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**ABSTRACT**

Social protection exhibits a consistent negative association with cross-national homicide rates. However, the specific mechanism through which the two are associated remains untested in spite of competing theoretical claims that include altruism, social control, buffers from market forces, and insulation from the ills associated with poverty. We explore these possible theoretical explanations, focusing on different originating sources (e.g., public or government) of social protection. Using data from nearly all countries of the Organization for Economic Cooperation and Development for 2010–14, we used ordinary least squares models to estimate these associations. The results indicate that the possible mechanisms through which social protection is associated with homicide are public and both direct and indirect.

Cross-national research consistently shows a strong negative association between social protection and homicide victimization rates (Altheimer 2008; Pratt and Godsey 2002, 2003; Rogers and Pridemore 2013; Thames and McCall 2014).\textsuperscript{1} While social support theories propose several population-level explanations for the connections between social protection and homicide rates, which of these competing explanations is correct remains unclear. The mechanism through which social protection is associated with homicide has been theorized via social altruism (Chamlin and Cochran 1997), social control (Cullen 1994), a buffer against general market forces (Currie 1997), and a buffer against poverty (Rogers and Pridemore 2013). A key limitation of this literature is that scholars have almost exclusively tested for a direct association between a general or poor measure of social protection and homicide victimization across countries (Pratt and Godsey 2002, 2003; Rogers and Pridemore 2013), but simply observing a direct association does not allow for discerning the operant mechanism. Thus, conclusions drawn to this point about the nature of the relationship are problematic.

Our focus is on how operationalizing social protection from public relative to private origins affects the association with homicide victimization across countries. This will provide the initial foundation for understanding the operant mechanism accounting for the association. In addition, Cullen (1994) and Chamlin and Cochran (1997) have debated the effect of the origins of social protection on criminal outcomes. Cullen (1994) has argued that any form of social protection, regardless of origin, should be associated with
crime because it is a precursor to social control. Chamlin and Cochran (1997), on the other hand, argue that only voluntary private social protection should have an association with negative outcomes like homicide victimization rates because it reflects social altruism. Our study explores the differential effects of public versus voluntary private social protection on national homicide rates. By testing for the effects of the origins of social protection, we contribute to the literature by (1) addressing the debate between Cullen (1994) and Chamlin and Cochran (1997) with better operationalization of social protection than previously used and (2) providing an initial test of the specific theoretical reasons for why social protection may influence national homicide rates by drawing on the statements of Cullen (1994), Chamlin and Cochran (1997), and Rogers and Pridemore (2013).

**Literature Review**

**Social Protection as Altruism**

Chamlin and Cochran (1997:204) define social altruism as “the willingness of communities to commit resources to the aid and comfort of their members, distinct from the beneficence of the state.” Some criminologists argue that the more willing a community is to provide for those in need the lower the community’s crime rate, and maintain that the social system teaches its members to value others as both a social and moral obligation, and one important outcome of this is that violence rates should be lower in countries that can teach or maintain altruistic values.

According to Chamlin and Cochran (1997), state-sponsored social protection does not capture the altruistic nature of a society. If altruism is the mechanism through which social protection reduces homicide rates it must be voluntarily provided by wider society without governmental influence because what matters are societal, not governmental, values. While Chamlin and Cochran (1997) discussed this only within the United States there is little reason to expect that it cannot be extrapolated cross-nationally. In fact, these ideas might make more sense in a cross-national setting where there is greater variation in altruistic values between countries than between U.S. cities. Chamlin and Cochran (1997) argue that voluntary social protection is a measure of social altruism. Therefore, if the mechanism through which social protection is associated with violence were social altruism, then we would expect voluntary private social protection to have a significant negative association with national homicide rates.

To date, an association between voluntary private social protection and cross-national homicide rates has not been tested. Most tests of social protection’s effect have used measures of public sources of social protection (Neumayer 2003) or proxies of social protection like percent of gross domestic product (GDP) spent on health care (Pratt and Godsey 2002, 2003). We address this limitation by testing for a direct effect of voluntary private social protection (or what Chamlin and Cochran [1997] define as social altruism) on cross-national homicide victimization rates.

