

Economic Determinants of Child Maltreatment*

Jason M. Lindo
Jessamyn Schaller

Prepared for Encyclopedia of Law and Economics

Abstract

This entry examines the economic determinants of child maltreatment. We first discuss potential mechanisms through which economic factors, including income, employment, aggregate economic conditions, and welfare receipt, might have causal effects on the rates of child abuse and neglect. We then outline the main challenges faced by researchers attempting to identify these causal effects, emphasizing the importance of data limitations and potential confounding factors at both the individual and aggregate levels. We describe two approaches used in the existing literature to address these challenges—the use of experimental variation to identify the effects of changes in family income on individual likelihood of maltreatment, and the use of area studies to identify the effects of changes in local economic conditions on aggregate rates of maltreatment.

*Lindo is an Associate Professor at Texas A&M University, a Research Associate at NBER, and a Research Fellow at IZA. Schaller is an Assistant Professor at University of Arizona. The authors can be contacted at jlindo@econmail.tamu.edu and jschaller@email.arizona.edu.

Definition: The economic determinants of child maltreatment refers to the broad set of economic factors that have causal effects on the rates of child abuse and neglect, either directly or indirectly, potentially including income, employment, aggregate economic conditions, and welfare receipt.

1 Introduction

Child maltreatment, including physical abuse, sexual abuse, emotional abuse, and neglect, is a prevalent and serious problem. In the United States alone, more than six million children are involved in reports to Child Protective Services (CPS) annually, while countless more are subject to unreported maltreatment (Petersen et al. 2014). Child maltreatment has severe and lasting consequences for victims, injuring physical and mental health and affecting interpersonal relationships, educational achievement, labor force outcomes, and criminal behavior (see, e.g., Gilbert et al. 2009; Berger and Waldfogel 2011). Child maltreatment is costly to society as well, generating productivity losses, increased burdens on criminal justice systems and special education programs, and substantial costs for child welfare services and health care (Fang et al. 2012; Gelles and Perlman 2012).

Given the pervasive and damaging nature of the problem, it is not surprising that a substantial literature spanning many disciplines and several decades is devoted to identifying the causes of child maltreatment.¹ Within this literature, a variety of economic factors, including family income, parental employment, macroeconomic conditions, and welfare receipt, have been identified as predictors of child abuse and neglect (Pelton 1994; Stith et al. 2009; Berger and Waldfogel 2011). Yet, due to data limitations and identification challenges, researchers have only recently begun to make progress isolating the causal effects of these variables on maltreatment.

This entry is devoted to the economic determinants of child maltreatment. We begin with etiological theories of child maltreatment from the fields of psychology and economics, outlining the potential mechanisms by which different economic factors might be

¹For a summary of this literature, see Petersen et al. (2014).

correlated with child abuse and neglect at the individual and aggregate levels. Next, we describe different types of data used in the study of child maltreatment and discuss their limitations. We then discuss the additional challenges that maltreatment researchers face in estimating the causal effects of economic conditions, the empirical approaches that researchers have taken to try to overcome these challenges, and the lessons learned from these studies before concluding.

2 Theory and Mechanisms

The most commonly cited etiological models of child maltreatment are the developmental-ecological and ecological-transactional models originating in psychology (Garbarino 1977; Belsky 1980; Cicchetti and Lynch 1993). These models posit that maltreatment results from complex interactions between individual, familial, environmental, and societal risk factors. Among the risk factors for maltreatment in these models, economic variables, such as family income and parental employment status, have garnered particular attention in the literature, both because they are robust, easily measured predictors of maltreatment and because they can be manipulated through policy intervention. However, as ecological models posit that maltreatment results from *interactions* between economic variables and characteristics of individuals, families, and communities, these models do not generate clear predictions about how economic factors should be correlated with maltreatment.²

Economists have approached theoretical modeling of child maltreatment from a different perspective, seeking to understand child maltreatment within a framework of budget constraints and utility functions. Several empirical investigations of child maltreatment, including those of Paxson and Waldfogel (2002), Seiglie (2004), Berger (2004, 2005), and Lindo et al. (2013), have been motivated by theoretical models of investments in child quality, sometimes in combination with altruistic, cooperative bargaining, and non-cooperative bargaining models used in economic studies of marriage and divorce, family

