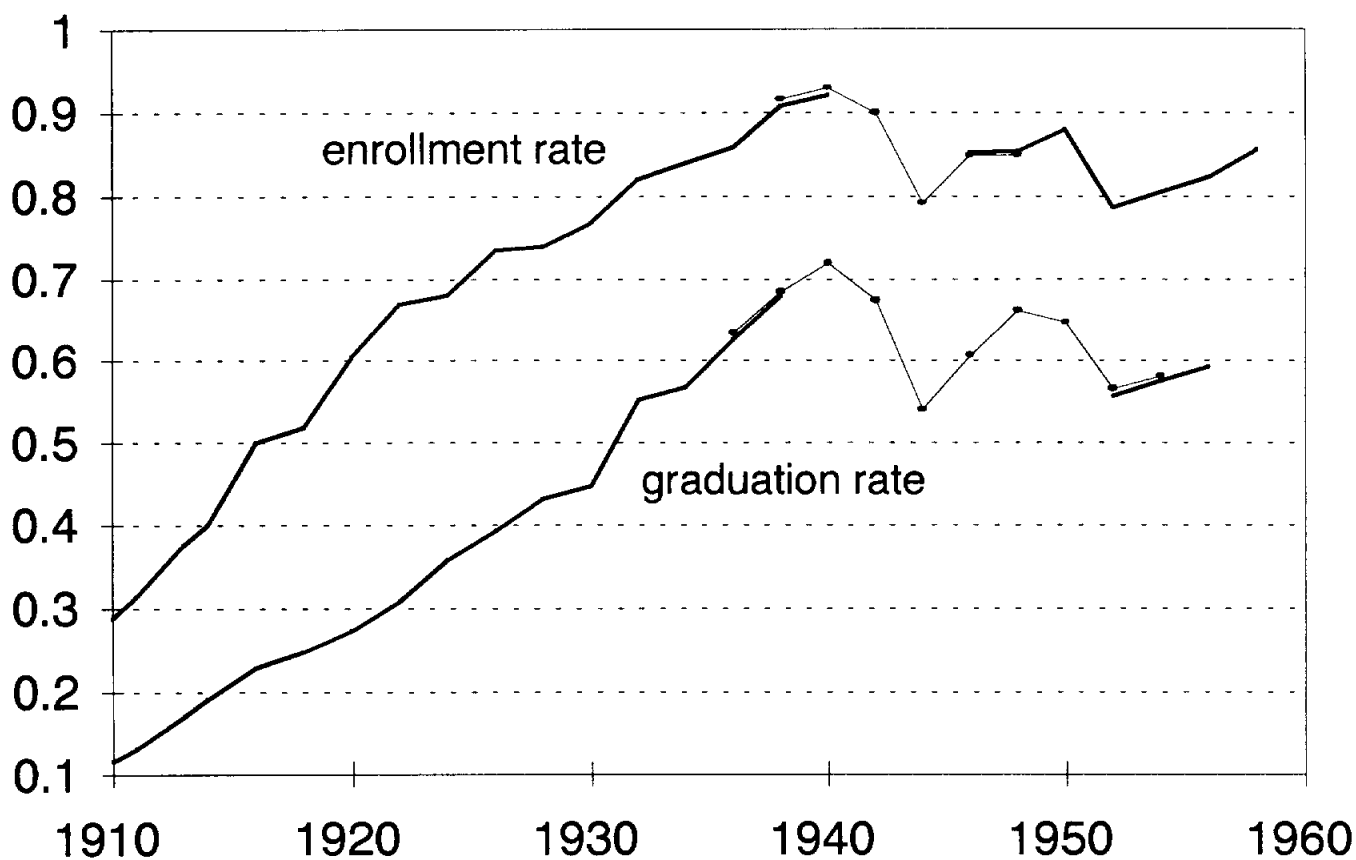
A. Public and Private Graduation Rates

	New England	Mid-Atlantic	S.Atlantic	E.S.Central	W.S.Central	E.N.Central	W.N.Central	Mountain	Pacific
1910	.155	.080	.041	.038	.043	.125	.106	.088	.117
1911	.165	.088	.046	.042	.051	.130	.111	.102	.132
1913	.187	.102	.059	.056	.062	.153	.136	.130	.171
1914	.201	.110	.065	.062	.068	.162	.146	.128	.192
1916	.228	.129	.075	.074	.079	.183	.174	.164	.229
1918	.246	.142	.085	.084	.110	.215	.199	.185	.248
1920	.253	.139	.086	.086	.120	.209	.205	.198	.273
1922	.272	.165	.105	.103	.130	.250	.246	.239	.309
1924	.309	.197	.135	.133	.166	.298	.304	.293	.359
1926	.337	.217	.156	.139	.184	.311	.387	.312	.394
1928	.392	.223	.171	.162	.198	.334	.394	.353	.432
1930	.432	.254	.192	.170	.225	.360	.410	.380	.447
1932	.509	.316	.225	.184	.276	.430	.476	.454	.551
1934	.512	.389	.250	.210	.295	.494	.504	.481	.567
1936	.586 [.494]a	.474 [.429]	.307 [.289]	.245 [.226]	.343 [.329]	.530 [.495]	.545 [.508]	.532 [.515]	.625 [.594]
1938	.599 [.501]	.516 [.466]	.353 [.333]	.260 [.243]	.381 [.367]	.543 [.503]	.578 [.541]	.557 [.538]	.678 [.645]
1940	[.516]	[.488]	[.357]	[.286]	[.412]	[.531]	[.580]	[.556]	[.680]
1942	[.524]	[.522]	[.390]	[.291]	[.448]	[.571]	[.586]	[.569]	[.634]
1944	[.356]	[.454]	[.337]	[.241]	[.360]	[.488]	[.502]	[.455]	[.500]
1946	[.459]	[.490]	[.292]	[.272]	[.367]	[.521]	[.539]	[.501]	[.566]
1948	[.514]	[.557]	[.352]	[.325]	[.434]	[.575]	[.590]	[.558]	[.622]
1950	[.548]	[.563]	[.391]	[.364]	[.433]	[.569]	[.591]	[.550]	[.607]
1952	.591 [.474]	.567 [.500]	.387 [.371]	.379 [.356]	.443 [.426]	.584 [.516]	.623 [.575]	.539 [.516]	.556 [.525]
1954	.577 [.459]	.541 [.470]	.428 [.411]	.416 [.392]	.466 [.448]	.584 [.514]	.621 [.572]	.559 [.536]	.574 [.540]
