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ABSTRACT

The General Equivalency Diploma (GED) program is designed to help high school dropouts earn an equivalent credential. However, by helping teenage dropouts, the GED program may encourage enrolled youth to leave high school. This paper examines the issue using data on GED policies from the GED testing service and data on high school continuation rates from the Common Core of Data. After describing the policy background of the GED program and summarizing recent literature on the issue, the paper describes the conceptual and analytic models used to estimate the effects of GED rates and policies on high school continuation ratios. Data analysis indicates that allowing teenagers to get GEDs increases dropout rates very substantially. Policies allowing teenagers to get GEDs without parental permission encourage large numbers to drop out of high school. However, when parental permission is required, allowing teenagers to get GEDs does not have this effect. Most youth who drop out because of the GED option do not actually go on to get GEDs during their teenage years. Three appendixes present problems with data on GED recipients, additional tests for robustness, and summary measures of GED policies. (Contains 27 references.) (SM)

GEDs for Teenagers: Are There Unintended Consequences?

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ABSTRACT

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The GED program is designed to help high school dropouts. Unfortunately, by helping *teenage* dropouts the GED program may encourage enrolled youth to leave high school. This paper uses data by age, state, and year from 1989 to 1997 to analyze this issue. Data are obtained from the GED testing service and the Common Core of Data. The evidence suggests that policies allowing teenagers to get GEDs without parental permission encourage large numbers to drop out of high school. The evidence also suggests that when parental permission is required, allowing teenagers to get GEDs does not have this effect.

1. INTRODUCTION

The GED program has expanded greatly since its start during World War II. Today almost one-half million people receive new GEDs each year and about 200,000 of these recipients are under the age of 20. GEDs as a fraction of all high school credentials received by teenagers have more than doubled since 1978. This pattern has sparked growing interest in estimating the costs and benefits of the GED program. In this paper I focus on one potential cost of the GED program, the degree to which it encourages dropping out of high school. In particular I present estimates of the degree to which teenage GED rates and policies are associated with high school continuation by age, state, and year (from 1978 to 1997), controlling for age, state, and year fixed effects. Data on GED policies are obtained directly from the GED testing service (GEDTS), while high school continuation ratios are obtained from the Common Core of Data (CCD).

This paper is organized as follows. Section 2 describes the policy background of the GED program, while Section 3 summarizes recent literature in this area. Sections 4 and 5 describe the conceptual and analytic models used to estimate the effects of GED rates and policies on high school continuation ratios and Section 6 describes the data. Section 7 presents the results and Section 8 is the conclusion.

2. *BACKGROUND*

The GED testing program was started by the U.S. military and the American Council on Education in 1942 as a way to give veterans without a high school diploma a chance to obtain a similar credential. By 1952 the GED was made available to non-veterans and the military began using it for both enlistment and screening decisions. Research at that time suggested that the GED was widely accepted as being equivalent to a high school degree by many businesses and government entities, and by 1963 all 50 states administered the GED test (Cameron and Heckman, 1993). GED growth has continued since that time. In 1967 over 150,000 people received GEDs in the U.S. In 1998 this number was almost half a million.[1]

The GED is supposed to serve as an important credential of achievement for high school dropouts. It is designed to measure skills similar to those needed to obtain a regular high school degree and consists of 5 multiple-choice sections, as well as a timed essay. The full test lasts over 7 hours and the pass marks are set high enough so that approximately one third of high school graduates would not pass (GEDTS, 1998). Dropouts who obtain a GED become eligible for a number of employment and educational opportunities to which they would not otherwise have access. Although the military accepts few GED recipients, GED graduates can enroll in about 95 percent of U.S. colleges and universities and are eligible for federal aid for post-secondary education (GEDTS, 1997).

While the GED program may improve labor market outcomes of dropouts, it may also be costly

[1] The numbers fluctuated up and down during the intervening years. In 1995 and 1996 the annual numbers of new GEDs were over 510,000.

for those youth who drop out of high school because of the GED option. The percent of recent high school credentials who had GEDs, as opposed to regular high school degrees, rose from only 2 percent in 1954 to over 14 percent by 1987 (Cameron and Heckman, 1993) and remained between 11 percent and 17 percent through 1997 (NCES, 1998; GEDTS, 1998). In addition, between 1971 and 1980 the percent of all youth that obtained a GED and the percent that obtained a regular high school degree moved in opposite directions and by similar amounts (about 5 percentage points).

GED recipients include many older youth and adults who are unlikely to return to high school, even in the absence of the GED program. In addition, however, a large fraction of GED holders are teenagers. More importantly, the fraction of teenagers with new high school credentials who have GEDs is large and growing. Since 1978 this fraction has more than doubled, reaching almost 7 percent in 1997 (see Figure 1), and the number of new teenage GED recipients is about one-third as large as the number of new dropouts.[2] Even 16-year-olds take the GED fairly often. In 1998 there were over 13,000 new GED recipients age 16, and the number of states that allow 16-year-olds to take the GED increased from 25 in 1989 to 35 in 1997.[3] This evidence suggests that many young teenagers may be

[2] There were 179,000 sixteen to nineteen-year-old new GED recipients in 1994 (GEDTS, 1995) and 463,000 new dropouts (McMillen et al., 1995).

[3] This is based on state letters, described below, and includes states that only allow 16-year-olds to take the GED under limited circumstances. The number of states where any 16-year-old dropout can get a GED rose from 1 to 5 during this period. Similar trends are seen for 17-, 18-, and 19-year-olds. The skill level needed to pass the GED may

making the decision to obtain a GED in place of obtaining a regular degree.

The GED testing service is aware of this concern. Indeed, a commission working on GED policies in September of 1946 suggested that GED policies be designed to not encourage young men and women to leave high school and for many years the recommended minimum age was 20 (American Council on Education, 1979). Nevertheless, in 1981 the minimum age was dropped altogether at the national level, at least in part because of concern among the state GED agencies about litigation based on charges of age discrimination. The minimum age was reinstated in 1992, but only at 16, leaving a large fraction of high-school-age teenagers eligible to take the GED if they also qualify based on state rules. Recent evidence, summarized in the literature reviewed below, suggests that dropping out to get a GED would be a very costly decision (Cameron and Heckman, 1993; Murnane, Willett, and Tyler, 1998). Here I investigate whether the availability of the GED option diverts teenagers away from traditional classroom study, a question that has strong policy implications for the GED program.

