

The Impact of Juvenile Transfer Laws on Juvenile Crime

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We analyze the effects of tougher and weaker state laws governing the transfer of juveniles to the adult criminal justice system (including the statutory exclusion, once adult/always adult, direct file, presumptive waiver, discretionary waiver, and mandatory waiver laws, which make juvenile transfers to the adult system easier, and the reverse waiver law, which makes transfers to the adult system harder) on juvenile crime in different crime categories (including the general categories of total, property, and violent crime and the specific categories of murder, rape, assault, robbery, burglary, larceny, auto theft, and arson). We find that each of the tougher juvenile transfer laws is positively correlated with juvenile crime in at least one category, while the weaker juvenile transfer law (the reverse waiver) is negatively correlated with juvenile crime in several categories. Moreover, instrumental variable regressions indicate that increases in the combined severity of all the juvenile transfer laws cause increases in juvenile burglary.

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I. Introduction

During the 1990s, many U.S. state governments passed new juvenile transfer laws that subjected more juveniles to being tried and sentenced as adults. Essential to passing these laws was the belief that juveniles respond to the negative incentives associated with a more punitive justice system. Becker (1968) has indicated that the “most fundamental prediction of the economic model of crime is that changes in expected punishment will influence criminal behavior.” More specifically, Levitt (1998) finds that increases in the percent of juveniles in jail are associated with significant reductions in juvenile crime rates and concludes that “juvenile offenders appear to be at least as responsive to criminal sanctions as adults.” He also finds that crime drops around the age of majority, suggesting that “deterrence (and not merely incapacitation) plays an important role.” In addition, two studies based on self-reported data, show that juveniles who have physically experienced negative effects of criminal activity, such as being arrested and incarcerated, are less likely to reoffend in the future (Corrado et al., 2003 and Mocan and Rees, 2005). This suggests that once aware of the negative consequences of criminal acts, juveniles make explicit cost-benefit calculations and are occasionally deterred from future criminal activity. Narrowing the potential implications of these findings, research by Lee and McCrary (2005) suggests that deterrence is not effectively attained by increasing the severity of punishment, i.e. the length of a prison sentence, but “[their] findings may indicate that the marginal criminal justice dollar is more effectively spent on raising the probability of imprisonment rather than the incarceration length.”

However, the assumption that the adult justice system always metes out harsher treatment may not always hold true. Podkopacz and Feld (1996) note that “When criminal courts sentence recidivist property offenders who appear as adult first-offenders, these youths often receive

shorter sentences as adults than they could have received in juvenile court.” In contrast, juveniles transferred to the adult criminal system for violent crimes tend to receive harsher sentences than if they had been retained in juvenile court (Bishop, 2000; Kupchick, Fagan, and Liberman, 2003; Podkopacz and Feld, 1996; and Myers, 2005). Not only are transferred juveniles often treated more harshly than if they had been retained in the juvenile system, but as research by Kurlychek and Johnson (2004) demonstrates, transferred juveniles are also often treated more severely than their young adult counterparts. These results remain even after controlling for other factors that might influence sentence severity including past offense record and the severity of the current offense. Despite receiving harsher sentences, however, juvenile offenders transferred to the adult criminal system have often been released on probation early so that many end up serving shorter sentences than if they had remained in the juvenile justice system (Bishop, 2000; Fritsch, Caeti, and Hemmens, 1996; and Myers, 2001).

Other writers suggest that juveniles do not respond well to a more punitive justice system. Hewitt, Regoli, and Kierkus (2006) argue that the adolescent brain is still under development, that juveniles are less conscious of the risks and consequences of their actions and, therefore, that juveniles are unlikely to be deterred by harsher juvenile transfer guidelines. The low perceived likelihood of arrest and punishment is supported by Robinson and Darley (2004) and Schneider and Ervin (1990). Sampson and Laub (1993) suggest that harsher punishment for juvenile crime might actually increase the criminal human capital of these juveniles. Redding (2008) also claims that “juveniles in adult prison reported that much of their time was spent learning criminal behavior from the inmates and proving how tough they were.”

Additionally, several studies focusing on the specific deterrent effect of juvenile transfer laws suggest that juveniles punished in the adult court system are more likely to commit

subsequent offenses than comparable juveniles treated exclusively through the juvenile court system. Redding (2008) and McGowen et al. (2007) provide a comprehensive review of the research supporting this theory. Specifically, Myers (2001, 2003), Fagan (1995, 1996), and Podkopacz and Feld (1996) link incarceration of juvenile offenders in the adult prison system with increases in the seriousness and the duration of their criminal careers and thus suggesting that not only is there not a specific deterrence effect associated with juvenile transfer laws but these laws are actually causing the inverse to occur and increasing criminal activity over the long-run. Kupchik (2006) also expresses the concern that harsher juvenile transfer laws might lead to an increase rather than a decrease in the frequency and severity of juvenile crime.

Myers (2001) provides an excellent overview of the existing research on juvenile transfer laws and their relationship with juvenile crime. Most existing research focuses on the characteristics of juveniles being transferred, the speed at which they move through the legal system, and the likelihood of conviction (Barnes and Franz, 1989; Bishop and Frazier, 1991; Clarke, 1996; Rudman, Hartstone, Fagan, and Moore, 1986). Moreover, most studies focus only on judicial waivers (i.e. discretionary, presumptive, or mandatory waivers), which account for fewer than 10% of all juveniles transferred to the adult criminal system (Howell, 1997).

Current research presents a conflicting picture regarding the efficacy of juvenile transfer laws in producing a general deterrent effect and reducing juvenile crime (McGowen et al., 2007). Some researchers, such as Steiner and Wright (2006) and Steiner, Hemmens, and Bell (2006) find a deterrent effect in specific states. Others, such as Jensen and Metsger (1994) find that harsher transfer laws are correlated with an increase in juvenile crime. Finally, Singer and McDowall (1988) find that harsher laws have no deterrent effect on juvenile crime.

Steiner and Wright (2006) employ time series techniques to analyze changes in juvenile violent crime rates before and after the passage of direct file laws in 14 states that have enacted such laws. They find a deterrent effect for Michigan but juvenile crime either stayed constant or increased in the 13 other states. Steiner, Hemmens, and Bell (2006) analyze changes in juvenile violent crime before and after the passage statutory exclusion laws in 22 states and find a deterrent effect for Maine but no effect in any of the 21 other states. Jensen and Metsger (1994) conducted a time-series analysis covering the years 1976-1986 and found a 13 percent increase in arrest rates for violent crimes committed by 14-18 year olds in Idaho after the State passed juvenile transfer laws in 1981. In comparison, Montana and Wyoming, which retained transfer laws similar to Idaho pre-1981, had a decrease in the arrest rate for similarly aged juveniles. Singer and McDowall (1988), in a time-series analysis comparing New York and Philadelphia between 1974 and 1984, found that a 1978 New York law that automatically transferred violent juvenile offenders to the adult criminal system had no deterrent effect on violent juvenile crime.

