

# Economics of Child Protection: Maltreatment, Foster Care & Intimate-Partner Violence

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August 1, 2018

## Abstract

Violence within families and child neglect are strikingly common: 700,000 children are found to be victims of abuse or neglect in the US each year; over the course of childhood 6% of children are placed in foster care, and 18% witness intimate-partner violence. These children are at much higher risk of homelessness, criminal-justice involvement, unemployment, and chronic health conditions compared to their neighbors. This article reviews the state of the economics literature on the causes and consequences of child maltreatment and intimate partner violence and calls for greater research into interventions aimed at improving child wellbeing.

**Keywords:** child protection, foster care, intimate partner violence

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# 1 INTRODUCTION

Family dysfunction, in the form of child maltreatment and intimate partner violence, is strikingly common. In the US each year, 4 million cases of suspected child abuse and neglect are reported to child protective services, 700,000 children are found to have been victims, and over 1600 fatalities are attributed to abuse or neglect (US DHHS 2017). A similar number of women in the US are killed each year due to violence from an intimate partner, and surveys show that 37% of women in the US experience intimate partner violence during their lifetime (Smith et al., 2017).

In addition to the direct welfare concerns for those who are abused or neglected, there are large externalities associated with such dysfunction. First, direct expenditures on child protective services total over \$30 billion per year (Rosinsky & Connelly, 2016). More importantly, when policy makers target programs to “at-risk youth”, maltreated children are at particularly high risk of outcomes such as homelessness or imprisonment as young adults. For example, children who receive child protective services are 2-3 times more likely than other children to be incarcerated by age 21 (Mersky & Topitzes (2010); Lindquist & Santavirta (2014); Berger et al. (2016); Cutuli et al. (2016)), 1.6-2 times more likely to receive disability pensions (Vinnerljung et al., 2015), have substantially lower educational attainment (Mersky & Topitzes (2010); Boden et al. (2007); Fry et al. (2017)), and are 2-4 times more likely to be victims of preventable death (Hjern et al., 2004). Fang et al. (2012) estimate that the lifetime cost of new abuse and neglect cases in the US each year is between 100 and 500 billion dollars.

One of the strongest risk factors predicting child maltreatment is the presence of intimate partner violence (IPV) within the household (US DHHS 2017). The US Department of Justice estimates that 18% of children have been exposed to IPV during their lifetimes, with 12% witnessing intimate partner violence directly, most often a father or partner victimizing the child’s mother (Hamby et al., 2011).<sup>1</sup> Dong et al. (2004) finds that those who experienced

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<sup>1</sup>Most often the perpetrator is a father, intimate partner of the mother, or other male (62%, 11%, 8%,

child abuse were three times more likely to have been exposed to IPV relative to those who did not. Others estimate the increase in the risk of abuse is closer to fifteen times higher if previously exposed to domestic violence (Osofsky, 1999). Moreover, a stronger correlation between IPV and child abuse and neglect is observed in high risk families (e.g., welfare recipients and shelter residents) (Appel & Holden, 1998).

In terms of economic theory, there is considerable interest in modeling family decision making, with an emphasis on altruism and the ability of families to achieve pareto optimality through within-family bargaining (Becker (1991); Browning & Chiappori (1998); Seiglie (2004)). As Becker (1991) notes, child abuse may be viewed as an exception to the typical altruism found within families. As a result, economic models of crime appear to be more fruitful in the study of child abuse and neglect. With respect to intimate partner violence, we will examine the evidence regarding the ability of within-family bargaining models as well as models derived from behavioral economics to explain this phenomenon.

The main aim of this paper is to describe the state of the existing empirical work in economics on child maltreatment and their related subjects of foster care and intimate-partner violence.<sup>2</sup> This includes a discussion of the hurdles to credible research designs in this area, as well as opportunities arising from new data sources and a growing interest in rigorous evaluation of new interventions.

The paper is organized as follows. Section 2 discusses child abuse and neglect and Section 3 describes the role of foster care in responding to such maltreatment. Section 4 considers intimate partner violence and its impact on child wellbeing, and Section 5 concludes.

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respectively). However, 19% of the time the perpetrator is either the mother or another female in the home.

<sup>2</sup>For a review of the sociology literature on child protection, see Wildeman & Waldfogel (2014).

## 2 CHILD ABUSE & NEGLECT

### 2.1 Measurement & Risk Factors

This section describes how child abuse and neglect are measured to give a better sense of its prevalence and highlight empirical concerns with common measures. As with other crime statistics, there are two ways child abuse and neglect are typically measured: official reports to child protection authorities and victimization surveys.

#### 2.1.1 Official reports of maltreatment

As noted in the introduction, child protection systems find that approximately 700,000 children are abused or neglected each year in the US. Such findings rely on referrals from community members, including physicians, educators, neighbors and family members. Investigations are then conducted and family courts decide on rehabilitation efforts.

There is wide geographic variation in the rate at which children are found to be maltreated. In 2015, the average annual maltreatment rate across states was 0.95%, with a standard deviation of 0.48%. Even for seemingly similar states, the rates can diverge. For example, Nebraska's maltreatment rate is over 2.5 times the rate of neighboring Kansas.

The wide heterogeneity in official reporting rates suggests that there are different standards about when to report abuse and how that evidence is adjudicated. This variation has implications when evaluating programs that aim to reduce child maltreatment. An intervention that affects official maltreatment rates could stem from a change in enforcement rather than a change in the underlying maltreatment of children. For example, a program aimed to provide family preservation services to prevent maltreatment may increase the monitoring of families as part of providing services. This additional attention could result in more reports even if abuse and neglect declines relative to comparison families that are not monitored as closely.

### **2.1.2 Survey evidence**

In addition to official reports, victimization surveys ask respondents directly about maltreatment. Finkelhor et al. (2015) conducted a phone survey of children and found 15% reporting maltreatment in a given year with 38% of 14-17 year olds reporting having ever experienced abuse or neglect. Currie & Tekin (2012) employed data from the National Longitudinal Study of Adolescent Health (Add Health), which included questions aimed at measuring abuse or neglect. For example, respondents were asked if they were left alone when they should have been supervised more than 10 times, or if they were hit, kicked, or slapped by their parents or other adult care givers more than 10 times. 23% of respondents report that they were maltreated in either of these ways, and 4.8% reported being victims of sexual abuse.

Such survey evidence suggests that at least some forms of child abuse and neglect are common. A key policy question is when such conduct rises to a level that requires child protective services to intervene—a question whose answer varies across time and space, and one that will be addressed in Section 3.