²For example, the effect of a stressful life event such as a reduction in family income on the likelihood of maltreatment may be exacerbated by individual characteristics such as depression while also being mitigated by social support and other buffering factors (National Research Council 1993).

labor supply, and domestic partner violence. There is also overlap between theoretical models of child maltreatment and economic models of criminal behavior.³

In developing a theoretical framework for understanding the oft-observed link between poverty and maltreatment, it is important to distinguish between reasons child maltreatment might be associated with poverty and causal pathways through which economic variables might affect the incidence of abuse and neglect. For example, parental education, community norms with regard to parenting behaviors, parental history of abuse, and innate personality characteristics of parents have all been cited as important factors that could explain some (or potentially all) of the association between poverty and child maltreatment. In thinking about the *causal pathways* through which economic factors may affect child maltreatment, it may be useful to imagine a hypothetical experiment in which a household is randomly selected to receive an intervention such as a cash transfer, an unanticipated job displacement, or a change in aggregate economic conditions, and to consider the effects of this treatment on the likelihood that the children in that household will experience abuse or neglect. With these types of experiments in mind, researchers have identified a number of potential pathways through which these economic “treatments” might influence the likelihood of child abuse and neglect.⁴

First, income may have direct effects on the likelihood of maltreatment if parents are constrained in their ability to provide sufficient care for their children (Berger and Waldfogel 2011). This mechanism is particularly relevant to the study of child neglect, which is commonly defined as the failure of a caregiver to provide for a child’s basic physical, medical, educational, or emotional needs, and thus is often considered to be “underinvestment” in children within the context of economic models (see, for example, Seiglie 2004).⁵

Changes in the amount and sources of family income may also affect child maltreat-

³Berger (2004, 2005) provides a nice summary of several theoretical economic models relevant to the analysis of child abuse and neglect. To our knowledge, the only study with formal model of child maltreatment is Seiglie (2004), which builds on economic models of investment in child quality.

⁴In this section we focus on the relationship between economic factors and the likelihood of committing maltreatment, rather than the likelihood of being reported, investigated, or punished for abuse. We discuss issues related to reporting and data quality in the next section.

⁵Weinberg (2001) notes that family income may be directly associated with abuse as well, as it relates to the availability of resources that can be used to elicit desired behavior from children.

ment by altering the distribution of bargaining power within households and changing the expected cost of abuse. Building on bargaining models used in economic studies of domestic violence, Berger (2005) posits that, in two-parent households, shifts in the distribution of family income away from the perpetrator of abuse and toward a non-abusing partner can result in a shift in the balance of power within the relationship, which can in turn affect the incidence of maltreatment. Additionally, as in economic models of criminal behavior, income shocks can affect the cost that the perpetrator of maltreatment expects to incur if he is caught. Specifically, the perpetrator's access to income is jeopardized if maltreatment leads to dissolution of a relationship and loss of access to a partner's income. The removal of a child can also lead to the loss of child-conditioned transfers such as welfare payments and child support.

Economic shocks may also affect rates of child abuse and neglect through their impacts on mental health. At the aggregate level, research has shown that economic downturns are associated with deterioration of population mental health, as measured by the incidence of mental disorders, admissions to mental health facilities, and suicide (Zivin et al. 2011). Job displacement has also been linked to a number of mental health related outcomes, including psychological distress (Mendolia 2014), depression (Brand et al. 2008; Schaller and Stevens 2014), psychiatric hospitalization (Eliason and Storrie 2010), and suicide (Eliason and Storrie 2009; Browning and Heinesen 2012). Meanwhile at the individual level, a large literature documents a correlation between poverty and mental health in the cross section. However, empirical evidence on the causal effects of individual and family income on mental health is sparse and inconclusive.⁶

Substance abuse and partnership dissolution may also mediate the relationship between economic shocks and child maltreatment. Alcohol and drug use and single parenthood are both correlated with socioeconomic status and are also well known risk factors for child abuse and neglect. However, the causal links between economic shocks and these variables are not well understood.⁷

⁶Several papers have examined mental health outcomes of lottery winners, with mixed results (e.g. Kuhn et al. 2011, Apouey and Clark 2014).