Unlike previous research, we use panel data techniques on the presence of state-level juvenile transfer laws from 1995 to 2004 and juvenile crime rates over the same time period to determine the relationship, if any, between juvenile transfer laws and juvenile crime. In other words, we are assessing if the presence of juvenile transfer laws and the associated increase in the likelihood of punishment has a general deterrence effect on juvenile crime.

We analyze the effects of tougher and weaker state laws governing the transfer of juveniles to the adult criminal justice system (including the statutory exclusion, once adult/always adult, direct file, presumptive waiver, discretionary waiver, and mandatory waiver laws, each of which make juvenile transfers to the adult system easier, and the reverse waiver law, which makes transfers to the adult system harder) on juvenile crime in different crime

categories (including the general categories of total, property, and violent crime and the specific categories of murder, rape, assault, robbery, burglary, larceny, auto theft, and arson), over time and across all 50 states. McGowen et al. (2007) highlights the need for additional studies of general deterrence focusing on broad geographic areas. Many other studies attempt to assess the relative punitiveness of the juvenile system as compared to the adult system as a measure of the deterrent effect of the juvenile justice system. For example, Levitt (1998) investigates whether changes in that ratio impact criminal activity. In contrast, we are focusing on whether the likelihood of being transferred, as measured by the severity of juvenile transfer laws, has an impact on juvenile crime. We also attempt to correct for the endogeneity of the laws and, thus, to determine if there is a causal relationship between the laws and juvenile crime. Lastly, our analysis makes use of an expanded scan of juvenile transfer laws based on information compiled by the National Center for Juvenile Justice for 1999, which has not yet been published.²

We find that statutory exclusion, once adult/always adult, discretionary waiver, and mandatory waiver laws are all positively correlated with juvenile crime in one or more general or specific crime categories. While direct file laws are negatively correlated with juvenile violent crime in general, they are positively correlated with juvenile murder and rape in particular. Presumptive waiver laws are negatively correlated with juvenile property crime in general and juvenile auto theft in particular, but they are positively correlated with juvenile rape. A weaker juvenile transfer law, the reverse waiver law, is negatively correlated with juvenile crime in several categories. Moreover, instrumental variable regressions indicate that increases in indices of the combined severity of all the juvenile transfer laws cause increases in juvenile burglary.

² The information from 1999 has not been published but has been collected by NCJJ, whom we contacted to obtain the data (private correspondence with Patrick Griffin, researcher associate with NCJJ).

Section II of this paper provides information on the types of juvenile transfer laws investigated. Section III lays out the empirical model. Section IV describes the data. Section V presents the results. Section VI summarizes and discusses limitations of the analysis.

II. Types of Juvenile Transfer Laws

All states have laws that under certain circumstances transfer juveniles to the adult system, but these laws differ in many respects. Some laws assign *original jurisdiction* for all juvenile crimes to the juvenile court system. Others assign original jurisdiction for specific types of crimes (e.g., all violent felonies or certain types of violent felonies) or for repeat offenders to the adult court system. Some laws allow for *flexibility*, giving the juvenile court judge the authority to transfer a case to the adult court system, the district attorney the authority to file in either the juvenile or adult court system, or the adult court system the authority to transfer a juvenile back to the juvenile court system. Other laws provide no flexibility, requiring that the juvenile court system waive jurisdiction for specific types of crimes to the adult court system or that, once a juvenile is convicted as an adult, the juvenile will always be assigned to the adult court system. Inflexible laws assigning or forcibly waiving jurisdiction to the adult criminal system severely limit the possibility of measures that might rehabilitate the child, and a more punitive system could lead to negative outcomes, such as a higher recidivism rate. Due to limitations in the data set, however, this paper does not investigate the relationship between juvenile transfer laws and recidivism rates.

States have adopted six types of provisions allowing or requiring transfer of juvenile offenders to the adult court system and one category calling for reverse waivers back to the juvenile system. Different states have adopted varying combinations of these laws. The first

three provide no flexibility; the others provide some.

Mandatory Waiver Law. The juvenile court must waive jurisdiction and transfer the defendant to the adult court system for certain crimes or when the juvenile charged fulfills certain criteria, e.g., prior commission of a felony or frequent criminal activity.

Statutory Exclusion Law. The adult court has original jurisdiction in certain situations. Statutory exclusion provisions are similar to mandatory waiver provisions, since both require juveniles to be tried in the adult system. They differ, however, with respect to which court has original jurisdiction—the juvenile court system in the case of mandatory waivers and the adult court in the case of statutory exclusion.

Once Adult/Always Adult Law. Once a juvenile is convicted as an adult, the juvenile must always be considered an adult.

Direct File Law. The prosecutor has the authority to bring charges directly in the adult court system.

Presumptive Waiver Law. The juvenile court must start with the presumption that it should waive jurisdiction, and the defense attorney has the burden of proof in arguing that the juvenile court should not waive its jurisdiction because the crime does not fit the statute, the juvenile does not have the characteristics specified by the statute, or both.

Discretionary Waiver Law. The judge, following a hearing in juvenile court, may decide whether a juvenile will be tried as an adult or as a juvenile. In contrast to presumptive waiver provisions, the prosecutor has the burden of proof in the hearing under discretionary waiver provisions.

Reverse Waiver Law. A juvenile under the jurisdiction of the adult criminal system may be transferred back to the juvenile system.

III. Empirical Model

We aim to assess the relationship between state-level juvenile transfer laws and juvenile crime rates, as measured by the number of juveniles arrested per 100,000 persons over the period 1995-2004. We use a panel-data model with state and year fixed effects to determine the influence, if any, that harsher juvenile transfer laws may have on juvenile crime rates.

The basic formulation of the model is as follows:

$$\ln(\text{Arrests}_{it}) = \text{Transfer Laws}_{it} B_1 + X_{it} B_2 + u_i + w_t + e_{it},$$

where Arrests_{it} is total juvenile crime, total juvenile property crime, total juvenile violent crime, or juvenile murder, rape, assault, robbery, burglary, larceny, auto theft, or arson arrests per 100,000 persons in state i and year t ; $\text{Transfer Laws}_{it}$ is a matrix of dummy variables for statutory exclusion, once adult/always adult, direct file, presumptive waiver, discretionary waiver, mandatory waiver, and reverse waiver laws by state and year; and X_{it} is a matrix of control variables, summarized below.

We use the following control variables:

Unemployment rate. One would expect that states with high unemployment would have more juvenile crime, independent of juvenile transfer laws. Research by Levitt and Lochner (2001) suggests a “one percentage point increase in the unemployment rate increases juvenile property crime by 1-2 percent but has no consistent effect on violent crime by juveniles.”

Juvenile drug arrests per 100,000 persons. States with greater juvenile drug use would be expected to have more juvenile crime, independent of juvenile transfer laws. French et al. (2004) find that there is a “significant linear relationship between criminal activity and frequency of drug use.” We use juvenile drug arrests as a rough proxy for drug use.

Number of students who received a high-school diploma per 100,000 persons. States where relatively more juveniles receive high-school diplomas would be expected to have less juvenile crime. According to Levitt and Lochner (2001), high-school graduation has a statistically significant negative impact on property and violent crime.