**Social Protection as Social Control**

Cullen (1994) provides an alternative explanation focusing on social control. In his view the origin of social protection does not matter as long as it is widely available (Pratt and
Godsey 2002, 2003; Thames and McCall 2014). Social protection here is defined as “the perceived or actual instrumental and/or expressive provisions supplied by the community, social networks, and confiding partners” (Cullen 1994; borrowing from Lin 1986:18). Cullen (1994) theorizes that any source of social protection should reduce crime through “numerous mechanisms,” with social protection strengthening family efficacy in controlling its members, better parenting practices, and providing prosocial adaptations to criminogenic strain.

Research is generally supportive of a negative relationship between social protection and crime across multiple levels of analysis (metropolitan statistical areas: DeFronzo 1983; Messner 1986; cities: Chamlin, Cochran, and Lowenkamp 2002; Chamlin et al. 1999; Sampson 1987; nations: Messner and Rosenfeld 2007; Savolainen 2000; Thames and McCall 2014). A meta-analysis by Pratt and Cullen (2005) concludes that social protection had a strong to moderate association with crime rates.

None of these studies, however, measure Cullen’s (1994) argument about social control or the other “numerous mechanisms.” Evidence for Cullen’s specific ideas cannot be inferred from an association between a general measure of social protection (e.g., percent of GDP spent on health care (Pratt and Godsey 2002, 2003)) and homicide rates. However, some countries provide more direct measures of social protection, which allows for more precise tests of theory from Cullen (1994) and Chamlin and Cochran (1997) regarding the origin of social protection and how the origin affects its association with violence rates.

We are unable to employ direct measures of Cullen’s concepts because his type of social control and “numerous mechanisms” are not readily measured for a cross-national sample. However, based on Cullen’s (1994) debate with Chamlin and Cochran (1997), if his “numerous mechanisms” argument is accurate we would expect voluntary private and public sources of social protection to be associated with homicide rates because Cullen (1994) argues that the form of social protection does not matter, only that it is widely available via “numerous mechanisms.” Thus, while our tests will not be definitive they will provide general evidence for or against Cullen’s (1994) explanation and represent a starting point that future research can explore.

Social Protection, Market Forces, and/or Poverty

A third explanation for how social protection reduces violence rates is that it moderates the effects on violence of key structural covariates like market forces and/or poverty. Currie (1997) theorized that high crime rates in market societies are due to their low levels of social protection. Higher levels of criminogenic characteristics observed within these market economies include the destruction of livelihood, economic inequality, material deprivation, a reduction or depletion of public services, and a movement to a “hard” culture that stresses individual materialistic gains. Borrowing from Marx (1906), Currie (1997) theorizes that (1) labor is devalued within these “hard” cultures as a way to reduce costs of production and (2) there is a diminution of social protection and public services from the government and other entities in advanced market societies. Thus, where market forces are greater, crime rates should be higher. Similarly, the strength of the positive association between these corrosive market forces and homicide rates will be weaker in countries that provide greater social protection to their citizens.
A related argument is that social protection is a tool for alleviating the ills of poverty, a safety net catching those who fall below a minimum standard of living and insulating them from adverse events and changes in the economy (Barrientos, Hulme, and Shepherd 2005; Conway and Norton 2002; Rogers and Pridemore 2013). Poverty is a known structural covariate of national homicide rates (Paré and Felson 2014; Pridemore 2008, 2011). Recent research provides initial support for these arguments, showing that the strength of the association between poverty and homicide rates is weaker in countries with higher levels of social protection (Rogers and Pridemore 2013). We continue where Rogers and Pridemore (2013) left off, by exploring whether the moderating effect of social protection on the association between poverty and homicide rates is stable across various origins of social protection. Therefore, if social protection acts as a buffer against market forces and poverty then relative to voluntary private social protection, public (i.e., government-provided) social protection is more likely to moderate the relationship because the latter is more widely available to the at-risk population (Adema and Ladaique 2009; Conway and Norton 2002).

Hypotheses

We tested four hypotheses to explore the mechanisms through which social protection might influence national homicide rates. Our tests are not definitive, but our hypotheses are necessary as an initial step in the process of testing which mechanism accounts for social protection’s association with homicide across countries.

The first two hypotheses expect a direct negative association between homicide victimization and measures of social protection, and are meant to provide empirical evidence for the debate between Cullen (1994) and Chamlin and Cochran (1997). Specifically, if social altruism is the theoretical mechanism through which social protection is associated with homicide, then we expect a significant negative association between private social protection and homicide rates. In this case, Chamlin and Cochran (1997) would be correct regarding the role of social protection as a measure of social altruism. Second, if the key theoretical mechanism through which social protection is associated with homicide is social control, then we expect all sources of social protection (private and public) to be negatively associated with homicide rates. In this case, Cullen (1994) would be correct that the form social protection takes (public or private) does not matter. This would provide initial, but not definitive, support for Cullen’s (1994) statements. This also is a more rigorous test than earlier studies because we employ a more direct measure of social protection relative to proxies used in prior research.