1956	.587	.551	.459	.449	.511	.610	.656	.582	.592

B. Public and Private Enrollment Rates

	New England	Mid-Atlantic	S.Atlantic	E.S.Central	W.S.Central	E.N.Central	W.N.Central	Mountain	Pacific
1910	.282	.185	.119	.109	.137	.237	.231	.230	.288
1911	.292	.187	.130	.116	.158	.244	.237	.260	.313
1913	.324	.221	.151	.137	.177	.268	.277	.308	.376
1914	.351	.209	.158	.143	.190	.281	.294	.319	.400
1916	.393	.277	.176	.166	.205	.321	.332	.356	.499
1918	.408	.300	.207	.177	.266	.360	.371	.402	.518
1920	.431	.305	.228	.194	.309	.401	.432	.452	.604
1922	.465	.369	.259	.213	.316	.468	.476	.497	.669
1924	.484	.400	.290	.252	.355	.496	.513	.517	.680
1926	.513	.438	.325	.265	.391	.516	.551	.555	.735
1928	.588	.449	.345	.295	.416	.555	.582	.594	.739
1930	.650	.498	.379	.310	.455	.601	.608	.628	.768
1932	.755	.610	.432	.344	.495	.683	.662	.681	.821
1934	.758	.715	.469	.378	.506	.725	.695	.706	.840
1936	.795	.764	.504	.390	.559	.738	.717	.731	.858
1938	.798 [.685]^b	.803 [.738]	.537 [.514]	.410 [.387]	.599 [.580]	.752 [.694]	.748 [.703]	.745 [.718]	.908 [.866]
1940	.786 [.686]	.836 [.765]	.577 [.554]	.445 [.424]	.636 [.616]	.812 [.750]	.776 [.733]	.770 [.741]	.921 [.880]
1942	[.674]	[.778]	[.575]	[.434]	[.625]	[.714]	[.739]	[.724]	[.850]
1944	[.607]	[.701]	[.497]	[.396]	[.549]	[.655]	[.662]	[.631]	[.742]
1946	.752 [.618]	.830 [.729]	.549 [.522]	.459 [.432]	.562 [.536]	.780 [.693]	.738 [.680]	.691 [.659]	.852 [.799]
1948	.790 [.632]	.851 [.740]	.557 [.528]	.505 [.474]	.584 [.556]	.764 [.670]	.771 [.705]	.722 [.686]	.854 [.800]
1950	.921	.862	.619	.559	.618	.789	.802	.756	.880
1952	.790	.772	.600	.560	.629	.777	.776	.733	.786
1954	.801	.791	.652	.616	.686	.784	.808	.792	.805
1956	.836	.807	.691	.670	.733	.817	.851	.825	.823
1958	.851	.761	.749	.726	.776	.880	.890	.867	.856