Police officers per 100,000 persons. States with more officers per capita would be expected to have less juvenile crime. Marvell and Moody (1996) and Levitt (1997) link increases in the number of police officers to reductions in overall crime.

Number of juveniles between age 10 and age 17 per 100,000 persons. One would expect that states with a higher number of juveniles old enough to commit crimes would be likely to have more juvenile crime. Ideally, we would be able to compare the size of each cohort with the number of crimes committed by the cohort members. Since we do not have information on crimes committed by age, we have to compare the information on crimes committed by juveniles of all ages with information on the number of juveniles old enough to commit crimes. We define the juvenile population old enough to commit crimes as consisting of juveniles between ages 10 and 17, since younger juveniles commit a very small proportion of total crimes (Howell, 1995).

Percentage of juvenile population age 10-17 that is African-American. Research by Piquero, MacDonald, and Parker (2002) and Levitt and Lochner (2001) suggests that race may be related to criminal activity.

We also include state and year fixed effects. State fixed effects account for factors that are constant across time but vary across states and that are not otherwise explicitly accounted for by other explanatory variables. Year fixed effects control for factors that are constant across states but vary across time.

Collinearity in the control variables can cause estimates of the regression coefficients to be unstable and the standard errors for the coefficients to be inflated (see Anderson and Wells, 2008). In diagnostics of the collinearity of our control variables, we find that each variable has a variable inflation factor well below the rule-of-thumb cutoff of 10.

Recognizing that many juveniles may be unaware of the details of the seven different types of juvenile transfer laws, we construct two severity indices as proxies for their perceptions of the harshness of the laws. Research by Redding and Fuller (2004) in Georgia confirms that some juveniles are not fully aware of the juvenile transfer laws and finds that these juveniles felt that awareness of the transfer laws might have deterred them from committing a crime and may deter other juveniles.

Previous research indicates that juvenile offenders are at least as responsive to criminal sanctions as adults (Levitt, 1998). Assuming juvenile offenders respond to incentives just like adult offenders do, we theorize that laws that increase the likelihood of being transferred to the adult criminal system provide stronger incentive to change behavior and thus should be weighted more heavily than laws that are less harsh. Therefore, we create a weighted severity index based on which laws appear to provide the strongest incentive against criminal activity. We also create an un-weighted severity index to have a point of comparison to our weighted index. In the un-weighted severity index, we assign a weight of +1 to each of the transfer laws that appear to increase the severity of the judicial response to juvenile crime. We assign a weight of -1 to a reverse waiver, which decreases the severity of the response to juvenile crime. The index is formed by calculating the algebraic sum of these values. The weighted severity index differs only in that it assigns a weight of +2 to the laws (mandatory waiver, statutory exclusion, and

direct file laws) expected to have a relatively greater impact on juvenile crime and keeps all other values the same.

We also consider the possibility of an endogeneity bias arising from the two-way causality between the overall harshness of transfer laws and juvenile crime. Harsher transfer laws may reduce juvenile crime, but high juvenile crime may also lead to harsher transfer laws. To avoid bias that can result from this two-way causality, we attempt to instrument for changes in the overall severity of transfer laws. For our instrumental variables, we use the number of popular referenda in each state as well as the percentage of each state house that was Republican for each year of the study. A popular referendum is a popular vote on an existing law placed on the ballot through a process initiated by citizens. The subject of popular referenda ranges widely from taxes to marijuana. We postulate that a large number of popular referenda may signal a period of particularly active civic engagement, which may affect the likelihood of the legislature passing a juvenile transfer law. In our application, these two variables pass the statistical tests for validity of instruments. In all our instrumental variable regressions, the Kleibergen-Paap first-stage F statistic is higher than the Stock-Yogo critical value for 15% maximal IV relative bias, indicating that the instruments pass the Stock-Yogo strength test (see Stock, Wright, and Yogo, 2002), and the p-value for the Hansen J statistic is higher than 0.10, indicating that the instruments pass the Sargan-Hansen exogeneity test (see Sargan, 1958, Hansen, 1982, and Baum, Schaffer, and Stillman, 2003).

IV. Data

We use arrest statistics from the FBI's Uniform Crime Reports (National Consortium on Violence Research, 1992-2004); data on the number of students receiving a high school diploma

from the National Center for Education Statistics (1995-2004); the percentage of state house legislators who are Republicans from Klarner (1995-2004); the annual number of popular referenda from the National Conference of State Legislatures (2010); the number of police officers from the FBI LEOKA Data (US Department of Justice, 1995-2004); the juvenile population by state between the ages of 10 and 17 and the percentage of African-American juveniles by state from the National Cancer Institute (1995-2004); and the unemployment rate from the US Bureau of Labor Statistics (1995-2004).

Research compiled by the National Center for Juvenile Justice (NCJJ) provides the data on the juvenile transfer laws for 1995, 1997, 1999, and 2002.³ To take advantage of the availability of data on juvenile crime and on other explanatory variables for years other than these four, we assume that the NCJJ information for the year preceding a period without data on the juvenile transfer laws could be used to supply the missing data, e.g., that we could use 1995 data for 1996. (We did not, however, use this procedure for mandatory waiver provisions for 1996 because NCJJ did not track this type of waiver until 1997.) Although this assumption possibly misses some changes, it provides accurate information for most years and allows us to work with a large enough data set to provide relatively reliable estimates.

Table 1 shows counts of transfer law changes for each transfer law over the sample period. There were a total of 77 instances where additional types of transfer laws were either passed or repealed. Table 2 presents all the data on the transfer laws and severity indices to fully depict the state-level evolutions in transfer laws. The prevalence of individual types of transfer laws has varied greatly. Nearly all the states, for example, had discretionary waiver laws in place throughout the period, but presumptive waiver, mandatory waiver, and direct file laws

³ Data from 1995, 1997, and 2002 were gathered from reports published by NCJJ (Torbet et al, 1996, and Torbet and Szymanski, 1997, and Griffin, 2003). The information from 1999 has not yet been published but has been provided to us by NCJJ (private correspondence from Patrick Griffin, researcher associated with NCJJ).

were much less prevalent. The low prevalence of these types of laws reflects either relatively few states having these laws or these laws existing in a larger number of states but for a small number of years. Table 3 summarizes our independent variables, other explanatory variables, and instrumental variables for all states over the period 1995-2004.

V. Results

In this section, we present state-level panel data estimates of the relationship between juvenile transfer laws and juvenile criminal activity. First, we examine the correlations between all seven types of juvenile transfer laws, one the one hand, and each of three broad categories and seven specific categories of juvenile crime. Second, we attempt to establish whether there is a causal relationship between the severity of the juvenile transfer laws, as measured by our two severity indices, and each category of juvenile crime using instrumental variables regressions. The results are presented in Tables 4-7B.