### **2.1.3 Linked administrative data**

A resource that is becoming increasingly available—and deserves more attention from empirical researchers—is linked administrative data such as health and education data combined with data from child protection systems. For example, consider the intervention discussed above that is aimed at reducing abuse and neglect through family preservation services. While official reports can be contaminated by increased attention brought by the program, and survey evidence for a particular program can be expensive to collect and relies on self reports that may also be impacted by the program itself, linked administrative data offers a wide array of objective outcome measures. These include health outcomes from Medicaid, schooling outcomes from state and district databases, educational attainment from financial aid applications, employment and earnings from Social Security or state unemployment

insurance programs, welfare and disability receipt, and criminal justice involvement.

For example, Nordic countries have a wealth of linked administrative data, which is increasingly used in child welfare research (see, for example, Kloppen et al. (2015)). In the US, a prominent example of linked administrative data is the Illinois Integrated Database constructed by the Chapin Hall Center for Children (Goerge et al., 1994). The database links state and local administrative datasets going back to the 1980s, with high-quality child welfare data dating back to the early 1990s. Outcomes can be gathered from schooling data, Medicaid data, juvenile and adult corrections, and employment and earnings. Similarly, Cuyahoga County Ohio, which contains Cleveland, has a similar time span of linked child-welfare data (Coulton et al., 2016). Recently the Children’s Data Network has linked such data from California and is being used to inform policy (Putnam-Hornstein et al., 2015). This growing tide of data resources will make it possible to evaluate programs by exploiting natural experiments and reduce the cost and feasibility of randomized trials in child protection interventions.

## **2.2 Risk Factors Predicting Abuse and Neglect**

Administrative reports describe the risk factors that lead to abuse and neglect. Two that are often highlighted are drug and alcohol abuse and the presence of a caregiver with a history of domestic violence (Mowbray et al. (2017); US DHHS 2017). Indeed, there is some evidence that efforts to curb alcohol consumption or methamphetamine reduces maltreatment as measured by child-protection interventions such as foster care (Markowitz et al. (2014); Cunningham & Finlay (2013)).

Exposure to intimate partner violence (IPV) is a particularly strong risk factor for child maltreatment, as noted in the introduction and investigated in more detail in Section 4. Related, Waldfogel et al. (2010) used data from the Fragile Families and Child Wellbeing Study, a longitudinal study of 5000 children born between 1998 and 2000 with an emphasis on children born to unmarried parents. This study includes a number of health and mal-

treatment questions. They review the abuse and neglect research that uses these data and note that one of the more robust findings is that the presence of a man who is not the child's father elevates the risk of child maltreatment.

Parental criminal-justice involvement is another risk factor for child maltreatment. For example, Berger et al. (2016) study administrative data in Wisconsin and find that among all children with an official maltreatment report, 8% had a parent in state prison at some point during 12 months following the report.

Increasingly, linked administrative data are being used to generate risk scores and decision support tools that can be used by child protection investigators. This introduces new capabilities as well as ethical questions involving privacy and the potential for discrimination to be encoded within risk-assessment algorithms (Cuccaro-Alamin et al., 2017). The development of these tools also provides a potential research opportunity: first, a test of whether the introduction of data-driven decision support tools affects investigator behavior, and then seeing if the children in families investigated when these tools are available have better health and educational outcomes. Alternatively, the tools may generate discrete flags based on continuous risk scores, setting up the possibility of comparing cases that fall above and below the thresholds in a regression-discontinuity design.

## **2.3 Consequences of Abuse and Neglect**

Abuse and neglect are directly welfare relevant due to the harm they cause during childhood. Similar to quality of life questions in health economics, it is difficult to measure changes in maltreatment, however, and with the measures we do have—official reports to authorities, self reports in victimization surveys, and administrative data on health outcomes—it is also difficult to estimate society's willingness to pay for reductions in maltreatment.

Instead, research has shown that those who are victims of abuse and neglect as children are substantially more likely to have costly outcomes such as health problems or criminal justice involvement. These estimates help quantify important externalities that can be part

of a return-on-investment calculation for programs that prevent abuse and neglect.

The seminal study using relatively large survey evidence to estimate effects of childhood abuse and neglect on longer-term outcomes is Widom (1989). The study compared abused or neglected children with children who were matched on observable characteristics. For young children prior to school entry, the characteristics include sex, age, race, and hospital of birth; for those of school age the matching variables include sex, race, date of birth, class and elementary school, and neighborhood. Delinquency outcomes were noticeably higher among those abused and neglected. For example, 19% of males have a violent criminal record compared to 13.5% of the comparison group. Physical abuse was particularly related, leading to the conclusion that child abuse leads to a “cycle of violence”. In the end, the study is a call for more research on the mechanisms that explain why abuse and neglect leads to more violence to inform preventive measures.

Later, Currie & Spatz Widom (2010) looked at even longer-term effects with this matched sample. In 2003-04 outcomes were available for a matched-pair comparison among 358 subjects. Those who were victims of child maltreatment when they were young were found have lower levels of employment (17 percentage points) and earn \$9000 less compared to \$28,000 in earnings among the comparison group. This raw difference declined to \$6500 when demographic controls were included in the estimation.

Currie & Tekin (2012) studied the effects of child maltreatment on crime outcomes using the National Longitudinal Study of Adolescent Health. They employ methods including rich controls, sibling comparisons, and twin comparisons and find that maltreatment is associated with a doubling of the likelihood that the child will commit crime. For example, they find an approximately 10 percentage point increase in a non-drug crime compared to a mean of 16%. The effects are particularly strong for sexual abuse and for those experiencing greater degrees of maltreatment.

Going forward, more research on the effects of abuse and neglect on health outcomes is needed. First, health measures offer more objective child safety assessments compared to



official maltreatment reports. Second, there is a large medical literature documenting the correlation between child abuse and neglect and poor health as adults: a concern over what are referred to as “adverse childhood events” (see, for example, Felitti et al. (1998); Caspi et al. (2016) and Danese et al. (2009)). Similarly, there is significant interest in biology and economics on the effects of prenatal health insults on long-term outcomes (Almond & Currie, 2011). A better understanding of the long-term implications of abuse and neglect on chronic health conditions can inform policies that invest in prevention and amelioration of child maltreatment.

## **2.4 Interventions that Reduce Abuse or Neglect**

There are few rigorous studies finding programs that reduce abuse and neglect (Levey et al., 2017). One exception is the Nurse Family Partnership. This is a postpartum care program where nurses make home visits to new mothers. Olds (2007) describes how intensive programs—with visits up to two years after birth and targeted to low-income mothers—have been evaluated using randomized controlled trials. These programs have been shown to reduce child maltreatment and improve cognitive development, as well as long-term outcomes including arrests and health behaviors, such as youth smoking and drinking. Programs that are less intensive have been found to have smaller effects (Aos et al., 2004). Currently a large-scale expansion of the program in South Carolina is being studied with a randomized controlled trial (Lantz et al., 2016).