[a] Figures in brackets are public secondary school graduation rates (public secondary school graduates/number of 17-year olds) because private school data cannot be estimated reliably for the 1940s. A period of overlap between the total and the public school data is given.
[b] Figures in brackets are public secondary school enrollment rates (public secondary school enrollments/number of 14- to 17-year olds) because private school data cannot be estimated reliably for 1942 and 1944. A period of overlap between the total and the public school data is given.
Sources: U.S. Bureau of Education, Reports of the Commissioner of Education, Biennial Surveys of Education (various years). See Appendix text. The graduation rate is obtain by dividing the number of graduates by the number of 17 year olds in the state; the enrollment rate divides by the number of 14 to 17 year olds. Population data are from the U.S. population census and are extrapolated between census dates.

Table A2
Public High School Enrollments from State and Federal Reports
and Percentage of Secondary Schools Reporting, 1890 to 1934

Year	(1) Bureau of Education State Survey	(2) Bureau of Education School Survey	(3) (1)/(2)	(4) 1/(3) × 100	(5) % of Schools Reporting[a]
1890		202963			60.8
1895		350099			70.3
1896					75.2
1900		519251			77.4
1905		679702			
1906					84.0
1910		915061			85.2
1911	1156995	984677	1.175	85.1	
1912	1200798	1105360	1.086	92.1	84.6
1913	1333356	1134771	1.175	85.1	
1914	1432095	1126456	1.271	78.7	84.0
1915	1564556	1328984[b]	1.177	85.0	
1916	1710872	1456061	1.175	85.1	84.5
1917	1821974	--			
1918	1933821	1645171	1.176	85.0	87.2
1919	2057519	--			
1920	2181216[c]	1849169	1.180	84.8	
1922	2725579[d]	2220306	1.228	81.5	
1924	3176074[d]	2529889	1.255	79.7	
1926	3541254[d]	3047690	1.162	86.1	85.9 (83.8)[e]
1928	3911279[d]	3335690	1.173	85.3	
1930	4399422[d]	4129517	1.065	93.9	92.9[f]
1934					95.6[g]

[a] Schools reporting may also include some that reported incompletely so that the data could not be used in the tabulations. In 1911 the Bureau of Education stopped tabulating schools with fewer than 10 pupils (the cutoff was 5 pupils before 1911). It is not clear whether the schools reporting data exclude those too small to be tabulated.

[b] It is not clear how the Bureau of Education constructed the 1915 figure of 1,328,984 since there was no report for that year.

[c] The number 2,199,389, which appears in Biennial Survey of Education, 1929-1930, also includes vocational and normal schools and may include continuation school students.

[d] The totals from the series with grade reported have been used. The totals without grade reported appear to include students attending continuation and certain evening schools.

[e] 83.8% sent in reports that were complete and had ≥ 10 pupils. In 1911 the Bureau of Education chose not to tabulate schools having fewer than 10 pupils (2.1% of all schools in 1926).

[f] 93.6% of schools in the non-South reported.

[g] 97.0% of schools in the non-South reported.

Notes and Sources:

The year given matches the end year in the Biennial Surveys, e.g., the Biennial for 1915-16 is 1916. This appears to be the procedure used by the Bureau of Education.

(1) 1890-1920: Biennial Survey of Education, 1918-20, chapter I, p. 46, table 1. Estimated by U.S. Bureau of Education from data provided by the states.
1922-1930: Biennial Surveys of Education (various years).
(2) Data reported by schools to the Bureau of Education: Reports of the Commissioner of Education (various years) and Biennial Surveys of Education (various years). Only grades 9 to 12 are included; postgraduate and special students are subtracted.
(5) 1890-1918: Biennial Survey of Education, 1916-1918, Bulletin No. 19, "Statistics of Public High Schools, 1917-18," by H.R. Bonner, pp. 12-13, table 1; 1920-1934: Biennial Surveys (various years).