A. Individual Transfer Laws

Tables 4-5B display the results for individual transfer laws. Statutory exclusion, once adult/always adult, discretionary waiver, and mandatory waiver laws are all positively correlated with juvenile crime in one or more general or specific crime categories and uncorrelated with juvenile crime in the other categories. For example, the semi-log point estimates in column 2 of Table 4 suggest that mandatory waiver, once adult/always adult, and discretionary waiver laws were correlated with a 29.7%, 20.3%, and 20.1% increase in juvenile property crime, respectively (i.e., $100 * \exp[0.260]-1$, $100 * \exp[0.185]-1$, and $100 * \exp[0.183]-1$); and column

1 of Table 5A suggests that statutory exclusion laws were correlated with a 8.9% increase in juvenile burglary (i.e., $100 * \exp[0.085]-1$).

While direct file laws are negatively correlated with juvenile violent crime in general, they are positively correlated with juvenile murder and rape in particular and uncorrelated with juvenile crime in the other crime categories. Presumptive waiver laws are negatively correlated with juvenile property crime in general and juvenile auto theft in particular, but they are positively correlated with juvenile rape and uncorrelated with juvenile crime in the other categories.

On the other hand, a weaker juvenile transfer law, the reverse waiver law, is negatively correlated with juvenile crime in several categories and uncorrelated with juvenile crime in the other categories. Columns 1 and 2 of Table 4 suggest that reverse waivers were correlated with a 7.5% decrease in total juvenile crime (i.e., $100 * \exp[0.072]-1$) and a 11.3% decrease in juvenile property crime (i.e., $100 * \exp[0.107]-1$).

B. Overall Transfer Law Severity

So far, we have only been able to establish whether there is any correlation between the transfer laws and juvenile crime. We now attempt to establish whether there is any causal effect of the transfer laws on juvenile crime by correcting for endogeneity of the transfer laws through instrumental variable regressions. We use the annual number of popular referenda in a state and the percentage of state house legislators that are Republican as instrumental variables. We use these variables to instrument for the un-weighted and weighted indices of the combined severity of all the transfer laws. The results are reported in Tables 6-7B.

In all the IV regressions, the first-stage F statistic is higher than the Stock-Yogo critical value for 15% maximum IV relative bias, indicating that our instruments pass the Stock-Yogo strength test, and the p-value for the Hansen J statistic is higher than 0.05, indicating that our instruments pass the Sargan-Hansen exogeneity test.

The IV regressions in Tables 6-7B indicate that increases in the combined severity of all the juvenile transfer laws cause increases in juvenile burglary and have no causal impact on juvenile crime in the other crime categories. Column 1 of Table 7A suggests that transfer laws that made it easier to transfer juveniles to the adult system caused, on average, a 9.5% increase in juvenile burglary (i.e., $(100 * \exp[0.091]-1)$).

C. Controls

Turning now to the control variables, in every regression, juvenile drug arrests per 100,000 persons is significantly and positively correlated with measures of juvenile crime. Assuming that drug arrests are a good proxy for drug use, the findings suggest that increased drug use is associated with increased juvenile crime. In most regressions, the number of police officers per 100,000 persons is not correlated with changes in juvenile crime. However, it is negatively correlated with juvenile murder and rape. The number of yearly high school diplomas per 100,000 persons is also uncorrelated with most measures of juvenile crime, although it is negatively correlated with juvenile arson. The number of people age 10-17 per 100,000 persons is correlated with an increase in juvenile property crime, and in our IV regressions it is linked to increases in every property crime except for larceny and to increases in robbery and aggravated assault. The state unemployment rate and the percent of people age 10-17 who are African American are uncorrelated with changes in juvenile crime.

VI. Summary and Limitations

After controlling for confounding factors and attempting to control for endogeneity of juvenile transfer laws, we have found some evidence that tougher transfer laws increase juvenile burglary rates and little evidence that tougher transfer laws have an impact on any other measure of juvenile crime. These results suggest that there may be a need to revise juvenile transfer laws.

However, the results are only suggestive and are subject to a number of caveats. First, our study was primarily able to assess whether factors were correlated with each other. While the instrumental variables that we employed to establish causality passed the statistical validity tests, our analysis was limited because we only had two instrumental variables, so we were limited to assessing a potential causal relationship between the overall severity of all the transfer laws and changes in juvenile crime. We were unable to test for causal effects of individual transfer laws or interactions between the transfer laws.

Second, the arrest data that we employed were not linked to age, so we could not determine if transfer laws had a significant impact on older juveniles that was masked by looking at the broader age range. For example, one would expect that, say, 17-year olds would respond to harsh transfer laws more than 10-year olds. Additionally, many of the new state juvenile justice laws have progressively lowered the age at which juveniles can be tried as adults. Since in many cases older juveniles were already eligible to be transferred to the adult system, the toughening of juvenile transfer laws might have had a disproportionately large impact on the activities of younger juveniles. However, due to limitations in the data set, which did not link criminal activity to age, we were prevented from exploring either of these issues further. With a measure of criminal activity linked directly to age, it would be interesting to assess whether responsiveness to harsh criminal measures is correlated with age.

Third, this paper did not address the possible impact of harsher juvenile transfer laws on the recidivism rate, an issue of great importance in considering policies to reduce juvenile crime.

Future research focusing on addressing these limitations, particularly identifying additional suitable instruments, could provide valuable information to policymakers. In addition, research focusing on whether certain categories of juveniles respond better to different transfer laws might provide information that would allow state governments to better tailor their legal codes to reduce juvenile crime. Lastly, research trying to understand why certain transfer laws are effective and others are not would also allow for the design of more effective policies.

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Table 1
Count of Transfer Law Changes

Transfer Law	Number of Changes
Statutory Exclusion	17
Once/Always	15
Direct File	10
Presumptive Waiver	10
Discretionary Waiver	4
Mandatory Waiver	1
Reverse Waiver	20
Total	77

