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ARTICLE

The relationship between concealed carry permits and state-level crime rates

Mark Gius

Department of Economics, Quinnipiac University, Hamden, CT, USA

ABSTRACT

The purpose of the present study is to determine the relationship between concealed carry permits and state-level crime rates. Using pooled data for the period 2003–2014 and a least squares model with state dummy variables and a time trend, results of the present study suggest that the lagged value of per capita concealed carry permits had a statistically-significant and negative effect on the following crime rates: violent crime, rape, aggravated assault, and auto theft. For all other crimes examined, the number of active concealed carry permits had no statistically significant effects. These results somewhat corroborate the findings of Lott (2000).

KEYWORDS
Concealed carry permits; crime

JEL CLASSIFICATION
K14; K42

I. Introduction

Although there have been numerous studies regarding the effects of concealed carry laws on crime (Gius 2019, 2014; Devaraj and Patel 2018; Barati 2016; Ginwalla et al. 2013; Aneja, Donohue, and Zhang 2011; Ayers and Donohue 2003; Donohue 2003; Kovandzic and Marvell 2003; Plassmann and Tideman, 2001; Duggan 2001; Lott 2000; Ludwig 1998; Lott and Mustard, 1997), there have been very few studies that have examined the impact that the prevalence of concealed carry permits has had on crime rates. One reason for this lack of research may be that state-level data on the number of active concealed carry permits are very difficult to obtain. Very few states release historical data on the total number of active concealed carry permits in any given year, and most of the data that is available is the number of concealed carry permit applications that were approved and not the total number of permits. In addition, there is a growing number of states that do not require permits to carry concealed handguns. Therefore, given the lack of available data, it is somewhat problematic to empirically estimate a relationship between concealed carry permits and crime rates.

The only prior study that examined the effects of the number of concealed carry permits, and not concealed carry laws, on crime is Lott (2000). In *More Guns, Less Crime*, Lott (2000) used concealed carry permit data for ten states over a ten-year period in order to estimate the number of concealed carry permit holders in all 50 states. Lott (2000) then used these predicted values in order to determine the relationship between concealed carry permits and crime rates at the state level. Lott (2000) concluded that some crime rates fell as the percentage of concealed carry permit holders increased. These effects were most pronounced for rape and robbery.

The purpose of the present study is to re-explore this relationship between concealed carry permits and state-level crime rates. Using a least squares model with state dummy variables and a time trend, results of the present study suggest that the greater the lagged number of per capita concealed carry permits, the lower are the following crime rates: violent crime, rape, aggravated assault, and auto theft. The crime most affected by concealed carry permits was rape; for every additional permit per 1,000 persons, the rape rate decreased by 0.345%.

II. Empirical technique

In order to determine the relationship between the per capita number of active concealed carry permits and crime rates, pooled data and an ordinary least squares (OLS) model were used. Given that only four states and twelve years of data were examined, a fixed effects model would not have

CONTACT Mark Gius Mark.gius@quinnipiac.edu Department of Economics, Quinnipiac University, Hamden, CT 06518, USA

been feasible to estimate and would have produced questionable results. The crime rates that were examined in the present study are as follows: violent crime, murder, rape, robbery, aggravated assault, property crime, burglary, larceny, and auto theft. The unit of measurement for all crime rates is incidents per 100,000 persons.

The explanatory variables were selected based upon their use in prior research (Gius 2019, 2014; Barati 2016; Moody and Marvell 2009; Moody 2001; Olson and Maltz 2001; Bartley and Cohen 1998). These variables include the lagged value of the per capita number of concealed carry permits, percentage of the state population that is African-American, percentages of population aged 18 to 24 and 25 to 34, population density, per capita alcohol consumption, the ratio of gun-related suicides to total suicides, the per capita number of police officers, the per capita number of correctional inmates, a time trend variable, and dummy variables for Colorado, Minnesota, and Florida. A log-linear function was used to correct for nonlinearities in the data. In order to reduce any potential simultaneity between crime and concealed carry permits, the lagged value of the per capita number of concealed carry permits was used (Carter and Binder 2018). Finally, preliminary regressions that used the number of permits as the dependent variable and crime rates as explanatory variables were estimated in order to determine the direction of causality. These results indicated that most crime rates had no statistically significant effects on the number of concealed carry permits, hence suggesting that the direction of causality is from permits to crime. These results are available upon request.