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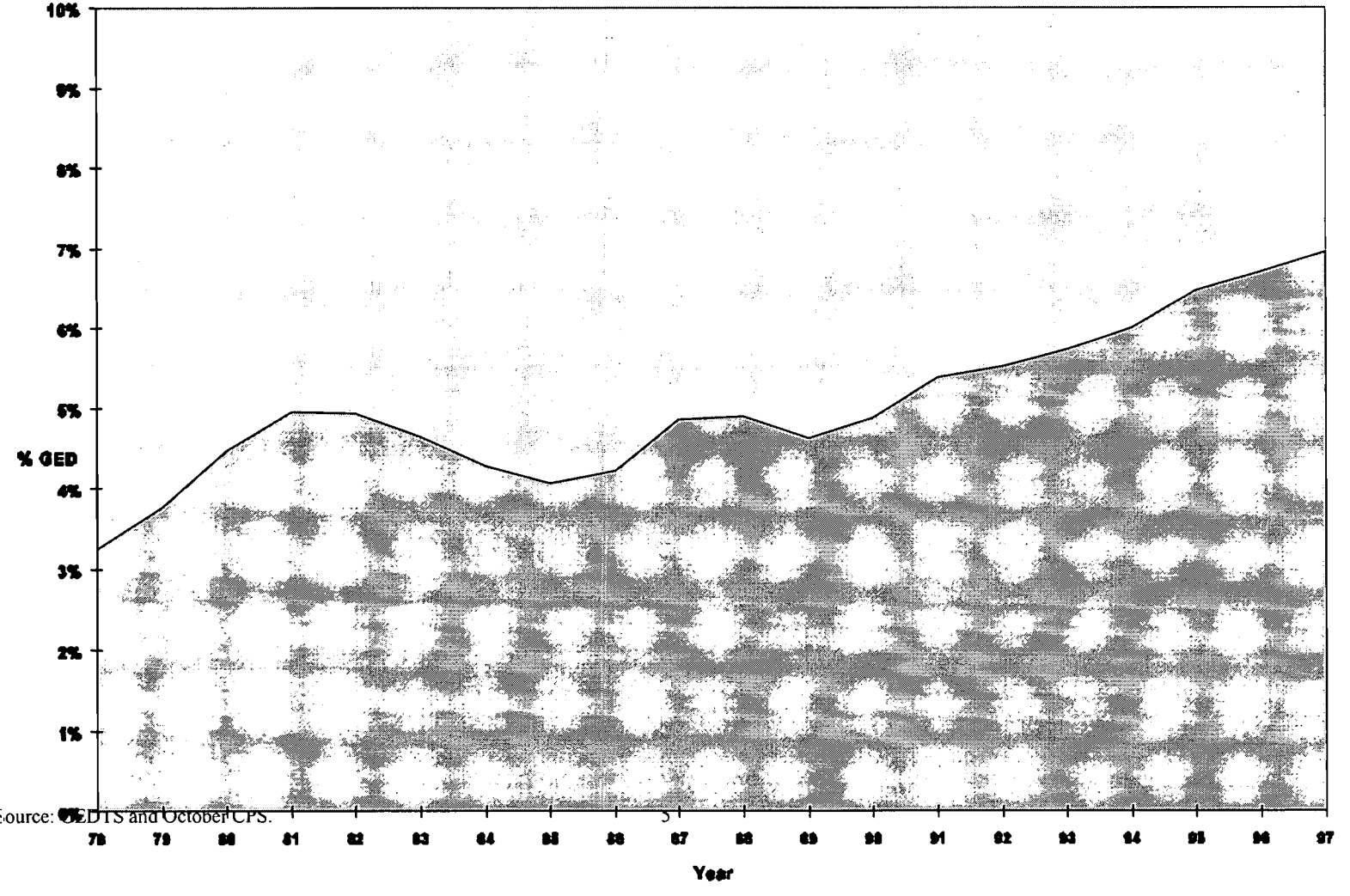
have also changed over time, but this is difficult to measure since the test is designed so that about two-thirds of high school graduates would pass at the national level. Therefore, as the skills of regular high school graduates change over time, so too will the skills need to obtain a GED.

Figure 1:
GEDs as a Percent of All High School Credentials among 18- to 19-Year-Olds by Year



Source: GEDTS and October CPS.

Source: GEDTS and October CPS.

3. *LITERATURE REVIEW*

Currently there is very little literature that specifically addresses the question of whether the GED program encourages teenagers to drop out of high school. However, there is an extensive literature on two questions related to the benefits and costs of the GED. First, does the GED benefit high school dropouts? The evidence on this is somewhat unclear, as discussed below. Second, is there a cost for youth who decide to get a GED in place of a regular high school degree? Most available evidence suggests that the economic cost is large. These results suggest that it is important to know whether or not the GED program encourages dropping out.

Does the GED benefit dropouts?

The most likely benefit of the GED program is that it probably enables youth who have dropped out of school to improve their labor market outcomes.[4] A number of recent studies find positive effects of GED recipiency for high school dropouts (Garet, Jing, and Kutner, 1997; Cao, Stromsdorfer, and Weeks, 1996; Sum, 1996; Rivera-Batiz, 1996; Murnane, Willett, and Tyler, 1998; and Tyler, Murnane, and Willett, 1998.) The strongest evidence comes from Tyler, Murnane, and Willett (1998), who report that obtaining a GED increases the earnings of young white dropouts by 10 to 19 percent, although they find no significant effect for non-whites.[5] Other papers generally find positive but less

[4] In addition to the private benefits to youth, the GED program is also likely to have public benefits. Three public benefits, not discussed further in this literature review, are that the GED program may 1) provide employers with information about the skills of non-high school graduates and thereby improve the worker-job match, 2) encourage at-risk youth to avoid socially costly behaviors such as crime, and 3) give particularly disruptive youth an alternative to high school, enabling high schools to better serve those youth who remain in school.

[5] They find these effects on earnings 5 years after obtaining a GED (or taking the test) for individuals age 16 to 21 when they took the test. They find smaller, and generally insignificant effects for earnings in earlier years

clear evidence of labor-market benefits of obtaining a GED for high school dropouts (Passmore, 1987; Cameron and Heckman, 1993; Maloney, 1993; and Murnane, Willet, and Boudett, 1995). At the same time, however, it should be kept in mind that the direct short-term costs of obtaining a GED are quite low. Therefore, for dropouts, obtaining a GED may result in very large pay-offs relative to costs. A more in-depth recent survey of this literature can be found in Boesel, Alsalam, and Smith (1998).

Is the GED equivalent to a regular high school degree?

The labor market benefits of obtaining a GED for dropouts may be quite large, but are also somewhat ambiguous given the wide range of estimates. The labor-market costs of getting a GED instead of graduating from high school are clearer, appear quite large, and should be considered by teenagers making dropout decisions.

Cameron and Heckman (1992) estimate that males with regular high school degrees earn approximately 11 percent more than those with a GED certificate. Similarly, Murnane, Willett, and Tyler (1996) find that males who have regular high school degrees but no college earn about 14 to 23 percent more than observationally similar male GED recipients. Similar results are found in all papers summarized by Boesel et al. (1998) when the outcome is either earnings or wages (and controls are used). These results generally hold for males and females.[6] Thus, the most reliable evidence generally suggests that obtaining a GED instead of a regular high school degree results in substantially lower

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and do not report results for individuals over the age of 21 when they took the GED. Their estimates are based on a comparison of individuals who pass the GED in one state compared to individuals with identical scores who did not pass in another state. Therefore, the large effect they do estimate is most relevant for these individuals who have relatively low scores among those who pass.

earnings later in life.

[6] Sum (1996) finds smaller effects for females than for males.

While the evidence above is compelling, it appears that many teenagers are being given a misleading signal that a GED is similar to a regular high school degree.[7] Most states use names such as AHigh School Diploma@ or AHigh School Equivalency Certificate@ for their GED credentials. In addition, many GEDTS publications include phrases such as, AA GED Diploma is accepted by employers -- just like a high school diploma,@ or, A..a GED high school equivalency diploma...@[8]

Contributions to the Literature

[7] GED certificate stands for General Educational Development certificate, so the name alone does not imply equality.