Table 2
Evolution of Juvenile Transfer laws

State	Year	Statutory Exclusion	Once/ Always	Direct File	Discretionary Waiver	Presumptive Waiver	Mandatory Waiver	Reverse Waiver	Severity Index	Weighted Severity Index
Alabama	1995	1	0	0	1	0	NA	1	3	4
Alabama	1997	1	0	0	1	0	0	1	3	4
Alabama	1999	1	0	0	1	0	0	1	3	4
Alabama	2002	1	0	0	1	0	0	1	3	4
Alaska	1995	1	0	0	1	1	NA	0	3	4
Alaska	1997	1	0	0	1	1	0	0	3	4
Alaska	1999	1	0	0	1	1	0	0	3	4
Alaska	2002	1	0	0	1	1	0	0	3	4
Arizona	1995	0	0	0	1	1	NA	0	2	2
Arizona	1997	1	1	1	1	1	0	1	3	5
Arizona	1999	1	1	1	1	1	0	1	4	6
Arizona	2002	1	1	1	1	0	0	1	3	5
Arkansas	1995	0	1	1	1	0	NA	0	1	2
Arkansas	1997	0	1	1	1	0	0	0	1	2
Arkansas	1999	0	1	1	1	0	0	0	1	2
Arkansas	2002	0	1	1	1	0	0	0	1	2
California	1995	0	0	0	1	1	NA	0	2	2
California	1997	0	0	0	1	1	0	1	3	3
California	1999	1	0	0	1	1	0	1	4	6
California	2002	1	1	1	1	1	0	1	4	6
Colorado	1995	0	1	1	1	1	NA	0	2	3
Colorado	1997	0	1	1	1	1	0	0	2	3
Colorado	1999	0	1	1	1	1	0	0	2	3
Colorado	2002	0	1	1	1	1	0	0	2	3
Connecticut	1995	1	1	0	0	0	NA	0	0	1
Connecticut	1997	0	1	0	0	0	1	0	0	1
Connecticut	1999	0	1	0	0	0	1	0	0	1
Connecticut	2002	0	1	0	0	0	1	0	0	1
Delaware	1995	1	1	0	1	0	NA	0	1	2
Delaware	1997	1	1	0	1	0	1	1	3	5
Delaware	1999	1	1	0	1	0	1	1	3	5
Delaware	2002	1	1	0	1	0	1	1	3	5
Florida	1995	1	0	1	1	0	NA	1	4	6
Florida	1997	1	0	1	1	0	0	1	4	6
Florida	1999	1	0	1	1	0	0	1	4	6
Florida	2002	1	0	1	1	0	0	1	4	6
Georgia	1995	1	1	1	1	0	NA	0	2	4
Georgia	1997	1	1	1	1	0	1	0	3	6
Georgia	1999	1	1	1	1	0	1	0	3	6
Georgia	2002	1	1	1	1	0	1	0	3	6
Hawaii	1995	1	0	0	1	0	NA	1	3	4
Hawaii	1997	0	0	0	1	0	0	1	2	2
Hawaii	1999	0	0	0	1	0	0	1	2	2
Hawaii	2002	0	0	0	1	0	0	1	2	2
Idaho	1995	1	0	0	1	0	NA	1	3	4
Idaho	1997	1	0	0	1	0	0	1	3	4
Idaho	1999	1	0	0	1	0	0	1	3	4
Idaho	2002	1	0	0	1	0	0	1	3	4
Illinois	1995	1	0	0	1	1	NA	0	3	4
Illinois	1997	1	0	0	1	1	1	0	5	7
Illinois	1999	1	0	0	1	1	1	1	4	6
Illinois	2002	1	1	0	1	1	1	1	4	6
Indiana	1995	1	0	0	1	0	NA	0	2	3
Indiana	1997	1	0	0	1	0	1	1	4	6
Indiana	1999	1	0	0	1	0	1	1	4	6
Indiana	2002	1	0	0	1	0	1	1	4	6

Table 2 (Continued)
Evolution of Juvenile Transfer laws 1995 - 2002

State	Year	Statutory Exclusion	Once/ Always	Direct File	Discretionary Waiver	Presumptive Waiver	Mandatory Waiver	Reverse Waiver	Severity Index	Weighted Severity Index
Iowa	1995	1	0	0	1	0	NA	0	2	3
Iowa	1997	1	1	0	1	0	0	1	2	3
Iowa	1999	1	1	0	1	0	0	1	2	3
Iowa	2002	1	1	0	1	0	0	1	2	3
Kansas	1995	1	0	0	1	0	NA	1	3	4
Kansas	1997	0	0	0	1	1	0	1	3	3
Kansas	1999	0	0	0	1	1	0	1	3	4
Kansas	2002	0	0	0	1	1	0	1	3	3
Kentucky	1995	1	1	0	1	0	NA	0	1	2
Kentucky	1997	0	1	0	1	0	1	0	1	2
Kentucky	1999	0	1	0	1	0	1	0	1	2
Kentucky	2002	0	1	0	1	0	1	0	1	2
Louisiana	1995	1	0	1	1	0	NA	0	3	5
Louisiana	1997	1	0	1	1	0	1	0	4	7
Louisiana	1999	1	0	1	1	0	1	0	4	7
Louisiana	2002	1	0	1	1	0	1	0	4	7
Maine	1995	0	0	0	1	0	NA	1	2	2
Maine	1997	0	0	0	1	0	0	1	2	2
Maine	1999	0	0	0	1	1	0	1	3	3
Maine	2002	0	0	0	1	1	0	1	3	3
Maryland	1995	1	1	0	1	0	NA	0	1	2
Maryland	1997	1	1	0	1	0	0	0	2	3
Maryland	1999	1	1	0	1	0	0	1	2	3
Maryland	2002	1	1	0	1	0	0	1	2	3
Massachusetts	1995	0	0	0	1	1	NA	0	2	2
Massachusetts	1997	1	0	1	0	0	0	0	1	2
Massachusetts	1999	1	0	0	1	0	0	0	2	3
Massachusetts	2002	1	0	0	0	0	0	0	2	4
Michigan	1995	0	0	1	1	0	NA	0	2	3
Michigan	1997	0	0	1	1	0	0	1	3	4
Michigan	1999	0	0	1	1	0	0	1	3	4
Michigan	2002	0	0	1	1	0	0	1	3	4
Minnesota	1995	1	0	0	1	1	NA	0	3	4
Minnesota	1997	1	0	0	1	1	0	1	4	5
Minnesota	1999	1	0	0	1	1	0	1	4	5
Minnesota	2002	1	0	0	1	1	0	1	4	5
Mississippi	1995	1	1	0	1	0	NA	1	2	3
Mississippi	1997	1	1	0	1	0	0	1	2	3
Mississippi	1999	1	1	0	1	0	0	1	2	3
Mississippi	2002	1	1	0	1	0	0	1	2	3
Missouri	1995	0	0	0	1	0	NA	1	2	2
Missouri	1997	0	0	0	1	0	0	1	2	2
Missouri	1999	0	0	0	1	0	0	1	2	2
Missouri	2002	0	0	0	1	0	0	1	2	2
Montana	1995	1	0	0	1	0	NA	0	2	3
Montana	1997	1	0	1	1	0	0	0	3	5
Montana	1999	1	1	1	1	0	0	0	1	3
Montana	2002	1	1	1	0	0	0	0	2	4
Nebraska	1995	0	1	1	0	0	NA	0	0	1
Nebraska	1997	0	1	1	0	0	0	0	0	1
Nebraska	1999	0	1	1	0	0	0	0	0	1
Nebraska	2002	0	1	1	0	0	0	0	0	1
Nevada	1995	1	1	0	1	0	NA	1	2	3
Nevada	1997	1	1	0	1	1	0	1	3	4
Nevada	1999	1	1	0	1	1	0	1	3	4
Nevada	2002	1	1	0	1	1	0	1	3	4