Next, if social protection moderates the corrosive effects on homicide of general market forces then we expect social protection (public or private) to weaken the association between an indicator of advanced market economies and homicide rates. Such an association would provide initial support for Currie’s (1997) explanation. Finally, if the mechanism is that social protection buffers the criminogenic forces of poverty then we expect social protection (public or private) to moderate the association between poverty and homicide rates.\(^2\)
Data and Methods

Sample

Sample countries varied across the models, with a maximum of 31 and a minimum of 30 countries. The samples mostly consist of European countries because the majority of Organization of Economic Cooperation and Development (OECD) member states are European countries. We averaged values for 2010–14 to smooth the data and due to missing data in both measures of homicide victimization and social protection. Table 1 provides a list of the sample countries.

Dependent Variable

The dependent variable was homicides per 100,000 people, averaged for 2010–14. Averaging prevents extreme values from biasing estimates, especially since homicide is rare. Homicide victimization data were from the World Health Organization (WHO) WHOSIS database. WHO’s (2015) definition of homicide is “Homicides and injury purposely inflicted by another person,” which includes the International Classification of Diseases 10th Revision categories X85-Y09.

Independent Variables

The key independent variables were the origins—voluntary private or public—of social protection, each expressed in percent of the country’s gross domestic product. We obtained these data from the OECD (Adema and Ladaique 2011).

Voluntary private social protection—an indicator of the altruistic nature of a country according to Chamlin and Cochran (1997)—was measured as all benefits that come from privately operated programs. These include resources provided to households through nongovernmental organizations (NGOs), but do not include person-to-person or household-to-household payments (Adema and Ladaique 2011:94). These forms of social protection are voluntary and not government stipulated or controlled.3 An example of

Table 1. OECD countries with data available for public and voluntary private social protection data available.

| Australia | Italy |
| Austria | Japan |
| Belgium | Republic of Korea |
| Canada | Luxembourg |
| Chile* | Mexico |
| Czech Republic | New Zealand |
| Denmark | Norway |
| Estonia | Poland |
| Finland | Slovakia |
| France | Slovenia |
| Germany | Spain |
| Greece | Sweden |
| Hungary | Switzerland |
| Iceland | United Kingdom |
| Ireland | United States |

Note: *Missing for voluntary private social protection.
this form of social protection is the donation of money to not-for-profit private organizations.

Public social protection is government-sponsored support and the social insurances and supports mandatory for employers to provide to employees (Adema and Ladaique 2011). This type of social protection includes retirement, health care, unemployment, and several other related types of government-provided benefits.4

**Control Variables**

We included several control variables in the initial analysis. The inclusion of variables in the final models presented below are based on the results of several model selection techniques, including comparing the residuals, $R^2$, adjusted $R^2$, Mallows’s $C_p$, and $F$-ratio. Original control variables included poverty as measured by the proxy infant mortality (Messner, Raffalovich, and Sutton 2011; Paré 2006; Paré and Felson 2014; Pridemore 2008, 2011), the Gini coefficient of income inequality, the education index from the Human Development Report, GDP, percent urban, total population, ethnic heterogeneity, percent of the entire population between ages 15 and 24, unemployment rate, and sex ratio. We used model selection techniques to determine the best fitting, which included poverty, percent urban, total population, ethnic heterogeneity, and sex ratio. To test the fourth hypothesis we included GDP as a control in later models.

**Analyses**

Several variables were skewed, including homicide, private social protection, infant mortality, population size, ethnic heterogeneity, and sex ratio. We used Box–Cox power transformation to obtain transformations that would best normalize distributions. We used log transformation for homicide and total population, after which homicide was nearly normal and the total population was normal. We used the square root transformation for private social protection and ethnic heterogeneity, both of which were normal after transformation. Finally, the square root transformation was suggested for sex ratio. Despite transformation, however, sex ratio remained not normally distributed, which was likely the result of outliers.

Some of our hypotheses suggest direct effects and others suggest interaction effects. Therefore, we estimated two models for each source of social protection using multiple linear regression. The first model explored the direct effects of the sources of social protection and the second set of models tested for the interaction effects.