⁷For example, Deb et al. (2011) identify heterogeneity in the response of drinking behavior to job displacement and the empirical evidence on the effects of aggregate economic downturns on alcohol

Finally, parental time use is a rarely mentioned mechanism by which economic shocks can affect maltreatment. In particular, involuntary changes in employment and work hours have the potential to affect the incidence of maltreatment through their effects on the amount of time children spend with parents, other family members, childcare providers, and others (Lindo et al. 2013). This mechanism may work in different directions depending which parent experiences the employment shock and on the type of maltreatment considered.⁸

3 Identifying Causal Effects

Identifying the causal effects of economic factors on child maltreatment requires (i) child maltreatment data linked to measures of economic conditions and (ii) empirical strategies that can isolate the effects of economic factors despite the fact that these factors tend to be correlated with other determinants of maltreatment. Both of these issues present challenges for researchers that are difficult—though not impossible—to overcome.

3.1 Data

3.1.1 Data Based on Maltreatment Reports

Child abuse reports have historically been the primary source of data for researchers interested in studying child maltreatment on a large scale. While these data are attractive because they often span large areas and many time periods, a natural concern is that maltreatment report data may not accurately reflect the true incidence of maltreatment. While there is no doubt that false reports are sometimes made, the consensus view is that statistics tend to understate the true prevalence of child abuse because underreporting

consumption is mixed (Ruhm and Black 2002; Dávalos et al. 2012). Meanwhile, while layoffs lead to increased divorce rates in survey data (Charles and Stephens Jr 2004; Doiron and Mendolia 2012), aggregate divorce rates are found to decrease in recessions (Schaller 2013).

⁸A shock that shifts the distribution of childcare from the mother to the father may increase the incidence of abuse since males tend to have more violent tendencies than females. As another example, additional time at home with a parent may reduce the likelihood of child neglect but increase the likelihood of physical, sexual, and emotional abuse.

is such a serious issue (Waldfoegel 2000; Sedlak et al. 2010). In fact, the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4), which identifies maltreated children outside of the United States Child Protective Services (CPS) system, found that CPS investigated the maltreatment of only 32 percent of children identified in the study as having experienced observable harm from maltreatment. Applying CPS screening criteria to the maltreatment cases that were not investigated by CPS, the researchers concluded that underreporting was the primary reason for this low rate of investigation: three quarters of the cases would have been investigated if they had been reported to CPS (Sedlak et al. 2010).

Nonetheless, reports are likely to be strongly related to the true incidence of maltreatment and thus may serve as a useful proxy. The key consideration with the use of any proxy variable is the degree to which the measurement error is the same across comparison groups. If a comparison is made across groups that have the same degree of measurement error (or across time periods that have the same degree of measurement error), then the percent difference in the proxy will be identical to the percent difference in the variable of interest. For example, if State A has 1200 maltreatment reports and State B has 800 maltreatment reports and the true incidence of maltreatment is understated in both states by 20%, then the percent difference in reports $((1200 - 800)/800 \times 100\% = 50\%)$ will be equal to the percent difference in the true incidence of maltreatment $((1200 \times 1.2 - 800 \times 1.2)/800 \times 1.2 \times 100\% = 50\%)$.

Given that estimating the causal effects of economic factors on child maltreatment will inevitably entail comparisons across groups and/or time periods, this discussion naturally raises the question: is it generally safe to assume that the measurement error in abuse reports is the same across groups and across time? Unfortunately for researchers, while this assumption may hold in certain circumstances, it is unlikely to hold in most instances. When making comparisons across states, we must address the fact that states differ in how they define abuse, who is required to report abuse, and in how they record and respond to reports of abuse. When making comparisons across time, we must acknowledge that children's exposure to potential reporters and individual propensities to

report maltreatment may be changing over time and that the rate of reporting may in fact even be correlated with economic factors. Moreover, states have periodically changed their official definitions of abuse, reporting expectations, and standards for screening allegations. As such, comparisons of abuse reports across states and time have the potential to reflect differences in measurement error in addition to differences in the incidence of maltreatment. Comparisons across groups defined in other ways will be susceptible to similar issues. For example, the maltreatment of infants and toddlers may be less likely to be detected than the maltreatment of school-aged children who spend more time in the presence of mandatory reporters.