Given that poverty is positively correlated with maltreatment, poverty amelioration programs should be evaluated on their ability to protect children. Paxson (2002) used state-level panel data to study the relationship between families’ circumstances and the level of child maltreatment reported and foster care placement. They found that a number of characteristics are associated with official reports of maltreatment, including the fraction of children with absent fathers, with two non-working parents, with incomes below 75% of the poverty line and with working mothers (holding income fixed). The results also showed that de-

creases in state welfare benefits were associated with increases in child protection in the form of foster care placement. The results suggest that welfare programs can improve child safety.<sup>3</sup>

In addition to interest in broader programs that have an effect on abuse and neglect, the most direct method to protect children is the foster care system. The next section considers this system in more detail.

## 3 CHILD PROTECTION & FOSTER CARE

### 3.1 Measurement

One response to child abuse and neglect is the temporary removal of children from their families and placement into foster care: typically a foster family with the goal of family rehabilitation and reunification. Foster care placement is fairly common in developed countries. In the US, Wildeman & Emanuel (2014) calculate that nearly 6% of children are placed in foster care during their childhood using data from the 2000s. The rate varied by race and ethnicity, with over 15% of Native American children being placed and over 11.5% of African American children being placed. Fallesen et al. (2014) found that the lifetime risk of foster care placement was similar in Denmark, although the risk had fallen considerably there in recent years.

Figure 1 shows that the number of children in foster care in the US has varied widely over the past 50 years, with approximately 300,000 children in care in the 1960s and 1970s, increasing during the 1980s to 550,000 by the mid 1990s and a subsequent decline to just over 400,000 by 2015. Each year over 250,000 children enter foster care in the US (US DHHS (hhs, 2016)). While official statistics are not yet available for more recent years, it is expected

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<sup>3</sup>Another public-policy intervention that has received considerable attention from economists is the legality of abortion, which has been shown to reduce the number of children in poverty (Gruber et al., 1999). Bitler & Zavodny (2002) have also found that abortion legalization is associated with lower rates of official maltreatment reports.

that the number will increase since 2015, in part due to the opioid epidemic.

The changes over the past 20 years mirror changes in crime rates more generally (Levitt, 2004), which suggests that demand for foster care has declined since the mid 1990s.

In addition to the time series variation in placement, there is a striking degree of variation in placement across states in the U.S. In terms of the number of children in foster care at a point in time, the mean is 6 per thousand with a standard deviation of 3 per thousand. Alaska has the highest foster care rate, at 14 per thousand, while Virginia has the lowest at 2.5 per thousand.

Figure 2 reports the fraction of children entering foster care in each state plotted against the fraction of children found to be maltreated. The first thing to note is the range of the both axes. As noted in Section 2, the fraction of children found to be maltreated varies widely across states, as does foster care placement. Second, the relationship between the number of children found to have been maltreated and the fraction of children entering foster care is weak, with a slope of 0.08. For example, Michigan and Wisconsin have similar rates of foster care placement, but the official child maltreatment rate in Michigan is nearly four times higher compared to Wisconsin. Similarly, in New Hampshire 3 out of every 1000 children entered foster care in 2015 compared to 8 per thousand in neighboring Vermont. This is suggestive that not only is the definition of maltreatment varying across place, the response to maltreatment also varies. As with official maltreatment rates, changes in foster care entry rates can be difficult to interpret, as they may vary due to the prevalence of abuse and neglect or policies that govern the rate of entry.

### **3.1.1 Supply and demand of foster care services**

The prevalence of foster care placement is the result of demand and supply forces. Child abuse and neglect by parents, coupled with child protection policies that determine the response to suspected abuse and neglect, affect the level of demand. Supply is provided largely by families willing to open their homes to foster children on a temporary basis, with

an average length of stay of one to two years across the US.

In addition to the level of foster care services, the supply responsiveness to the monthly payments made to foster parents can inform compensation policy. Doyle & Peters (2007) used a price-theory model of the foster care market to estimate the effects of raising the monthly subsidy offered to foster parents on the supply of foster homes. Their contribution was the recognition that in the late 1980s there was a shortage of foster homes, and changes in subsidies within states were often tied to other welfare programs. In this setting, the model implies that the relationship between changes in subsidy levels and changes in the foster care population within states over time traces out the foster care supply curve. The results suggested that in states with shortages, an increase in the subsidy by 10 percent would increase the quantity supplied by 3 percent.

### **3.2 Causal Effects of Foster Care on Child Outcomes**

The decision to place a child in foster care involves a tradeoff between two goods: child protection and family preservation. A current policy concern receiving considerable attention is the potential benefits of “diversion”, where children at risk of foster care placement remain at home, often with family preservation services but not always (Berrick & Hernandez, 2016). Experiments with such interventions are just beginning to be contemplated and offer an opportunity for researchers. A better understanding of the causal effects of foster care placement on child outcomes is needed to inform such policies. This section describes the state of the evidence.

### 3.2.1 Selection on observables

Few studies have considered the effect of removing children from home on child outcomes.<sup>4</sup> Earlier reviews by the Council et al. (1998) and by McDonald et al. (1996) found ten studies from 1960 to 1996 that employ a comparison group of any kind. Most have small sample sizes and mixed evidence of correlations with child outcomes.<sup>5</sup>

Berger et al. (2009) used the National Survey of Child and Adolescent Well-Being, which includes 2453 children who are investigated by child protective services, 342 of which were placed in foster care. Propensity-score matching estimates suggest little effect of placement on child behavior problems or measures of cognitive skill over a 30 month timeframe. While the estimates show robustness to different assumptions, they all rely on a selection-on-observables identifying assumption. While this is a prominent study using one of the largest child welfare survey datasets (Wildeman & Waldfogel, 2014), the null results do not rule out large effects due to relatively imprecise estimates. For example, at the bounds of the confidence interval, externalizing behavior problems may increase by a third of a standard deviation after foster care placement.

One of the largest studies of the effects of foster care placement on child outcomes was conducted by Jonson-Reid & Barth (2000) who linked juvenile incarceration and child welfare administrative data in California for 160,000 children involved with the child protection system. They found little difference in incarceration rates for those who entered foster care compared to those who remained home. In-home services for abused children were associated with somewhat lower incarceration rates, especially for African American and

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<sup>4</sup>Torsten Santavirta offers some fascinating studies of foster care in other contexts, such as the evacuation of children during wartime. Santavirta (2012) note that 50,000 children from Finland were evacuated to Sweden and effectively randomly assigned to families there for two years. Studying 599 children whose outcomes can be observed, foster father's income is associated with these children's choice for school track choice, with larger effects for the younger age groups. This evidence is similar to the findings of Sacerdote (2007), which studied Korean adoptees effectively randomly assigned to families in the US. Santavirta et al. (2015) study children in Finland evacuated to Sweden during World War II with a matched sibling design. They found that later in life men were slightly less likely to be admitted to a hospital for psychiatric disorders, while women who were evacuated were at slightly higher risk for a mood disorder.