[8] These examples were found in a 1998 GEDTS brochure and GEDTS, 1997, pg. ii.

Previous GED literature has focused on estimating the effects of GEDs on later outcomes for individuals who dropped out and on the effects of obtaining a GED as opposed to a regular high school diploma. The former work can help high school dropouts decide whether or not to get a GED. The latter work can help enrolled youth choose between getting a regular high school degree or getting a GED. *Neither strand of literature addresses whether the GED option affects the decision to drop out.* As noted earlier, regular high school degrees were declining as GED rates rose during the 1970s (see also Figure 4 of Cameron and Heckman, 1993), but the same pattern is not seen in other years.[9] More generally, I have found no published research estimating whether the GED program affects the likelihood of dropping out of high school.[10] Thus it is not known whether many youth who obtain a GED would have graduated from high school in the absence of the program.

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[9] During the 1970s the ratio of new GEDs to the population age 17 increased from 0.059 to 0.115, while the fraction of 17-year-olds with regular high school degrees fell from 0.759 to 0.714. On the other hand, GED rates increased little during the 1950s, while regular high school graduation rates rose by over 10 percentage points. In addition, the GED rate continued to increase during the 1980s, while the regular degree rate remained stable (NCES, 1996, Tables 98 and 100).

[10] Boesel et al. (1998) also found no work in this area, published or otherwise. More recently, however, Lillard (1999) estimates models similar to the ones presented in this paper. Our models differ in a number of ways that make comparisons difficult. First, we chose a different set of variables to describe GED policies. Second, I use the variation in GED policies by age. His conclusions are broadly similar to mine in that he also finds evidence that GED policies can affect dropout rates, but his results vary greatly across models and data sets.

4. *CONCEPTUAL MODEL*

One way to think about how and why GED policies might affect a teenager=s decision to drop out of high school is to consider a model in which students are assumed to *maximize expected earnings with uncertainty and constraints.*[11] Suppose that, as the evidence cited above suggests, acquisition of a GED increases earnings relative to dropping out but obtaining a GED also results in lower earnings relative to being a regular high school graduate. One might then ask why all students do not get regular high school degrees. A reasonable explanation is that dropping out is easier than getting a regular high school degree. The cost (in terms of time and effort) of getting a GED is probably somewhere between that of being a dropout without a GED and getting a regular high school degree. Thus, students make educational decisions to *maximize expected earnings* by comparing costs and benefits. *Uncertainty* comes in because the potential GED recipient does not know the exact costs or benefits associated with obtaining a GED. *Constraints* come in the form of policies which limit access to the GED option, such as the minimum age rules described below.[12]

Based on this earnings maximization model, policies that allow more teenagers to obtain GEDs

[11] A similar discussion would hold for expected utility maximization. I use earnings here because the literature review focuses on the effects of the GED on earnings.

[12] It is interesting to note that in theory removing these constraints and allowing more teenagers to get GEDs could lower dropout rates by making the GED appear less valuable. For instance, if anyone could get a GED then the GED would presumably provide a very weak signal of a teenager=s skills. This would make the GED less valuable and therefore make dropping out less attractive, all else equal.

can increase dropout rates by removing constraints on behavior. At the same time, policies that require contact with a parent to take the GED may lower dropout rates by changing the information youth have. More precisely, if a teenage student considering dropping out (or a current dropout) speaks with a parent about their future plans, the parent might convince the teenager to remain in (or return to) high school by describing the likely costs and benefits of having a GED compared to a regular high school degree.[13]

5. ANALYTIC MODEL

The effects of GED policies on dropout rates are estimated using data by state, year, and age. Continuation ratios are used in place of dropout rates because consistent data on continuation ratios are available for more states and years than are data on dropout rates. Age variation is used because the GED policies vary by age and these policy variables can be approximately matched to the high school continuation ratio data by age. Of course, many explanations for strong associations of GED policies with high school continuation ratios are not related to causal effects of GED policies. For instance, states that have high teenage dropout rates might set policy to make it easier for their teenage dropouts to obtain GEDs. Similarly, factors that affect both dropout and GED rates (such as spending on at-risk youth) may not be easily measured using existing data. For these reasons, state, year, and age dummy

[13] These effects are likely to vary depending on the characteristics of the student.

variables are included as controls in all models, as are rules regarding completion of high school and measures of local labor market demand. The major assumption is that the remaining variation in GED policies is exogenous with respect to unobserved factors that affect continuation ratios.

To test the specification of the GED policy variables, I also estimate the effects of these variables on GED rates using the same empirical model used for the high school continuation ratios.

This model also enables me to get a rough estimate of how often teenagers drop out to get a GED but fail to do so during their teenage years.

6. DATA

This section describes the data in more detail. The data used in this paper come from the GED Testing Service (GEDTS), the Common Core of Data (CCD), the October Current Population Survey (CPS), and a variety of additional sources. Descriptive statistics for the variables used in this paper are given in Table 1.[14]

GED TESTING SERVICE DATA

GED Policies: The data on GED policies come from the GED Examiners Manuals, which

[14] The sample used for Table 1 includes only observations where data were available on state rules indicating whether at least some people can get GEDs and where these rules did not contradict the GED numbers.

include letters from each state describing their rules in the years 1989, 1991, 1993, and 1997, the only years since 1989 for which manuals were produced. When a rule is the same in two consecutive manuals, it is coded as remaining unchanged during the intervening years. When it does change, values for intervening years are set to missing since the year when the rule changed is not provided in these letters. Table 1 summarizes the rules based on state, year, and age cells.

Information on GED rules comes from state letters instead of the annual reports of GEDTS because the annual reports (GEDTS 1990 - 1998) appear incomplete. In particular, about 43 percent of the age-year-state cells using the age cutoffs reported in the annual reports have conflicts (positive GED rates although no one is supposed to be allowed to get a GED) in comparison to only 5 percent of the age-year-state cells based on the state letters. These remaining cases with discrepancies are omitted in the results presented below.

The large number of discrepancies in the annual reports and the remaining discrepancies found even when using the state letters probably result in part from the large number of conditions that different states use to control access to the GED program. To summarize these diverse policies the following variables are used:[15] 1) a composite measure of the scores needed to pass the test,[16] 2) the number of centers per population age 16 to 19 (GEDTS 1989 - 1997), 3) whether the state has a dropout prevention program which allows students to obtain a GED while still enrolled in high school,[17] 4)

[15] See Pape and Chaplin (1999) for a more detailed description of these data.

[16] The score rules generally include two numbers specifying the minimum score needed on each subsection and the overall average score one must obtain to get certified. The exact requirements vary by state and year. These varying requirements are summarized using the subscore minimum or the minimum average score, if only one was given; the average, if either was sufficient; and the highest, if both were required.

[17] In recent years eight states have been given special waivers by GEDTS to administer the GED to currently

whether someone is allowed to take the GED if they meet only the national requirements (described below), and 5) whether they can get a GED if they meet some additional requirements. The rest of the variables summarize these additional requirements.

