



# Federalism, guns, and jurisdictional gun policies<sup>☆</sup>

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## ABSTRACT

The paper studies the effects of federalism on gun ownership and efficiency of jurisdictional gun policies. Jurisdictions in a federal system choose gun policies to suit their preferences, and gun policies differ across jurisdictions. The cost of owning a gun depends on the extent of gun regulations, and the differences in gun policies between jurisdictions in a federal system entail cross-jurisdiction gun buying. By contrast, in a unitary system, gun regulations are uniform across jurisdictions, and cross-jurisdiction gun buying is absent. As cross-jurisdiction gun buying enables residents of a jurisdiction to buy guns from other jurisdictions with less stringent regulations, federalism tends to increase gun ownership relative to a unitary system. In addition, more stringent regulations of a jurisdiction decrease the number of illegal guns that criminals of other jurisdictions can purchase, reducing crimes in other jurisdictions and benefiting other jurisdictions. However, the jurisdiction does not consider the external benefits on other jurisdictions when setting its gun policies, and gun policies tend to be too lax relative to the efficient level. The paper also provides an empirical analysis of the effect of federalism on gun ownership, and available evidence suggests that gun ownership depends on federalism.

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## 1. Introduction

A large body of research has studied the effects of gun ownership,<sup>1</sup> but the effects of federalism on guns and gun policies have not received much attention. A small literature has considered gun trafficking in a federal system. States with strict gun regulations tend to import more guns while states with lax gun policies tend to export more gun (Cook and Braga, 2001; Webster et al., 2001; Mayors Against Illegal Guns, 2010). Using gun tracing data developed by the Bureau of Alcohol, Tobacco, Firearms and Explosives in 2009, Knight (2013) relates the destination states and the source states. He demonstrates that guns in fact flow from states with lax policies to states with stringent policies. Analyzing the same gun tracing data, Kahane (2013) estimates flow of crime guns between states, based on the gravity model of international trade. He finds that gun flows depend on the economic sizes of trading

partners, the distance between them and the differences in gun regulations between them.<sup>2</sup> Building on this literature, this paper studies the effects of federalism on gun ownership and gun policies.

A federal system consists of two jurisdictions. There are citizens and criminals in each jurisdiction. Either a citizen or a criminal may or may not purchase a gun, depending on the benefit and cost of owning a gun. Citizens purchase to protect their wealth against robbery committed by criminals, armed or unarmed. Guns benefit both citizens and criminals, as armed citizens lose less than unarmed citizens and armed criminals rob more than unarmed criminals when citizens and criminals encounter. Guns are costly, and the cost of owning a gun includes non-monetary costs such as waiting time and background checks and hence depends on gun policies. Guns are thus more expensive in a jurisdiction with more stringent policies. Citizens of a jurisdiction buy guns only from the jurisdiction, as a legal purchase from another jurisdiction has to satisfy the regulations of both jurisdictions and entails transactions costs such as transportation costs.<sup>3</sup> Criminals of a jurisdiction, however, purchase illegally from the jurisdiction or from another

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<sup>1</sup> The main topic appears to concern if gun ownership deters crime. In the 1980s and 1990s, a number of states made it easier to carry concealed weapons, and Lott and Mustard (1997) and Lott (1998) show that such changes in state laws reduced homicides. By contrast, Ayres and Donohue (1999) and Aneja et al. (2012) show that the changes in state laws increased aggravated assault rates. Cook and Ludwig (2003) also demonstrate that an increase in gun ownership increased burglary rates. Another widely-analyzed issue is the effect of guns on suicides, and the literature shows that more guns tend to increase suicides (Kleck and Patterson, 1993; Andres and Hempstead, 2011; Miller et al., 2013).