It is also important to note that focusing on substantiated reports does not necessarily improve our ability to make valid comparisons—and could actually make things worse—even in a scenario in which agencies are perfectly able to discern true and false reports. Comparisons of substantiated reports (in percent terms) will do better than comparisons of all reports if and only if the *difference* in the measurement error in substantiated reports across groups is less than the *difference* in the measurement error in overall reports across groups, which may not be the case.⁹

The major takeaway from this discussion is that we must take into consideration the process by which maltreatment that occurs becomes observable to the researcher. In particular, when a researcher estimates the causal effect of an economic factor on the observed incidence of maltreatment, we must consider the degree to which the effects are driven by actual changes in maltreatment and/or by changes in the rate at which occurrences of maltreatment are detected and reported.

⁹Here the measurement error we refer to is the degree to which the variable differs from what we would like to measure: true incidents. As an example in which we would do worse by focusing on substantiated reports, suppose State C has 2500 true incidents, 40% of which are reported, and 5 false reports per 100 true incidents while State D has 2000 incidents, 35% of which are reported, and 10 false reports per 100 true incidents. Then, assuming true reports are substantiated and false reports are not substantiated, the percent difference in reports would correctly identify the true percent difference in incidents whereas the percent difference in substantiated reports would not, as the true percent difference = $(2500 - 2000)/2000 \times 100\% = 25\%$, the percent difference in reports = $[2500 \times (40\% + 5\%) - 2000 \times (35\% + 10\%)]/2000 \times (35\% + 10\%) \times 100\% = 25\%$, and the percent difference in substantiated reports = $(2500 \times 40\% - 2000 \times 35\%)/2000 \times 35\% \times 100\% = 43\%$.

3.1.2 Alternative Sources of Data

Survey data, hospital data, and internet search data have also been used to gain insights into the prevalence of maltreatment and the way it varies with economic factors. Cross-sectional surveys include retrospective questionnaires that solicit information on occurrences of maltreatment over one's childhood or within a specific time window, while panel surveys solicit information on a year-to-year basis. Hospital data can be used to measure maltreatment using diagnosis codes that explicitly indicate maltreatment or by considering outcomes that are expected to be highly correlated with maltreatment (e.g., accidents, shaken-baby syndrome, etc.), as in Wood et al. (2012). And internet search data can be used to measure the frequency with individuals are searching for phrases that are expected to be highly correlated with maltreatment (e.g., child protective services, dad hit me, etc.), as in Stephens-Davidowitz (2013).

While all of these sources of data have the potential to shed new light on maltreatment in ways that administrative reports data cannot, they are also susceptible selection bias. Just as economic factors may affect both the incidence of maltreatment and the likelihood that cases maltreatment are reported to officials, economic factors may affect the likelihood that an individual reports being abused in a questionnaire, the likelihood that a doctor's diagnosis involves maltreatment or the likelihood that a maltreated child is taken to the hospital, or the likelihood that individuals suspecting or experiencing maltreatment search the internet for information. As such, they do not lessen the importance of considering the process by which maltreatment that occurs becomes observable to the researcher.

3.1.3 Links to Measures of Economic Conditions

Because of the sensitive nature of the subject, most maltreatment data are only available as aggregates (e.g., counts for states and years). Where micro data is available, it often does not include information on families' economic circumstances. As such, it is often only possible to consider links between maltreatment and the economic conditions of an area, which introduces the possibility that estimated relationships may be subject

to the ecological fallacy. That is, a relationship between economic conditions and maltreatment that is observed in the aggregate may not reflect the relationship that exists for individuals. For example, it is possible for unemployment at the local level to increase child maltreatment while an individual being unemployed may have the opposite effect. Nonetheless, while it is important to acknowledge the limitations of what can be learned from estimates based on aggregate data, it is also important to note that there is value to understanding the links between economic conditions and child maltreatment in the aggregate.