<sup>5</sup>More recent examples include Davidson-Arad et al. (2003), Lawrence et al. (2006), and Berzin (2008) with sample sizes below 200

Hispanic children.

### **3.2.2 Instrumental variable approach using randomly-assigned investigators**

Doyle (2007a, 2008, 2013) uses an economics lens to study the effects of foster care on child outcomes. The model illustrates a moral hazard problem where child protection investigators face incentives that may lead to too many placements. If they fail to remove a child who is subsequently found to be abused or neglected, they will face punishment. If they emphasize child protection over family preservation, negative consequences of foster care placement for marginal cases are unlikely to be found until years later and are unlikely to be attributed to child protective services. As a result, the theory suggests that child protective services may overemphasize child protection at the expense of family preservation.

The main empirical strategy in these papers is an instrumental-variables approach that exploits the fact that most cases are rotationally assigned to investigators within teams. This effectively randomly assigns cases to investigators. The investigator's placement rate in all other cases is used to measure the tendency to recommend placement.

Using administrative data in Illinois for children suspected of being abused or neglected in the 1990s, the investigator assigned to the case is shown to matter for placement (the first stage). Using this source of variation, outcomes are much worse for children placed in foster care compared to those remaining at home. Teen motherhood and juvenile delinquency rates are found to be two times higher due to foster care placement, adult incarceration rates are three-times higher, and employment and earnings are 40% lower. Meanwhile, emergency care—a proxy for child safety—is actually found to increase with foster care placement in the 90 days to 1 year after the investigation. There is at least one benefit to placement: wellness visits are three-times higher in foster care. This finding is reassuring given that all foster children are supposed to receive a wellness visit: the strategy finds effects where we know it should.

The estimated effects apply only to cases where the investigator assignment affects foster

care placement: cases where investigators may disagree about the placement recommendation. From a policy perspective, this is a margin of interest: the results suggest that the system should be more family preservation oriented in the context of the study: Illinois in the 1990s, which at that time had one of the highest placement rates in the US. The placement rate has fallen significantly since due to policies aimed at reducing the number of children in foster care.

The study of more recent cases in Illinois and of cases in other state or national systems would be welcome comparisons. For example, systems differ in the quality of their foster homes, the quality of their foster care case managers who oversee the cases once the child is placed, as well as the placement rate so that the marginal case will differ across place. If similar effects are found across a wide set of areas, that would suggest that the one common feature—the act of removal—is likely responsible for the negative consequences, at least across the quality range of the systems studied. If the results differ across jurisdictions, it will be constructive to unpack why some systems perform better than others.

The only published study that has used a similar instrumental-variable approach is Warburton et al. (2014). This study focused on 16-18 year old males and rich administrative data from Canada involving over 20,000 children. Foster care placement was found to lead to less criminal-justice involvement for these older youths, although the estimate is imprecise as it cannot rule out a 50% increase. The paper also used another identification strategy that exploited a change in child-protection policy that sharply increased the number of placements in reaction to a child homicide. In an interrupted time series approach, the results suggested that foster care placement is associated with a very large reduction in high school graduation and a similarly large increase in welfare receipt as young adults. This sudden change in policy is common across jurisdictions in the US and is a potentially fruitful source of placement variation for future research into the causal effects of foster care on child outcomes.

### 3.2.3 Effects of different types of foster care placements

**Kinship foster care** Over the past thirty years, the largest shift in foster care policy has been the embrace of calling on relatives such as grandparents to provide foster homes. Placement with kin is thought to be less traumatic for children, and, as a result, most states look to find kinship placements prior to seeking non-relatives. An empirical evaluation of the performance of relative foster homes compared to non-relative ones is difficult because children with willing relatives may differ from those without.

Doyle (2007b) attempted to address the quality question by investigating a reform in Illinois that reduced the subsidy offered to relatives to provide foster care by 30 percent. Children placed in foster care following reports of abuse—a subset of entrants who were less likely to be affected by concurrent reforms—were 20 percent less likely to find a willing relative. This suggests that relatives do respond to financial incentives when it comes to deciding whether or not to provide foster care. Further, quality measures were investigated, including placement disruption and the likelihood that the child visited a physician for a wellness visit—a task expected of all foster parents for children entering foster care. These measures were stable or slightly improved following the reform. This suggests that the marginal kinship providers—those affected by the subsidy reduction—were of similar or slightly lower quality compared to the non-relative caregivers enlisted to provide care in the relatives’ absence.<sup>6</sup>

**Institutionalization versus family foster care** There is also relatively little quantitative research showing that the dominant form of foster care—placing children with families—is superior to group homes or institutions such as orphanages. One of the more controversial projects in this regard is the Bucharest Early Intervention Project (Zeanah et al. (2003);

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<sup>6</sup>There are few randomized controlled trials to investigate the impact of kinship placement on child outcomes (Winokur et al., 2014). Two other papers consider kinship care quality. Hayduk (2017) studies state law changes using a difference-in-differences design, while Font (2014) studied 1215 children using a propensity-score matching design. They find kinship foster care is more stable, with mixed evidence on academic achievement and child health.



Smyke et al. (2009); Schoenmaker et al. (2014); Marshall (2014)), which randomized the placement of 136 infants into either usual care in the orphanage or placement with a foster family. IQ scores were substantially higher (by 0.6 standard deviations) for those placed with foster families at ages 3.5 and 4.5. Later at age 8, scores were still higher (by 0.4 standard deviations) and marginally statistically significant. The study provides speculative evidence that earlier placement results in larger returns of family foster care in terms of cognitive ability.

### **3.2.4 Transition to adulthood**

Children who “age out” of foster care have received attention, in part because they can be tracked more easily and because they are a policy-relevant group given the support services provided as children transition from the foster care system to independent living. These children are at particularly high risk of poor outcomes such as criminal justice involvement and homelessness (Reilly (2003); Dworsky et al. (2013)).

Given these outcomes, there is significant interest in aiding children as they transition out of foster care through what are known as Independent Living Programs. Unfortunately, large-scale, quantitative assessments of these programs are generally lacking. A few programs have been evaluated and suggest limited effectiveness (Greeson et al. (2015a); Greeson et al. (2015b)). One exception is the Youth Villages Transitional Living Evaluation (Jacobs et al., 2015). The program includes support and counseling tailored to the needs of each youth. This program has been studied with a prospective, randomized controlled trial involving over 1300 youth in Tennessee. One of the success stories appears to be in the area of housing, where homelessness was found to drop from 27% to 21% after one year for those randomized into the program compared to those in the control group (Jacobs et al., 2015). Meanwhile, the treatment group had 18% higher earnings compared to \$3488 for the control group. These improvements were not found to be statistically significant at two years, although homelessness was not assessed at that time (Skemer & Jacobs, 2016).