Table 2 (Continued)
Evolution of Juvenile Transfer laws 1995 - 2002

State	Year	Statutory Exclusion	Once/ Always	Direct File	Discretionary Waiver	Presumptive Waiver	Mandatory Waiver	Reverse Waiver	Severity Index	Weighted Severity Index
New Hampshire	1995	0	1	1	1	1	NA	1	3	4
New Hampshire	1997	0	0	0	1	1	0	1	3	4
New Hampshire	1999	0	1	1	1	1	0	1	3	3
New Hampshire	2002	0	0	0	1	1	0	1	3	3
New Jersey	1995	0	0	0	1	0	NA	0	1	1
New Jersey	1997	0	0	0	1	1	0	0	3	4
New Jersey	1999	0	0	0	1	1	1	0	2	2
New Jersey	2002	0	0	0	1	1	1	0	2	2
New Mexico	1995	1	0	0	0	0	NA	0	1	2
New Mexico	1997	1	0	0	0	0	0	0	1	2
New Mexico	1999	1	0	0	0	0	0	0	1	2
New Mexico	2002	1	0	0	0	0	0	0	1	2
New York	1995	1	1	0	0	0	NA	0	0	1
New York	1997	1	1	0	0	0	0	0	0	1
New York	1999	1	1	0	0	0	0	0	0	1
New York	2002	1	1	0	0	0	0	0	0	1
North Carolina	1995	1	0	0	1	0	NA	0	2	3
North Carolina	1997	0	0	0	1	0	1	0	3	4
North Carolina	1999	0	0	0	1	0	1	1	2	3
North Carolina	2002	0	0	0	1	0	1	1	3	4
North Dakota	1995	1	0	0	1	1	NA	0	3	4
North Dakota	1997	0	0	0	1	1	1	1	4	5
North Dakota	1999	0	0	0	1	1	1	1	4	5
North Dakota	2002	0	0	0	1	1	1	1	4	5
Ohio	1995	1	0	0	1	0	NA	1	3	4
Ohio	1997	0	0	0	1	0	1	1	3	4
Ohio	1999	0	0	0	1	0	1	1	3	4
Ohio	2002	0	0	0	1	0	1	1	3	4
Oklahoma	1995	1	1	0	1	0	NA	0	1	2
Oklahoma	1997	1	1	1	1	0	0	1	3	5
Oklahoma	1999	1	1	1	1	0	0	1	3	5
Oklahoma	2002	1	1	1	1	0	0	1	3	5
Oregon	1995	1	0	0	1	0	NA	1	3	4
Oregon	1997	1	1	0	1	0	0	1	2	3
Oregon	1999	1	1	0	1	0	0	1	2	3
Oregon	2002	1	1	0	1	0	0	1	2	3
Pennsylvania	1995	1	1	0	1	0	NA	1	2	3
Pennsylvania	1997	1	1	0	1	1	0	1	3	4
Pennsylvania	1999	1	1	0	1	1	0	1	3	4
Pennsylvania	2002	1	1	0	1	1	0	1	3	4
Rhode Island	1995	1	0	0	1	1	NA	0	3	4
Rhode Island	1997	0	0	0	1	1	1	1	4	5
Rhode Island	1999	0	0	0	1	1	1	1	4	5
Rhode Island	2002	0	0	0	1	1	1	1	4	5
South Carolina	1995	1	1	0	1	0	NA	1	2	3
South Carolina	1997	1	1	0	1	0	1	0	2	4
South Carolina	1999	1	1	0	1	0	1	0	3	5
South Carolina	2002	1	0	0	1	0	1	0	3	5
South Dakota	1995	0	0	0	1	1	NA	0	2	2
South Dakota	1997	1	1	0	1	0	0	1	2	3
South Dakota	1999	1	1	0	1	0	0	1	2	3
South Dakota	2002	1	1	0	1	0	0	1	2	3
Tennessee	1995	1	1	0	1	0	NA	0	1	2
Tennessee	1997	0	1	0	1	0	0	1	1	1
Tennessee	1999	0	1	0	1	0	0	1	1	1
Tennessee	2002	0	1	0	1	0	0	1	1	1

Table 2 (Continued)
Evolution of Juvenile Transfer laws 1995 - 2002

State	Year	Statutory Exclusion	Once/ Always	Direct File	Discretionary Waiver	Presumptive Waiver	Mandatory Waiver	Reverse Waiver	Severity Index	Weighted Severity Index
Texas	1995	1	1	0	1	0	NA	1	2	3
Texas	1997	0	0	0	1	0	0	1	2	2
Texas	1999	1	0	0	1	0	0	1	2	2
Texas	2002	0	0	0	1	0	0	1	2	2
Utah	1995	1	1	0	1	0	NA	0	1	2
Utah	1997	1	0	0	1	1	0	1	4	5
Utah	1999	1	0	0	1	1	0	1	4	5
Utah	2002	1	0	0	1	1	0	1	4	5
Vermont	1995	1	1	1	1	0	NA	1	3	5
Vermont	1997	1	1	1	1	0	0	0	3	5
Vermont	1999	1	1	1	1	0	0	0	2	4
Vermont	2002	1	1	1	1	0	0	0	2	4
Virginia	1995	0	1	0	1	0	NA	1	1	1
Virginia	1997	0	1	1	1	0	1	1	3	5
Virginia	1999	0	1	1	1	0	1	1	3	5
Virginia	2002	0	1	1	1	0	1	1	3	5
Washington	1995	1	0	0	1	0	NA	0	2	3
Washington	1997	1	0	0	1	0	0	1	3	4
Washington	1999	1	0	0	1	0	0	1	3	4
Washington	2002	1	0	0	1	0	0	1	3	4
West Virginia	1995	1	1	0	1	0	NA	0	1	2
West Virginia	1997	0	0	0	1	0	1	0	2	3
West Virginia	1999	0	0	0	1	0	1	0	2	3
West Virginia	2002	0	0	0	1	0	1	0	2	3
Wisconsin	1995	1	0	0	1	1	NA	0	2	3
Wisconsin	1997	1	1	0	1	0	0	1	3	4
Wisconsin	1999	1	1	0	1	0	0	1	2	3
Wisconsin	2002	1	1	0	1	0	0	1	2	3
Wyoming	1995	0	1	1	1	0	NA	0	1	2
Wyoming	1997	0	1	1	1	0	0	0	1	2
Wyoming	1999	0	1	1	1	0	0	0	1	2
Wyoming	2002	0	1	1	1	0	0	0	1	2

NOTE: 1 = law in place; 0 = no law; NA = Not Available. Source: National Center for Juvenile Justice
 Data on mandatory waiver law was not available until 1997