Table A3
Private High School Enrollments and Percentage of Schools Reporting

Year	(1) Bureau of Education State Survey	(2) Bureau of Education School Survey	(3) (2)/(1)	(4) % of Schools Reporting
1920	213920	184153	86.1	
1922	225873	186641	82.6	
1924	254119	216522	85.2	
1926	295625	248076	83.9	
1928	341158	280449	82.2	
1930				84.7

Notes and Sources:

Neither the state data nor those from the school surveys contain numbers on preparatory students in colleges and universities.

(1) 1920-1928: Biennial Surveys of Education, "Statistics of State School Systems," (various years).
(2) 1920-1928: Biennial Surveys of Education (various years). All students are included, even those above fourth year and unclassified.
(4) 1930: Biennial Survey of Education, 1928-1930, chapter I, p. 1. The figure of 84.7% is estimated using the number of forms sent out plus the number of schools in existence in the previous year but not listed in 1929-30. The estimating method may allow for the growth of new schools not yet in listed in the Bureau of Education records. Note that in chapter VII the number of private schools is estimated at 3,500, 78.9% of which would not have reported. No basis is given for this estimate.

Table A4
Public and Private Secondary School Graduation Data

Year	(1) Historical Statistics (000)	(2) Bureau of Education Public Schools	(3) Bureau of Education Private Schools	(4) Preparatory Departments	(5) (2)+(3)+(4)/(1) × 100	(6) Public and Private Revisions	(7) (6)/(1) × 100
1910	156	111636	14409	10567	87.6	154804	99.2
1911	168					167609	99.8
1912	181						
1913	200					203435	101.7
1914	219	160606	20303		87.5	219514	100.2
1915	240			10790			
1916	259					257921	99.6
1917	272						
1918	285					297993	104.6
1919	298						
1920	311	230902	24166	9489	85.1	305530	98.2
1921	334						
1922	357					372445	104.3
1923	426						
1924	494					470306	95.2
1925	528	396003	38547	9392	84.1	544712	97.1
1926	561						
1927	579						
1928	597					610229	102.2
1929	632						
1930	667	591719	51447	7569	97.6	681420	102.2

Notes and Sources:
(1) Historical Statistics, series H 598-601.
(2), (3) U.S. Bureau of Education, Reports of the Commissioner of Education, Biennial Surveys of Education (various years).
(4) Preparatory departments: secondary school students in the preparatory departments of colleges and universities. The Biennial Surveys of Education collected such data as part of the college and university survey. Although the aggregate numbers are not broken down by year and graduation, similar data for New York State (see Appendix text) have been used to estimate the fraction graduating. I have used 16% of the total figure for the fraction graduating in that year. The data for preparatory and normal (public and private) schools are given in Table A5. Only those for universities and colleges are used in the adjustments (see Appendix text).
(6) Public and private revisions are the revised state-level data described in the Appendix text.

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Table A5
Preparatory Student Enrollments in Colleges and Universities, 1900-1936

	(1) Colleges and Universities	(2) Normal Schools	(3) (1)/ Total Private Enrollments × 100
1900	56285		
1903	53794	13995	
1905	64085	15324	
1907	76370	12831	
1909	70834	11037	
1910	66042	12890	31%
1914/15	67440	13504	27
1920	59309	22058	22
1922	67649	n.a.	24
1925	[58703]	[12470]	18
1928	50588	n.a.	13
1930	47309	11978	10
1934	23188		
1936	27680		

Notes and Sources:
Columns (1) and (2):
1900: Biennial Survey of Education, 1934-36, "Statistics of Universities and Colleges"
1903: Report of the Commissioner of Education, 1903, vol. 2, p. 1813.
1905: Report of the Commissioner of Education, 1905, vol. 2, p. 813.
1907: Report of the Commissioner of Education, 1907, vol. 2, p. 1043.
1909: Report of the Commissioner of Education, 1909, vol. II, p. 1121.
1910, 1915, 1920, 1930: Biennial Survey of Education, 1928-1930 (p. 5, table 3), and virtually identical to those from the original sources. Note that for 1910 the figure 60,392 is given in the original report, but that figures does not include women's colleges.
1925: extrapolated on the basis of data for other years
1922: Biennial Survey of Education, 1920-1922, "Statistics of Universities and Colleges"
1928: Biennial Survey of Education, 1926-1928, "Statistics of Universities and Colleges"
1934: Biennial Survey of Education, 1934-1936, "Higher Institutions"
1936: Biennial Survey of Education, 1934-1936, "Higher Institutions"
Column (3): Total private enrollments are the adjusted data and include the preparatory enrollments.