**Results**

**Descriptive Statistics**

Table 2 provides means and standard deviations and the correlation matrix.5 Public social protection ($r = -0.51, p < 0.05$) is correlated with homicide rates. Voluntary social protection is not correlated with homicide victimization across OECD countries ($r = 0.22, p > 0.05$). The lack of a correlation between voluntary private social protection and public social protection ($r = 0.18, p > 0.05$) indicates that our measures of these
sources of social protection are capturing distinct concepts. This lends support to Chamlin and Cochran’s (1997) argument that the form social protection takes (voluntary private versus public) may capture distinct theoretical concepts.

### Social Protection Models

Table 3 provides the results for the direct effects models. Public social protection was significantly and negatively associated with homicide victimization rates ($b = -0.05$, $p = 0.03$). Voluntary private social protection was not associated with homicide across countries ($b = -0.10$, $p = 0.67$).

The direct effects models do not provide support for the social altruism explanation. First, if the social altruism hypothesis were true we would expect voluntary private social protection to be associated with homicide rates. Second, Cullen (1994) argued that the source of social protection did not matter, that all forms of social protection should act like a control mechanism. This is not the case here, as we see that voluntary private social protection is negatively associated with homicide victimization rates.

### Table 3. Direct effects of social protection on homicide victimization across countries.

<table>
<thead>
<tr>
<th>Model 1: Public</th>
<th>Model 2: Sqrt Voluntary Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>$b$</td>
<td>$b$</td>
</tr>
<tr>
<td>se</td>
<td>se</td>
</tr>
<tr>
<td>$p$</td>
<td>$p$</td>
</tr>
<tr>
<td>Social Protection</td>
<td>-0.05 (-0.37)</td>
</tr>
<tr>
<td>Ln Poverty</td>
<td>0.87 (0.41)</td>
</tr>
<tr>
<td>% Urban</td>
<td>0.01 (0.15)</td>
</tr>
<tr>
<td>Ln Population</td>
<td>-0.06 (-0.11)</td>
</tr>
<tr>
<td>Sq Ethnic</td>
<td>0.81 (0.18)</td>
</tr>
<tr>
<td>Sex Ratio$^2$</td>
<td>0.00 (-0.21)</td>
</tr>
<tr>
<td>Constant</td>
<td>5.19 2.70 0.066</td>
</tr>
<tr>
<td>$N$</td>
<td>31</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.58</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.47</td>
</tr>
<tr>
<td>$F$</td>
<td>5.48</td>
</tr>
<tr>
<td>Cohens $F^2$ /Power</td>
<td>0.89 0.93 0.001</td>
</tr>
</tbody>
</table>

Note: Standardized betas are in parentheses.
protection is not significantly associated with homicide victimization rates. While the lack of association between voluntary private social protection and homicide victimization across countries does not completely nullify Cullen’s (1994) hypothesis, it is additional empirical support for questioning Cullen’s (1994) hypothesis, especially statements that the form social protection takes does not matter.

**Social Protection × GDP Models**

Table 4 provides results for models exploring the interaction between GDP and sources of social protection. Neither interaction between public social protection and GDP \((b = 0.00, p = 0.09)\) nor between voluntary private social protection and GDP \((b = 0.00, p = 0.08)\) are significantly associated with homicide victimization. These models indicate it is unlikely the mechanism through which social protection is associated with homicide victimization is as a buffer against market forces.

**Social Protection × Poverty Models**

Table 5 displays the results for the moderating effects of social protection on the association between poverty and homicide. The interaction between public social protection and poverty \((b = -0.11, p = 0.01)\) is negative and significantly associated with homicide victimization. This means that the impact of poverty on homicide rates is weaker in countries that provide higher levels of public social protection. The interaction term between voluntary private social protection and poverty was not significant \((b = 0.22, p = 0.268)\).

**Table 4.** Moderating effects of social protection and gross domestic product on homicide victimization across countries.