Table 3
Summary Statistics

Variable	Observations	Standard		Minimum	Maximum
		Mean	Deviation		
Statutory Exclusion	500	0.61	0.49	0.00	1.00
Once/Always	500	0.58	0.49	0.00	1.00
Direct File	500	0.26	0.44	0.00	1.00
Discretionary Waiver	500	0.90	0.29	0.00	1.00
Presumptive Waiver	500	0.28	0.45	0.00	1.00
Mandatory Waiver	400	0.30	0.46	0.00	1.00
Reverse Waiver	500	0.48	0.50	0.00	1.00
Severity Index	500	2.40	1.11	0.00	5.00
Weighted Severity Index	500	3.51	1.47	1.00	7.00
Total Juvenile Arrests per 100,000	480	823.80	402.03	59.12	2765.86
Juvenile Property Crime Arrests per 100,000	480	251.33	127.33	25.10	841.44
Juvenile Violent Crime Arrests per 100,000	480	104.12	45.12	0.02	290.17
Juvenile Murder Arrests per 100,000	419	0.54	0.45	0.02	2.95
Juvenile Rape Arrests per 100,000	500	1.50	1.09	0.00	9.42
Juvenile Aggravated Assault Arrests per 100,000	500	17.56	10.41	0.00	54.04
Juvenile Robbery Arrests per 100,000	500	7.49	7.07	0.00	58.64
Juvenile Burglary Arrests per 100,000	479	30.99	15.79	3.07	88.79
Juvenile Larceny Arrests per 100,000	500	140.00	84.98	0.00	540.37
Juvenile Motor Vehicle Theft Arrests per 100,000	500	15.31	10.75	0.00	66.72
Juvenile Arson Arrests per 100,000	500	2.84	2.02	0.00	11.02
State Unemployment Rate	500	4.76	1.15	2.30	8.10
Juvenile Drug Arrests per 100,000	480	58.87	26.84	1.52	168.41
Students with High School Diplomas per 100,000	498	949.77	161.81	600.82	1457.41
Police Officers per 100,000	500	228.56	56.03	140.76	438.52
State Juveniles 10-17 Per 100,000	500	11696.44	906.85	9847.63	15882.62
Percent State Juveniles African-American	500	29.41	25.88	1.00	99.79
Percent State House Republican	490	48.60	15.94	12.00	87.14
Annual Popular Referenda	478	0.05	0.27	0.00	3.00

Table 4
Individual Juvenile Transfer Laws and Aggregate Juvenile Crime Rates

Variable	Total Crime Arrest Rate (1)	Property Crime Arrest Rate (2)	Violent Crime Arrest Rate (3)
Statutory Exclusion	0.033 (0.035)	0.072 (0.043)	0.084 (0.097)
Once Adult/Always Adult	0.012 (0.042)	0.185** (0.065)	0.151 (0.122)
Direct File	0.026 (0.029)	0.072 (0.048)	-0.162* (0.091)
Presumptive Waiver	-0.031 (0.051)	-0.107* (0.055)	-0.106 (0.101)
Discretionary Waiver	0.095 (0.069)	0.183** (0.066)	0.122 (0.152)
Mandatory Waiver	0.248** (0.052)	0.260** (0.103)	0.398 (0.239)
Reverse Waiver	-0.072** (0.022)	-0.107** (0.036)	0.041 (0.060)
State Unemployment Rate	-0.022 (0.016)	0.004 (0.018)	-0.036 (0.030)
Juvenile Drug Arrests per 100,000	0.014** (0.002)	0.014** (0.004)	0.024** (0.009)
High School Diplomas per 100,000	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Police Officers per 100,000	-0.000 (0.000)	-0.001 (0.001)	-0.001 (0.002)
State Juveniles 10-17 per 100,000	0.000 (0.000)	0.000* (0.000)	-0.000 (0.000)
% State Juveniles 10-17 who are African American	-0.012 (0.012)	-0.000 (0.019)	-0.045 (0.037)
N	384	384	384
Adjusted R-squared	0.963	0.933	0.569

NOTE: All dependent variables are logged. Numbers in parentheses are robust standard errors adjusted for clustering on states. A double asterisk indicates significance at the 5% level and a single asterisk indicates significance at the 10% level. All regressions include state and year fixed effects and are weighted by state share of annual population.

Table 5A
Individual Juvenile Transfer Laws and Specific Juvenile Property Crime Rates

Variable	Burglary Arrest Rate (1)	Larceny Arrest Rate (2)	Motor Vehicle Theft Arrest Rates (4)	Arson Arrest Rate (3)
Statutory Exclusion	0.085** (0.037)	0.142 (0.109)	0.107 (0.091)	0.027 (0.071)
Once Adult/Always Adult	0.323** (0.137)	0.116 (0.100)	0.512* (0.260)	0.245** (0.104)
Direct File	-0.038 (0.081)	-0.044 (0.105)	0.034 (0.097)	0.146 (0.098)
Presumptive Waiver	0.017 (0.072)	-0.171 (0.110)	-0.294** (0.090)	0.146 (0.227)
Discretionary Waiver	0.177** (0.052)	0.214* (0.114)	0.196** (0.069)	0.082 (0.075)
Mandatory Waiver	0.191** (0.087)	0.368 (0.288)	0.286 (0.248)	-0.020 (0.128)
Reverse Waiver	-0.006 (0.057)	-0.068 (0.068)	0.014 (0.061)	-0.232** (0.106)
State Unemployment Rate	0.025 (0.022)	0.003 (0.031)	-0.022 (0.038)	-0.041 (0.040)
Juvenile Drug Arrests per 100,000	0.010** (0.004)	0.021* (0.012)	0.022** (0.010)	0.008* (0.005)
High School Diplomas per 100,000	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.001)	0.000 (0.001)
Police Officers per 100,000	-0.001 (0.001)	-0.003 (0.002)	-0.003 (0.002)	-0.001 (0.001)
State Juveniles 10-17 per 100,000	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
% State Juveniles 10-17 who are African American	0.003 (0.017)	-0.042 (0.046)	-0.026 (0.046)	0.012 (0.027)
N	383	384	384	383
Adjusted R-squared	0.940	0.653	0.789	0.866

NOTE: All dependent variables are logged. Numbers in parentheses are robust standard errors adjusted for clustering on states. A double asterisk indicates significance at the 5% level and a single asterisk indicates significance at the 10% level. All regressions include state and year fixed effects and are weighted by state share of annual population.

Table 5B
Individual Juvenile Transfer Laws and Specific Juvenile Violent Crime Rates

Variable	Murder Arrest Rate (1)	Rape Arrest Rate (2)	Aggravated Assault Arrest Rates (4)	Robbery Arrest Rate (3)
Statutory Exclusion	0.109 (0.091)	0.116** (0.041)	0.070 (0.053)	-0.006 (0.038)
Once Adult/Always Adult	0.220 (0.234)	0.203 (0.154)	0.195 (0.129)	0.358** (0.131)
Direct File	0.336* (0.173)	0.183** (0.071)	-0.047 (0.137)	-0.096 (0.112)
Presumptive Waiver	0.139 (0.118)	0.164** (0.061)	0.010 (0.056)	-0.051 (0.070)
Discretionary Waiver	-0.009 (0.148)	0.305** (0.073)	0.173** (0.073)	0.219** (0.055)
Mandatory Waiver	0.369** (0.141)	0.238** (0.080)	0.199** (0.058)	0.436** (0.101)
Reverse Waiver	-0.184 (0.134)	-0.211** (0.062)	0.012 (0.116)	0.129 (0.114)
State Unemployment Rate	-0.013 (0.114)	0.010 (0.036)	-0.033 (0.024)	0.021 (0.037)
Juvenile Drug Arrests per 100,000	0.010* (0.005)	0.012** (0.003)	0.014** (0.001)	0.015** (0.004)
High School Diplomas per 100,000	0.001 (0.001)	0.001 (0.001)	-0.000 (0.000)	0.001 (0.000)
Police Officers per 100,000	-0.006** (0.002)	-0.002** (0.001)	0.001 (0.001)	0.001 (0.002)
State Juveniles 10-17 per 100,000	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000* (0.000)
% State Juveniles 10-17 who are African American	0.062 (0.038)	0.004 (0.025)	-0.005 (0.022)	-0.002 (0.024)
N	327	382	383	379
Adjusted R-squared	0.731	0.847	0.935	0.924

NOTE: All dependent variables are logged. Numbers in parentheses are robust standard errors adjusted for clustering on states. A double asterisk indicates significance at the 5% level and a single asterisk indicates significance at the 10% level. All regressions include state and year fixed effects and are weighted by state share of annual population.