<sup>2</sup> A few papers study gun trafficking between countries. DellaVigna and La Ferrara (2010) relate illegal arms trade and stock prices for weapon-making companies. They find that illegal trade under an embargo increases stock prices for companies located in countries with lower legal costs of illegal trade. Chicoine (2011) and Dube et al. (2013) consider the effects of the 2004 expiration of the U.S. Federal Assault Weapons Ban on the homicide rates in Mexican municipios, suggesting that guns flow between countries in response to the difference in gun regulations between them.

<sup>3</sup> Guns from another state have to be sent to an FFL (federal firearms license) in the purchaser's state, and the FFL is responsible for record keeping (see 18 U.S.C. 922(a)(3) and 922(b)(3)).

jurisdiction, because an illegal purchase of course does not have to satisfy the regulations of either jurisdiction. The cost of illegal guns in a jurisdiction still depends on stringency of gun regulations of the jurisdiction, as illegal transactions may be more easily detected by the authority in a jurisdiction with more stringent gun regulations and the corrupt dealers or illegal sellers are more likely to be subject to punishment and hence demand a higher price or bribe. Criminals of a jurisdiction with less strict regulations thus buy guns illegally from the jurisdiction due to transactions costs including the cost of locating illegal sellers in another jurisdiction, but criminals of a jurisdiction with more strict regulations may purchase guns illegally from the jurisdiction or another jurisdiction, depending on the magnitude of transactions costs. The jurisdiction with more strict regulations thus imports guns from the jurisdiction with less strict regulations.

As the gun policy of a jurisdiction becomes more stringent, it increases the cost of guns and reduces the guns owned by citizens. However, an increase in stringency of a gun policy may increase or decrease the number of guns owned by criminals, because despite the higher cost of guns, criminals profit more from guns when fewer citizens own guns. Thus, the overall effect of an increase in stringency of gun policies on gun ownership is ambiguous. In addition, an increase in stringency of the gun policy of the gun-exporting jurisdiction affects gun ownership in the importing jurisdiction. In particular, it decreases the number of illegal guns purchased by criminals of the importing jurisdiction. The decrease in the number of illegal guns in turn decreases the number of legal guns owned by citizens of the importing jurisdiction, as guns become less useful to citizens when fewer criminals own guns.

The key question concerns the effect of federalism on gun ownership and efficiency of gun policies. The literature on federalism has compared federalism and unitarism (Oates, 1972, 1999; Inman and Rubinfeld, 1997; Brueckner, 2006). Federalism enables each jurisdiction to choose the level of the public good according to its preferences, enhancing efficiency. However, each jurisdiction does not consider the externality it creates on other jurisdictions, decreasing efficiency. Unitarism, by contrast, provides a uniform level of the public good across jurisdictions, compromising the preferences of jurisdictions but eliminating the externalities. For the purpose of the analysis, gun policies are then assumed to differ across jurisdictions in a federal system while gun regulations are uniform across jurisdictions in a unitary system. To see the effect of federalism on gun ownership, consider a thought experiment, a move of a country from a unitary system to a federal system. As the uniform policy of the unitary system compromises the preferences of jurisdictions, the move would lead one jurisdiction to choose a more stringent policy than the uniform one while it would lead the other jurisdiction to choose a less stringent policy. To the extent that gun ownership in a jurisdiction depends on stringency of the gun policy of the jurisdiction, the move then decreases gun ownership in one jurisdiction and increases it in the other. As a result, the move may increase or decrease gun ownership in the country, and the exact effect of federalism on gun ownership depends on the parameters of the model and the underlying political institution that determines gun policies. However, the move also entails cross-jurisdiction gun buying, as lower transactions-cost criminals of a jurisdiction with a more stringent policy buy illegal guns from a jurisdiction with a less stringent policy. This cross-jurisdiction gun buying thus allows lower transactions-cost criminals of the importing jurisdiction to buy guns, but they would not buy guns in the absence of cross-jurisdiction gun buying. More illegal guns in the importing jurisdiction encourage citizens of the jurisdiction to buy more guns. Cross-jurisdiction gun buying thus increases gun ownership both by criminals and citizens of the importing jurisdiction. Cross-jurisdiction gun buying occurs as long as gun policies differ across jurisdictions in a federal system, regardless of how much they differ or how gun policies are determined. Cross-jurisdiction gun buying is unique to a federal system (or absent from a unitary system with a uniform policy) and is independent of tailoring gun policies to suit the preferences of the jurisdictions in a federal system. Federalism thus

increases gun ownership beyond the difference in gun ownership between the two systems stemming from jurisdictions choosing their own policies according to their preferences in the federal system.