III. Data and results

Only four states had data available on the number of active concealed carry permits: Colorado, Florida, Minnesota, and Texas. Information on concealed carry permits were obtained from the states' official websites. State-level data on crime rates were obtained from the *Crime in the United States* reports (2003–2014). State-level data on total suicides and firearm-related suicides were obtained from the National Center for Injury Prevention and Control. Per capita alcohol consumption data were obtained from the National Institute on Alcohol Abuse and Alcoholism. All other state-level data were obtained from relevant Census Bureau reports. Data used in the present study is for the years 2003–2014. Concealed carry permit data for Colorado and Minnesota were not available for years prior to 2003.

Table 1. Results for lagged value of per capita number of concealed carry permits (permits per 1,000 persons).

Crime Rate (incidents per 100,000 persons)	Coefficient	Test Statistic
Violent Crime	−0.00275	−3.06***
Murder	−0.00016	−0.09
Rape	−0.00345	−2.82***
Robbery	−0.00093	−0.58
Aggravated Assault	−0.00287	−3.63***
Property Crime	−0.00079	−1.02
Burglary	0.00023	0.25
Larceny	−0.00082	−1.08
Auto Theft	−0.00344	−2.02*

1% p-value ***; 10% p-value *

Results are presented on Table 1. Only the coefficients for the lagged value of the per capita number of concealed carry permits are reported. Full results are available upon request. These results suggest that the per capita number of concealed carry permits had a negative effect on the following crime rates: violent crime, rape, aggravated assault, and auto theft. For all other crimes, concealed carry permits had no statistically significant effects. It is important to note, however, that the effects were rather small in terms of magnitude. For example, for every additional permit per 1,000 persons, the rape rate only decreased by 0.345%. To put these results in perspective, a 10% increase in the number of permits would only reduce the rape rate by 3.45%.

IV. Conclusion

It is a common belief among persons advocating for Second Amendment rights that allowing private citizens to carry concealed guns would deter crime. Most of the prior research on this topic deals with concealed carry laws and not the actual number of concealed carry permits. The only prior study that attempted to examine the effects of the number of concealed carry permits on crime rates was Lott (2000). The present study differs from Lott (2000) in that it uses actual and much more recent data. Although relying on actual data reduces the size of the sample, the use of actual data should increase the robustness of the present study.

Results of this study suggest that four crimes were significantly and negatively affected by the per capita number of permits: violent crime, rape, aggravated assault, and auto theft. Hence, the greater the number of concealed carry permits, the lower are certain crime rates. These results lend support to Lott's findings in *More Guns, Less Crime*. It is important to note, however, that the magnitudes of these effects are rather small, with large percentage increases in concealed carry permits required to produce even minimal declines in the affected crime rates.

Even though the results of this study suggest that an increase in concealed carry permits may result in a reduction in certain crime rates, public policy decisions should not be based solely on these findings for two reasons. First, it is important to note that not all concealed carry permit holders are always armed in public. Hence, data on the number of concealed carry permits may overestimate the actual number of armed citizens in public areas at any given time. Second, results of the present study are based upon data from only four states over a 12-year period. Although this constraint was necessary due to the lack of available data, the results of the present study may not be applicable to other states or time periods. More comprehensive data on the number of active concealed carry permits is needed for researchers to more accurately assess the impact of increased firearm availability on crime rates.

Disclosure statement

No potential conflict of interest was reported by the author.

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