

Do Foster Youth Face Harsher Juvenile Justice Outcomes? Re-investigating Child Welfare Bias in Juvenile Justice Processing *

Christian M. Connell[†]

Sarah A. Font[‡]

Ezra G. Goldstein[§]

Reeve Kennedy[¶]

Allison E. Kurpiel^{||}

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Abstract

For decades, child welfare scholars and policy-makers have been concerned with the strong association between foster care and juvenile justice involvement. Foster care placement may have a direct effect on delinquent behavior, but differences in justice system outcomes may be misleading if youth in foster care face “processing bias”—differentially harsh treatment by agents of the juvenile court. Previous research found that youth in foster care at the time of juvenile justice contact were treated more harshly by the court, resulting in higher rates of punitive case outcomes. However, earlier findings may be driven by both observable and unobservable heterogeneity in the characteristics of the youth and their case. We revisit the question of processing bias using detailed administrative data on more than 10,000 adolescents in Pennsylvania in 2015-2019 and a selection-on-observables design. We find no evidence of processing bias against youth in foster care. Compared to observationally equivalent cases, those that involve youth in foster care do not experience more punitive outcomes. If anything, our estimates suggest the opposite—youth in foster care are less likely to have a charge adjudicated, be placed under court-ordered supervision, or enter into juvenile detention. The precision of our estimates and bounding exercises allow us to rule out even modest evidence of punitive processing bias.

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[†]Pennsylvania State University Email: cmc128@psu.edu.

[‡]Pennsylvania State University Email: saf252@psu.edu.

[§]Pennsylvania State University Email: eggoldstein@psu.edu.

[¶]East Carolina University Email: kennedyre22@ecu.edu

^{||}Pennsylvania State University Email: aek271@psu.edu

“Any practitioner in the youth-serving field knows that connection between juvenile justice and child welfare. You see the histories and what has led to their juvenile justice system involvement. At the same time, traditionally, what we have seen is that juvenile justice and child welfare and education and behavioral health are operating in an individual way, not recognizing that these are the same kids, the same families who are touching these systems.”

—Michael Umpierre

Director

Center for Juvenile Justice Reform

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1 Introduction

Contact with the child welfare system—the collection of government agencies and private partnerships tasked with investigating child maltreatment and providing services to affected children and their families—is remarkably common in the United States. By age 18, more than one-third of children will have been subject to a formal investigation for alleged maltreatment, and five percent of children will have entered formal foster care (Kim et al., 2017; Yi et al., 2023; Yi, Edwards and Wildeman, 2020). Foster care, the temporary placement outside of one’s familial home under the direction of the state or county child welfare authority, is the most intensive intervention provided by child welfare services.¹ Children, and particularly adolescents, placed in foster care tend to have poor average outcomes across behavioral, psychological, and academic domains, raising substantial concerns for policymakers (Bald et al., 2022a; Doyle, 2007; Gross and Baron, 2022; Turney and Wildeman, 2016).

Of particular concern is the strong association between foster care placement and juvenile justice involvement. Studies estimate that 7 to 24 percent of youth in foster care become involved with the juvenile justice system (Cutuli et al., 2016), and justice system contact approaches 50 percent among transition-age youth in foster care (Courtney, Terao and Bost, 2004). In addition to the experiences of child abuse and neglect that typically precede foster care entry, the relationship between foster

¹When necessary, children are placed most often with kin or unrelated foster families. Most children removed from their homes due to an allegation of abuse or neglect are reunified with their families.

care and juvenile justice involvement is thought to reflect the trauma of family separation, loss of important and stabilizing social connections, and exposure to inadequate and unstable foster home environments that may increase delinquent behaviors (Font and Kennedy, 2022). Juvenile justice involvement and findings of delinquency capture a combination of delinquent behavior and institutional responses to behavior. Differences in the justice system response can mask or exaggerate differences in the delinquent behavior of foster youth. That is, even in the absence of a direct effect on youth criminal behavior, foster care may exacerbate justice system involvement if youth in foster care face punitive processing bias—differentially harsh treatment by agents of the court.

Processing bias is an important concern for youth in foster care as it may exacerbate delinquency system involvement. Juvenile justice system contact can further harm their social and economic prospects, given that juvenile records are not fully sealed in many states, and thus can be used in employment screenings and subsequent criminal proceedings.² Moreover, receiving a more punitive juvenile system response increases risk for arrest, conviction, and incarceration in adulthood (Aizer and Doyle Jr, 2015; Baron, Jacob and Ryan, 2023; Eren and Mocan, 2021). As a result, it is important to understand whether youth in foster care experience differential treatment by the juvenile justice system.

This paper provides estimates of differential treatment of youth in foster care by the juvenile justice system. To do so, we assemble a rich administrative dataset that links juvenile delinquency referrals and dispositions to prior and active child welfare cases in Pennsylvania, along with detailed histories of behavioral health diagnoses and socioeconomic backgrounds. Leveraging these data, we identify over 1,500 delinquency cases involving youth who were in foster care at the time of their involvement with the justice system. We define processing bias of youth in foster care as more punitive case outcomes rendered by delinquency court officials, conditional on observed case characteristics, compared to youth not in foster care at the time of their delinquency case. Since cases involving youth in foster care are likely to differ due to both observed and unobserved reasons, we use our linked data and a combination of inverse propensity weighting and regression adjustment to implement a

²Juvenile records, though commonly sealed or expunged, can be used as evidence of a pattern in subsequent criminal trials, inquired about on employment applications, and be accessed by a range of entities, including schools and police, depending on the state. See, for example, Coleman, A. (2020), *Expunging Juvenile Records: Misconceptions, Collateral Consequences, and Emerging Practices*, U.S. Department of Justice Office of Juvenile Justice and Delinquency Prevention. Accessed at: <https://ojjdp.ojp.gov/> (May 20, 2023)

selection-on-observables design. Doing so allows us to compare cases involving youth in foster care to a set of cases where the juvenile is not in foster care but has a current or prior confirmed child abuse or neglect case, and is similar along delinquency case characteristics, demographics, behavioral health histories, and their socio-economic background.

Decision-making frameworks developed in the criminology literature suggest processing of juvenile defendants focuses on several focal concerns—the culpability of the juvenile, their potential threat to society, and the court’s constrained set of resources available to reduce the likelihood of recidivism (e.g., court-ordered supervision or services and placement options) (Bishop, Leiber and Johnson, 2010; Steffensmeier, Ulmer and Kramer, 1998). It is, however, ambiguous how concurrent foster care status would affect the court’s decision. On the one hand, youth placed in foster care may face processing bias if out-of-home placement is viewed as a negative signal. Juvenile court officials may impose more severe sanctions when youth are perceived as poor candidates for rehabilitation and likely to recidivate (Feld, 1999), and unstable family circumstances such as foster care can alter the interpretation of existing behavioral problems and increase perceived risk (Rodriguez, Smith and Zatz, 2009; Wildeman et al., 2017). On the other hand, youth concurrently in foster care may be treated with greater leniency if court officials view foster care placements as a stable alternative living arrangement or if services provided by the child welfare system (e.g., supervision, behavioral health treatment, or placement outside the home) are viewed as duplicative to court oversight, particularly in jurisdictions where court resources are scarce.³

We find no evidence that youth in foster care face punitive processing bias. Delinquency cases involving youth in foster care are not more likely to have a charge adjudicated or receive a serious disposition involving post-trial supervision or juvenile placement. If anything, our estimates suggest youth in foster care experience slightly more lenient case outcomes. Cases involving youth in foster care are five percent less likely to have any charge adjudicated and eight percent less likely to receive a serious post-trial sanction, such as detention placement.

³Prior research suggests that judges are more likely to place youth in detention settings when their families are perceived as dysfunctional or involved in criminal activity (Rodriguez, Smith and Zatz, 2009)—reflecting a lack of confidence in their parents’ capacity to reduce the likelihood of recidivism, or potential suspicions about parental endorsement or involvement in illicit behavior. Thus, among children involved with child welfare services—where parental criminal justice involvement (Austin, 2016), as well as illicit behaviors such as drug use and domestic violence (Palmer et al., 2022a), is relatively more common—those remaining with their family of origin may be perceived as a higher risk for recidivism or non-compliance.

Exploring other elements of the delinquency case yields similar conclusions. Youth in foster care are more than eight percent less likely to receive court-ordered supervision at any point during their case and roughly ten percent more likely to have any charge withdrawn. Importantly, we fail to find evidence that youth in foster care receive harsh case outcomes that may increase later-in-life criminal justice contact; cases involving youth in foster care are roughly nine percent less likely to be placed in detention at any point during the case (Aizer and Doyle Jr, 2015; Baron, Jacob and Ryan, 2023).

Since our estimates are derived from a selection-on-observables design, we implement several robustness checks and find our conclusions are not sensitive to alternative matching techniques or sample construction. We also conduct a bounding exercise proposed by Oster (2019) and show our findings are not sensitive to unobserved heterogeneity not captured by our empirical strategy. Given the assumptions of the bounding exercise, we argue that the degree of selection bias required to reverse our conclusions and find evidence of modest punitive processing bias would be substantial. Moreover, when we estimate processing bias along different dimensions of youth characteristics, we find similar patterns regardless of the juvenile’s demographics or charge type and severity.

The remainder of the study proceeds as follows. In section 2, we provide a brief discussion of the literature on juvenile court decision-making, as well as an overview of why the juvenile court may treat cases involving foster youth differentially. We also provide a summary of the juvenile justice system in Pennsylvania and describe its relationship to Pennsylvania’s child welfare system. Section 3 outlines our administrative data sources and defines our analysis sample. Section 4 presents our empirical strategy and probes its main assumptions. Section 5 presents the main findings of the paper, along with several robustness checks, and examines the heterogeneity of the main estimates. Finally, section 6 provides a brief discussion of how our findings relate to the existing literature and concludes.

2 Background

2.1 Juvenile Justice System Processing

Juvenile justice systems are intended to emphasize rehabilitation more than the adult criminal justice system and seek to avoid punitive or intrusive sanctions unless necessary for public safety.