With that said, some data on child maltreatment *do* provide information on the economic conditions of the household that the child lives in. It is from these data that we know that maltreated children tend to come from households that are economically disadvantaged relative to the average household. While these sorts of data are useful for providing descriptive statistics for children who are (observed) maltreated, data that has been selected on the outcome of interest cannot be used estimate causal links in any straightforward manner. Using micro-level data to estimate the degree to which various factors affect the probability of maltreatment requires data on individuals who are *not* maltreated in addition to those who are maltreated. Towards this end, researchers have used survey data including the National Family Violence Survey, the Fragile Families and Child Wellbeing Study, the National Longitudinal Survey of Youth, and by linking data sets with information on economic conditions to child abuse report data.

3.2 Empirical Strategies

As discussed in the “Theory and Mechanisms” section above, child maltreatment can be thought of as resulting from complex interactions between individual, familial, environmental, and societal risk factors. Given the large number of factors that may contribute to maltreatment and the interrelatedness of these factors, researchers face a major challenge in trying to identify the causal effects of economic conditions on maltreatment. In this section we highlight two approaches to overcoming this challenge, one that is best suited for estimating the effects of household economic factors and one that is best suited

for estimating the effects of broader economic conditions.

3.2.1 Estimating the Effects of Household Economic Factors

Acknowledging that household economic conditions are generally *not* random, quantifying their causal effects requires researchers to consider circumstances in which they can measure the effects of random shocks to these conditions. Because it is difficult to identify these circumstances and to collect the maltreatment data necessary to examine these circumstances, only a handful of such studies exist.

Fein and Lee (2003) take this approach in an experimental evaluation of a welfare reform program in Delaware. In particular, they compare outcomes for households subject to welfare reform to outcomes for those who were not subject to welfare reform, which was determined by random assignment. They find that the reform increased the incidence of reports of neglect but had no significant effect on reports of abuse or foster care placement. While this study represents some of the most convincing evidence to date that household economic factors have a causal effect on child maltreatment, it also underscores the difficulty of teasing out the causal effects of different interrelated economic factors. In particular, Delaware’s welfare reform involved changes to benefit levels and work incentives in addition to other factors, any of which may have contributed to the increase in reports of neglect.

Cancian et al. (2013) also exploit evidence based on an experiment among welfare recipients to learn about the causal effect of household income on child maltreatment. In particular, they evaluate the effect of Wisconsin’s reform that allowed a full pass through of child support to welfare recipients (as opposed to the prior policy in which the government retained a fraction of child support payments to offset costs). Because the experimental intervention only changed child support pass through—and no other aspect of child support or welfare receipt—the design allows for a straightforward interpretation of the results: that increasing income through this mechanism reduces maltreatment reports. The authors are careful to note, however, that increasing income through other mechanisms may have different effects on maltreatment. For example, an increase in

income that is generated by an increase in maternal labor supply could very well increase the incidence of maltreatment.

Berger et al. (2014) take a different approach to identifying the causal effect of household economic conditions, exploiting naturally occurring variation in income (as opposed to experimentally manipulated variation) that they argue can be thought of as random. In particular, their strategy utilizes variation in the generosity of the Earned Income Tax Credit (EITC) across states and over time. While this approach allows for a study that is broader in scope than the aforementioned experiments, a disadvantage of this approach is that changes in EITC rules can affect levels of income, work activity, and the broader social economic climate, which again highlights the challenge in the identification and interpretation of causal effects.