The types of requirements needed to obtain a GED were fairly similar across states. However, most of the policies mention multiple requirements that are sometimes connected by Aor@ and other times by Aand,@ meaning that a small number of requirements translate into a large number of policies. To summarize the policies concisely, we created the variables shown under ACan Get If@ in Table 1 describing the conditions under which one can obtain a GED. These are all binary except for AWithdrawn X months,@ which is the number of months one must be withdrawn from high school in order to take the GED. If a condition is mentioned in a rule alone or using an Aor@ then the relevant variable is coded one to indicate that a GED can be obtained under that condition. Since teenagers can often get a GED under multiple conditions, the means of the condition variables add up to more than one. If the condition is mentioned only with an Aand@ then it is only set to one if that condition is the most binding of the conditions mentioned -- i.e., apparently most difficult to achieve. I present the condition variables in order of assumed difficulty in Table 1. Thus, a state with a rule that specified one must be in jail and take a practice test to obtain a GED would have the jail variable coded one but the practice test variable coded zero (unless practice tests were mentioned appropriately in another rule).

There is one exception to the Amost binding@ conditions rule. The three permission conditions were treated as equal. If two or more of these conditions appeared with an Aand@ clause (an unusual

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enrolled high school students only if the state is willing to use the GED to discourage dropping out of high school.

condition) all variables for conditions mentioned in the rule were set to one. The rules can also vary by age.

There are also national rules and requirements for taking the GED. These have changed little over time. In addition, the changes that do occur should not affect our analyses since year dummies are included as controls. However, the national requirements do matter in the sense that they apply when they are more binding than the state rules. The variables are coded accordingly.

The current national requirements, condensed from GEDTS's GED Examiner's Manual, are that one must be at least 16 years old (unless one's high school class has graduated), not enrolled in high school, and not a high school graduate. There is an exception to the non-enrollment requirement for adjudicated youth "under the direction of prisons, jails, detention centers, parole and probation offices, or other corrections facilities." This exception can be overridden at the state level. The only change to the rules noted above occurred in 1992. In that year, the minimum age of 16 was put in place. Between 1981 and 1992 there was no minimum age policy at the national level.

GED Numbers: To test how well the GED policies are measured I regress GED rates on our GED policy variables. GED rates are calculated from GEDTS data. The GEDTS data are used because they are the most comprehensive and accurate data available on GED recipiency. As explained in Appendix A, data on GED recipients from other sources appear to be very inaccurate. The GEDTS data are compiled by local test centers, summarized, sent to state agencies, and then forwarded to the national GED testing service. About 7 percent of the age/state/year observations for

1989 - 1997 are missing because the data were not provided in the annual reports.

The GED rate equals the number of new GEDs by age, state, and year[18] divided by an estimate of the population. The population estimates come from CPS data, as described below. As shown in Table 1, the average state/age/year GED rate in our data is 1.5 percent during the 1989 - 1997 period. In comparison, the average state/age/year non-continuation ratio is 7.7 percent.[19]

[18] The analysis focuses on the number of GED credentials rather than the number who pass the test. The number of individuals with credentials is smaller than the number who passed the test because credentials are often issued only after additional paperwork and requirements have been completed. For instance, Wisconsin administers two additional tests and requires that students receive employment counseling before they can obtain a GED.

[19] These numbers differ from national estimates of the GED and non-continuation ratios because they are based on averages of age/state observations and not on individual-level data. Also I have missing values for cases where states did not report GED numbers (or the breakdowns by age) in the annual reports.

COMMON CORE OF DATA

The Common Core of Data from the U.S. Department of Education contains information on public school enrollment by grade, as well as the number of youth receiving regular high school degrees (not GEDs) for the school years 1988-1989 through 1996-1997. These data are used to estimate continuation ratios equal to the number of youth in a given grade divided by the number from the previous grade in the previous year. For instance, the grade 11-12 continuation ratio in 1995 is equal to the number of 12th graders in 1995 divided by the number of 11th graders in 1994. These ratios can be thought of as estimates of the fractions of youth who move up one grade level in school from one year to the next. The continuation ratios are calculated by grade, state, and year, starting in grade 10 and merged with the GED data. GED data for 16- and 17-year-olds are matched to the 10-11 and 11-12 grade continuation ratios respectively. The 12-graduation continuation ratios (graduates divided by 12th grade enrollment) are used for the GED data of both 18- and 19-year-olds. The CCD data cover the entire population of students in public schools and GED recipients are counted as dropouts (non-continuers). Therefore CCD estimates should be much more precise than the estimates based on CPS or any other available data which include only small sub-samples of the population.

Although more precise than CPS data, high school continuation ratios based on CCD data may also be noisy for a number of reasons. First, the ages of the students must be approximated because they are not given in the CCD. Second, the CCD covers only the 1988 - 1996 period. Third, many

students switch to non-public schools and are therefore counted as dropouts (non-continuers).[20] Fourth, some home-schoolers obtain GEDs instead of regular high school degrees and may therefore counted as dropouts. Fifth, students who migrate between states are counted incorrectly.[21] Sixth, dropouts who return to school and students who are held back or skip grades are counted incorrectly.[22] For all of these reasons the standard errors will be large. However, it is not clear why any of these sources of error in our continuation ratios would be correlated with GED policies, so they should not bias estimates of the effects of these policies.

CURRENT POPULATION SURVEY DATA

Many of the weaknesses in using CCD data to look at high school continuation could be addressed by CPS data. However, Chaplin (1998) finds very imprecise results using CPS data. In particular, none of the coefficient estimates on the GED policy variables in Table 2 are statistically significant at the 5 percent level and the standard errors are quite large. This is probably in large part because the CPS has only a small sample of the population of high school students, while CCD data contains the entire population of public school students. For this reason, I only use CPS data here to calculate the population estimates which are the denominators in the GED rates (for more details about

[20] Having data on private high school enrollment would improve these estimates, but these data were not available by grade level when this analysis was conducted.

[21] Migrating students lower the continuation ratio in the state they migrate from and increase it in the state they migrate to.

[22] The last four reasons imply that the maximum continuation ratio (shown in Table 1) can be over one.

the CPS data, see Appendix A).

Controls

I also include controls related to standards-based reform (whether an exam is required to finish high school and the total number of credits needed to graduate), the compulsory attendance age (when one can legally drop out of school), the state unemployment rate, and the minimum wage in effect in each state (equal to the federal minimum wage if the federal is higher than the state). The minimum wage is not adjusted for inflation since the models include dummy variables for each year. These variables are missing in a few cases, which are omitted from our regressions. Descriptive statistics and sources are given in Table 1.

I have no controls for individual characteristics such as academic skills. This will bias our results only if these characteristics change over time in ways that are correlated with changes in GED policies. It is not clear why this would occur.

7. RESULTS

Many GED Policies Lower Continuation Ratios: Table 2 summarizes the estimated effects of GED rules on GED rates and continuation ratios. The results suggest that there are many GED rules that are associated with both higher GED rates and lower continuation ratios. Four of the five GED policy variables that are statistically significant in the GED rate regression (at the 5 percent level) are

also significant predictors of the continuation ratio and in the expected direction - i.e., most of the policies estimated to increase GED rates are also estimated to lower continuation ratios. For instance, being allowed to get a GED without restrictions (except the age limit and national rules) is predicted to increase the GED rate by about 0.5 percentage points and to lower high school continuation ratios by about 1.5 percentage points compared to not being allowed to get a GED at all. One additional variable (if one=s high school class has graduated) is also significant at the 10 percent level in both the GED and continuation ratio regressions. The only variable significant in the GED regression, but not in the continuation ratio regression, is the number of centers per population.