<table>
<thead>
<tr>
<th></th>
<th>Model 3: Public</th>
<th>Model 4: Sqrt Voluntary Private</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(b)</td>
<td>se</td>
</tr>
<tr>
<td>Social Protection × Sqrt GDP</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Social Protection</td>
<td>((-0.04))</td>
<td>0.02</td>
</tr>
<tr>
<td>Sqrt GDP</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Ln Poverty (Infant Mortality)</td>
<td>0.35</td>
<td>0.45</td>
</tr>
<tr>
<td>% Urban</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Ln Population</td>
<td>(-0.04)</td>
<td>0.08</td>
</tr>
<tr>
<td>Sqrt Ethnic</td>
<td>1.24</td>
<td>0.65</td>
</tr>
<tr>
<td>Sex Ratio(^2)</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Constant</td>
<td>2.40</td>
<td>2.86</td>
</tr>
<tr>
<td>(N)</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>(R^2)</td>
<td>(0.54)</td>
<td>0.44</td>
</tr>
<tr>
<td>(F)</td>
<td>5.36</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Cohens (F^2) /Power</td>
<td>1.94</td>
<td>0.99</td>
</tr>
</tbody>
</table>

*Note: Standardized betas are in parentheses.*
Table 5. Moderating effects of social protection and poverty on homicide victimization across countries.

<table>
<thead>
<tr>
<th>Model 5: Public</th>
<th>Model 6: Sqrt Voluntary Private</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
</tr>
<tr>
<td>Social Protection × Poverty</td>
<td>−0.11</td>
</tr>
<tr>
<td>Social Protection</td>
<td>−0.05</td>
</tr>
<tr>
<td>Ln Poverty (Infant Mortality)</td>
<td>0.24</td>
</tr>
<tr>
<td>% Urban</td>
<td>0.01</td>
</tr>
<tr>
<td>Ln Population</td>
<td>−0.06</td>
</tr>
<tr>
<td>Sqrt Ethnic</td>
<td>0.79</td>
</tr>
<tr>
<td>Sex Ratio²</td>
<td>0.00</td>
</tr>
<tr>
<td>Constant</td>
<td>5.13</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.69</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
<td>0.59</td>
</tr>
<tr>
<td>$F$</td>
<td>7.24</td>
</tr>
</tbody>
</table>

Note: Standardized betas are in parentheses.

Figure 1. Interaction effect of public social protection (SP) × poverty on the predicted probability of homicide victimization.

Figure 1 provides a graphical representation of Model 5’s interaction effect between public social protection and poverty. Figure 1A shows the predicted probabilities of homicide victimization based on the interaction of poverty with below average and with
average or above average public social protection, indicating that the association between poverty and homicide victimization is weaker in countries with average or above average social protection.

While confidence intervals in Figure 1A overlap, it is a common misunderstanding (Long and Freese 2014) that this means there is no significant difference (in this case in the homicide rates for countries that provide average or above average public social protection relative to those with below average public social protection at different levels of poverty). To determine this we must graph the differences in predicted probability of homicide between these two sets of countries (i.e., the average marginal effects). Figure 1B illustrates this. If the confidence interval includes zero on the y-axis there is no significant difference at a level of \( p \leq 0.05 \) in the homicide rates between low versus average or above average public social protection countries. In Figure 1B the significant difference between average to above average social protection compared to below average social protection occurs when poverty (i.e., the natural logarithm of the infant mortality rate) is at –1 (which is an infant mortality rate of 0.37 deaths per 100 live births).

**Sensitivity Analyses**

We examined variance inflation factors (VIFs) and the decomposition matrix to check for multicollinearity. VIFs for all models were under 2.5, indicating it is unlikely multicollinearity is strong enough to bias estimates. The decomposition matrix also did not indicate the presence of multicollinearity. In addition, with every model we undertook Breusch–Pagan and Cook–Weisberg tests for heteroskedasticity. All were homoskedastic.

We used DFBETAs, DFFITS, covariance ratios, Cook’s distances, and the hat matrixes to diagnose possible outliers or influential data points. In the total direct effects model, as long as sex ratio was excluded because of multicollinearity with social protection, significant direct effects were observed for social protection on homicide. Whether we excluded all countries that were potential outliers one by one or all at once the conclusions for all models (direct and interaction effects for both public and voluntary private social protection) remained the same. This means none of the outliers had enough leverage to bias the results.

We undertook an extensive range of sensitivity analyses to explore the distribution of the interaction effects using methods suggested by Jaccard and Turrisi (2003). Specifically, Jaccard and Turrisi (2003) propose that when nonsignificant interactions are observed it could be due to the interaction not being significant at the center of the distributions. That is, it is possible that an interaction is significant but only at the extremes. To explore this we reestimated all interaction effects exploring ±1 standard deviation away from the mean of public or voluntary private social protection for all interactions that were not significant in the original models (Models 3, 4, and 6). For the sake of brevity, we do not present the one standard deviation below the mean results because the conclusions are the same despite the interaction under study.