3.2.2 Estimating the Effects of Broader Economic Conditions

Another strand of the literature on the causal effects of economic conditions on child maltreatment abstracts from the household to consider the effects of changes in local economic conditions on rates of maltreatment in the aggregate. Acknowledging that local economic conditions tend to be correlated with many socioeconomic factors that predict maltreatment, several studies have taken an “area approach” that considers how rates of maltreatment in an area change *over and above changes occurring across all areas* when its economic conditions change *over and above changes occurring across all areas*. As such, estimates based on this approach are identified using variation across areas in the timing and severity of changing economic conditions. This approach is operationalized via regression models that include time fixed effects to capture changes occurring across all areas at the same time, area fixed effects to capture time-invariant area characteristics, and (sometimes) area-specific trends. The validity of this approach rests on the assumption that unobservable variables related to the outcome variable do not deviate from an area’s trend when its economic conditions deviate from trend.

Studies taking this approach vary considerably in their measures of maltreatment, their measures of economic conditions, and the way they define areas. Paxson and

Waldfoegel (1999, 2002, 2003), Seiglie (2004), and Bitler and Zavodny (2002, 2004) use state-level panel data to estimate the effects of a variety of economic indicators on maltreatment reports, finding mixed results. Lindo et al. (2013) and Frioux et al. (2014) use county-level data from California and Pennsylvania, respectively, also finding mixed results. Wood et al. (2012) focus on hospital admissions for abuse-related injuries using panel data from 38 hospitals from 2000-2009 along with a variety of economic indicators and find evidence that local economic downturns significantly increase the incidence of severe physical abuse; however, they do not account for the likely autocorrelation in the error terms within hospitals over time, which would serve to widen their confidence intervals.

4 Conclusion

Child maltreatment is an important topic that has received relatively little attention in the field of economics, despite generating large financial costs for society and significant consequences for the health, human capital accumulation, and eventual labor market outcomes of its victims. The scarcity of economic research on the topic is especially unfortunate given that a literature spanning many disciplines and several decades has found economic factors, including local economic conditions, family income, neighborhood poverty, employment status, and receipt of public assistance, to be robust predictors of child abuse. We suspect that this scarcity is driven by economists' strong emphasis on the identification of causal effects, which is particularly challenging for research on the economic determinants of child maltreatment. In some sense, identifying causal effects in this area requires a perfect storm in which there is random variation in economic conditions, the researcher has access to maltreatment data that allows for comparisons utilizing this random variation, and the researcher can be confident that the way in which maltreatment becomes observed in these data does not vary across the groups of individuals and/or time periods he intends to compare. Moreover, even when this perfect storm occurs such that a causal estimate can be obtained, the interrelatedness of

economic factors can make it difficult to interpret such estimates. For example, the causal effect of a parent's job displacement could reflect the effects of income or time use (or other factors). Despite these challenges, recent progress has been made in identifying the causal effects of economic factors on child maltreatment through the use of experimental (natural and true) variation and area studies. These studies indicate that changes in economic conditions can have meaningful impacts on maltreatment. However, there is still much work to be done in identifying exactly which economic factors matter and in characterizing the nature of these relationships.