Nevertheless, juvenile justice involvement and being adjudicated delinquent carries a social and legal stigma that can follow youth into adulthood. For instance, though commonly believed to be sealed or expunged, delinquency case records can be used as evidence of a pattern in subsequent criminal cases, inquired about on employment applications, and be accessed by a range of entities, including schools and police, depending on state law.⁴ Moreover, punitive case outcomes themselves may directly increase risk for arrest, conviction, and incarceration in adulthood (Aizer and Doyle Jr, 2015; Baron, Jacob and Ryan, 2023; Eren and Mocan, 2021). Thus, the decision to adjudicate confers long-term consequences for youth.

The criminology literature argues the decision-making framework of the delinquency court's processing of juvenile defendants relies on several focal concerns—the culpability of the youth, their threat to their community or society, and the constrained set of available options (e.g., availability of services or placement options) for dealing with the case (Bishop, Leiber and Johnson, 2010; Steffensmeier, Ulmer and Kramer, 1998).⁵ For processing bias to occur, youth concurrently placed in foster care must be evaluated more harshly based on these focal concerns. However, the way foster care status would affect each concern is ambiguous.

Beyond the delinquent act itself, the juvenile court considers factors that may affect the youth's perceived threat to society or their culpability, including their age, the presence of a behavioral or intellectual disability, and history of abuse (Stevenson, 2009). Along these characteristics, foster youth differ substantially; they tend to be diagnosed with behavioral disorders and intellectual disabilities at higher rates, and their histories of abuse and neglect are more severe than both the general population and youth with prior child welfare services involvement.

Moreover, foster care itself is a legal status known to the court, and, as a result, agents of the juvenile court may have more information about youth in foster care. More thorough documentation requirements for youth in foster care may also mean that prior behavioral issues are better documented or more readily available, creating the impression of a more serious or persistent pattern of antisocial behavior. Additionally, if the label of foster care invokes negative stereotypes, youth in

⁴See, for example Coleman, A (2020), *Expunging Juvenile Records: Misconceptions, Collateral Consequences, and Emerging Practices*, U.S. Department of Justice. Accessed at: <https://ojjdp.ojp.gov/> (May 20, 2023)

⁵In Pennsylvania, the juvenile court also makes use of assessment tools such Youth Level of Services (YLS) and the Pennsylvania Detention Risk Assessment Instrument (PaDRAI) to aid the court's decision-making and minimize re-offending. Unfortunately, our administrative data do not contain the PaDRAI, and the YLS assessment is missing in over two-thirds of cases. As a result, our analysis does not include assessment tools.

foster care may be perceived as presenting a greater threat to society; for instance, behavior issues of foster youth may be attributed to constant—rather than situational or malleable—causes, which may increase the perceived risk for recidivism and reduce optimism about rehabilitation (Wildeman et al., 2017).

Alternatively, youth in foster care might be perceived as posing a lesser threat or danger to others and society as a result of their living environment. The youth’s home life, especially whether sufficient supervision is provided, also affects court actors’ assessments of whether the youth is likely to re-offend (Feld, 1999). Prior research suggests that judges are more likely to place youth in out-of-home delinquency settings when their families are perceived as dysfunctional or involved in criminal activity (Rodriguez, Smith and Zatz, 2009)—reflecting a lack of confidence in their parents’ capacity to reduce the likelihood of recidivism, or potential suspicions about parental endorsement or involvement in illicit behavior. Among the population of youth receiving child welfare services—where parental criminal justice involvement (Austin, 2016), as well as illicit behaviors such as drug use and domestic violence (Palmer et al., 2022a), is relatively more common—those remaining with their family of origin may be perceived as a higher risk for recidivism or non-compliance. In other words, foster care status may reduce perceived threats to society, as judges can be assured of oversight and supervision provided by foster care settings, especially those placed in residential facilities.⁶

Lastly, given limited system capacity and a general preference not to involve youth in the juvenile justice system unless necessary, processing decisions may rest in part on whether ongoing supervision (either formal or informal) is needed to ensure the youth’s rehabilitative needs are met. Youth in foster care are typically provided several services that would be recommended for addressing similar needs—supervision, mental and behavioral health treatment, parenting supports, and, in some cases, placement outside the home. In addition, children in foster care are entitled under federal and state policy to services that address health and educational issues, and often have a case plan that is subject to review by a dependency court judge and the child’s guardian ad litem (advocate in court). These services, coupled with ongoing oversight by the dependency court and child welfare caseworkers, may allow juvenile court judges, particularly where systems are already overburdened, to reduce their caseload without depriving the youth of needed services or supervision. Indeed, both the juvenile

⁶Children living in foster care have state-screened and approved caregivers and are routinely visited by caseworkers and other service providers.

justice system and the child welfare system may be motivated to prevent children in foster care from deep-end justice system involvement and maintain the child solely within the custody of the child welfare system. As [Sirois \(2023\)](#) described in a qualitative study of proceedings pertaining to dual systems youth, “neither agency wishes to be blamed for potentially pushing a child further along the “pipeline” to prison”: the child welfare system avoids blame by retaining responsibility whereas the juvenile justice system avoids responsibility by declining to adjudicate and relying on the child welfare system to provide care and supervision.

Altogether, it is unclear if, and in what direction, juvenile courts would differentially treat cases involving youth in foster care. However, a small empirical literature has found cases involving concurrently dependent youth tend to receive more punitive case outcomes. Studying processing bias of dependent youth in New York City during the late 1990s, [Conger and Ross \(2001\)](#) found youth in foster care were more likely to be detained pre-trial than those not in care. [Ryan et al. \(2007\)](#) and [Tam et al. \(2016\)](#) similarly found evidence of processing bias against dependent youth at the time of juvenile justice system contact in Los Angeles County, California, during the early 2000s. Specifically, they found that these system-involved youth were less likely to receive probation and more likely to be placed in a secure, juvenile-justice-managed facility than youth not concurrently involved with the child welfare system.

Of note, these prior studies compared youth with dependency in the child welfare system to youth with no dependency, in contrast to our focus on comparing youth in foster care to youth with current or prior noncustodial child welfare involvement. Yet, we argue that our comparison is more appropriate for two reasons: (1) the most likely counterfactual to foster care is noncustodial child welfare involvement rather than no child welfare contact, and (2) the comparison group in prior research was likely predominantly composed of youth with child welfare histories, but that history was not able to be measured and considered in the modeling strategy. For instance, population-level studies of California youth find that over 60 percent of arrested youth have been referred to child welfare previously ([Eastman et al., 2019](#)), with justice-involved youth typically referred multiple times for both abuse and neglect ([Eastman et al., 2023](#)).

Despite similar conclusions, there are several reasons to revisit the nature and scope of processing bias. Both the foster care and juvenile justice populations vary significantly across jurisdictions, and

both systems have significantly scaled down the use of residential placement services, especially in major metropolitan areas, since the study periods previously documented in the literature.⁷ For instance, juvenile crime has fallen steadily since its peak in the mid-1990s (Puzzanchera, 2022), and delinquency courts have shifted toward a greater emphasis on diversion and away from detention (Monahan, Steinberg and Piquero, 2015; Sickmund et al., 2021). Given the ambiguous predictions of juvenile processing frameworks and the broad changes in both the foster care and juvenile justice landscapes over time, our study seeks to contribute to the research on processing bias in a recent context that allows for the construction of a richly linked administrative dataset along with a selection-on-observables design.

2.2 The Juvenile Justice System in Pennsylvania

Pennsylvania’s Juvenile Act [42 Pa.C.S.A. § 6301] divides juvenile justice responsibilities into six divisions: juvenile courts, court administration, juvenile probation, detention, state-operated facilities, and private providers. Multiple state agencies or organizations provide guidance on the implementation of state juvenile statutes: the Juvenile Court Judges’ Commission (JCJC) advises juvenile court judges on the care of dependent or delinquent youth and maintains collection and reporting of state juvenile court statistics; the Department of Human Services (DHS) oversees the state’s Office of Children, Youth, and Families (OCYF), operates the state’s delinquency facilities, and licenses local or private facilities for juveniles; the Pennsylvania Commission on Crime and Delinquency provides oversight on system-wide planning, coordination, and policy analysis; and the Pennsylvania Council of Chief Juvenile Probation Officers collaborates with JCJC on probation-focused policy, planning, and training (Pennsylvania Juvenile Court Judges Commission, 2018).

While state-wide agencies provide leadership and guidance, cases involving juvenile offenders are primarily handled by local court jurisdictions responsible for administering the juvenile court, probation, and delinquency facilities. The juvenile court case processing system in Pennsylvania is

⁷Juvenile justice outcomes vary substantially by jurisdiction, both between and within state lines. For instance, in 2019, the rate of juvenile offenders in residential placements per 100,000 by state ranged from 20 to 330 (Sickmund et al., 2021). For a brief overview of the reduction in the size of the foster care population, see Administration for Children Youth and Families (2013), *Recent Demographic Trends in Foster Care*, Department of Health & Human Services. Accessed at: <https://www.acf.hhs.gov/> (September 17, 2023)

similar to other states. After an arrest, a juvenile may either be released to a guardian or placed in detention while awaiting probation intake. During intake, a case may be dismissed, receive informal supervision, have a juvenile petition filed, or be transferred to criminal court.

In Pennsylvania, diversion is a common practice. Instead of filing a petition for formal court processing, a juvenile may enter into an informal adjustment period, which typically spans no more than six months of informal supervision. Successful completion of this supervision program may result in the case's dismissal. If a formal petition is filed, the court may suspend formal processing and place the juvenile into a pre-adjudicatory probation period known as a consent decree, which may end in dismissal or adjudication. Approximately half of new delinquency cases in Pennsylvania result in pre-adjudicatory diversion ([Pennsylvania Juvenile Court Judges Commission, 2021](#)). If diversion is unsuccessful, an adjudicatory hearing will take place. Youth who are adjudicated delinquent may then be subject to formal probation supervision or placement in a delinquency-based residential facility ([Pennsylvania Council of Chief Juvenile Probation Officers, 2020](#)). The majority of adjudicated delinquent cases result in probation, although approximately five percent of delinquency cases lead to placement in out-of-home delinquency facilities ([Pennsylvania Juvenile Court Judges Commission, 2021](#)).

