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Investigating the effects of furloughing public school teachers on juvenile crime in Hawaii[☆]



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ABSTRACT

Policymakers have long been concerned about the large social costs of juvenile crime. Detecting the causes of juvenile crime is an important educational policy concern as many of these crimes happen during the school day. In the 2009–10 school year, the State of Hawaii responded to fiscal strains by furloughing all school teachers employed by the Department of Education and canceling classes for seventeen instructional days. We examine the effects of these non-holiday school closure days to draw conclusions about the relationship between time in school and juvenile arrests in the State of Hawaii on the island of Oahu. We calculate marginal effects from a negative binomial model and find that time off from school is associated with significantly fewer juvenile assault and drug-related arrests, although there are no changes in other types of crimes, such as burglaries. The declines in arrests for assaults are the most pronounced in poorer regions of the island while the decline in drug-related arrests is larger in the relatively more prosperous regions.

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1. Introduction

Examinations of crime rates in the U.S. show that arrests for both violent crimes and property crimes rise sharply in adolescence before dropping to lower levels in later life. By at least one measure, 20–30 percent of all crimes in the U.S. are committed by adolescents (Levitt, 1998). The measured costs of these crimes are enormous: to the juveniles themselves; to their victims; and to the

larger society. Furthermore, the external costs to society are estimated to comprise, by far, the largest share of total costs (Levitt & Lochner, 2001).

Due to the large social costs, policy makers have long been concerned about the causes of juvenile crime. Levitt and Lochner (2001) review previous research and identify several determinants of juvenile crime including biological (Wilson & Herrnstein, 1985), social (Glaeser et al., 1996), and economic factors (Grogger, 1998). In particular, a rich literature documents the importance of educational attainment in determining criminal behavior (Lochner, 2010). According to theory, increased educational attainment and accompanying higher wages should deter crime by raising the opportunity cost of crime. Researchers find some empirical evidence for this effect. For example, Lochner and Moretti (2004) find that high school completion causally reduces crime rates and Anderson (2012) finds an effect of minimum dropout age policies on crime.

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In related work, researchers also find tentative evidence of an effect of length of school day and school year on teenage pregnancy and crime rates. [Berthelon and Kruger \(2011\)](#) find that a program that lengthens the school day in Chile results in an overall lower teenage pregnancy rate for girls between the ages of 15–19 years old. They attribute this result to more hours of supervision and not to the longer-run effect of higher educational levels. In related work, [Pires and Urzua \(2011\)](#) find similar results on reduction in motherhood in Chile and arrests. Additionally, they find that academic outcomes and cognitive scores increase as well. [Anderson and Walker \(2012\)](#) find evidence for a positive relationship between four-day school weeks in Colorado and student achievement. Other research finds that shorter school years lead to an increase in property crimes, but a decrease in violent crimes ([Jacob & Lefgren, 2003](#); [Luallen, 2006](#)). This work is of particular policy relevance, as state and local governments continue to search for ways to trim budgets.

We confirm and build on this earlier work by studying the effect of a shorter school year —, due to school closures on some non-holiday workdays — on juvenile crime in the State of Hawaii. In the 2009–10 school year, the State of Hawaii responded to fiscal strains by furloughing all school teachers employed by the Department of Education (DOE)¹ and canceling class for seventeen instructional days. The budget cuts did not affect the Honolulu Police Department (HPD) which serves the entire island of Oahu, therefore any changes in crime rates would not be attributable to the level of law enforcement on those days. Our measure of school closures overlaps to some extent with State of Hawaii Employee (not Department of Education) furlough days as well. Part of our observed effects may be due to this combined effect of the two State of Hawaii furloughs (both the Department of Education and other State of Hawaii employees). The actual DOE furlough days themselves — which were all Fridays — were chosen arbitrarily and not related to any observed levels of juvenile crime. There is no evidence, either in newspaper reports or anecdotally, that these decisions were made with considerations about crime levels in mind. Therefore, by comparing a “furlough Friday” with an otherwise similar, non-furlough Friday, we are able to estimate a treatment effect that is not biased by omitted variables that might be correlated with both the choice of the furlough day and crime rates.

The Hawaii DOE announced furlough days toward the beginning of the school year, allowing parents some time to plan for their children’s day off from school. Since an advance announcement to parents would be a natural component of any policy to cut school years, our estimates approximate the effect of children being out of school during a non-holiday weekday on crime rates. Anecdotally, there is variation in parental responses to the cuts in instructional days. For example, some parents were able to enroll their children in quickly established “after school” programs, while others did not. The lack of data prevents a more precise investigation of these responses. However,

we find heterogeneity of effects on crime rates across regions and posit that some of these differences may be attributable to differences in parental responses to cuts.

Our results show that furlough days are associated with fewer juvenile assault arrests, confirming previously estimated effects in the literature. As is consistent with a causal effect of furloughs on crime, these effects occur predominantly in the daytime with no significant change in evening arrests for juveniles except in Metropolitan Oahu. We look at the effects in four separate regions: the Leeward coast or the southwestern shore; the Windward coast or the northeastern shore; Metropolitan Oahu which is along the southeastern shore and includes Honolulu; and Central Oahu which is in the center of the island and includes parts of the North Shore which is along the northwestern shore. While there are reductions in the four regions that we consider, the results are most prominent in the Leeward region of Oahu. The magnitude of the coefficient is almost twice the size of that for the other three regions of the island. This area is, in general, slightly more rural and populated by households with lower education and incomes than other areas on the island as shown in [Fig. 1](#).

We also show that arrests for drug-related crimes declined on the furlough Fridays. This result is new to the literature, and as with assaults, these effects, too, were concentrated during the daytime. However, unlike the effect on assault arrests, the reduction in drug-related arrests occurs primarily in Metropolitan Oahu. [Fig. 1](#) indicates that this area is generally more affluent than the rest of the island. The decline of drug violations but not assaults in higher income neighborhoods and the decline of assaults but not drug violations in lower income neighborhoods indicate the presence of significant distributional effects of policies that reduce time in school.

Notably, our estimates of the reduction in juvenile arrests on these furlough days are substantially larger than previous estimates in [Jacob and Lefgren \(2003\)](#) and [Luallen \(2006\)](#). Given the limitations of our data, it is hard to know exactly why this is the case, but one explanation could be that, because the DOE furloughs often coincided with furloughs of state employees, parents who were furloughed along with their children were better able to monitor their children. Another important factor to consider is that approximately one in five students in Hawaii attends private schools.² This implies the average socioeconomic status of the families that do send their children to public schools is lower than would otherwise be expected. In addition, we anticipate that the ability of schools to facilitate certain criminal activities increases as their populations become poorer.

The remainder of the paper is organized as follows: [Section 2](#) describes the data and summarizes sample statistics; [Section 3](#) lays out the empirical strategy and research design; [Section 4](#) presents the results; [Section 5](#) provides additional robustness checks and results while [Section 6](#) concludes.

¹ All public schools in the State of Hawaii are part of a single school district.

² See, for example, <http://www.civilbeat.com/articles/2010/10/04/4031-the-impact-of-private-schools-on-public-education/>.

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