

## EXAMINING TESTS OF SIGMA AND BETA CONVERGENCE ACROSS STATES' FIREARM BACKGROUND CHECK RATES

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### ABSTRACT

*Utilizing techniques to measure sigma and beta convergence from the economic growth literature, this study tests for convergence across U.S. states in their rates of firearm background checks using monthly data from 1999 to 2018. The tests for unconditional beta convergence, along with limited examination of conditional beta convergence, find evidence of beta convergence across state rates of firearm background checks, indicating states with lower rates in 1999 had higher growth rates in background checks over the sample. The sigma convergence tests, however, find divergence over time with a rising trend in the dispersion of background check rates starting in November 2012. While untangling the causes of this accelerating dispersion is beyond the scope of this study, the finding of a break in trend of sigma dispersion coinciding with the 2012 Presidential election date, along with mass shootings in Aurora, Colorado and Sandy Hook, suggests rising political polarization may be playing a role.*

**Keywords:** *firearm background checks, convergence, structural break, state-level data*

### 1. INTRODUCTION

With an estimated nearly 400 million guns in circulation (Small Arms Survey, 2020) and over 40% of U.S. households owning guns (Saad, 2020), the U.S. is the most armed country (in per capita terms) in the world.

The U.S. gun industry, which contributes over \$63 billion to the economy (The Firearm Industry Trade Association, 2020), saw record sales in 2020 during the Coronavirus pandemic and George Floyd protests (Kim and Phillips, 2021; Lyons et al., 2021).

Even with the level of gun prevalence in US households, there are few topics as politically divisive nationally as gun control. A 2017 Pew Research Center Survey (Parker et al., 2017) shows gun control is the second most divisive topic among Republicans and Democrats, behind only building a wall along the border with Mexico.

Miller (2019) analyzes responses to gun-related questions from the General Social Survey (GSS) and shows gun control became more politically divisive during President Obama's tenure.

A few reasons may explain the recent polarization of the subject. Jouet (2019) describes the historical context of the Second Amendment, and the right to bear arms to protect America from perceived "existential threats" by some groups. The effect guns have on various crime rates may also contribute to polarization (Harcourt, 2001).

Gun rights advocates mention the deterrent effect guns may have on crime. Gun control advocates argue more guns lead to more crime, noting the high level of gun ownership and number of firearm-related violent crimes compared to other developed nations (Grinshteyn and Hemenway, 2016; Hemenway and Miller, 2000).