



# Improving academic performance through conditional benefits: Open/closed campus policies in high school and student outcomes<sup>☆</sup>



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## ABSTRACT

Open campus privileges in high schools can be conditional on students' academic (GPA, test scores, etc.) or behavioral (absences, probation, etc.) performance. I evaluate the effectiveness of this incentive scheme in improving student academic outcomes using a dataset covering over 460 California high schools over a 10-year period and their open/closed campus policies, while distinguishing between conditional and unconditional open campus policies. The results show an increase of roughly 0.1 of a standard deviation in student test scores when a conditional open campus policy is in place, in comparison to an unconditional open campus policy, thus suggesting that the incentive scheme intended by the conditional open campus policy is effective as a means for improving student test score outcomes. While the incentive scheme seems to improve test outcomes both for high and low-performing students, the magnitude of the effect is greater for lower-performing students, which is consistent with the fact that the academic thresholds under the conditional open campus policies are generally very minimal. The evidence also suggests that the incentive scheme is more effective for 9<sup>th</sup> and 10<sup>th</sup> grade students than it is for 11<sup>th</sup> grade students.

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## 1. Introduction

An important question in the economics of education is how to motivate students to put more effort into schooling and improve their academic performance. Children and teenagers may have higher discount rates than

adults or inconsistent time-preferences.<sup>1</sup> If they do, they will make less than optimal investment decisions in education, compared to the expected gains from education. Incentive schemes can provide immediate returns and induce greater motivation to invest effort in schooling. Several papers have investigated programs which incentivize students through non-academically-oriented rewards for

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<sup>1</sup> Bettinger and Slonim (2007) and Lahav, Benzion, and Shavit (2010) present experimental evidence to support children's and adolescents' higher discount rates. Lee (2013) indirectly provides evidence of teenagers' relatively high discount rates by showing that repealing Sunday closing laws decreased adolescents' educational attainment and even their adult earnings, most probably through reallocating time away from schooling and toward employment or leisure activities. I characterize time-preferences as "inconsistent" based on Gruber (2000), where the discount rate is higher in the short run than it is in the long-run.

the purpose of improving student academic/schooling outcomes.<sup>2</sup> This paper evaluates the policy of granting high school students privileges to go off campus during the school day and its effect on students' academic performance. I distinguish between an unconditional open campus policy—in which the privilege to go off campus does not require students to meet any criteria—and a conditional open campus policy—which allows students to go off campus only if they fulfill certain minimal academic or behavioral criteria. This distinction allows me to evaluate the effectiveness of an incentive scheme which rewards students in exchange for certain investments in schooling. The comparison between student groups which are experiencing an open campus policy without having to meet any criteria and student groups which are experiencing an open campus policy with the requirement to meet specific criteria allows me to isolate the effect of the incentive scheme from the effect of the open campus privilege in my estimates.

The majority of student incentive schemes evaluated to date focus on financial or monetary rewards provided to students in exchange for meeting certain academic requirements. Some of these programs can be quite costly, with potential rewards to students who meet the required academic goals exceeding several thousands of dollars per student.<sup>3</sup> Thus, implementing these programs on a very large scale can entail substantial costs. While many of the financial incentive schemes evaluated have exhibited positive effects on students' academic outcomes, their costly nature has resulted in some debate as to whether their benefits justify the substantial costs associated with these programs (Gneezy, Meier, & Rey-Biel, 2011). Given this, student incentive schemes that are not monetary in their nature are important additions to the literature on student incentive schemes.

Only two other papers to date have examined non-financial student incentive schemes. Vidal-Fernández (2011) investigates the effect of a policy applied to U.S. high schools during the 1970s, which required student athletes to pass a certain number of subjects in order to be allowed to participate in school sports. The author finds that the policy had a positive effect on high school graduation rates. Barua and Vidal-Fernandez (2014) evaluate state programs which condition teenagers' driving licenses on staying in school. Their findings show that this policy increased educational attainment and decreased high school dropout rates among the male black population. This paper also differs from most of the literature on student incentive schemes, as the policy evaluated involves no financial benefit to the students, but rather the provision of a privilege to which students attach a high value—going off campus

during the school day and potentially the autonomy students associate with that benefit.

For the purpose of conducting the analysis, an independently-constructed dataset was used. Open/closed campus policies for eleven school-years between 2001 and 2011 were collected for more than 460 California high schools by surveying high school and school district administrators. This policy information was matched to student outcomes provided by the California Department of Education. The empirical approach exploits variation in the timing within specific school-grade units of different open/closed campus policies through the inclusion of fixed effects at the school-grade level in the regression specifications.

If the conditional open campus incentive scheme is effective in improving students' outcomes, we would expect the difference between the effect of a conditional open campus policy and the effect of an unconditional open campus policy, in comparison to a closed campus policy, to be statistically significant, with the conditional open campus policy resulting in improved outcomes. Such results would be even stronger if there were a qualitative difference between the two effects, in comparison to a closed campus regime. The results for test scores exhibit these patterns. The estimated response to a change from a closed campus policy to an unconditional open campus policy is negative, although usually not statistically significant. In contrast, the estimated response to a change from a closed campus policy to a conditional open campus is positive and statistically significant. Quantitatively, an unconditional open campus policy, in comparison to a closed campus policy, *decreases* students' test scores by 0.025 of a standard deviation, while a conditional open campus policy *increases* students' test scores by 0.077 of a standard deviation. Thus, the overall improvement from implementing the conditional open campus policy, while maintaining students' open campus policy privileges, exceeds 0.1 of a standard deviation. The statistically significant difference between the effect of an unconditional open campus and the effect of a conditional open campus policy, both in comparison to a closed campus policy, holds for all student population segments based on demographic characteristics. When evaluating the two open campus policies broken down by students' performance levels, there is evidence that the incentive scheme behind the conditional open campus policy is more effective (i.e. greater in magnitude) for the low performance levels. This is consistent with the fact that the minimal academic thresholds set under the conditional open campus policies are generally quite minimal. Despite this, there is still evidence of improvement in test scores even at the highest performance levels, thus suggesting that there may be spillover effects from the low-performing students to other students within the school. When evaluating the effect of the conditional open campus policy by grade-level, the results do not demonstrate a statistically significant effect for 11<sup>th</sup> grade students, and it may be that the effectiveness of the incentive scheme is confined to lower grade-levels—i.e. 9<sup>th</sup> and 10<sup>th</sup> grade.

A dropout rate analysis is included and serves two purposes. First, an attempt is made to evaluate whether the

<sup>2</sup> See: Angrist, Lang, and Oreopoulos (2009); Angrist and Lavy (2009); Barua and Vidal-Fernandez (2014); Bettinger (2012); Fryer (2011); Jackson (2010); Kremer, Miguel, and Thornton (2009); Vidal-Fernández (2011).

<sup>3</sup> In Angrist and Lavy (2009), high school students in Israel were awarded a total of \$650,000 for passing high school completion examinations, with each student potentially receiving as much as \$2400. Angrist et al. (2009) evaluated a program in a Canadian college which granted first-year students up to \$5000 in exchange for having "solid" grades at the end of their first year of college.

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