The results suggest not only that some GED policies encourage youth to leave high school but also that the effects of these policies on continuation ratios are much larger than their effects on getting a GED. As noted above, the ACan Get GED without Restrictions@ variable is estimated to increase the GED rate by only one-third as much as it lowers the continuation ratio. Similarly, allowing teenagers to get a GED as soon as they drop out (the AWithdrawn X Months from High School@ variable) is estimated to increase the GED rate by only 0.5 percentage points but to lower the continuation ratio by over 5 percentage points. These differences are caused in part by the fact that the GED rate is calculated as a fraction of all youth while the continuation ratio is calculated using only enrolled youth in the denominator. However, this should only make the continuation ratio coefficient estimates about 30 percent larger.[23] Instead, the ratios are generally more than 4 to 1. These results suggest that most

[23] The population averages about 70,000 per age/state/year observation, in comparison to about 53,000 children in public schools (the denominator in the continuation ratio).

teenagers who drop out of high school because the GED option is available do not get a GED as teenagers.

Two additional GED policy variables have no statistically significant effects on GED rates but appear to lower continuation ratios: if one can get a GED while incarcerated or under court order and if one can get a GED after taking a practice test. An explanation worthy of further investigation for the jail variable is that when the GED option is available many jails may use the GED option as a reason to drop regular high school programs and/or to allow teenage inmates to drop out of such programs but still not actively encourage teenagers to get GEDs. The practice test variable result suggests that many youth drop out planning to get a GED by taking a practice test, but never get around to obtaining a GED.[24]

[24] This could happen in part because only two-thirds of GED test-takers pass the exam and many never even finish taking all the parts. In addition, many dropouts intending to take the GED test never even start taking it or the practice exam.

Quality of Data: Many of the coefficient estimates in the GED and continuation rate regressions are statistically significant and in the expected direction, suggesting that our measures of GED policies are reasonable. Five of the GED policy variables are estimated to increase GED rates as the policies allow more teenagers to get a GED and none are predicted to lower the rates.[25] The policy variables with statistically significant coefficient estimates are those describing the number of GED testing centers/population and if one can get a GED a) under any circumstances, b) after being out of high school for a certain number of months (two variables),[26] and c) after taking certain courses. The variable specifying that one can get a GED if one=s high school class has graduated was also significant at the 10 percent level. This evidence suggests that the data on GED policies and rates correspond well and that the method of summarizing the GED policies used here is reasonable.

The estimated effects of high school rules on continuation ratios also appear reasonable. In particular, the variable marking Aif an exit exam is required for graduation@ has a negative coefficient estimate, significant at the 10 percent level, and the variable specifying whether one can drop out at that age (based on the compulsory schooling age) is negative and significant at the 1 percent level.[27]

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[25] This result was quite robust to a large number of alternative specifications. One might also expect a substantial effect of the scores needed to pass the GED on the GED rates since the GED pass rates (out of those who finish taking the test each year) varied from just over 50 percent in New York to almost 100 percent in Colorado in 1997 (GEDTS, 1998). I find no evidence of such an effect. This could be because there is little variation in the cut-off scores and because pass rates vary for other reasons. GEDTS (1999) presents descriptive statistics suggesting that the national increase in test score requirements that occured in 1997 lowered pass rates that year, though the effect dropped substantially by 1998.

[26] An increase in the number of months one must wait after dropping out of high school to get a GED is expected to lower GED rates. The other variable is a dummy signifying that one can get a GED after waiting the number of months specified by the first variable. This is expected to have a positive effect on GED rates.

[27] None of these high school rules were significant predictors of the GED rate but all three were in the expected direction (rules that would be expected to increase dropout rates also increased GED rates).

While the patterns found in these data appear to be generally plausible, there are some results that appear puzzling. First, there are two sets of variables (high school graduation rules and labor demand) that are estimated to affect continuation ratios but have no effect on GED rates. An explanation for this pattern is that most youth who drop out because of these factors are not considering the GED option.

The second puzzling result is that the estimated effect of unrestricted access (ACan get GED without Restrictions@) is much smaller than the estimated effects of many of the more restrictive options (i.e., ATaken Certain Courses@ and APass Practice GED Test@). This seems implausible since unrestricted access covers everyone covered by any of the restricted access options and more. One explanation for this finding is that the unrestricted access may often be accompanied by other policies, not included in the state letters to GEDTS, that effectively limit use of the GED option.

The third puzzling result is that in two cases the evidence suggests that allowing teenagers to get GEDs increases continuation ratios. These results are of particular interest and are discussed below in the section, *Some GED Policies Increase Continuation Ratios.*

Lagged Effects? The large estimated effects of some of the GED policy variables on high school continuation ratios combined with small (or insignificant) estimated effects on GED rates may occur in part because the GED rules have a lagged effect on GED rates. In other words, it is possible that some of these policies encourage youth to drop out of high school in the year the policy goes into effect, but it takes some time before the youth gets a GED. In addition, policies may not be implemented quickly and student awareness of policies may take time. For these reasons I add the

GED policy variables lagged one year and age to the regressions in Table 2.[28] Some of the lagged variables are significantly associated with current GED rates, but usually in the opposite direction from the current variables. In other words, more lenient rules in the past are often associated with lower GED rates in the current period.[29] One explanation for this finding is that more lenient rules in the past may reduce the pool of potential GED recipients and therefore lower, rather than increase, GED rates in the current period. More importantly, the effects of the current rules remain much larger on the continuation ratios relative to the GED rates, especially with regard to the two variables describing the number of months after dropping out one must wait before getting a GED. In addition, when the coefficient estimates on the current and lagged policy variables are summed for the variables that are significant in the GED regression in Table 2, the total estimated effects are always smaller than they are in Table 2 and larger for the continuation ratio, suggesting that, if anything, the long-run story might be even more compelling than the short-run one shown in Table 2. To summarize, introducing the lagged rules does not change the result that many of the GED rules have much larger effects on continuation ratios than on GED rates.

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[28] In other words, for individuals age 19 in 1990 the GED rules appropriate for 18-year-olds in 1989 were added. Individuals age 16 were dropped from these regressions.

[29] This is true for three rules at the 10 percent significance level - if one can get a GED without qualifications, if one has been out of high school for a certain number of months, and under other extenuating circumstances. The lagged administrator permission and marriage variables are associated with higher GED rates.

Reverse Causality? Another plausible explanation for the large estimated effects of GED policies on continuation ratios is that state policy-makers make it easier to get a GED when dropout rates rise because they want to help the dropouts. Thus, the GED policies might be related to continuation ratios because of reverse causality. I test for reverse causality using a predicted GED rate based on the GED rate regression in Table 2 as a measure of the degree to which the GED policies allow teenagers to obtain GEDs. I regress this predicted GED rate on the lagged continuation ratio and the controls from Table 2 (excluding the GED policy variables). The estimated effect of the lagged continuation ratio on the predicted GED rate was positive and statistically not significant. The opposite sign would be expected if higher dropout rates caused state policy-makers to alter policies so that more teenagers could get GEDs.[30] Additional tests for robustness are reported in Appendix B.