3 Data

Our analysis is primarily based on data from Pennsylvania's Child Welfare Information Solution (CWIS), a statewide data system that aggregates child welfare records from each of the 67 counties. The data consist of all confirmed investigations conducted through the state's county-administered child welfare agencies between January 2015 and December 2020. Investigations relate to allegations of abuse and neglect, as well as other family concerns, that are reported to the statewide ChildLine, a 24-hour hotline. CWIS includes details of each investigation, such as the date of the reported allegation, the county that handled the report, the alleged types of maltreatment, and dates of dispositions and services. Given the data also include the location of the alleged victim, we collect census tract details where the alleged maltreatment took place from the American Community Survey to proxy for neighborhood characteristics and socio-economic backgrounds. Attributes of

children named on investigations include their race, gender, age, whether they were the primary victim listed in the report (as opposed to a sibling), and personal identifying information used to facilitate probabilistic linking between administrative records.

We supplement the CWIS data system with records from three administrative sources. First, we collect out-of-home placement from the state’s Adoption and Foster Care Reporting System (AFCARS). The AFCARS data provide information on out-of-home services, including dates of foster care placement, the type of placement setting (e.g., non-relative foster care, kinship care, or congregate care), the length of the full out-of-home episode, and reasons for exiting care.

Second, juvenile justice involvement is identified through Pennsylvania’s Juvenile Court Judges’ Commission (JCJC) data system. The juvenile court data includes all referrals made to juvenile courts between 2015 and 2019 and contain key details of each juvenile court petition, such as the date on which the youth was referred to the court, the county system that handled the delinquency case, and the ultimate disposition of each charge brought against the youth. Importantly, the charges are detailed enough to observe why a juvenile was referred to the court and include key characteristics of the case brought to the court, such as whether an arrest was made, the specific charges against a youth, and the severity of each charge. The data also contain information on sanctions levied by the court, such as if the judgment included a fine, court-ordered supervision, or pre- and post-trial delinquency placement.

Finally, considering the high prevalence of emotional or behavioral disorders among youth in foster care, with over 40 percent having prior diagnoses ([Palmer et al., 2022b](#)), and the fact that a significant proportion of youth in juvenile detention meet the diagnostic criteria for behavior disorders ([Teplin et al., 2002](#)), we incorporate Medicaid claims data from Pennsylvania’s Office of Medical Assistance Programs (OMAP). The claims data include information such as the type of medical claim (i.e., inpatient, outpatient, or professional office), the date of the claim, and the diagnoses associated with the visit. This additional data allows us to assess whether individuals were diagnosed with any behavior disorder before age 10, specifically by examining claims associated with anxiety, adjustment, mood, or disruptive conduct disorders.

We employ a probabilistic matching algorithm to establish links between the CWIS data and each supplemental administrative source. Since the data do not contain a common identifier, records are

linked using a Fellegi-Sunter model by name, gender, date of birth, and other identifiable information (e.g., social security number or the state’s Department of Public Welfare number), when available. Overall, the probabilistic match performs well; for instance, 94 percent of children identified in foster care are matched to the child welfare records. Moreover, the match rate is consistent across race and gender. To validate the accuracy of the matching process, we randomly selected and manually examined 100 records, comparing the identifying information from administrative sources. Only two records exhibited discrepancies in more than three matching fields.

3.1 Analysis Sample

The basis of our analysis sample consists of all juvenile justice cases between 2015 and 2019 involving youth. We restrict our sample to youth who came into contact with the juvenile justice system after age 10, but before age 18. Given our focus on processing bias for youth in foster care at the time of their delinquency case, we further limit the sample to the set of youth who were the confirmed victims of child maltreatment before coming into contact with the justice system. Altogether, the analysis sample consists of 13,829 delinquency cases involving 10,931 youth. Of these cases, 1,664 involve a juvenile defendant currently in foster care.⁸

Figure 1 provides an overview of the characteristics of juvenile justice cases included in the analysis sample. The majority of episodes involve youth aged 15 to 16. While a significant proportion of cases resolve quickly, lasting only a couple of weeks, the median length of a case is approximately 260 days. In most cases, there are one or two charges brought against juvenile defendants, with the most common reason being a violent offense. The figure also highlights notable distinctions between cases involving youth in foster care and not. Specifically, cases with concurrently placed youth often involve older juvenile defendants, have a higher number of charges per case and are more likely to have the most serious charge be related to a violent offense.

Youth who are concurrently placed in foster care when they commit offenses come into contact with the child welfare system for various reasons and have diverse experiences within the system prior to their offense. In Figure 2, we present their characteristics, including common reasons for

⁸Specifically, we define a juvenile defendant currently in foster care if their delinquency case begins between the beginning of an out-of-home placement episode and its end date.

child welfare contact, their typical placement settings at the time of offending, and the distribution of time between their out-of-home placement and their involvement with the juvenile justice system. Concurrently placed juvenile offenders are predominantly placed in congregate care settings, such as institutions or group homes, and they have histories within the child welfare system that encompass instances of abuse, neglect, and, most commonly, interventions related to their behavioral issues such as substance use, truancy, and disruptive episodes. While a large number of youth offend shortly after their placement in foster care, the median adolescent has been in foster care for nearly one year by the time of their offense.

4 Empirical Strategy

Identifying processing bias involves comparing the case outcomes of youth in foster care at the time of their contact with the justice system to those who were not in care. However, simply comparing outcomes between these two groups is not enough to produce valid estimates of processing bias since the youth in foster care are likely to differ from their counterparts in important ways that are both observable and unobservable. To obtain more accurate estimates of the impact of being in foster care during justice system contact, this paper adopts a selection-on-observables approach that combines exact matching and inverse propensity weights (IPW). This approach enables us to form a comparison group similar to the youth in foster care along demographics and the most legally-relevant attributes: initial juvenile justice charges and juvenile justice history, mental and behavioral health history, and previous child welfare system contact.

The analysis sample, as described above, contains 1,664 juvenile justice cases (1,453 unique youth) involving a juvenile offender concurrently placed in foster care and 12,165 cases (9,788 unique youth) where a juvenile was not in placement, but has either past or ongoing child welfare services involvement. We generate exactly-matched groups based on the race and gender of the youth, their age at the time of justice system contact, and the year and county in which the case was filed. Nearly all (1,585) cases involving concurrently placed youth appear in an exactly-matched group with variation—a group with at least one case with a concurrently placed youth and at least one comparison case. Of the cases where the youth was not in foster care, 8,556 appear in an

exactly-matched group and form the basis of our control group.

The full set of 10,141 observations that appear in an exactly-matched group with variation comprises the matched sample, which we use to estimate the predicted probability of being concurrently placed in foster care at the time of juvenile justice contact. To do so, we estimate a logit model with the dependent variable as an indicator for being placed in foster care during the delinquency case and predictive variables, including a wide range of delinquency case and pre-justice system contact characteristics. For instance, the model includes controls for the age and race of the alleged delinquent youth, their prior history of child welfare contact (including their histories of specific maltreatment allegations), characteristics of their current delinquency case and prior juvenile justice contact, and whether or not the youth had any diagnosed behavioral disorder before age 10.⁹

To calculate an estimate of processing bias, we estimate the following model:

$$Y_i = \delta CurrentFC_i + \mathbf{X}_i' \beta + \varepsilon_i \quad (1)$$

where Y_i represents the outcome of interest, such as whether any charges were adjudicated in delinquent case i or if the case resulted in supervision or placement. $CurrentFC_i$ is an indicator variable set to 1 if the case involves a youth concurrently placed in foster care. Finally, the vector \mathbf{X}_i is the set of covariates used to estimate the predicted propensity of being concurrently placed in foster care at the time of juvenile justice contact. Standard errors are two-way clustered at the child and exactly-matched group levels to account for the mechanical correlation that arises when the same youth has multiple cases and correlation in outcomes within exactly-matched groups. The coefficient of interest is δ which represents the difference in outcomes between cases where the youth was concurrently placed in foster care and observationally equivalent control cases where the youth was not in foster care, but had a previous or ongoing interaction with child welfare services.

To implement IPW, control cases are weighted by $\frac{\hat{p}}{1-\hat{p}}$, where \hat{p} is the predicted probability, and cases where the youth is concurrently in foster care are given a weight of one. By implementing IPW and post-matching regression adjustment, the estimator $\hat{\delta}$ is said to be a doubly-robust, two-step

⁹For the full list of predictive covariates included in the propensity model and their coefficients, see Table A1.

estimator of δ . Estimates of the effect of concurrent foster care placement on juvenile case outcomes will be unbiased if either the underlying matching model or the regression model is specified correctly (Arkhangelsky and Imbens, 2022; Imbens and Wooldridge, 2009).

Our selection-on-observables approach assumes that cases where a youth was in foster care are indistinguishable from cases where they were not in terms of relevant case characteristics, given the observable factors included in the exact matching procedure. This means that, conditional on observables, concurrent placement at the time of juvenile contact is comparable to random assignment within exactly-matched comparison groups. The primary threat to the analysis is that there are some unobserved characteristics jointly correlated with delinquency case outcomes and concurrent foster care placement. For instance, youth in foster care may be more likely to be charged or referred to juvenile justice for relatively minor infractions while under the supervision of licensed caregivers, and those cases may be treated with greater leniency. While we cannot definitively rule out such unobserved differences, we show below that the design generates a comparison group that closely matches the characteristics of concurrently placed youth. In addition, we perform several robustness checks meant to refocus the exactly-matched comparison group along case characteristics and a bounding exercise that suggests omitted variable bias is unlikely to affect the conclusions of the analysis.

4.1 Balance

Before matching, there are notable differences between the cases involving youth in foster care and those without. As shown in the first three columns of Table 1, cases that involve youth in foster care differ significantly in terms of demographics, delinquency case characteristics and histories, maltreatment histories, and behavioral health diagnoses before age 10. For example, in comparison to cases where the youth was not in care, cases with youth concurrently in foster care were 36 percent more likely to be Black, 21 percent more likely to be charged with a felony, and 50 percent more likely to have a prior violent charge and a history of physical abuse.

The estimated propensity scores (\hat{p}) for cases with youth concurrently in foster care and those without are shown in Figure 3. The figure illustrates that while the two distributions share a common support, they differ significantly. However, when focusing on control units in exactly-matched groups

and implementing IPW, the difference in distributions becomes minimal. This is supported by the final column of Table 1, which shows that the differences in characteristics between matched cases with youth concurrently in foster care and control units are small and precisely estimated. Furthermore, an F-test of joint significance from a regression of being concurrently placed in foster care on these characteristics indicates that the covariates are not jointly predictive of concurrent foster care placement. Taken together, the distribution of propensity scores and the negligible differences presented in the table suggest that the selection-on-observables design produces an analysis sample that is well-balanced along observable characteristics.