Figure 2 provides the graphical representation of the results for the +1 standard deviation above public social protection interaction with GDP. In Model 3 the interaction was not significant, and in the additional analyses there is not a significant difference in the predicted probability of homicide victimization for an interaction between GDP and
public social protection regardless of whether it is centered at the mean or a standard deviation above/below the mean.

Figure 3 provides the graphical representation for the interaction between voluntary private social protection and GDP (Model 4) when private social protection is one standard deviation above the mean compared to at the mean or below. The interaction was not significant in the original model nor is there a significantly different effect between the two levels of social protection across all levels of GDP.

Finally, Figure 4 (Model 6) graphs the interaction between voluntary private social protection and poverty (measured via infant mortality) when voluntary social protection is either one standard deviation above the mean or at the mean or below. According to Figure 4, as voluntary social protection grows along with GDP within a country the predicted probability for the natural logarithmic homicide rate also increases. However, there is only a statistically significant difference at the lower end of the distribution of the proxy for poverty (−1.5 to −2.0 in the natural logarithmic scale, or between 0.22 and 0.14 infant deaths per 100 live births). This could indicate a threshold effect, though a strong conclusion cannot be drawn with these analyses. This potential threshold effect should be considered in future research.

Discussion

Multiple studies of social protection and cross-national homicide rates found a significant negative association. While there are several competing hypotheses about this
Figure 3. Interaction effect of extremely high square root voluntary private social protection (SP) × square root GDP on the predicted probability of homicide victimization.

Figure 4. Interaction effect of extremely high square root voluntary private social protection (SP) × Ln poverty (infant mortality) on the predicted probability of homicide victimization.
association, prior research did not attempt to determine the efficacy of these explanations but instead only included general measures of social protection not specific enough to the proposed causal mechanisms to draw conclusions about why the association exists (Altheimer 2008; Pratt and Godsey 2002, 2003; Rogers and Pridemore 2013). We attempted to fill that gap by exploring different possible reasons why social protection affects homicide across countries based on the theoretical arguments of various social support theories. We did this by focusing on the different origins of social protection. While our study does not present definitive answers, we do provide a necessary and logical initial step toward understanding why and how social protection is associated with cross-national variation of homicide rates. It is important to understand that how we measure a concept affects its association with the outcome, and these operationalizations provide initial tests of the theoretical mechanisms proposed to account for this association. Specifically, (Cullen 1994 argued the origin of social protection does not matter, while Chamlin and Cochran (1997) argued social protection must be voluntary and private to reflect citizens’ altruistic values.

The first hypothesis—that there is a significant negative association between voluntary private social protection and homicide—was a test of social altruism theory. Chamlin and Cochran (1997) proposed that social protection affects homicide because societies with higher levels of social protection are more altruistic. These countries provide social protection to citizens because it is part of the value system in which citizens, separate from their government, are willing to provide scarce resources to members in need because their cultures teach members to value one another (Chamlin and Cochran 1997).

In testing this hypothesis, we first note the low correlation between our measures of voluntary private social protection and public social protection. This confirms the important assumption that these two forms of social protection are distinct concepts and that their operationalizations are measuring something different from one another. Our results, however, did not support the altruism hypothesis. Voluntary private social protection did not have a significant negative association with national homicide rates. In addition, in our sensitivity analyses we found that in countries that provide a level of voluntary social protection one standard deviation above the mean the association between poverty and homicide was stronger. This was despite that countries at these extremes have a wide range of homicide rates (lowest to highest). This could be due to a reaction to the social protection systems within these countries. It may be that countries providing high levels of voluntary private social protection limit the ability of citizens to obtain social protection (because this non–government-provided social protection is unevenly distributed among the population in need) and therefore the effect of the interaction between social protection and poverty is intensified. Further research is necessary to test our speculation about this curious observation.

The second hypothesis—that all sources of social protection (public and private) have a significant negative association with national homicide rates—was meant to test the theoretical argument that social protection is a mechanism of social control. Cullen (1994) proposed that social protection is a form of social control that, among “numerous other mechanisms,” decreases crime rates within countries. The source of social protection should not matter according to Cullen (1994) because each has some possibility of exerting social control on citizens.
Our results do not provide support for Cullen’s (1994) hypothesis, though our test is not definitive as we did not examine intervening variables in the complex causal pathways to which Cullen sometimes alludes. However, our test is more rigorous than prior research that used only general measures of social protection yet drew conclusions about Cullen’s arguments. And as far as we know, ours is the first study to test the origins of social protection that Cullen (1994) and Chamlin and Cochran (1997) debated. We found that voluntary private social protection is not, but public social protection is, significantly directly associated with cross-national homicide rates. If a more parsimonious and precise explanation of the association is formed, other than “there are numerous mechanisms,” scholars should reexamine this hypothesis and revisit our findings.