A jurisdiction or its policymaker in a federal system sets its gun policy to maximize the welfare of the jurisdiction, the utilities of its citizens. The policy balances an increase in the cost of guns and an increase in the benefit from reducing criminal guns. However, the exporting jurisdiction with less stringent regulations creates a negative externality on the importing jurisdiction with more stringent regulations, as an increase in the stringency of regulations of the exporting jurisdiction decreases illegal guns in the importing jurisdiction and benefits the importing jurisdiction. The gun-exporting jurisdiction, however, does not consider this positive externality it confers on the importing jurisdiction when setting its gun policy. As a result, the gun policy of the exporting jurisdiction is too lax relative to the socially efficient level that maximizes the welfare of the federal system.

Using cross-country data, an empirical analysis is conducted to test the prediction that federalism increases gun ownership beyond the difference in gun ownership between the two systems resulting from jurisdictions in a federal system being able to choose their own policies. As noted above, the effects of federalism on gun ownership depend on two factors, tailoring jurisdictional gun policies to suit their preferences and cross-jurisdiction gun buying. The first factor is viewed as random in the sense that a federal-system country may have more guns than a unitary-system country but the opposite may hold true for another pair of a federal-system country and a unitary-system country, depending on the degree of heterogeneity in preferences between jurisdictions in a country and the way gun policies are determined. The second factor, however, is viewed as systematic in the sense that cross-jurisdiction gun buying increases the opportunities to own guns and hence federalism increases gun ownership, regardless of the degree of heterogeneity in preferences between jurisdictions and the institution of making gun policies. Gun data, especially cross-country data, is scarce, and a full-fledged empirical analysis would be possible once better data is available. However, available empirical evidence lends support to model predictions, and federalism is a factor that explains the differences in gun ownership among countries. In particular, gun ownership depends positively on the degree of federalism in a significant way.

The paper is organized as follows. The next section presents anecdotal evidence on cross-jurisdiction gun buying, given its importance in the analysis. Section 3 considers a simple setup to analyze the effect of federalism on guns and gun policies. Section 4 studies the incentives to own guns. Section 5 examines the effects of stringency of gun policies in a jurisdiction on gun ownership of the jurisdiction and other jurisdictions. Section 6 considers the effect of federalism on gun ownership. Section 7 studies efficiency of jurisdictional gun policies. Section 8 extends the analysis to consider the possibility that guns may result in injuries. Section 9 provides an empirical analysis to test the effect of federalism on gun ownership, and the last section offers a conclusion.

## 2. Cross-jurisdiction gun buying

Cross-jurisdiction gun buying plays a crucial role in the subsequent analysis, and this section presents anecdotal evidence on cross-jurisdiction gun buying. The most comprehensive firearms trace in the U.S. has been conducted by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) in order to assist law enforcement agencies by providing information about the source of firearms. In 2014, ATF released firearms trace data for year 2013.<sup>4</sup> It traced more than 336,000 crime guns and identified the sources of 166,426 crime guns in 2013. Among them, 47,803 crime guns or 29% of all crime guns identified crossed state lines, indicating that cross-jurisdiction gun buying accounts for a significant portion of crime guns. However, the patterns

<sup>4</sup> ATF News Release, FY 14–07, June 9, 2014, <https://www.atf.gov/press/releases/2014/06/060914-hq-atf-releases-us-firearms-trace-data-2013.html>.

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