There are many related topics of interest, from child poverty to child adoption that could be the subject of another review. The next section addresses one of the largest predictors of child maltreatment and foster care entry: intimate partner violence.

## 4 INTIMATE PARTNER VIOLENCE AND CHILD WELL-BEING

In addition to abuse directed at children, exposure to intimate partner violence (IPV) can also negatively affect children. In homes characterized by IPV, children are more likely to suffer stress, depression, internalizing and externalizing behavioral problems (Herrenkohl et al. (2008); Sternberg et al. (2006); Wolfe et al. (2003)). They are also more likely to express anger and depression (Carlson, 2000). More recently, scientists have documented that children exposed to violence (this includes either IPV or physical abuse or bullying) exhibit telomere erosion between the ages of 5 and 10 (Shalev et al., 2013). Telomere length is considered an important physiological mechanism linking stress to cellular aging, disease and mortality in humans. Evidence also suggests that boys who witness intimate partner violence are more likely to be abusive in adulthood (Roberts et al., 2010).

Why would children who have not suffered abuse themselves, but have witnessed or otherwise been exposed to IPV suffer worse outcomes? On the one hand, fathers who are violent towards their partners are less involved parents and exhibit more negative child-rearing practices (Guille, 2004). But research has focused more often on the impact of IPV on mothers and their ability to parent. A number of studies have documented the physical, emotional and psychological toll of IPV borne by mothers. Women who have been abused are significantly more likely to report having asthma, diabetes, chronic pain and activity limitations (Black et al., 2011). They are also three times more likely to report being in poor mental health. Other work has documented higher rates of PTSD, lower self-esteem, greater depression and anxiety (Golding, 1999). As a result of these negative effects on

physical and mental health, mothers who are the victims of domestic violence suffer deficits in terms of their parenting capacity (Stephens, 1999) and the quality of the attachment to their children (Cleaver et al. (1999); Levendosky et al. (2003); Holden (2003)).<sup>7</sup>

## 4.1 Causal Effects of IPV on Child Outcomes

Estimating the causal impact of IPV on child outcomes is complicated by two main factors: the endogeneity of IPV and issues related to measurement. Homes characterized by IPV are disproportionately disadvantaged as measured by race, ethnicity and income.<sup>8</sup> As such, the finding that these children suffer worse outcomes cannot necessarily be attributable to exposure to IPV, but could simply reflect underlying differences in the level of disadvantage faced by these families, though researchers have made efforts to control for as many potential confounders as possible in their analyses. The second complication is difficulty measuring IPV based on survey data. Self-reports are noisy and the relatively low prevalence of witnessing violence in any given year (6.6 % report any exposure in the past year, and 2.6% report witnessing directly) would require very large data sets to study the impact of IPV on child outcomes. As noted above, large administrative data are more promising.

Aizer (2010) is an example of a study that uses a large administrative dataset to estimate the impact of reductions in IPV against pregnant mothers on newborn health. Exploiting exogenous variation in IPV from changes in local policies, she estimates significant reductions in IPV that result in significant improvements in birth weight, an important marker of newborn health that is strongly predictive of later life outcomes. The administrative data consisted of the universe of births over a ten-year period in California linked with hospitalization data for the mothers that enabled one to identify mothers admitted to the hospital for an assault while pregnant, independent of self-reports. Using health data to measure do-

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<sup>7</sup>See Holt et al. (2008) for a review of this literature.

<sup>8</sup>Evidence from the 2010 National Intimate Partner and Sexual Violence Survey (NIPSVS), suggests that 34% of white women have ever been the victim of domestic violence, compared with 37% for Hispanic women and 44% of Black women (Black et al., 2011). The reasons for the disproportionate amount of violence in these homes are many and include poverty and education, rates of cohabitation, high rates of alcohol and substance use (Caetano et al., 2000).

mestic violence (not crime data) offers the advantage of not having to rely on police reports which are arguably more endogenous.

There is also evidence that domestic violence generates externalities outside the household. Baker & Hoekstra (2010) use a unique administrative dataset linking child test scores and disciplinary infractions with measures of IPV among classmates' parents. They document that after an arrest of a child's parent for IPV, the child's classmates suffer worse test scores and behavior. The assumed mechanism is that the child's behavior suffers as a result of the violence, generating externalities for his or her classmates. This study is an example of a creative use of linked administrative data that has, since this paper was written, become even more prevalent.

#### **4.1.1 Interventions that treat children ex post**

Solutions to the problems of domestic violence with respect to child health and well-being consist of efforts to either ameliorate the negative effects of exposure on children ex post, or reduce or eliminate the prevalence of domestic violence. We discuss the existing evidence with respect to each below.

Researchers have examined the impact of interventions for children who have been exposed to domestic violence, but this research is largely outside of economics, and only a small number of the evaluations include valid comparison groups and follow-up assessments. Graham-Bermann & Hughes (2003) provide a review of what they refer to as “exemplary studies” – studies with a randomized design, outcomes based on well measured and accepted measures of child behavior, and the collection of information from mothers, children and teachers as well as some administrative records. In general, they conclude that these “exemplary studies” find that interventions that address the symptoms of the child and also provide parenting education and support are the most effective in terms of improving child internalizing and externalizing behavioral problems.

The finding that a program that targets mothers and children is especially effective

is interesting and somewhat novel. “Parenting” programs that seek to modify parenting behavior and perceptions have generally been found to be ineffective, particularly when targeting at disadvantaged families (Lundahl et al., 2006).

Perhaps the circumstances faced by women who have been the victims of domestic violence generate a different context in which the provision of parenting support can be more effective. This could be because either the mother is more receptive to the intervention or because moderating parenting practices at this “sensitive” moment has the potential to generate a greater impact (that is, the return is greater). Though the Heckman model of child investment and returns incorporates the concept of “sensitive windows” of investment, this concept is defined by time and the child’s place in the life cycle. In light of these results, one might consider expanding the model to include “sensitive windows” based on context, with future empirical research exploring the effectiveness of efforts to modify parenting behavior and perceptions at “sensitive” moments, such as after exposure to domestic violence. This work would ideally be based on larger samples, include families outside of the shelter system, and include long term follow-up. The results might be generalizable to other populations and contexts as well, suggesting ways that we might design and deliver parenting programs to other vulnerable populations.

## **4.2 Interventions that Reduce IPV**

### **4.2.1 A model of household bargaining**

Domestic violence has fallen considerably over the past 20 years. According to the US Bureau of Justice Statistics, intimate partner violence against women has fallen from about 10 per 1000 in 1993, to half that by 2008 (Catalano et al., 2009). Intimate partner homicide has declined by a similar amount.