The third hypothesis—that social protection moderates the association between GDP and homicide victimization—is meant to test the proposition that social protection buffers citizens from market forces and prevents the development of a “hard” culture (Currie 1997). Currie argued that various forms of social protection provided to citizens, usually by the government, lessen the effect of market swings on society. He argued that as the market becomes entrenched, however, economies would increasingly result in the destruction of livelihood, economic inequality, material deprivation, a reduction or depletion of public services, and a movement to a “hard” culture that focuses on individual materialistic gains. Without social protection to buffer these negative characteristics we should expect higher crime rates in these countries.

These arguments received mixed support in our study. The direct effects provide some support for the idea that social protection shelters citizens against the vagaries of the market. On the other hand, social protection did not appear to moderate the association between our measure of advanced market societies (i.e., GDP) and homicide rates, even at the extremes. However, there is reason to suspect that these interactions may exist in a larger sample given that each interaction term had p-values around p = 0.10. However, predicted probability graphs (both when centered at one standard deviation above/below the mean of social protection, and centered at the mean) do not provide evidence that at any part in the distribution there would be a significant association.

The fourth hypothesis—that public social protection will reduce the strength of the positive association between poverty and national homicide rates—is meant to test the argument that social protection is used to target those in poverty or near poverty as an attempt to raise their standard of living (Barrientos et al. 2005; Conway and Norton 2002; Rogers and Pridemore 2013) and thus reduce negative outcomes concomitant with poverty. We know that poverty is a consistent structural covariate of homicide rates, so in this scenario one positive outcome of social protection is that it reduces homicide rates by increasing the standard of living for those living at or near poverty. We found consistent support for this hypothesis. The interaction for poverty and public social protection had a significant and negative association with homicide rates, meaning that the strength of the association between poverty and homicide rates is weaker in countries with higher levels of public social protection (Rogers and Pridemore 2013).

Taken as a whole our results suggest that in countries of the OECD, (1) public government-provided social protection is effective in reducing national homicide rates, but voluntary private social protection is not, (2) altruism and social control are not the mechanisms through which social protection influences homicide rates, (3) social protection as a buffer against general market forces requires further consideration, and (4)
government-provided social protection reduces homicide rates directly and by reducing the effects of poverty on national homicide rates.

**Limitations**

We have a small sample size due to data availability on social protection measures. As data on these measures become available for a larger number of countries these hypotheses should be tested further. One way to address the number of observations is to analyze this small sample of countries over time. In our analyses, though, power analyses and effect sizes (Cohen’s $F^2$) are within acceptable ranges according to Cohen (1988). A related limitation is the homogeneous sample that consists mostly of European countries and the United States. This is the result of OECD membership. Unfortunately, both limitations are common to cross-national homicide research, as European countries and the United States (and developed countries more generally) often have the most data available consistently on measures of theoretical interest.

Another limitation is the measure of social protection used to capture social altruism. The measure probably does not capture all forms of voluntary private social protection. Our measure, however, is similar to that used by Chamlin et al. (2002) to test their social altruism theory inside the United States. It is also the direct interpretation of Chamlin and Cochran’s (1997) discussion of how to measure social altruism. To be clear, we do not agree that this is the best way to measure social altruism. We believe that this operationalization confounds social protection (a structural concept) with social altruism (a cultural concept). However, before expanding on the theoretical mechanism, it is necessary to test it as Chamlin and Cochran (1997) proposed. Future research should address this limitation by using alternative measures of social altruism, including those not strictly monetary but also more value oriented.

Another limitation is that Cullen’s (1994) argument can be reduced to considering social protection a form of social control, and we did not measure social control directly. Future research should explore how to measure social control across countries to allow a more precise test of Cullen’s (1994) argument. A theoretical limitation, however, is that what we might normally consider to be formal (e.g., policing) or informal social control (e.g., social organization) likely does not overlap with what we might normally consider to be social support or social protection. Some of the theoretical mechanisms described by Cullen (1994) also should be explored via mediating effects, specifically the role of social protection. However, due to the small size of our cross-national sample and the absence of a meaningful measure of social control across countries, we were unable to test for a mediating relationship. As more countries provide information on social protection and stronger measures of social control emerge for cross-national samples, we urge researchers to revisit Cullen’s (1994) discussion and to more precisely test his version of social protection as a mechanism of social control.