Table 6
IV Estimates of the Effects of Transfer Law Severity Indices on Aggregate Juvenile Crime Rates

Variable	Total Crime		Property Crime		Violent Crime	
	Arrest Rate (1)	(2)	Arrest Rate (3)	(4)	Arrest Rate (5)	(6)
Severity Index	0.043 (0.075)		0.110 (0.109)		0.103 (0.174)	
Weighted Severity Index		0.024 (0.041)		0.060 (0.060)		0.054 (0.095)
State Unemployment Rate	-0.030 (0.021)	-0.028 (0.023)	0.018 (0.024)	0.022 (0.027)	-0.043 (0.033)	-0.040 (0.033)
Juvenile Drug Arrests per 100,000	0.013** (0.002)	0.013** (0.002)	0.013** (0.003)	0.013** (0.004)	0.022** (0.008)	0.023** (0.008)
High School Diplomas per 100,000	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Police Officers per 100,000	0.000 (0.001)	0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.002)	-0.000 (0.002)
State Juveniles 10-17 per 100,000	0.000** (0.000)	0.000 (0.000)	0.000** (0.000)	0.000** (0.000)	0.000 (0.000)	0.000 (0.000)
% State Juveniles 10-17 who are African American	-0.004 (0.012)	-0.006 (0.011)	0.002 (0.017)	-0.002 (0.015)	-0.026 (0.019)	-0.030 (0.020)
N	449	449	449	449	449	449
Kleibergen-Paap First-Stage F Statistic	13.83	12.98	13.83	12.98	13.83	12.98
Stock-Yogo 15% Max IV Relative Bias	11.59	11.59	11.59	11.59	11.59	11.59
Hansen J Statistic P-value	0.888	0.923	0.719	0.809	0.557	0.566

NOTE: All dependent variables are logged. Numbers in parentheses are robust standard errors adjusted for clustering on states. A double asterisk indicates significance at the 5% level and a single asterisk indicates significance at the 10% level. All regressions include state and year fixed effects and are weighted by state share of annual population.

Table 7A

IV Estimates of the Effects of Transfer Law Severity Indices on Specific Juvenile Property Crime Rates

Variable	Burglary		Larceny		Auto Theft		Arson	
	Arrest Rate (1)	(2)	Arrest Rate (3)	(4)	Arrest Rate (5)	(6)	Arrest Rate (7)	(8)
Severity Index	0.168*		0.175		0.371		0.071	
	(0.098)		(0.198)		(0.271)		(0.078)	
Weighted Severity Index		0.091*		0.094		0.203		0.039
		(0.052)		(0.108)		(0.147)		(0.044)
State Unemployment Rate	0.058*	0.065*	-0.007	-0.001	0.065	0.080	-0.025	-0.022
	(0.035)	(0.035)	(0.032)	(0.033)	(0.073)	(0.073)	(0.030)	(0.031)
Juvenile Drug Arrests per 100,000	0.009**	0.010**	0.020**	0.020**	0.022**	0.022**	0.007**	0.008**
	(0.003)	(0.003)	(0.010)	(0.010)	(0.008)	(0.008)	(0.003)	(0.004)
High School Diplomas per 100,000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001*	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Police Officers per 100,000	-0.001	-0.001	-0.003	-0.003	-0.004	-0.004	-0.001	-0.001
	(0.001)	(0.001)	(0.002)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)
State Juveniles 10-17 per 100,000	0.000**	0.000	0.000	0.000	0.000**	0.000*	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
% State Juveniles 10-17 who are African American	0.010	0.004	-0.014	-0.021	0.008	-0.005	0.010	0.008
	(0.017)	(0.016)	(0.024)	(0.024)	(0.044)	(0.036)	(0.017)	(0.016)
N	448	448	449	449	449	449	448	448
Kleibergen-Paap First-Stage F Statistic	13.362	12.75	13.83	12.98	13.83	12.98	13.36	12.754
Stock-Yogo 15% Max IV Relative Bias	11.59	11.59	11.59	11.59	11.59	11.59	11.59	11.59
Hansen J Statistic P-value	0.366	0.496	0.585	0.597	0.154	0.261	0.124	0.139

NOTE: All dependent variables are logged. Numbers in parentheses are robust standard errors adjusted for clustering on states. A double asterisk indicates significance at the 5% level and a single asterisk indicates significance at the 10% level. All regressions include state and year fixed effects and are weighted by state share of annual population.

Table 7B
IV Estimates of the Effects of Transfer Law Severity Indices on Specific Juvenile Violent Crime Rates

Variable	Murder		Rape		Robbery		Aggravated Assault	
	Arrest Rate (1)	Arrest Rate (2)	Arrest Rate (3)	Arrest Rate (4)	Arrest Rate (5)	Arrest Rate (6)	Arrest Rate (7)	Arrest Rate (8)
Severity Index	0.082 (0.201)		0.130 (0.133)		0.147 (0.101)		0.179 (0.164)	
Weighted Severity Index		0.047 (0.109)		0.070 (0.074)		0.080 (0.055)		0.097 (0.090)
State Unemployment Rate	-0.004 (0.100)	0.000 (0.104)	0.013 (0.035)	0.018 (0.040)	-0.016 (0.036)	-0.010 (0.037)	0.062 (0.053)	0.068 (0.055)
Juvenile Drug Arrests per 100,000	0.011** (0.005)	0.012** (0.005)	0.011** (0.002)	0.012** (0.002)	0.012** (0.001)	0.013** (0.001)	0.014** (0.003)	0.014** (0.003)
High School Diplomas per 100,000	0.000 (0.001)	0.000 (0.001)	0.001 (0.000)	0.001 (0.001)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Police Officers per 100,000	-0.006** (0.002)	-0.006** (0.002)	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.002)	0.001 (0.002)
State Juveniles 10-17 per 100,000	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)	0.000** (0.000)
% State Juveniles 10-17 who are African American	0.019 (0.045)	0.016 (0.040)	0.008 (0.027)	0.003 (0.024)	-0.001 (0.019)	-0.006 (0.016)	0.015 (0.023)	0.008 (0.022)
N	389	389	447	447	448	448	442	442
Kleibergen-Paap First-Stage F Statistic	12.11	11.79	13.294	12.69	13.362	12.75	13.288	12.584
Stock-Yogo 15% Max IV Relative Bias	11.59	11.59	11.59	11.59	11.59	11.59	11.59	11.59
Hansen J Statistic P-value	0.245	0.234	0.8743	0.925	0.231	0.192	0.474	0.492

NOTE: All dependent variables are logged. Numbers in parentheses are robust standard errors adjusted for clustering on states. A double asterisk indicates significance at the 5% level and a single asterisk indicates significance at the 10% level. All regressions include state and year fixed