We consider whether an economic analysis of IPV, which places violence within the context of a household bargaining model, can explain such dramatic declines. In such a model, men derive utility from abuse, and women disutility. The amount of violence in a

relationship is a function of the relative costs and benefits of violence, as well as the “outside option” available to each member of the household. The outside option is defined by the utility enjoyed by each individual should the relationship dissolve (Farmer & Tiefenthaler (1997); Tauchen et al. (1991)). Within this framework, multiple factors can influence the amount of violence, either by 1) increasing the costs to men of perpetrating violence, or 2) improving women’s outside option through social interventions and the labor market. Below we discuss the empirical evidence regarding each.

#### **4.2.2 Increasing the costs of violence: The legal response to domestic violence**

Historically, states did not prosecute most crimes of domestic violence. For example, US law historically exempted husbands from allegations of rape and police officers responding to reports of domestic violence were discouraged from arresting perpetrators; they were instead advised to give counsel. This began to change in the 1980s when victims successfully sued police departments for failure to provide equal protection after repeated calls for assistance did not result in arrest (Worden & McLean, 2010). Since then, the legal system has increasingly taken issues of domestic violence more seriously. Police departments, prosecutors and judges have all adopted policies with the aim of increasing the likelihood and/or severity of punishment.

However, to date, there have been few evaluations of such policies that allow for causal inference. Some experiments have been conducted, but the research design is often compromised by treatment migration and treatment dilution. This is to be expected in social settings with such important consequences. An example of one such “compromised” study is the Minnesota Domestic Violence Experiment, initially conducted in the 1980s and evaluated by criminologists (Sherman & Berk (1984); Berk & Sherman (1988)). In this study, police officers who responded to calls of domestic violence were to either arrest (or not) the perpetrators randomly. Cases in which life threatening injury seemed likely were excluded. In practice, nearly all of those who were assigned to be arrested were, but many of those

assigned to be “counselled” were in fact arrested. This is most likely because they were deemed by police officers to be sufficiently threatening such that lack of arrest would significantly endanger the victim. Thus, the delivered treatment was ultimately endogenous, complicating causal inference. Angrist (2006) re-analyzed the data using instrumental variable techniques to uncover the treatment effect. Specifically, he used treatment assignment as an instrument for treatment delivered. When he did, he estimated significant negative effects of arrest on the probability of re-offense for domestic violence. This represents an example of how experiments in social settings can be improved with econometric techniques to generate causal estimates.

While this particular case was designed as a randomized controlled trial (RCT), even in the absence of RCTs, the criminal justice setting often lends itself to analysis based on naturally occurring, plausibly exogenous variation: police officers, prosecutors, defense attorneys and judges are most often assigned randomly and can influence important outcomes. The main barrier, however, to analysis has been a lack of access to data. Fortunately, similar to the child welfare data linkages, great advances have lately been made in the area of criminal justice, not only making such data available to researchers, but attempting to link such data with additional outcomes found outside the criminal justice arena. For example, the UChicago Urban Labs have been linking data in Chicago and New York to study innovative crime prevention strategies, some of which are described below. As local jurisdictions have increasingly sought more aggressive responses to domestic violence, more research is needed to better quantify the impact of such efforts in terms of recidivism and family outcomes more generally.

### **4.2.3 Improving women’s outside option**

Improving a woman’s outside option affects her threat or disagreement point, the point which represents the payoff should the negotiations break down and the union dissolve. As the outside option improves, so too does the payoff to dissolution and the more bargaining power

the woman has when negotiating over the allocation of resources (including violence) within the household. Two main ways of improving women's outside option involve improving labor market conditions for women and providing services to women that help terminate abusive relationships. It is important to note that within the context of a household bargaining model, a woman's actual earnings or use of services need not increase, only her potential earnings/use of services, to raise her threat point and thus bargaining power (Pollak, 2005). They can also enter the labor market or use services in an effort to signal their threat points but not necessarily dissolve the relationship as in Farmer & Tiefenthaler (1997).

We discuss each in turn.

**Female labor market opportunities** A number of economists (and other social scientists) have considered the role of potential earnings in the labor market in affecting rates of domestic violence, driven in part by the strong secular increases in women's wages and declines in IPV over the past 20-30 years. The two main barriers this research must address are data availability and identification. With respect to identification, structural methods, panel data and IV techniques have all been used to identify the effects of women's labor market conditions or outcomes on violence. Bowlus & Seitz (2006) use structural methods to estimate a negative impact of female employment on violence. Tauchen et al. (1991) and Farmer & Tiefenthaler (1997) use panel data to examine the impact of changes in a woman's income over time on violence. Panel data enables one to overcome the potential for bias from time-invariant omitted variables, but the potential for reverse causality (that is, reductions in violence might result in greater employment and wages) remains.

Other studies do not use individual level data linking wages and violence, but rather rely on administrative data linking local employment and earnings with rates of IPV. Examples include Anderberg et al. (2016) who used data from the UK and used variation in opportunities brought about by the great recession. In areas that witnessed larger increases in female unemployment, violence increased, in contrast to areas that witnessed larger in-



creases in male unemployment which saw declines in violence. Aizer (2010) used panel data for local labor markets in California and links relative increases in demand for female labor with declines in IPV. Munyo & Rossi (2015) used plausibly exogenous changes in the real exchange rate in Uruguay that generates opposite effects on the average wages of men and women to estimate the impact of an increase in the wage gap on IPV. They find that IPV increases when the wage gap increases, consistent with a bargaining model.<sup>9</sup>

The previous results notwithstanding, there is less uniformity regarding bargaining models of domestic violence when the data are from developing countries. For example, Erten & Keskin (Forthcoming) find that an increase in female education in Turkey increased female earnings but did not reduce domestic violence. Using data from Mexico, Bobonis et al. (2013) study the impact of a conditional cash transfer (CCT) program (allocated randomly) on IPV. While they found that the receipt of CCTs reduced the probability of physical violence, it increased threats of violence. There are two potential means of explaining why these results differ from those described above. On the one hand, a CCT differs from increase in potential labor market earnings. On the other hand, a necessary condition of a bargaining model is that the threat of termination of a relationship is viable. In many developing countries, the stigma associated with being unmarried may be particularly high that substantially lowers the threat to leave a marriage. Future research should consider testing directly which conditions a household bargaining model accurately captures the determinants of IPV.

**Services for victims of IPV** The passage of the National Violence Against Women Act (VAWA) in 1994 resulted in a major increase in the provision of services to victims of domestic violence. The Act authorized a grant program administered through the Department of Justice's Office of Violence Against Women. Services that have been provided under VAWA include: victim assistance programs, transitional housing, shelter services, civil legal

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<sup>9</sup>Interestingly, Nou & Timmins (2005) find that welfare reform which added conditions of employment to welfare receipt led to a reduction in domestic violence suggesting that not only income but labor force attachment may be important in understanding the determinants of domestic violence. This could be consistent with household bargaining or exposure reduction models of domestic violence.

assistance, and court training and improvement grants. Most of these programs have not been evaluated rigorously. They do not lend themselves to RCTs and treatment receipt is endogenous. Another barrier is likely the fact that anonymity of the recipients is of primary importance, likely limiting researchers' access to such information.