5 Results

Table 2 presents the main results. The columns of the table each present estimates from separate regressions. The first column presents a difference in means between cases involving youth currently in foster care at the time of juvenile justice contact and those with prior child welfare system contact but were not concurrently in out-of-home care. These simple differences contrast those of the prevailing literature; cases involving concurrently-placed youth are somewhat less likely to be adjudicated (Panel A) or result in a serious disposition involving post-trial supervision or delinquency placement (Panel B).

Columns 2 through 4 further restrict the comparison: Column 2 applies the inverse probability weights calculated above; Column 3 shows the differences in means while restricting the sample to exactly-matched groups with variation in treatment; Column 4, our preferred specification, additionally incorporates post-matching regression adjustment. Each of the estimates presented in the table share a similar conclusion: contrary to prior studies of processing bias, there is no evidence that cases involving youth in foster care at the time of juvenile justice contact are more likely to experience more punitive case outcomes. In fact, the estimates suggest the opposite; cases involving concurrently placed youth were two percentage points less likely to have any charge adjudicated (5.6 percent) and three percentage points less likely to have a serious disposition (8.3 percent).

Given that prior research suggested that concurrently placed youth were more likely to receive harsher case outcomes in general, Table 3 probes other case outcomes for evidence of processing bias.

Columns 1 and 2 re-print the estimates of the effects of having any adjudicated charge and having a serious disposition from Column 4 of Table 2, respectively. The remainder of the table presents results from separate regressions that implement the same specification to examine differences in other important case outcomes involving concurrently placed youth. Estimates from those regressions are consistent with the results thus far; specifically, cases involving youth in foster care were more likely to have a charge withdrawn, less likely to have been placed in pretrial juvenile detention, and less likely to have been placed under court-ordered supervision at any point during the case. More formally, we present p-values from one-sided tests that youth placed in foster care face more punitive case outcomes and reject the null in all cases.

We examine the sensitivity of the baseline estimates to various sample restrictions in Table 4. Once again, the first column of the table displays the baseline estimates of the differences between cases involving youth concurrently placed in foster care at the time of justice contact and those not placed. As highlighted above, we construct the analysis sample by examining cases that involve youth with any prior history of child welfare system contact. Since foster care is a temporary arrangement, one may be concerned that youth concurrently in foster care at the time of juvenile justice contact have more recent experiences with child welfare than those with any prior history and that recent contact may influence the court’s decision-making in unobserved ways. To address this concern, Column 2 limits the sample to cases where the youth had prior child welfare system contact within one year of their court referral date. A related concern is that, given the close relationship between the juvenile justice and child welfare systems, there may be a mechanical hand-off between the two systems (i.e., youth may come into contact with juvenile justice due to their contact with child welfare and vice versa). This concern is compounded by Panel D of Figure 1, which shows a disproportionate amount of youth placed in foster care are placed within one month of juvenile justice contact. Column 3 addresses this issue by omitting juvenile cases that begin within a 90-day window of out-of-home placement. Finally, since large urban areas represent an out-sized share of the data, Columns 4 and 5 omit Philadelphia and Allegheny (home to Pittsburgh) counties, respectively. Across all specifications, the estimates provide the same conclusions as the baseline. If anything, the estimates are larger in magnitude, though not statistically different from our main findings.

Finally, Table A2 probes the sensitivity of the estimates to alternative matching techniques.

The first column of the table reports the baseline estimates. In Column 2, we instead implement a kernel matching procedure with an Epanechnikov function. Columns 3 and 4 instead use the estimated propensity scores to apply nearest neighbor matching for one and three neighbors, respectively. Finally, in Column 5, we construct stricter match groups that additionally match on the characteristics of the individual juvenile case. These case characteristics include if the case involved any violent, drug-related, or weapon-related charge, if the most serious charge was a felony, and if the juvenile had a history of felony charges or any history of adjudicated charges. While the estimates are smaller in magnitude than the baseline estimates, the differences are not statistically distinguishable.

5.1 Bounding

Although our model of foster care propensity includes a large set of predictive controls, the assumptions of our empirical approach mean we cannot definitively rule out that unobserved characteristics of youth concurrently placed in foster care may bias our estimates away from finding evidence of processing bias. For instance, while we observe the charges listed on the court referral, we do not observe written descriptions or aspects of the case that may warrant differential treatment by the court and be correlated with placement out of the home. Such correlation may be particularly concerning if youth in foster care are more likely to be charged or referred to juvenile justice for relatively minor infractions due to higher levels of surveillance. For example, a physical altercation with a peer in a group home may be referred to juvenile justice whereas a fight between siblings within one’s familial home would not. In this case, even if youth in foster care are brought to the attention of juvenile justice for the same type and level of offense (e.g., simple assault), potential outcomes of their cases may differ due to unobserved differences in the severity of their offenses, rather than due to differential treatment based on foster care status.

To test how sensitive the estimates may be to unobserved heterogeneity, we perform two complementary diagnostics proposed by [Oster \(2019\)](#). Following earlier work by [Altonji, Elder and Taber \(2005\)](#), the [Oster \(2019\)](#) exercises require a proportional selection assumption—that the selection on unobservables is proportional to observables. The first estimates a bias-adjusted effect, which adjusts the baseline estimate given some assumed degree of selection on unobservables.

The bias-adjusted effect allows us to ask how much would the baseline estimates change for some assumed amount of unobserved selection bias. As a result, [Oster \(2019\)](#) interprets the bias-adjusted estimate as a bound on the true effect of interest. The second diagnostic instead examines how severe the degree of selection on unobservables (relative to observables) would need to be to reduce the effect to zero. If a substantial degree of selection on unobservables is required to push the effect to zero, then the effect can be considered robust to omitted variable bias.

The results of these diagnostics are shown in [Table 5](#) for having any adjudicated charge in Panel A and having a serious disposition in Panel B. The first column shows our baseline estimate, while the second column reports the bias-adjusted effect. The final two columns show the amount of proportional selection needed for the effect to equal zero. In the third column, we follow [Oster \(2019\)](#) and assume that the maximum R^2 from a hypothetical regression of the outcome on the observable and unobservable characteristics would be equal to one and a third times the R^2 from the baseline regression. In the final column, we take a more conservative approach suggested by [Altonji, Elder and Taber \(2005\)](#) and instead assume a maximum R^2 of one.

The estimates of the effects of concurrent foster care placement do not appear to be driven by omitted variable bias. The effects on both the presence of any adjudicated charge and the seriousness of disposition are tightly bounded, ranging from -2.1 to -1.8 percentage points and -3.2 to -3 percentage points, respectively. Moreover, the degree of selection on unobservables required to reduce the estimates to zero is substantial. Both [Oster \(2019\)](#) and [Altonji, Elder and Taber \(2005\)](#) suggest that values larger than one imply selection on unobservables would need to be larger than the amount of selection on observables, and observed effects are less likely to be driven by omitted variable bias. The result of both exercises suggests that the degree of selection on unobservables needed is substantially greater than one, providing further evidence that the conclusions of the estimates are not likely to be influenced by omitted variable bias.

Beyond improving confidence in the baseline estimates, the results of these bounding exercises provide further evidence that processing bias is unlikely to be important in our context. Since differences between the baseline estimates and the bias-adjusted effects are small, we can rule out the potential for unobserved differences that may mask evidence of processing bias. Moreover, given that the proportional degree of selection exercise estimates the amount of selection on unobservables

required for the effect to be zero, the degree of selection would need to be even larger to reverse the direction of the baseline estimates and provide evidence of processing bias.

5.2 Heterogeneity

While our baseline estimates imply cases involving youth concurrently in foster care are less likely to result in formal adjudication or court-ordered placement and supervision, one may worry that the average effect masks important subgroup heterogeneity. Previous research on juvenile justice processing does indicate disparities by race, ethnicity, and gender, particularly at times in the process where there is more discretion (Leiber and Mack, 2003; Love and Morris, 2019; Rodriguez, 2010; Zane, Mears and Welsh, 2020). These effects tend to be most pronounced for Black and Hispanic youth (Rodriguez, 2010; Zane, Mears and Welsh, 2020). Nonetheless, there is minimal research that has examined heterogeneity in how youth involved with child welfare are processed through the juvenile justice system (Tam et al., 2016). This may be particularly important for the population of cases involving youth concurrently placed in foster care given their demographic composition and differing reasons for coming into contact with the juvenile court system, and prior research asserting that child welfare involvement contributes to the overrepresentation of Black children in juvenile justice systems (Ryan et al., 2007).

Figure 4 explores heterogeneity across demographic characteristics of delinquent youth. Specifically, we examine subgroups of the analysis sample by gender, race, and if the youth had a previous behavioral health diagnosis. The figure shows that we fail to identify a subgroup of concurrently placed youth that experienced more punitive juvenile justice outcomes. If anything, the estimates suggest that boys concurrently placed in foster care and cases involving Black youth in foster care were less likely to have a case result in an adjudicated charge or a serious disposition relative to our baseline estimates, although the magnitude of the estimates is similar.

We also examine whether or not the baseline estimates of processing bias varied by characteristics of the delinquency case including whether the case included a violent charge, the severity of the case, whether or not the youth had prior contact with the juvenile justice system, and whether the case involved court-ordered probation. Figure 5 presents estimates of differences in case outcomes for youth concurrently placed in foster care by these subgroups of case characteristics. Regardless of the

characteristics of the case, the overall effect appears consistent in direction and magnitude.

What explains the finding that cases involving youth in foster care tend to experience modestly more lenient case outcomes? First, as discussed above, the resources of the juvenile court system are highly constrained, and court officials face the difficult decision of allocating scarce resources for monitoring delinquent youth. As a result, juvenile court officers may view concurrent foster placement as an alternative to expending court resources and rely on the child welfare system for services. Second, and related is the incapacitation effects of foster placement may prevent delinquent youth from violating court-ordered conditions put in place to divert cases from adjudication.¹⁰ In this case, the court may similarly offer pre-adjudication probation to delinquent youth both in and out of foster care, but increased monitoring from foster parents and child-welfare case managers results in greater compliance. Consequently, the lower likelihood of adjudication for youth in foster care may stem from their stronger adherence to court-ordered conditions rather than differential treatment by the court itself. To test this hypothesis, we examine the differences in case outcomes for those offered pre-adjudication probation in the final column of Table A4. However, we find similar estimates to the baseline, suggesting that differences in adherence to court-ordered diversion cannot explain why youth in foster care tend to experience greater leniency in their cases.