Some GED Policies Increase Continuation Ratios: In many cases, allowing teenagers to get GEDs appears to deter high school continuation. However, as shown in Table 2, two GED policy variables appear to have the opposite effect.[31] First, allowing teenagers who are pregnant or have children to obtain GEDs is estimated to increase high school continuation ratios by about 3.2 percentage

[30] Of course, this test does not rule out the possibility that individual GED policies were changed to make them more lenient in response to higher dropout rates. Rather it appears that there was no general trend in this direction. I also ran the continuation ratio regression in Table 2 using the lagged continuation ratio instead of the current continuation ratio. If current GED policies were driven largely by past continuation ratios rather than the reverse then I would expect the coefficients on the policies to be larger when I used the lagged continuation ratio as the outcome. However, I find the opposite result - the coefficient estimates on the policies become smaller rather than larger. In this sense, it appears that current GED policies affect current high school continuation more than current high school continuation affects future GED policies.

[31] The fact that in some cases more lenient GED policies lower high school continuation ratios while in other cases they raise high school continuation ratios suggests that one can not estimate an overall impact of allowing teenagers to get a GED. I show this more completely in Appendix C.

points. This could mean that when women who are pregnant or who have children contact the GED administrators to get a GED they are encouraged to stay in or return to high school. Other potential GED recipients may receive the same message but react differently, perhaps because they were less academically inclined, on average, than women who dropped out because they got pregnant. Alternatively, the results may be biased by unobserved omitted variables related to local programs that keep teen mothers in high school. Without additional research it is difficult to draw any strong conclusions from this result.[32]

Second, as shown in Table 2, allowing teenagers to get a GED if they have the permission of their parents is estimated to increase high school continuation ratios by 4.5 percentage points. This policy may have the effect of encouraging communication between at-risk youth and their parents and thereby lowering dropout rates. This could be true if many youth who have dropped out of high school or who are considering dropping out rarely speak to their parents about these issues unless given a reason to do so. Parents of youth who request permission to obtain a GED are forced to deal with the fact that their children have dropped out or are considering doing so. This may spark conversations that cause many of these youth to return to or stay in high school. The potential importance of such conversations is well documented by an extensive literature showing the relationships between parental involvement and student achievement (Muller, 1998 and Ho and Willms, 1996). In particular, Buchanan (1998) finds that talking about the future has a significant positive impact on the achievement

[32] In particular it would be useful to have information concerning whether and in what ways the information provided to potential GED recipients varies by the characteristics of the recipients.

levels of high school students. Talking about the decision to drop out may be similar.

The other permission variables, relating to job or university and school administrators, have very small and statistically insignificant effects on both the GED and continuation ratios. This may be because these individuals are far less able or willing to influence teenager decisions than are parents.

These latter results concerning the parental permission and pregnancy/having children variables might be questioned because of how these variables were created. In particular, each rule is only coded one if it is the most binding constraint stopping someone from getting a GED. In the case of the pregnancy variable this will not matter, since the only more binding condition is being in jail and no state specifies that one must be both pregnant (or have a child) and in jail to get a GED. In the case of the parent permission variable, however, there are numerous cases in which one must get parent permission and also satisfy some more binding condition, such as taking certain courses, in order to get a GED. When the permission variables are recoded to be one if permission is ever required the results become stronger - the coefficient estimate on the parent permission variable rises from 0.045 to 0.052 in the continuation ratio regression and the standard error falls.

8. CONCLUSION

In an era of increasing wage inequality the GED is more important than ever as an avenue for high school dropouts to improve their labor market outcomes. Indeed, even GED policies that make it easier for teenagers to get a GED are designed primarily to help high school dropouts. At the same

time, however, allowing teenagers to obtain GEDs may have unintended negative consequences. In particular such policies may encourage dropping out. Currently, over 50,000 16- and 17-year-olds get GEDs each year. The number of new GED recipients age 16 to 19 is about one-third as large as the number of new dropouts. These numbers suggest that the potential impact of the GED program on dropping out is quite large.

The results in this paper suggest that allowing teenagers to get GEDs increases dropout rates very substantially. In particular, I find that four such policies are estimated to lower high school continuation ratios - in one case by over 6 percentage points. This makes sense if allowing teenage dropouts to obtain GEDs makes dropping out more attractive. In addition, the evidence presented here suggests that most youth who drop out because of the GED option do not actually go on to get GEDs during their teenage years. These results do not necessarily mean that teenagers should not be allowed to get GEDs. For instance, some teenagers, for whom high school is not a beneficial experience, may be better off getting a GED. The results do, however, suggest that great caution should be exercised when allowing teenagers to get GEDs and that such policies deserve further scrutiny.

While I do find evidence that many policies allowing teenagers to get GEDs increase dropout rates substantially, I also find evidence that in at least one case the opposite is true. In particular, allowing teenagers to get a GED with their parents=permission appears to lower dropout rates. This may be because the GED option encourages teenagers to talk to their parents, who then convince their children to not drop out.

The evidence presented here is compelling, but there is much room for additional work to help rule out alternative explanations and to investigate variations in estimated effects. What is clear, however, is that GED policies may have large unintended consequences. These results should be kept in mind by GED policy-makers as they balance the benefits of allowing teenagers to get GEDs with the apparent costs of such policies in terms of higher dropout rates.

Appendix A
Problems with Data on GED Recipients

NELS Data: The National Educational Longitudinal Survey of 1988 (NELS) is a nationally representative longitudinal survey which started with 8th grade students in 1988. In NELS data a surprisingly large fraction (13 percent) of teenage GED recipients claim to have a regular high school degree two years after they reported having a GED.[33] Less than half of the these individuals report dates for these degrees that correspond to this sequence. This suggests that a large fraction of this 13 percent may be due to mistakes in reported GED status.

CPS Data: The Current Population Survey is collected by the Bureau of Labor Statistics on a monthly basis for the purpose of calculating unemployment rates. One respondent in each household is asked to provide information describing characteristics of all other members, including completed education. The CPS data include a large number of observations -- about 9,000 16 to 19-year-olds each year. One problem with the CPS data is that individuals who are institutionalized are not counted in the CPS. However less than 2 percent of 18 to 19-year-old dropouts are in jail (Chaplin and Merryman, 1996). Another problem with the CPS is that the CPS, while large, is still only a sample. This introduces noise into the GED rate regressions but should not bias the coefficient estimates.

The major problem with the CPS data is that information on GED status appears to be very inaccurate. About 61 percent of teenage GED recipients from a given year are reported to be regular high school graduates in October of the next year. About 69 percent of individuals reported to have a GED degree in the second year of the CPS survey and a high school degree in the first year, were also reported to not have a GED in the first year. Thus it appears that there is a very large amount of random misreporting of GED status in the CPS, perhaps because respondents are rushing to answer questions quickly and/or because they are not aware of the GED status of teenagers living in their households. Additional evidence suggesting that the CPS data give weak evidence concerning GED rates comes from McMillen et al. (1997, pg. 107), who find that for the years before 1994, the total annual numbers of new GEDs reported in CPS data are less than half the numbers reported by the GEDTS.

CCD Data: Data on GED recipients from the U.S. Department of Education's Common Core of Data were also analyzed. These data contain the "number of individuals age 19 years or younger who have received a high school equivalency certificate.@ The simple correlation between the data on GED recipients from the GED testing service and CCD is 0.75. Some of this difference could be attributed to the different unit of measure; that is, school year versus calendar year. In addition I looked at individual records and found evidence suggesting that about half of the states reported all GED

[33] This is based on individuals who reported having a GED in the 1992 NELS88 survey (taken when they would normally be graduating from high school) and their reported completed education in the next survey, in 1994.

recipients (rather than just those 19 years or younger) in many of the earlier years of the CCD survey.