The lack of research on the effectiveness of public provisions of such services may have contributed to past difficulties re-authorizing the Violation Against Women Act (it was eventually reauthorized in 2013). The lack of a possibility for RCTs suggests significant opportunities for economists and other social scientists trained in using naturally-occurring, quasi-experimental variation for causal inference. Given the difficulty obtaining individual-level data, analyses that focus on exogenous variation in the timing and local placement of services for identifying variation are likely the most promising.

**Reducing IPV: Alternative models based on behavioral economics** Alternative models in economics can also be used to understand the determinants of IPV. These models explicitly consider individual decision makers' cognitive limitations and psychological biases. The former might include what Kahneman (2011) describes as a two tiered model of cognition: the first is fast, instinctive and emotional, the second is slower, deliberative, and logical. The latter include imperfect optimization, bounded self-control, and nonstandard preferences (Congdon et al., 2011). Below we discuss whether behavioral models that incorporate cognitive limitations or psychological biases might explain IPV.

A two-tiered model of cognition can potentially be used to explain IPV and generate potential interventions. If men who abuse their wives are engaged in the first mode of thought – fast, instinctive and emotional, then efforts to encourage them to engage more in the second mode of thought – slower, deliberative and logical, might lead to a reduction in violence. This has yet to be tested. However, work by Heller et al. (2017) tested the potential for cognitive behavioral therapy (CBT) to influence violent behavior. The intervention stressed the importance of the slower, more deliberative means of thinking and provided subjects

with tools to help the transition to slower thought. The authors found that when the CBT was administered to at-risk youth, it reduced arrests for violent crimes. Whether this model of “fast thinking” accurately reflects the decision making of violent men and whether interventions involving CBT for the abusers can reduce future violence, is an important topic for future research.

Regarding psychological biases, there is evidence that bounded self-control may affect the incidence of IPV. This work, however, has focused on the bounded self-control of women: women who have been abused and report their abuser to the police for prosecution at the time of offense, often seek to drop the prosecution days or weeks later. In other words, these women plan to behave one way, but often end up behaving otherwise, which is considered evidence of bounded self-control. This intra-personal conflict can potentially respond to commitment devices.

Research has found that in the context of domestic violence, women do seem to value a commitment device. Examining a policy that forces prosecutors to continue with the prosecution of domestic violence even if women state a preference for not to doing so (a commitment device), Aizer & Dal Bó (2009) find that women are in fact more likely to report abuse when this policy is in place. This is consistent with a model of bounded self-control with a demand for commitment devices among women. It should be noted, however, that research on the impact of mandatory arrest for domestic violence resulted in a decrease in reporting and an increase in intimate partner homicide. However, family violence (including abuse against children) declined as a result (Iyengar, 2009). More work is needed to better assess whether bounded self-control (among either women or men) can explain IPV and whether efforts to encourage a commitment to behavior can reduce violence.

## 5 CONCLUSION

Child welfare is a multidisciplinary research area; how can economics make an impact? First, economic theory is a useful way to frame problems and develop solutions. For example, the economics of crime emphasizes opportunity costs of would-be perpetrators as a predictor of maltreatment and suggests that anti-poverty and employment programs can be successful in protecting children; household bargaining emphasizes that greater opportunities of mothers, whether or not they are realized, can empower them in ways that improve child wellbeing; moral hazard problems in child protection suggest a tendency toward an overuse of foster care; and behavioral economics can guide interventions that reduce the threat of violence within families.

Related, economics brings cost-benefit analyses as a natural discussion when evaluating child welfare programs. The power of the economics approach lies in casting a wide net for those costs and benefits. For instance, a program designed to reduce foster care entry might compare the cost of the program with the savings from lower rates of placement, but economics emphasizes that this is not sufficient. We need to study a wide range of child outcomes to begin to understand whether a program benefited the child to gauge whether the costs of the program were indeed worth the expense.

This brings us to the recurring theme of the paper, which is that linked administrative data that is increasingly available will usher in a wave of research on this wider range of costs and benefits. This includes productivity measures from education, employment and welfare agencies, externality measures from criminal justice, and health measures from state Medicaid programs or providers. These data can provide more objective measures of wellbeing compared to official reports of maltreatment, which may reflect policy changes rather than underlying abuse and neglect.

The use of theory and these new data sources provide the opportunity to employ econometric tools to answer these important questions. This includes instrumental variables that provide plausibly exogenous variation in the likelihood of treatment due to policies and

practices of the child welfare system. Regression-discontinuity designs, for example, can be employed in settings where risk scores are used to flag at-risk cases in order to study the effectiveness of the tool and the programs the tool recommends.

Finally, we can team with child welfare practitioners and researchers from other fields to implement randomized controlled trials when new interventions are being considered. In child protection, experimenting with different forms of foster care, including more informal placements with relatives coupled with family-preservation support, is particularly needed and increasingly possible. Economists can push to experiment with treatments that can reveal underlying behavioral responses—such as how families respond to financial incentives or investigators respond to social incentives when performance measures are shared within teams—so we can build on the lessons when designing new policies.

The returns to programs that reduce violence within families and childhood neglect could be enormous considering the direct and indirect costs involved. Economic research on these programs should shed light on the underlying behavior of individuals implementing or exposed to them to inform policies that improve child wellbeing.

## **DISCLOSURE STATEMENT**

If the authors have nothing to disclose, the following statement will be used: The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

## **ACKNOWLEDGMENTS**

The authors thank Kyle Barron for expert research assistance and gratefully acknowledge financial support for previous work in the area from the National Science Foundation (SES-0518757 and SES0648700) and the National Institutes of Health (RO3HD051808)