A more general limitation is the assumption that social protection is equally available to all members of society who meet a specific standard and that all countries have a similar ability to provide and distribute social protection. It may be that coverage of social protection, or access to it, is differently applied across countries. Future research should consider these possibilities and how they may influence social protection’s effect on violence rates.
**Conclusion**

Our main objective was to test the key propositions from leading social support theories for why there is an association between social protection and national homicide rates. Enough studies have found support for the general association that it is time to try to explain the precise reasons for this relationship. We draw two main conclusions from our analyses. First, public government-provided social protection acts directly to reduce national homicide rates, but voluntary private social protection (i.e., philanthropic giving to fellow citizens in need via nongovernmental organizations) is not related to national homicide rates. Second, social protection does not appear to influence national homicide rates through social altruism (Chamlin and Cochran 1997), social control (Cullen 1994), or by buffering citizens from general market forces (Currie 1997). On the other hand, in addition to its direct effects, government-provided social protection also indirectly reduces national homicide rates by reducing the strength of the positive association between poverty and homicide (Rogers and Pridemore 2013).

**Notes**

1. We use “social protection” instead of “social support” to denote the social safety net provided citizens by governmental and nongovernmental organizations meant to aid in maintaining a minimum standard of living (OECD 2009). Social protection is preferred to social support because in most literature outside criminology, social protection is the key term used to describe the social safety net provided by governmental and/or nongovernmental organizations (Barrientos 2008; Barrientos et al. 2005; Conway and Norton 2002; ILO 2014; Kudebayeva and Barrientos 2013). We use “social support” when discussing the theories, as this is the phraseology used by the authors. However, in our study social protection and social support are interchangeable.

2. Altheimer (2008) proposed that social protection might act as a buffer against ethnic heterogeneity because (1) social protection is meant to reduce criminogenic conditions, and one such condition is ethnic heterogeneity (Altheimer 2008; Avison and Loring 1986; Gartner 1990), and (2) in the previous literature many scholars have suggested that social protection (even at the cross-national level) may alleviate social disorganization. Using the same data, methods, and sensitivity analyses described in our study, we did not observe a significant interaction between any form of social protection and ethnic heterogeneity. Since these theoretical arguments are not well-defined we chose not to present these findings in this article. The results are available via our website https://sites.google.com/site/homicidedata/how-does-social-protection-influence-cross-national-homicide-rates-in-oecd-nations. In addition, some believe that the Gini coefficient provides a meaningful measure of perceived income inequality. We used the same measures and methods to test direct and moderating effects of the Gini coefficient. We found no significant association between the Gini coefficient and homicide victimization when a measure of poverty was included, and there were no significant interaction effects for either measure of social protection with the Gini coefficient.

3. An example of person-to-person benefits would be parents of a college student who provide money to their child. An example of household-to-household benefits would be siblings helping one another with their mortgages.

4. Because Rogers and Pridemore (2013) already explored direct and interaction effects of overall social protection, and because public and overall social protection are highly related ($r = 0.87$), we did not present results of our analyses of overall social protection as an origin of social protection because it would be redundant.

5. We conducted most analyses in Stata (version 14), but we conducted some analyses in R. We provide the log file for STATA, and the syntax for R, along with all of the data (saved under
version 14 (STATA folder) and 11 (R folder). We also include earlier analyses on 2005 data we did not present here. All of this can be found at https://sites.google.com/site/homicidedata/how-does-social-protection-influence-cross-national-homicide-rates-in-oecd-nations.

6. In an earlier version of this study, we used data from 2005. We updated the analyses as presented here with data from 2010–14. Most of the conclusions remained the same despite changes in years. The original 2005 analyses can also be found at https://sites.google.com/site/homicidedata/how-does-social-protection-influence-cross-national-homicide-rates-in-oecd-nations.

7. To generate each of the figures we recoded social protection into a categorical variable. We coded social protection as low if a country provided a below average level of the various forms of social protection. We coded social protection as high if a country provided average or above average social protection. We coded extremely low social protection as being equal to or lower than one standard deviation below the mean. We coded extremely high social protection as being equal to or higher than one standard deviation above the mean.

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