The full set of estimates implies that juvenile courts do not appear to judge cases involving youth concurrently placed in foster care more harshly than observationally equivalent cases involving youth with current or prior child welfare services involvement. In all instances, cases that involve youth in foster care are less likely to have a charge adjudicated or result in post-adjudication supervision. While the precision of the estimates varies across subgroups, we interpret the consistently negative association between punitive juvenile justice outcomes and concurrent foster care placement as evidence that the baseline estimates do not mask significant heterogeneity and that certain subgroups of cases do not exhibit substantial processing bias.

¹⁰In Pennsylvania, the juvenile justice system provides alternatives to formal court processing or adjudication for delinquent youth. One option is an informal adjustment, which serves as an alternative to filing a formal juvenile petition. In this arrangement, the juvenile is required to fulfill certain court conditions, such as community service, payment of fees, and probation, in order to avoid formal court processing. If the juvenile successfully completes the informal adjustment, the case is dismissed. Another alternative is a consent decree, where the court suspends the delinquency case and imposes up to one year of probation. If the juvenile fulfills the conditions outlined in the consent decree, their case is closed, avoiding an adjudication order.

6 Conclusion

It is well-established that delinquency is more common, and more severe, among adolescents who are abused, neglected, or live within families where illicit activity occurs (Font and Kennedy, 2022), such that the overlap between child welfare and juvenile justice systems is pronounced. The idea of a processing bias—wherein delinquent youth receive harsher or more sustained juvenile justice sanctions on the basis of also having potentially abusive or neglectful family environments—could affect all child welfare systems involved youth, regardless of foster care status. Moreover, that foster care, as an explicit legal status, may confer more stigma within the juvenile court than remaining in the home following maltreatment reflects a deep skepticism about the quality and capacity of the foster care system.

For decades, media reporting and research linking foster care with increased antisocial behavior culminated in a narrative that youth in foster care were unsupported, unstable, and unsafe—hardly a context for rehabilitation. That narrative was not altogether wrong: the foster care system of the 1990s and early 2000s brought in far more children than it could safely and effectively serve and kept them far too long, failing many (Font and Gershoff, 2020). In recent years, with a smaller and shorter-term foster care system, the conclusion is more nuanced: foster care can meaningfully improve children’s life chances (Bald et al., 2022a; Baron and Gross, 2022; Gross and Baron, 2022), and provides more monitoring, mental health services, and other supports than children receive if they remain in the home after a confirmed child welfare case (Burns et al., 2004; Harman, Childs and Kelleher, 2000).

Yet, on the whole, older youth with delinquency-related concerns are unlikely to fare well in foster care. They have few options for family foster homes (U.S. Government Accountability Office, 2018), and in recent years, federal law and social pressure have limited congregate care (group or residential treatment facilities), where many youth with significant behavioral concerns were placed ¹¹. Thus, youth may be placed in family foster homes only to be moved multiple times when their behavioral needs exceed the capacity of the caregivers, sleeping in offices or hotels, or quickly returned home to their parents with minimal support and little changed since their removal (Konijn et al., 2019).

¹¹The Family First Prevention Services Act of 2018 limited federal reimbursement for congregate care, with some exceptions. However, declines in the use of congregate care were well underway prior to the law’s implementation.

Juvenile courts may draw on their knowledge of the county child welfare system and the specifics of a youth’s foster care setting when determining the role of the juvenile justice system that is needed to ensure youths’ compliance with conditions and avoidance of recidivism. Our main conclusion—similar but modestly more lenient treatment by the juvenile justice system for youth in foster care than youth remaining in their homes—suggests an understanding that foster care services are insufficient to meaningfully replace juvenile justice services. But, in some cases, the increased resources, oversight, and services provided in foster care versus in-home settings may allow youth to avoid higher-level engagement with the juvenile justice system despite their delinquent offending. This scenario may signal a form of “institutional offloading” from the juvenile justice system to the child welfare system (Sirois, 2023), which, though stigmatized, is perceived as less punitive for youth (Asherman-Jusino, 1995).

We highlight, however, that fewer than a third of our full sample experienced an adjudication or serious disposition in their first juvenile justice referral, consistent with high usage of diversion and deferment options. Yet, a large share of our sample experienced multiple juvenile justice referrals, suggesting that services provided through diversion, even coupled with child welfare services, may be insufficient. This is not surprising: both the child welfare system and the juvenile justice system face considerable constraints in the care and rehabilitation of youth: declining placement options, persistent workforce shortages, and few qualified behavioral health providers available to treat the youth in their care.¹² As states seek to avoid intervention by stigmatizing systems, policymakers are tasked with ensuring that alternatives are available to meet the complex needs of a population that continues to face poor life prospects.

We view the central contribution of this paper as highlighting that processing bias may not be widespread. Prior research found evidence that youth involved in child welfare services (i.e., an open or ongoing case, including a mix of substantiated allegations, in-home services, or foster care placement) at the time of juvenile justice contact faced punitive processing bias, resulting in higher

¹²For coverage on declining placement options see, for instance, Pennsylvania Juvenile Court Judges’ Commission (2021), *Pennsylvania Secure Detention Analysis: Impact of Facility Closures on Accessibility of Services*, Accessed at: <https://pccyfs.org/> (September 17, 2023) and also Melamed, S. (2022), *Here’s how Philly kids ended up sleeping in a DHS conference room for weeks on end*, The Philadelphia Inquirer, Accessed at: <https://www.inquirer.com/>. For coverage on persistent workforce shortages in Pennsylvania’s child welfare system see, for instance, Person, E. (2023), *A staffing shortage in PA juvenile justice system is creating a public safety crisis*, WHP Harrisburg, Accessed at: <https://local21news.com/> (October 17, 2023).

rates of court-ordered detention, especially for Black youth. [Conger and Ross \(2001\)](#) first found evidence of processing bias, showing that youth in foster care in New York City during the late 1990s were more likely to be detained pre-trial than those not in foster care. Similarly, [Ryan et al. \(2007\)](#) and [Tam et al. \(2016\)](#) found evidence that delinquency cases involving dependent youth (including those in foster care) in Los Angeles County, California, during the early 2000s were less likely to receive probation and, instead, more likely to be placed in a delinquency-based residential facility compared to youth not concurrently involved with child welfare services. However, the juvenile justice landscape has undergone significant shifts in recent decades, juvenile courts have reduced the use of detention and placed greater emphasis on diversion ([Monahan, Steinberg and Piquero, 2015](#); [Sickmund et al., 2021](#)), and increased attention is paid to delinquent youth with histories of child welfare system involvement.¹³ By examining processing bias in a recent context with rich administrative data, our findings add to the discussion of differential treatment of youth in foster care by the juvenile justice system.

Finally, our paper contributes to the discussion of the foster-care-to-prison pipeline—the fact that children placed in foster care are substantially more likely than the general population to come into contact with the criminal justice system as adults.¹⁴ There are at least two ways foster care placement may affect criminal justice system involvement during adulthood. First, foster care may have a direct causal effect on adult crime by affecting child behavior and exposure to criminogenic influences. Yet the empirical work on direct causal effects of placement on child well-being adulthood criminal justice contact is mixed ([Bald et al., 2022b](#); [Wakefield and Wildeman, 2022](#)).¹⁵ Even in the absence of a direct effect, foster care may still exacerbate justice-system involvement if processing bias results in differentially severe delinquency case outcomes. Yet our estimates suggest this is unlikely, at least in

¹³Several juvenile court jurisdictions have implemented varied programs to deter youth with child welfare histories from further justice system involvement. Programs like the Systems Integration Initiative (SII) and the Georgetown Center for Juvenile Justice Reform’s Crossover Youth Practice Model (CYPM) seek to improve coordination between local juvenile justice, child welfare, and other systems to enhance cross-system response and services. Such programs have become widespread. For instance, since launching in 2010, the CYPM model has been implemented in 23 states. In addition, juvenile justice agencies have significantly reduced the use of detention through the use of similar initiatives. For instance, the Anne E. Casey Foundation’s Juvenile Detention Alternatives Initiative encourages alternatives to juvenile detention, such as at-home detention or community supervision, and has been implemented in 40 states.

¹⁴A large body of research highlights a positive association between foster care placement and adult criminal activity [Doyle Jr \(2008\)](#); [Yang, McCuish and Corrado \(2017, 2021\)](#).

¹⁵Path-breaking work by [Doyle Jr \(2008\)](#) estimated the causal effects of foster care placement on later-in-life crime and finds that placement strongly increased arrest, conviction, and imprisonment rates during adulthood. In more recent work, [Baron and Gross \(2022\)](#) find the opposite; foster care substantially reduced criminal justice system involvement during adulthood.

the current context; we find no evidence that youth in foster care are at differentially greater risk of harsh, punitive juvenile justice outcomes. As a result, our findings suggest that differences in early justice system case outcomes are unlikely to inform the pathways of the foster-care-to-prison pipeline.