References

- Apouey, Bénédicte and Andrew E. Clark (2014) “Winning Big but Feeling No Better? The Effect of Lottery Prizes on Physical and Mental Health,” *Health Economics*.
- Belsky, Jay (1980) “Child Maltreatment: An Ecological Integration.,” *American Psychologist*, Vol. 35, No. 4, pp. 320–335.
- Berger, Lawrence M. (2004) “Income, Family Structure, and Child Maltreatment Risk,” *Children and Youth Services Review*, Vol. 26, No. 8, pp. 725–748.
- (2005) “Income, Family Characteristics, and Physical Violence Toward Children,” *Child Abuse & Neglect*, Vol. 29, No. 2, pp. 107–133.
- Berger, Lawrence M. and Jane Waldfogel (2011) “Economic Determinants and Consequences of Child Maltreatment,” *OECD Social, Employment and Migration Working Papers*, No. 111.
- Berger, Lawrence M., Sarah A. Font, Kristen S. Slack, and Jane Waldfogel (2014) “Income and Child Maltreatment: Evidence from the Earned Income Tax Credit,” *Mimeo*.
- Bitler, Marianne and Madeline Zavodny (2002) “Child Abuse and Abortion Availability,” *American Economic Review*, Vol. 92, No. 2, pp. 363–367.
- Bitler, M. and M. Zavodny (2004) “Child Maltreatment, Abortion Availability, and Economic Conditions,” *Review of Economics of the Household*, Vol. 2, No. 2, pp. 119–141.
- Brand, Jennie E, Becca R Levy, and William T Gallo (2008) “Effects of Layoffs and Plant Closings on Subsequent Depression Among Older Workers,” *Research on Aging*, Vol. 30, No. 6, pp. 701–721.
- Browning, Martin and Eskil Heinesen (2012) “Effect of Job Loss Due to Plant Closure on Mortality and Hospitalization,” *Journal of Health Economics*, Vol. 31, No. 4, pp. 599–616.
- Cancian, Maria, Mi-Youn Yang, and Kristen Shook Slack (2013) “The Effect of Additional Child Support Income on the Risk of Child Maltreatment,” *Social Service Review*, Vol. 87, No. 3, pp. 417–437.
- Charles, Kerwin Kofi and Melvin Stephens Jr (2004) “Job Displacement, Disability, and Divorce,” *Journal of Labor Economics*, Vol. 22, No. 2, pp. 489–522.
- Cicchetti, Dante and Michael Lynch (1993) “Toward an Ecological/Transactional Model of Community Violence and Child Maltreatment: Consequences for Children’s Development.,” *Psychiatry*, Vol. 56, No. 1, pp. 96–118.
- Dávalos, María E, Hai Fang, and Michael T French (2012) “Easing the Pain of an Economic Downturn: Macroeconomic Conditions and Excessive Alcohol Consumption,” *Health economics*, Vol. 21, No. 11, pp. 1318–1335.
- Deb, Partha, William T Gallo, Padmaja Ayyagari, Jason M Fletcher, and Jody L Sindelar (2011) “The Effect of Job Loss on Overweight and Drinking,” *Journal of health economics*, Vol. 30, No. 2, pp. 317–327.

- Doiron, Denise and Silvia Mendolia (2012) “The Impact of Job Loss on Family Dissolution,” *Journal of Population Economics*, Vol. 25, No. 1, pp. 367–398.
- Eliason, Marcus and Donald Storrie (2009) “Does Job Loss Shorten Life?” *Journal of Human Resources*, Vol. 44, No. 2, pp. 277–302.
- (2010) “Inpatient Psychiatric Hospitalization Following Involuntary Job Loss,” *International Journal of Mental Health*, Vol. 39, No. 2, pp. 32–55.
- Fang, Xiangming, Derek S. Brown, Curtis S. Florence, and James A. Mercy (2012) “The Economic Burden of Child Maltreatment in the United States and Implications for Prevention,” *Child Abuse & Neglect*, Vol. 36, No. 2, pp. 156–165.
- Fein, David J. and Wang S. Lee (2003) “The Impacts of Welfare Reform on Child Maltreatment in Delaware,” *Children and Youth Services Review*, Vol. 25, No. 1, pp. 83–111.
- Frioux, Sarah, Joanne N. Wood, Fakeye Oludolapo, Xianqun Luan, Russell Localio, and David M. Rubin (2014) “Longitudinal Association of County-level Economic Indicators and Child Maltreatment Incidents,” *Maternal and Child Health Journal*.
- Garbarino, James (1977) “The Human Ecology of Child Maltreatment: A Conceptual Model for Research,” *Journal of Marriage and the Family*, pp. 721–735.
- Gelles, Richard J. and Staci Perlman (2012) *Estimated Annual Cost of Child Abuse and Neglect: Prevent Child Abuse America*.
- Gilbert, Ruth, Cathy Spatz Widom, Kevin Browne, David Fergusson, Elspeth Webb, and Staffan Janson (2009) “Burden and Consequences of Child Maltreatment in High-Income Countries,” *The Lancet*, Vol. 373, No. 9657, pp. 68–81.
- Kuhn, Peter, Peter Kooreman, Adriaan Soetevent, and Arie Kapteyn (2011) “The Effects of Lottery Prizes on Winners and Their Neighbors: Evidence from the Dutch Postcode Lottery,” *The American Economic Review*, pp. 2226–2247.
- Lindo, Jason M., Jessamyn Schaller, and Benjamin Hansen (2013) “Economic Conditions and Child Abuse,” *National Bureau of Economic Research Working Paper w18994*.
- Mendolia, Silvia (2014) “The Impact of Husbands Job Loss on Partners Mental Health,” *Review of Economics of the Household*, Vol. 12, No. 2, pp. 277–294.
- National Research Council (1993) *Understanding Child Abuse and Neglect: The National Academies Press*.
- Paxson, C. and J. Waldfogel (1999) “Parental Resources and Child Abuse and Neglect,” *The American Economic Review*, Vol. 89, No. 2, pp. 239–244.
- Paxson, Christina and Jane Waldfogel (2002) “Work, Welfare, and Child Maltreatment,” *Journal of Labor Economics*, Vol. 20, No. 3, pp. 435–474.
- Paxson, C. and J. Waldfogel (2003) “Welfare Reforms, Family Resources, and Child Maltreatment,” *Journal of Policy Analysis and Management*, Vol. 22, No. 1, pp. 85–113.