Appendix B
Additional Tests for Robustness

Dropping Non-Significant Variables and Those with AUnexpected@Signs: A large number of the variables in Table 2 have insignificant coefficient estimates in both the GED and in the continuation ratio regressions. When these variables are dropped the results are very similar to those presented in Table 2. In each regression one variable becomes significant at the 5 percent level that had not been significant before.[34] In addition, in the GED rate regression two variables move from being significant at the 5 percent level to only being significant at the 10 percent level.[35]

Dropping 19-Year-Olds: In the regressions in Table 2 the 12th-graduation continuation ratios are used twice - once for the GED policy variables for 18-year-olds and again for the policies relevant for 19-year-olds. This means that these observations are highly correlated. To test for the importance of this, the model in Table 2 was run excluding the 19-year-olds. The results changed very little. Four of the GED policy variables became stronger (larger coefficient estimates and statistical significance) and four became weaker (smaller coefficient estimates and less significant). In addition, the pattern of some variables having very large negative effects on the continuation ratio but only small positive effects on the GED rate remains.[36]

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[34] The pregnancy variable in the GED rate regression and the high school graduation rate variable in the continuation ratio regression become more significant.

[35] The high school graduation variable and the variable indicating one can get the GED after having been out of high school for a certain number of months become insignificant. The actual number of months variable remains significant at the 1 percent level. Dropping the pregnancy and parent permission variables, which had unexpected positive signs in the continuation ratio regression, causes very little additional change in the results after dropping the non-significant variables. The significance levels (1 percent, 5 percent, and 10 percent) remain unchanged and the coefficient estimates change little.

[36] The coefficient estimates in the continuation ratio regressions for the two variables relating to months withdrawn from high school and the one for having taken certain courses are all at least 8 times as large as their coefficient estimates in the GED regressions.

Interacting Number of Centers with ACan Get GED@ The number of centers should only matter if someone can get a GED. To account for this an interaction between the number of centers and whether someone can get a GED by meeting only the national requirements was added to the model. The estimated effect was negative on the continuation ratio, as would be expected. However an interaction of the number of centers with whether someone can get a GED only after meeting additional conditions had a positive estimated effect. Thus this evidence is ambiguous. The other results changed little.

Adding Other GED Policy Variables: One variable not included in Table 2 is the cost charged to the individual to take the GED. This varied from $0 to $60 in 1997 and in many cases varied within states. When added to the models in Table 2 (for the states with non-varying within-state costs) this variable did not have a statistically significant effect on the continuation ratio and did not change any of the other substantive conclusions. However, because of a large number of missing values no strong conclusions about this variable can be reached.

Variables describing the name of the GED credential used by the state were significantly related to the GED rates but not in the expected directions - names that sounded more like high school degrees were associated with higher, rather than lower, continuation ratios. Adding in these variables also had little effect on the results presented in Table 2.

Appendix C
Summary Measures of GED Policies

Table 3 presents results from models that estimate effects of various summary measures of policies allowing teenagers to get GEDs on continuation ratios. These include a) subsets of the policy variables, b) non-linear versions of the GED rates, and c) GED rates predicted with the GED policy variables. These results provide no strong evidence that allowing teenagers to get GEDs generally lowers continuation ratios but the results are fairly imprecise.

Models 1 and 2 use only one or two variables for whether the individual can get a GED to describe policies allowing teenagers to get GEDs. Controls for state, age, and year dummy variables, as well as the score required to pass, the number of centers per population, the high school rules, and the local labor market demand variables are included. As shown in Table 3, the estimated effects of allowing teenagers to get GEDs are small and statistically insignificant at the 5 percent level, suggesting that it is unlikely that allowing teenagers to get GEDs would lower continuation ratios by much more than 2.5 percentage points.[37]

Model 3 uses a dummy variable signifying if anyone was reported as getting a GED in that age, state, year cell.[38] The coefficient estimate is statistically insignificant. In addition, the standard error is small enough to suggest that being allowed to get a GED is not likely to lower continuation ratios by as much as 1.5 percentage points.[39] A similar result holds when this GED variable is replaced with one

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[37] For instance, in Model 1 the lower bound for the 95 percent confidence interval of the estimated effect is approximately -0.024=-0.012-2 *0.006.

[38] The sample in Model 3 is larger than in the other models or in Table 1 because I include cases with missing values for the GED rules. Cases where the GED numbers contradict the rules are still left out.

[39] The lower bound for the 95 percent confidence region of the estimated effect is approximately -0.015=-0.005-2*0.005

representing whether at least 0.003 percent of the population were GED recipients (Model 4).[40]

[40] These estimates may be biased downward in magnitude because of measurement error in the GED rates. This can occur for a number of reasons. First, GEDTS provides the percentage of GED recipients in each age range rounded to only 0.1, which is about 4 percent of the 1997 average percentage of GED recipients age 16. Second, the ages of GED recipients when they received their GEDs will often differ from their ages when they are observed in the CCD. Third, the CPS population estimates are approximate and introduce noise into the GED rate estimates.

Finally, in Models 5 and 6 the GED rate is used to summarize policies allowing teenagers to get GEDs. More precisely I estimate the effects of GED rates on continuation ratios with two stage least squares models including GED policy variables as identifying instruments. In Model 5 all the GED policy variables are used as identifying instruments. The controls are the same as in Table 2.[41] The estimates suggest that GED policies have a very large but statistically insignificant effect on the continuation ratios. However, the data also suggest that the identifying instruments have direct effects on the continuation ratios, meaning that they are not valid as instruments. For this reason the Model 5 results are not reliable. Model 6 uses only the two variables describing whether someone can get a GED with or without qualifications as instruments. In this case the coefficient estimate is much larger and the instruments are not rejected. However, the standard error is also very large and neither instrument is statistically significant in the first stage model (the GED rate regression). Similar results held for a number of other two-stage models.[42]

[41] The models were estimated using slightly smaller samples since observations missing in either the continuation ratio or GED rate regressions are omitted.

[42] Similar 2SLS models were estimated using the CPS dropout rate as the outcome and other models using the minimum age variable directly from the annual reports as instruments. In each case the estimated GED rate effect was statistically insignificant.