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Tables and Figures

Table 1: Sample balance

	No FC	Unmatched Current FC	Difference	Matched Difference
<i>Panel A: Demographics</i>				
White	0.65 [0.48]	0.54 [0.50]	-0.108*** (0.013)	0.000 (0.000)
Black	0.33 [0.47]	0.44 [0.50]	0.117*** (0.012)	0.000 (0.000)
Hispanic	0.11 [0.32]	0.12 [0.32]	0.001 (0.008)	0.000 (0.000)
Male	0.67 [0.47]	0.6 [0.49]	-0.066*** (0.012)	0.000 (0.000)
Age at JJ Referral	15.23 [1.80]	15.51 [1.67]	0.276*** (0.047)	0.012 (0.048)
<i>Panel B: Delinquency</i>				
Most serious charge is felony	0.37 [0.48]	0.46 [0.50]	0.086*** (0.013)	-0.002 (0.015)
Most serious charge is misdemeanor	0.49 [0.50]	0.42 [0.49]	-0.070*** (0.013)	0.004 (0.015)
Violent charge on referral	0.37 [0.48]	0.46 [0.50]	0.095*** (0.013)	-0.000 (0.016)
History of violent charge	0.09 [0.28]	0.14 [0.35]	0.055*** (0.008)	0.000 (0.012)
History of history of drug or alcohol charge	0.03 [0.18]	0.02 [0.14]	-0.011** (0.005)	-0.000 (0.004)
History of weapon charge	0.02 [0.15]	0.04 [0.19]	0.012*** (0.004)	-0.001 (0.004)
History of adjudicated charge	0.07 [0.25]	0.07 [0.25]	0.000 (0.007)	-0.002 (0.008)
History of felony charge	0.11 [0.31]	0.16 [0.36]	0.045*** (0.008)	-0.010 (0.012)
<i>Panel C: History of CW</i>				
Investigation within 1 year	0.58 [0.49]	0.58 [0.49]	-0.001 (0.013)	-0.009 (0.015)
Physical abuse	0.04 [0.20]	0.06 [0.24]	0.022*** (0.005)	-0.003 (0.009)
Child in need of services	0.59 [0.49]	0.65 [0.48]	0.054*** (0.013)	-0.014 (0.016)
Parent substance abuse	0.18 [0.38]	0.17 [0.38]	-0.006 (0.010)	-0.001 (0.013)
Lack of caregiver	0.05 [0.21]	0.14 [0.34]	0.090*** (0.006)	-0.003 (0.012)
Inadequate supervision	0.09 [0.28]	0.11 [0.32]	0.026*** (0.008)	-0.007 (0.010)
Unmet material need	0.17 [0.37]	0.17 [0.38]	0.007 (0.010)	-0.009 (0.013)
<i>Panel D: Mental health diagnosis before age 10</i>				
Emotional disturbance (broad)	0.51 [0.50]	0.54 [0.50]	0.039*** (0.013)	0.005 (0.016)
Adjustment disorders	0.19 [0.40]	0.21 [0.41]	0.020** (0.010)	-0.003 (0.014)
Anxiety disorders	0.04 [0.19]	0.04 [0.19]	-0.000 (0.005)	0.000 (0.007)
Disruptive disorders	0.25 [0.44]	0.27 [0.45]	0.020* (0.011)	-0.003 (0.016)
Mood disorders	0.14 [0.34]	0.17 [0.38]	0.037*** (0.009)	0.002 (0.014)
F-Statistic from joint test				0.335
Observations	12,165	1,664	13,829	10,141

Notes: The table presents summary statistics and sample balance. The first column consists of the 12,165 juvenile justice cases involving youth not concurrently placed in foster care at the time of juvenile justice contact, while the second column consists of 1,664 cases involving youth in foster care at the time of the delinquency court referral. Column 3 presents point estimates of a difference in means between the groups displayed in the first two columns. Column 4 similarly presents a difference in means between the two groups, but after implementing IPW and limiting the sample to the 10,141 observations within exactly-matched groups with variation. Standard deviations are displayed in square brackets, while standard errors (two-way clustered at the youth and exactly matched group levels) are shown in parentheses.

Table 2: Main estimates of processing bias

	(1)	(2)	(3)	(4)
<i>Panel A: Any adjudicated charge</i>				
Current FC	-0.024 (0.015)	-0.021* (0.013)	-0.024 (0.015)	-0.021* (0.013)
Observations	13,829	13,829	10,141	10,141
R-squared	0.000	0.003	0.179	0.404
Control Mean	0.360	0.391	0.374	0.374
Percent Effect	-5.278	-12.788	-6.417	-5.615
<i>Panel B: Serious disposition</i>				
Current FC	-0.023* (0.012)	-0.060*** (0.015)	-0.035** (0.015)	-0.032** (0.013)
Observations	13,829	13,829	10,141	10,141
R-squared	0.000	0.004	0.180	0.396
Control Mean	0.365	0.402	0.383	0.383
Percent Effect	-6.301	-14.925	-9.138	-8.355
IPW		Y	Y	Y
Groups with variation			Y	Y
Controls				Y

Notes: The table presents the main estimates of processing bias for two key outcomes: having any charge adjudicated and having a punitive disposition (court-ordered supervision or juvenile delinquency placement), in panels A and B, respectively. The first row of each panel shows estimates of δ from equation 1. Standard errors are two-way clustered at the youth and exactly-matched group levels and are shown in parentheses. Below the point estimates, the table displays the amount of observations in each model, the R-squared of the model, the control mean—the average value of the dependent variable among youth not in foster care at the beginning of their juvenile justice case—and the estimate as a percent of the control mean. The first column presents a difference-in-means between cases where the youth was concurrently placed in foster care and cases where the youth was not in out-of-home care. Column 2 implements inverse probability weighting—weighing control units by $\frac{\hat{p}}{1-\hat{p}}$. Column 3 restricts the sample to cases within an exactly-matched group with variation. Finally, the last column, our preferred specification, implements post-matching regression adjustment by including the set of covariates used to compute propensity scores.

Table 3: Estimates of other case outcomes

	(1) Any adjudicated charge	(2) Serious disposition	(3) Any charge withdrawn	(4) Any court supervision	(5) Pre-trial detention	(6) Post-adjudication detention
Current FC	-0.021* (0.013)	-0.033** (0.013)	0.029** (0.014)	-0.032** (0.013)	-0.021* (0.012)	-0.019 (0.012)
Observations	10,142	10,142	10,142	10,142	10,142	10,142
R-squared	0.406	0.396	0.308	0.377	0.327	0.326
Control Mean	0.375	0.384	0.268	0.360	0.224	0.229
Percent Effect	-5.600	-8.594	10.821	-8.889	-9.375	-8.297
One-sided test	0.050	0.007	0.015	0.008	0.037	0.053

Notes: The table presents estimates of processing bias for youth concurrently placed in foster care during their delinquency case across several case outcomes. The first two columns display estimates of processing bias in having any charge adjudicated and having any serious disposition in the case, respectively, while implementing IPW and post-matching regression adjustment. Columns 3 and 4 estimate processing bias in having any charge withdrawn or being placed under court-ordered supervision at any point of the delinquency case. Lastly, the table presents estimates of differences in juvenile detention, either before an adjudication decision (Column 5) or after the youth is adjudicated (Column 6). Standard errors are two-way clustered at the youth and exactly-matched group levels and are shown in parentheses.

Table 4: Robustness to alternative sample selection

	(1) Baseline	(2) Recent CW	(3) 90-day window	(4) Drop Philadelphia	(5) Drop Allegheny
<i>Panel A: Any adjudicated charge</i>					
Current FC	-0.021* (0.013)	-0.049*** (0.017)	-0.021 (0.015)	-0.033** (0.015)	-0.022 (0.015)
Observations	10,141	5,645	9,619	8,259	8,803
R-squared	0.404	0.458	0.401	0.460	0.409
Control Mean	0.374	0.387	0.374	0.387	0.378
Percent Effect	-5.615	-12.661	-5.615	-8.527	-5.820
<i>Panel B: Serious disposition</i>					
Current FC	-0.032** (0.013)	-0.044** (0.018)	-0.041*** (0.016)	-0.052*** (0.015)	-0.035** (0.015)
Observations	10,141	5,645	9,619	8,259	8,803
R-squared	0.396	0.447	0.394	0.456	0.401
Control Mean	0.383	0.393	0.383	0.396	0.386
Percent Effect	-8.355	-11.196	-10.705	-13.131	-9.067

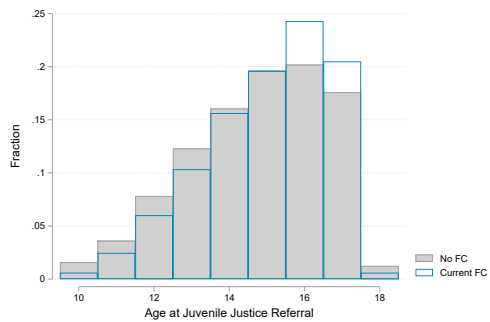
Notes: The table shows the robustness of the main estimates to alternative sample construction decisions. The first column presents the baseline estimates using our preferred specification in the last column of Table 2. Column 2 presents estimates if we instead restrict the control units to only those with prior child welfare services contact within one year of the delinquency case. In the third column, we omit delinquency cases that may stem from contact with child welfare services and drop delinquency cases that begin within 90 days of the child welfare referral. Finally, Columns 4 and 5 separately drop observations from the two largest counties in the sample, Philadelphia and Allegheny, respectively.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

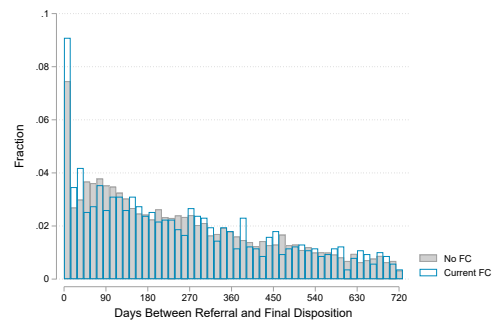
Table 5: Sensitivity Analysis

	Baseline	Bias-Adjusted Effect	Proportional Degree of Selection Oster	Altonji
	<i>Panel A: Any adjudicated Charge</i>			
Current FC	-0.021	-0.018	7.398	1.51
	<i>Panel B: Serious Disposition</i>			
Current FC	-0.032	-0.03	15.82	3.126

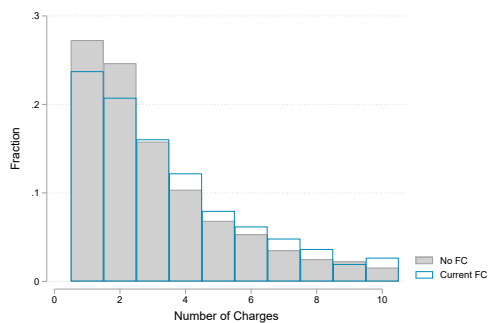
Notes: The table presents the results of the sensitivity checks proposed in [Oster \(2019\)](#). Panels A and B report the results for any adjudicated charge and having any serious disposition, respectively. The first column reports the baseline estimate of the effect of being in out-of-home care at the time of the juvenile justice referral as in the final column of [Table 2](#). Column 2 displays the bias-adjusted effect, assuming the amount of selection on unobservables is equal in proportion to the amount of selection on observables. Following [Oster \(2019\)](#), we assume that the maximum R-squared from a hypothetical model which includes both observed and unobserved factors is 1.3 times the R-squared from the preferred baseline model. The final column instead follows [Altonji, Elder and Taber \(2005\)](#) and assumes the R-squared from a hypothetical model which includes both observed and unobserved factors is 1.