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# Figures

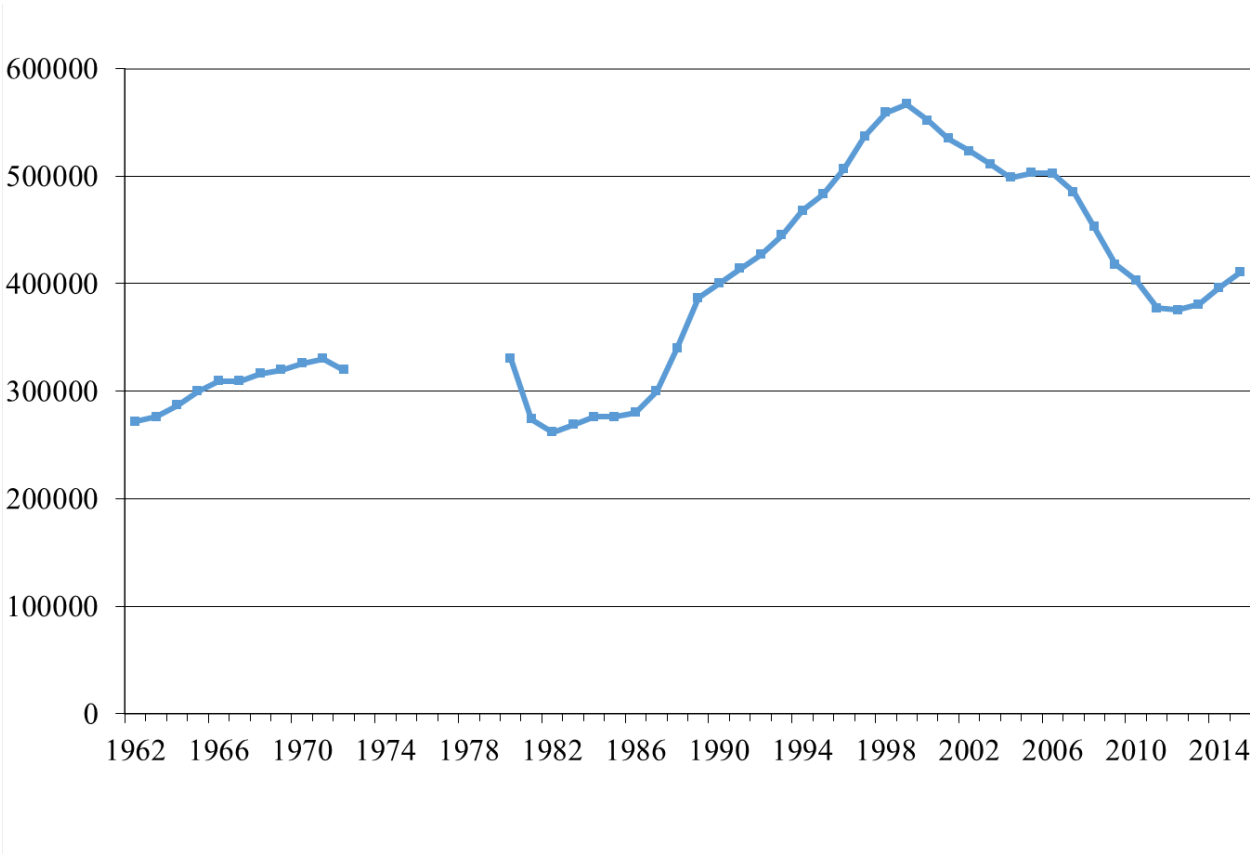


Figure 1: Number of Children in Foster Care in the U.S. 1962–2015  
Sources: *U.S. House of Representatives. "Green Book." 1996* and U.S. DHHS AFCARS

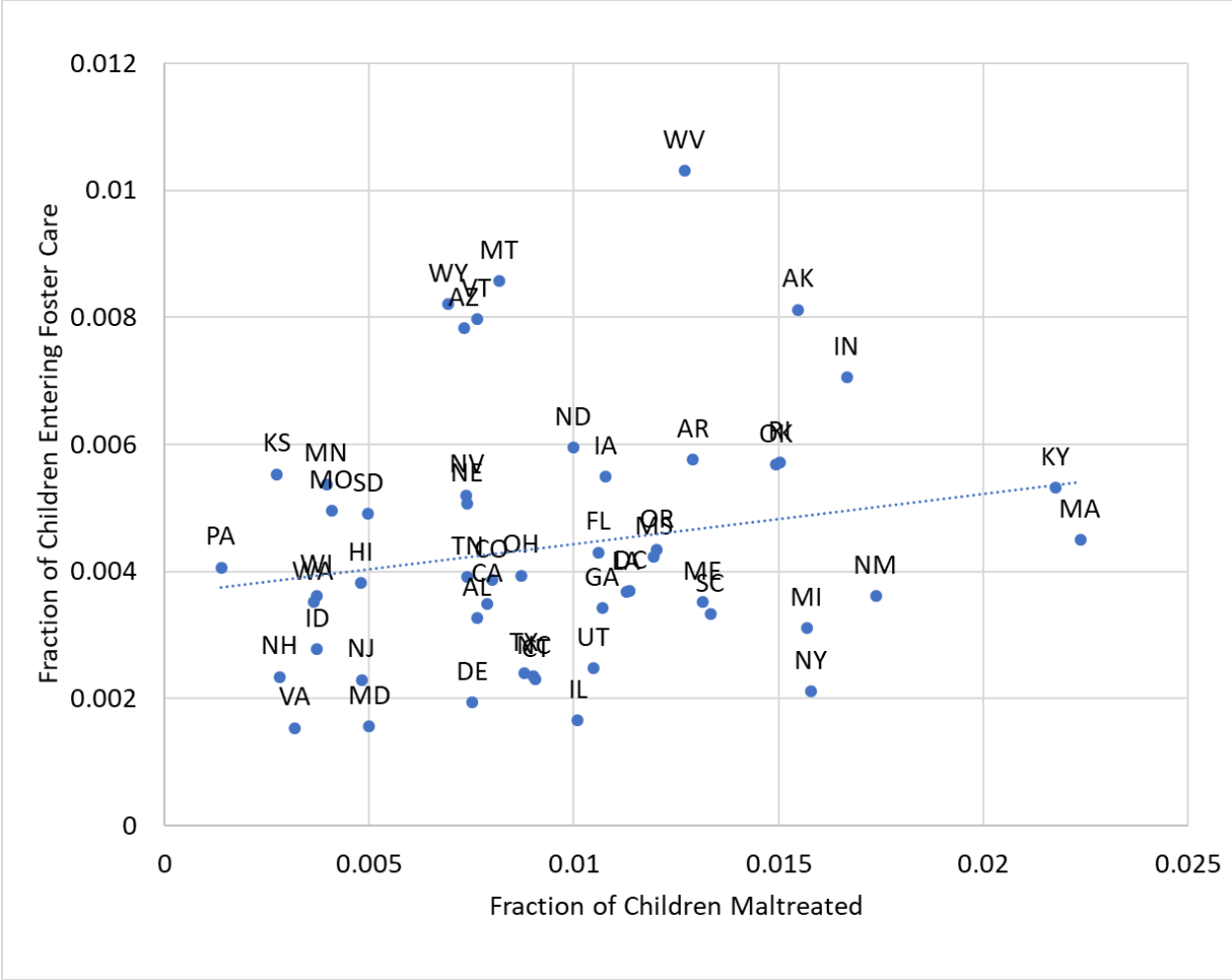


Figure 2: Fraction of Children Entering Foster Care vs. Maltreated in 2015  
 Sources: Children’s Bureau and AFCARS; Slope = 0.08