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Table 1
Descriptive Statistics for Rules Regressions
Age, State, Year Observations

Variables	N	Mean	Min	Max	Std	Years
Dependent Variables						
GED Rate (GEDs/Population)	1353	0.015	0.000	0.091	0.012	89-97
Continuation Ratio	1249	0.923	0.677	1.118	0.059	89-96
Denominators						
Population (16- to 19-year-olds)	1457	70,666	1,756	491,153	79,517	89-97
Number in grade	1251	53,503	3,303	413,725	57,785	89-96
GED Rules:						
Score req'd to pass GED (in 10s)	1457	4.49	4.00	5.00	0.09	89-97
Log number of GED Testing Centers per pop.	1454	-8.487	-12.405	-6.474	0.899	89-97
DO prevention program in effect	1457	0.115	0	1	0.32	89-97
Can Get GED under any circumstances	1457	0.388	0	1	0.49	89-97
Can Get if:						
Incarcerated/Under Court Order	1457	0.218	0	1	0.41	89-97
Married	1457	0.043	0	1	0.20	89-97
Pregnant, have Kids	1457	0.065	0	1	0.25	89-97
Class Has Graduated	1457	0.235	0	1	0.42	89-97
Withdrawn X Months from High School	1457	0.219	0	1	0.41	89-97
Number of Months if allowed (0 if not)	1457	1.845	0	12	3.86	89-97
In a State or Federal Government Program	1457	0.164	0	1	0.37	89-97
Taken Certain Courses	1457	0.067	0	1	0.25	89-97
Have Permission from Parents	1457	0.101	0	1	0.30	89-97
Have Permission from Job or University	1457	0.174	0	1	0.38	89-97
Have Permission from School Administrator	1457	0.162	0	1	0.37	89-97
Pass Practice GED Test	1457	0.030	0	1	0.17	89-97
Other Extenuating Circumstances	1457	0.112	0	1	0.32	89-97
High School rules:						
Exit exam req'd for graduation	1452	0.399	0	1	0.49	89-97
Total # credits req'd for graduation at the state lvl.	1457	17.942	0	24	6.304	89-97
Can legally drop at this age	1449	0.868	0	1	0.34	89-97
Labor Demand:						
Minimum wage that is in effect by state	1457	4.142	3.350	5.750	0.491	89-97
Unemployment rate in state	1457	0.057	0.022	0.114	0.015	89-97

Observations missing GED Rules data are excluded. See text for details on missing values.

Sources: GED Rules data from GED Testing Service: GED Examiner's Manuals '89-'97, Statistical Reports '89-'97.

Continuation Ratios obtained from the Common Core of Data. High School rules data from Digest of Education Statistics '88-'97.

Minimum wage from the Book of the States by the Council of State Governments, 1990-91, 1996-97, 1998-99.

Unemployment rate obtained from Local Area Unemployment Statistics in the BLS. The rate is a seasonally unadjusted annual average.

Table 2
Estimated Effects of GED Policies on GED Rates and Continuation Ratios

Variables	GED Rate Parameter Estimate	GED Rate Standard Error	GED Rate Probability		Continuation Ratio (CCD) Parameter Estimate	Continuation Ratio (CCD) Standard Error	Continuation Ratio (CCD) Probability	
GED Rules:								
Score req'd to pass GED (in 10s)	-0.0009	0.0044	0.85		0.0053	0.0314	0.87	
Log number of GED Testing Centers per pop.	0.0069	0.0019	0.00	* * *	0.0062	0.0120	0.60	
GED Drop out prevention program in effect	0.0021	0.0016	0.21		-0.0057	0.0093	0.54	
Can Get GED without restrictions	0.0045	0.0012	0.00	* * *	-0.0153	0.0074	0.04	* *
Can Get if								
Incarcerated/Under Court Order	-0.0003	0.0010	0.73		-0.0150	0.0061	0.01	* *
Married	0.0022	0.0017	0.20		0.0142	0.0110	0.20	
Pregnant, have Kids	0.0013	0.0016	0.41		0.0319	0.0101	0.00	* * *
Class Has Graduated	0.0018	0.0009	0.05	*	-0.0100	0.0057	0.08	*
Withdrawn X Months from High School	0.0045	0.0019	0.02	* *	-0.0543	0.0121	0.00	* * *
Number of Months if allowed	-0.0006	0.0002	0.00	* * *	0.0045	0.0013	0.00	* * *
In some gov't program	0.0015	0.0012	0.19		-0.0003	0.0074	0.96	
Taken Certain Courses	0.0038	0.0016	0.02	* *	-0.0374	0.0097	0.00	* * *
Have Permission from Parents	0.0013	0.0012	0.26		0.0446	0.0076	0.00	* * *
Have Permission from Job or University	0.0001	0.0011	0.95		-0.0079	0.0072	0.27	
Have Permission from School Admininstrator	-0.0001	0.0010	0.89		-0.0043	0.0061	0.47	
Other Extenuating Circumstances	0.0013	0.0012	0.30		0.0006	0.0078	0.94	
Pass Practice GED Test	0.0006	0.0022	0.80		-0.0647	0.0196	0.00	* * *
High School rules:								
Exit exam req'd for graduation	0.0011	0.0014	0.42		-0.0176	0.0091	0.05	*
Total # credits req'd for graduation, state lvl.	0.0007	0.0007	0.32		-0.0013	0.0052	0.80	
Can legally drop out at this age	0.0008	0.0009	0.36		-0.0173	0.0056	0.00	* * *
Labor Demand:								
Minimum wage that is in effect by state	0.0020	0.0015	0.18		-0.0086	0.0091	0.35	
Unemployment rate in state	0.0062	0.0336	0.85		-0.2687	0.1953	0.17	
R-Square		0.6202				0.4782		
F-Test: joint sig. of GED Rules		0.0001		* * *		0.0001		* * *
Number of Observations		1340				1233		

* = 10% , **=5%, ***=1% significance level.

All regressions have state, year, and age dummies (not listed here).

Sources: GED data from GED Testing Service: GED Examiner's Manuals '89-'97, Statistical Reports '89-'97.

Continuation Ratios obtained from the Common Core of Data. High School Rules data from Digest of Education Statistics '88-'97.

Minimum wage from the Book of the States by the Council of State Governments, 1990-91, 1996-97, 1998-99.

Unemployment rate obtained from Local Area Unemployment Statistics division at BLS. The rate is a seasonally unadjusted annual average.

Table 3
Estimated Effects of Summary Measures of GED Program on Continuation Ratios Based on Age, State, Year Observations

Model	GED Summary Variables	Sample Size	Estimated Effect	Standard Error	P-Value	R-Square
	Policies					
1	Can Get with Conditions	1285	-0.0117	(0.0061)	0.056 *	0.393
2	Can Get without Conditions	1285	-0.0020	(0.0047)	0.669	0.393
	Can Get with Conditions		-0.0120	(0.0061)	0.052 *	
	Rates					
3	GED rate>0 (vs 0)	1589	-0.0053	(0.0052)	0.305	0.376
4	GED rate>0.003 (vs <=0.003)	1589	0.0055	(0.0040)	0.167	0.376
	Rates Predicted with Policies (2SLS)					
5	All GED Policy Variables	1137	-1.2450	(1.00)	0.212	0.398
6	Model 2 GED Policy Variables	1137	-2.4616	(3.27)	0.452	0.369

All regressions control for: Exam needed for HS Diploma, Num. Carnegie Units required for Diploma (State lvl), If can legally drop out of HS, Minimum wage, unemployment rate, and age, year, and state dummies. Models 1-4 also control for the score need to pass the GED test and the number of centers per population.

* = 10% , **=5%, ***=1% significance level.

Note: Model 5 instruments are rejected, Model 6 instruments are accepted.

Sources: GED Rules data from GED Testing Service: GED Examiner's Manuals '89-'97, Statistical Reports '89-'97. High School Rules data from Digest of Education Statistics '88-'97. Continuation ratios are from CCD. Minimum wage from the Book of the States by the Council of State Governments, 1990-91, 1996-97, 1998-99. Unemployment rate is a seasonally unadjusted annual average obtained from Local Area Unempl. Statistics at BLS.

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