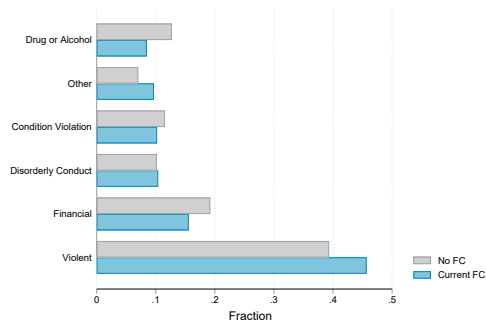
(a) Age at referral



(b) Case length



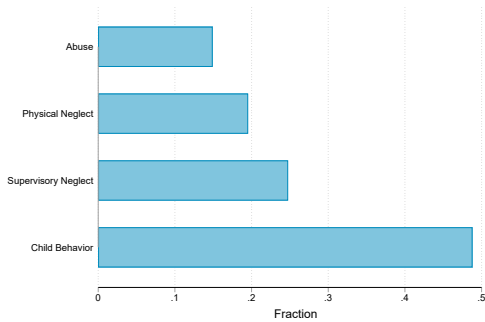
(c) Number of charges



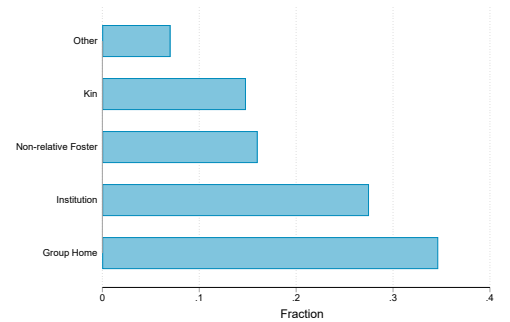
(d) Most serious charge

Figure 1: Descriptive characteristics of delinquency cases

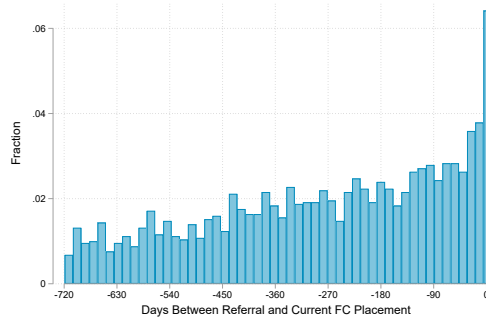
Notes: The figure presents the distributions of delinquency case characteristics, comparing cases involving youth in foster care with those not in foster care. Panel A presents the distribution of age at the time of the juvenile's referral. Panel B displays the total length of the case in days. Panels C and D present the distribution of the number of charges brought against the juvenile and the most serious charge in the case, respectively.



(a) Maltreatment history



(b) Placement setting



(c) Distance between placement and referral

Figure 2: Descriptive characteristics of foster care placements

Notes: The figure plots the distributions of foster care placement characteristics for youth who were in foster care during their involvement with the juvenile justice system. Panel A presents the most prevalent and non-mutually exclusive child maltreatment allegations associated with these youth. Panel B shows the most common placement settings for youth at the time of their delinquency case. Finally, Panel C presents the distribution of time between the youth’s foster care placement date and the initiation of their case.

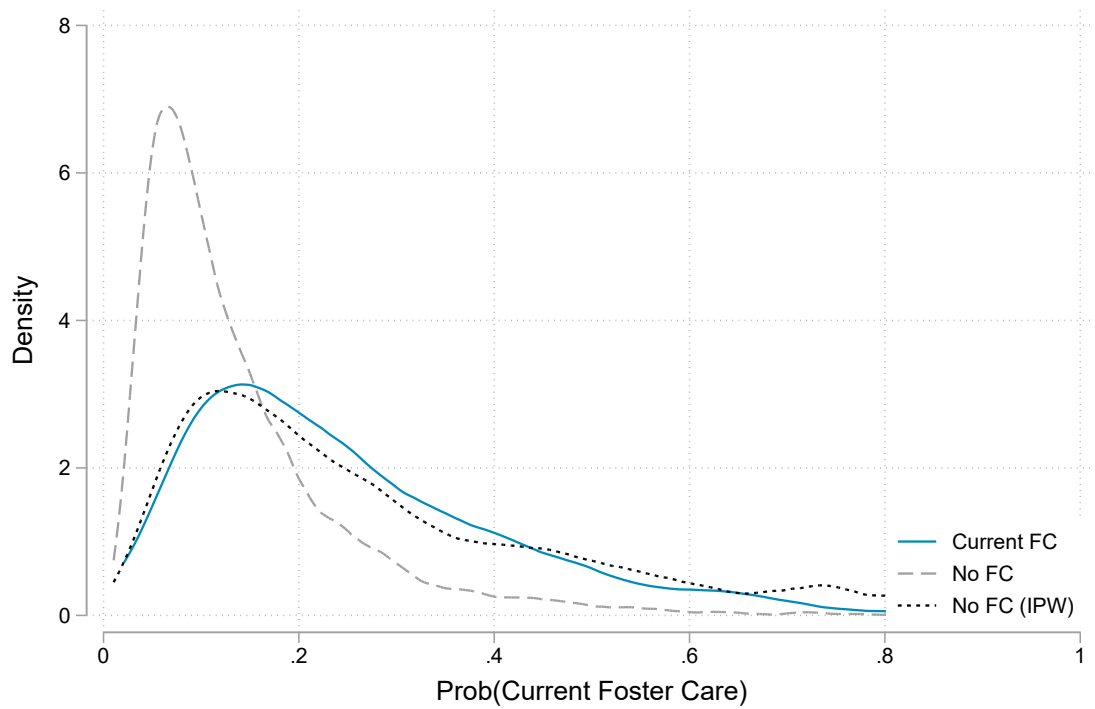


Figure 3: Distribution of propensity scores

Notes: The figure displays the distribution of propensity scores across three groups. The solid blue line displays the propensity score distribution for youth concurrently in foster care at the time of juvenile justice contact. The grey dashed line plots the propensity score distribution for children not in foster care at the time of juvenile justice contact, while the dotted black line plots the distribution of the propensity scores after implementing IPW.

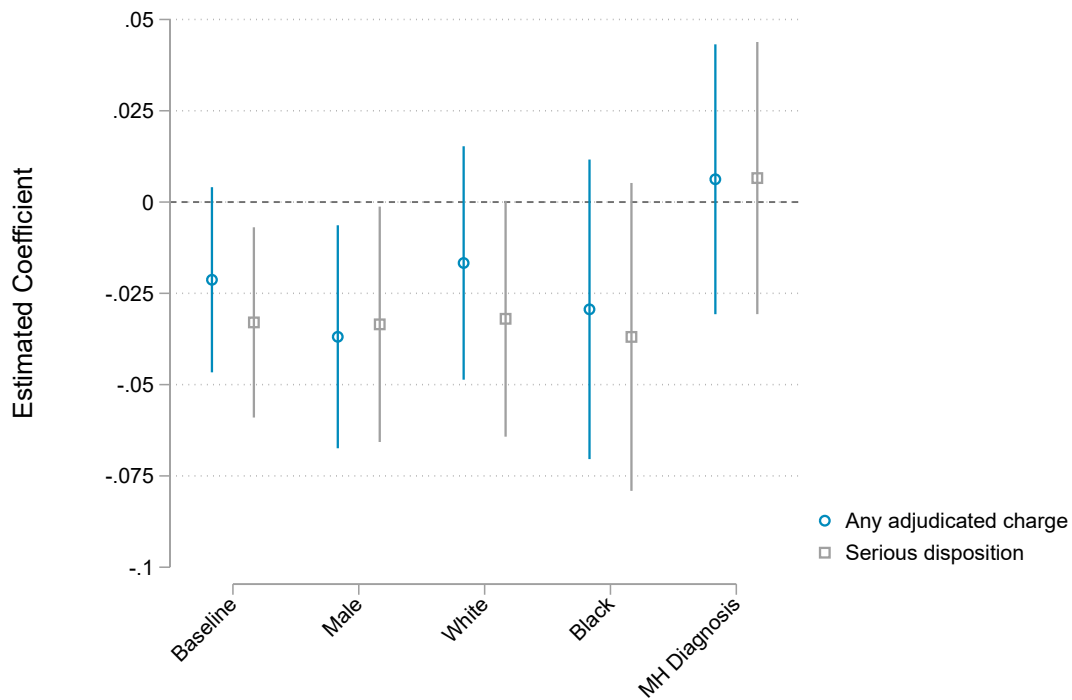


Figure 4: Heterogeneity by youth characteristics

Notes: The figure plots estimates of processing bias across sub-groups of youth characteristics along with 95 percent confidence intervals. Left-hand estimates display estimates of processing bias for youth in foster care on having any charge adjudicated, while right-hand estimates do the same for having a serious disposition. Each separate estimate is derived from separate subgroups described below the estimate, and point estimates are presented in Table A3. Standard errors are two-way clustered at the youth and exactly-matched group levels.