- Pelton, Leroy H. (1994) “The Role of Material Factors in Child Abuse and Neglect,” in Gary B. Melton and Frank D. Barry eds. *Protecting children from abuse and neglect: Foundations for a new national strategy*: New York: Guilford Press, pp. 131–181.
- Petersen, Anne, Joshua Joseph, and Monica Feit eds. (2014) *New Directions in Child Abuse and Neglect Research*: The National Academies Press.
- Ruhm, Christopher J and William E Black (2002) “Does Drinking Really Decrease in Bad Times?” *Journal of health economics*, Vol. 21, No. 4, pp. 659–678.
- Schaller, Jessamyn (2013) “For Richer, if not for Poorer? Marriage and Divorce over the Business Cycle,” *Journal of Population Economics*, Vol. 26, No. 3, pp. 1007–1033.
- Schaller, Jessamyn and Ann Huff Stevens (2014) “Short-run Effects of Job Loss on Health Conditions, Health Insurance, and Health Care Utilization,” *National Bureau of Economic Research Working Paper w19884*.
- Sedlak, Andrea J., Jane Mettenburg, Monica Basena, Ian Petta, Karla McPherson, Angela Greene, and Spencer Li (2010) “Fourth National Incidence Study of Child Abuse and Neglect (NIS-4): Report to Congress,” *US Department of Health and Human Services, Administration for Children and Families*.
- Seiglie, Carlos (2004) “Understanding Child Outcomes: An Application to Child Abuse and Neglect,” *Review of Economics of the Household*, Vol. 2, No. 2, pp. 143–160.
- Stephens-Davidowitz, Seth (2013) “Unreported Victims of an Economic Downturn,” *Mimeo*.
- Stith, Sandra M., Ting Liu, L. Christopher Davies, Esther L. Boykin, Meagan C. Alder, Jennifer M. Harris, Anurag Som, Mary McPherson, and J.E.M.E.G. Dees (2009) “Risk Factors in Child Maltreatment: A Meta-analytic Review of the Literature,” *Aggression and Violent Behavior*, Vol. 14, No. 1, pp. 13–29.
- Waldfoegel, Jane (2000) “Child Welfare Research: How Adequate are the Data?” *Children and Youth Services Review*, Vol. 22, No. 9, pp. 705–741.
- Weinberg, Bruce A. (2001) “An Incentive Model of the Effect of Parental Income on Children,” *Journal of Political Economy*, Vol. 109, No. 2, pp. 266–280.
- Wood, Joanne N, Sheyla P Medina, Chris Feudtner, Xianqun Luan, Russell Localio, Evan S Fieldston, and David M Rubin (2012) “Local Macroeconomic Trends and Hospital Admissions for Child Abuse, 2000–2009,” *Pediatrics*, Vol. 130, No. 2, pp. e358–e364.
- Zivin, K, M Paczkowski, and S Galea (2011) “Economic Downturns and Population Mental Health: Research Findings, Gaps, Challenges and Priorities,” *Psychological Medicine*, Vol. 41, No. 07, pp. 1343–1348.