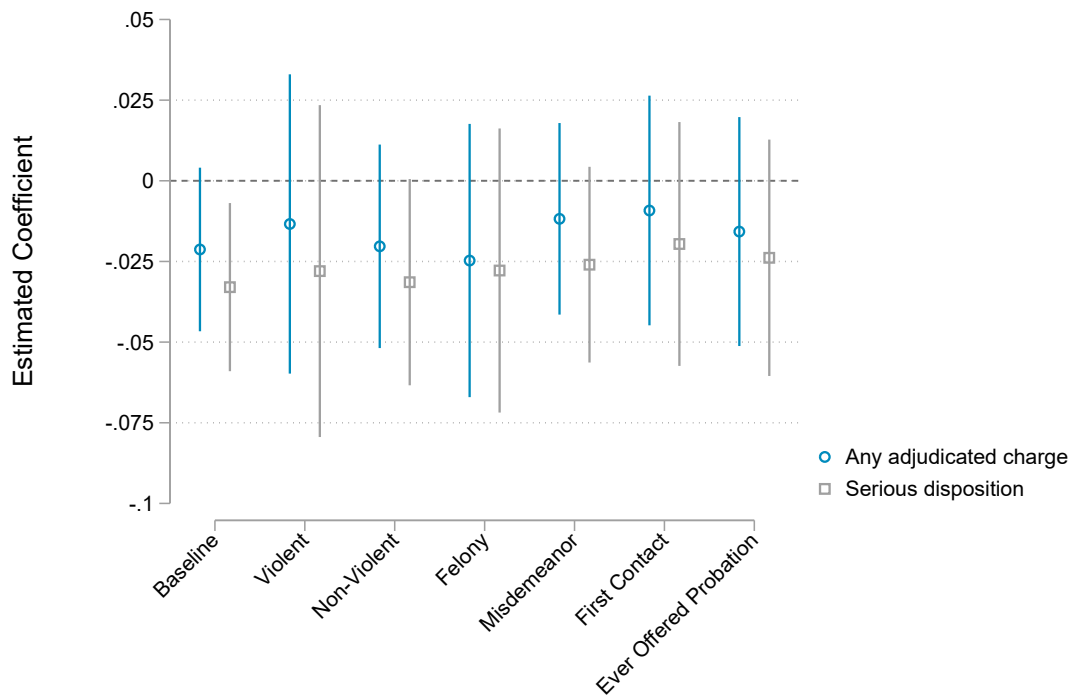


Figure 5: Heterogeneity by case characteristics

Notes: The figure plots estimates of processing bias across sub-groups of the youth’s case characteristics along with 95 percent confidence intervals. Left-hand estimates display estimates of processing bias for youth in foster care on having any charge adjudicated, while right-hand estimates do the same for having a serious disposition. Each separate estimate is derived from separate subgroups described below the estimate, and point estimates are presented in Table A4. Standard errors are two-way clustered at the youth and exactly-matched group levels.

Appendix

A Supplemental Figures and Tables

Table A1: Model for estimating the propensity score

	Current FC
<i>Demographics</i>	
Age at JJ Referral	0.795*** (0.266)
Age at JJ Referral Sq	-0.025*** (0.009)
Black	0.434*** (0.080)
Hispanic	0.606*** (0.111)
Male	-0.345*** (0.066)
<i>Child Welfare Contact</i>	
Any Recent CW Referral	0.002 (0.067)
History of Any physical abuse	1.758** (0.697)
History of Any sex abuse	0.144 (0.444)
History of Allegation of Child Health or Behavioral Conflict	-0.126 (0.243)
History of Parent mental illness or disability	-0.109 (0.221)
History of Parent substance use	-0.237 (0.149)
History of Domestic violence	0.073 (0.240)
History of Abandonment or lack of caregiver	-0.173 (0.238)
History of Inadequate supervision	-0.110 (0.184)
History of Unmet material needs	-0.220 (0.136)
History of Inappropriate discipline	-0.128 (0.136)
History of Confirmed Any physical abuse	-1.522** (0.708)
History of Confirmed Any sex abuse	0.014 (0.459)
History of Confirmed Allegations Child Health or Behavioral Conflict	0.257 (0.242)
History of Confirmed Parent mental illness or disability	0.308 (0.243)
History of Confirmed Parent substance use	0.415** (0.165)
History of Confirmed Domestic violence	-0.302 (0.290)
History of Confirmed Abandonment or lack of caregiver	1.625*** (0.259)
History of Confirmed Inadequate supervision	0.311 (0.208)
History of Confirmed Unmet material needs	0.264* (0.155)
History of Confirmed Inappropriate discipline	0.445***

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Table A1 – Continued from previous page

	Current FC
	(0.164)
Total past CW referrals	0.194***
	(0.030)
History of foster care placement	0.501***
	(0.075)
<i>Juvenile Justice Contact</i>	
Any violent charge	0.057
	(0.076)
Any drug or alcohol charge	-0.370***
	(0.090)
Any weapon charge	-0.333***
	(0.098)
Any financial crime charge	-0.312***
	(0.080)
Any sex crime charge	0.473***
	(0.116)
Most serious charge is misdemeanor = 1	0.228**
	(0.109)
Most serious charge is felony = 1	0.445***
	(0.126)
History of Any violent charge	0.177
	(0.109)
History of Any drug or alcohol charge	-0.490**
	(0.212)
History of any weapon charge	0.177
	(0.179)
History of any weapon charge	-0.015
	(0.135)
Has prior adjudication	-0.036
	(0.131)
Has prior felony charge	0.022
	(0.114)
Total past JJ referrals	0.023
	(0.036)
<i>Behavioral Health History</i>	
Emotional disturbance before age 10	-0.012
	(0.090)
Adjustment disorder before age 10	-0.142
	(0.113)
Anxiety disorder before age 10	0.033
	(0.183)
Psychotic disorder before age 10	-0.292
	(0.233)
Disruptive disorder before age 10	-0.451***
	(0.092)
Mood disorder before age 10	0.251***
	(0.093)
Any prior emotional disturbance	0.060
	(0.105)
Any prior adjustment disorder	0.275***
	(0.093)
Any prior anxiety disorder	0.050
	(0.102)
Any prior psychotic disorder	0.301**

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Table A1 – *Continued from previous page*

	Current FC
Any prior disruptive disorder	(0.126) 0.522***
Any prior substance abuse disorder	(0.083) 0.250*** (0.094)
Observations	10,142

Notes: The table presents the estimates of a logit model of concurrent foster care placement on a rich set of youth characteristics. The model additionally includes a set of dummy variables for each county in which the juvenile was referred and the referral year in which the referral was made. We omit these coefficients for ease of exposition.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Robustness to alternative matching

	(1) Baseline	(2) Kernel Matching	(3) One Nearest Neighbor	(4) Three Nearest Neighbors	(5) Alternative Exact Matching
<i>Panel A: Any adjudicated charge</i>					
Current FC	-0.021* (0.013)	-0.020 (0.013)	-0.020 (0.015)	-0.011 (0.013)	-0.007 (0.016)
Observations	10,141	9,429	2,896	4,455	5,473
R-squared	0.404	0.414	0.461	0.415	0.448
<i>Panel B: Serious disposition</i>					
Current FC	-0.032** (0.013)	-0.023* (0.013)	-0.024 (0.016)	-0.020 (0.014)	-0.014 (0.016)
Observations	10,141	9,429	2,896	4,455	5,473
R-squared	0.396	0.400	0.452	0.402	0.447

Notes: The table shows the robustness of the main estimates to alternative matching specifications. The first column presents the baseline estimates using our preferred specification in the last column of Table 2. Column 2 presents estimates if we instead implement kernel matching with an Epanechnikov kernel function. In the third and fourth columns, we instead use our predicted propensity scores to implement nearest-neighbor matching. Estimates using one and three nearest neighbors are shown in Columns 3 and 4, respectively. Finally, in Column 5 we instead construct more strict exactly-matched groups that additionally match on the characteristics of the individual juvenile case. These case characteristics include if the case included any violent, drug-related, or weapon-related charge, if the most serious charge was a felony, and if the juvenile had a history of felony charges or a history of adjudicated charges.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Heterogeneity, youth characteristics

	(1) Baseline	(2) Male	(3) White	(4) Black	(5) MH Diagnosis
<i>Panel A: Any adjudicated charge</i>					
Current FC	-0.021* (0.013)	-0.037** (0.016)	-0.017 (0.016)	-0.030 (0.021)	0.006 (0.019)
Observations	10,141	6,931	6,329	3,767	5,222
R-squared	0.404	0.408	0.447	0.371	0.438
Control Mean	0.374	0.429	0.367	0.382	0.388
Percent Effect	-5.615	-8.625	-4.632	-7.853	1.546
<i>Panel B: Serious disposition</i>					
Current FC	-0.032** (0.013)	-0.032** (0.016)	-0.031* (0.016)	-0.037* (0.021)	0.007 (0.019)
Observations	10,141	6,931	6,329	3,767	5,222
R-squared	0.396	0.406	0.440	0.361	0.443
Control Mean	0.383	0.440	0.378	0.389	0.395
Percent Effect	-8.355	-7.273	-8.201	-9.512	1.772

Notes: The table presents heterogeneity by youth characteristics. Panel A presents estimates of processing bias for youth in foster care on having any charge adjudicated, while Panel B does the same for having a serious disposition. Each column presents the estimates from separate specifications, each derived from separate subgroups described by the top of the column. Standard errors are two-way clustered at the youth and exactly-matched group levels and are shown in parentheses.

Table A4: Heterogeneity, juvenile justice case characteristics

	(1) Baseline	(2) Violent	(3) Non-Violent	(4) Felony	(5) Misdemeanor	(6) First Contact	(7) Ever Probation
<i>Panel A: Any adjudicated charge</i>							
Current FC	-0.021* (0.013)	-0.013 (0.024)	-0.020 (0.016)	-0.025 (0.022)	-0.012 (0.015)	-0.009 (0.018)	-0.016 (0.018)
Observations	10,142	3,880	6,132	4,001	6,023	5,888	3,399
R-squared	0.406	0.447	0.472	0.409	0.429	0.387	0.420
Control Mean	0.375	0.463	0.295	0.541	0.224	0.312	0.142
Percent Effect	-5.600	-2.808	-6.780	-4.621	-5.357	-2.885	-11.268
<i>Panel B: Serious disposition</i>							
Current FC	-0.033** (0.013)	-0.028 (0.026)	-0.031* (0.016)	-0.028 (0.022)	-0.026* (0.015)	-0.020 (0.019)	-0.024 (0.019)
Observations	10,142	3,880	6,132	4,001	6,023	5,888	3,399
R-squared	0.396	0.439	0.463	0.406	0.402	0.380	0.410
Control Mean	0.384	0.463	0.312	0.553	0.230	0.311	0.146
Percent Effect	-8.594	-6.048	-9.936	-5.063	-11.304	-6.431	-16.438

Notes: The table presents heterogeneity by delinquency case characteristics. Panel A presents estimates of processing bias for youth in foster care on having any charge adjudicated, while Panel B does the same for having a serious disposition. Each column presents the estimates from separate specifications, each derived from separate characteristics of the juvenile delinquency case described by the top of the column. Standard errors are two-way clustered at the youth and exactly-matched group levels and are shown in parentheses.