

Determinants of Child Abuse:

Economic and Policy Factors

John Young

Abstract: Child maltreatment is a serious issue affecting the United States. Recent data suggests that child abuse rates have increased significantly. Some existing literature has shown that economic factors influence rates of child maltreatment, but connections have not been well made between psychological theories of abuse and potential economic triggers. Using state level panel data, this paper gives evidence that economic factors may in fact trigger abuse by increasing the level of stress felt by a household. Increases in reported rates of maltreatment are associated with increases in the unemployment rate, death rate, and percent of people below poverty. We also find some evidence for using public policy tools including assistance, food stamps, and unemployment insurance compensation to decrease the prevalence of child abuse.

I. Introduction

Child maltreatment is a serious problem in the United States. Three million cases of abuse or neglect were reported and about 905,000 cases were substantiated in the United States during 2006, which is a rate of 12.3 per 1,000 children. Nearly 1,530 children die each year from maltreatment, the majority being younger than four. Similarly, the greatest risk of non fatal abuse occurred during these ages. The vast majority of perpetrators of this crime were the victim's parents, but they can also be caretakers or relatives (U. S. Department of Health and Human Services [US DHS], 2006). Although some believe that the increase is due in part to increased awareness and reporting of child abuse, understanding the factors that influence maltreatment rates may lead to solutions for decreasing its prevalence. Federal law defines child abuse and neglect as "any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation; or an act or failure to act which presents an imminent risk of serious harm" (US DHS, 2006).

Research also attempts to explain the causes of abuse. Finkelhor et al. (2007) state that abusive behaviors are induced by stressors. Arguably, economic factors will play an important role. A small but growing body of literature has indicated the importance of economic factors as well as social and psychological in child maltreatment. Although these works along with extensive psychological research offer insight into the causes and correlates of abuse individually, these factors have yet to be fully connected. In order to better understand the influences of child abuse rates, this paper will employ socioeconomic data to give evidence for psychological theories of abuse.

Economic factors are likely an important trigger of child abuse by increasing the level of stress felt by a household. Joblessness and income are key influences in the stability of a household and income replacement policies may act as a buffer. This paper will begin with a thorough review of existing literature on the determinants of child maltreatment. From there, the theoretical framework will be developed and an econometric model will be formulated. Next, the data employed will be presented. Discussion of estimates and results will follow. Finally, conclusions and implications for policy will be offered.

II. Review of Existing Literature

Considerable study has been conducted in the psychological field attempting to identify factors associated with child maltreatment. Martin and Walters (1982) develop abuse categories including physical, sexual, and neglect and determined various causes using individual data. Specifically, parental factors including promiscuity, alcoholism, financial problems, health problems, and stress were all associated with higher incidences of child abuse and neglect. An important economic determinant they discuss is a positive relationship between poverty and neglect. This analysis indicates that economic factors play an influential role in the level of abuse.

Steinberg, Catalano, and Dooley (1981) find that changes in the labor force participation rates are significantly related to reported child abuse cases. According to the authors, decreases in the labor force may cause a shift in childcare from more skilled to less skilled caretakers. They hypothesize that possibly more homemakers will be forced to work as their spouses leave the workforce and take their place. It is also possible that this relationship could simply be an issue of abuse reporting; as the

workforce decreases more cases of abuse are reported. They did not find significant evidence of a correlation between the unemployment rate and abuse reporting, however this study was specific to counties in California and can not be generalized to other states or the country.

Using the Developmental Victimization Survey (DVS), a nationally representative sample of victimized children, Finkelhor, Ormrod, and Turner (2007) find that children previously victimized are at a higher risk of continued victimization. They also find that family problems including alcohol abuse, imprisonment, joblessness, and family disruptions are associated with higher probabilities of re-victimization.

From 1976 to 1996, reproductive rights correlate with a decrease in reported incidents of child abuse and neglect according to Bitler and Zavodny (2004). Their explanation is that the increased availability of abortions reduced the average size of families, where many studies have shown that larger families have higher incidences of child maltreatment (ie see Zuravin, 1991). Using NCAAN's state level panel data from 1990 to 1996, the authors do not find a significant result for legalized abortion and substantiated victims. This is understandable due to the relatively short time period and possibly small variation in the availability of abortions over that time span. In addition, restrictions in Medicaid funding for reproductive services are associated with an increase in substantiated reports of abuse and murders. Their results for income, unemployment, and welfare are inconclusive.

In addition to Bitler and Zavodny, Paxson and Waldfogel have done considerable research isolating both economic and policy correlates with child abuse and maltreatment rates. Their first major paper (1999) on the subject notes that states with higher fractions

of children with absent fathers and working mothers are associated with higher reported rates of maltreatment, implying that policy reforms that force single parents into the workforce may in fact increase the prevalence of child abuse and neglect. The authors also find some evidence for states with higher income having lower rates of child abuse.

In a later study, Paxson and Waldfogel (2001) find that reductions in state welfare benefits increase the number of children in out of home care. The authors find some evidence to show that the new welfare rules are significantly associated with increased child abuse and maltreatment rates. This evidence is surprising and alarming considering the short time period of observed data available after the policy changes.

Also using the National Child Abuse and Neglect Reporting System's (NCANDS) panel data from 1990 through 1996, Seiglie (2004) estimates three separate models for neglect, physical abuse, and sexual abuse. The author finds that abortions reduce the prevalence of neglect, hypothesizing that the increased availability reduces family size and therefore increases quality of treatment. Surprisingly, the sexual abuse model estimates a positive relationship between abortion and sexual abuse. The author's explanation is that perpetrators are mentally ill and may not be directly influenced by economic factors. Instead, future pregnancies may all be terminated by the abuser. Overall, economic factors have mixed and insignificant results across various model specifications but the unemployment rate has the strongest explanatory power.

III. Theoretical Framework

The psychological literature indicates that abusive behavior is triggered by some event which will create undue stress on the individual, triggering an irrational response. This takes the form of an abusive behavior and in the family situation, child maltreatment

(ie see Finkelhor et al (2007)). As discussed in the literature review above, various social and economic factors can illicit an abusive response. A useful model will isolate specific explanatory variables that would create such a response.

Central to any household is a stable, reliable, and sufficient level of income. Households that have difficulty paying their typical bills on time and balancing work and family responsibilities will have an increased stress level relative to other households. Therefore it is not unreasonable to assume that states and years that have lower income measurements will have more households experiencing this situation leading to increased rates of child abuse and maltreatment. In addition to this causal argument an income measure may also capture a reporting phenomenon. Lower income areas may find it more difficult to hide cases of abuse due to medical needs, the emergency room is forced by law to report cases, and will therefore have more frequent reporting. An appropriate model will capture a negative relationship between income and child maltreatment.

Similarly to income, families living at or below the federal poverty line will feel increased stress relative to families at higher income levels. It is likely that states with a higher percentage of the population in that income range will also have higher rates of child abuse and neglect. This hypothesis is supported by the existing literature.

A steady income usually requires a reliable employment situation. A household's employment situation will likely affect its level of stress. The loss of employment would increase stress and likely trigger repressed memories of childhood abuse. This would send a potential perpetrator into an abusive state of mind. The sudden loss of a job will destabilize the family unit and create an environment where abuse is more likely. It is likely in areas with higher unemployment rates there will be higher reported rates of child

abuse and maltreatment. States with higher unemployment rates will likely have higher rates of child maltreatment.

Although the unemployment rate will likely explain some variation in the reported rates of child abuse, a measure of the cost of losing employment may also offer explanatory power. Various government programs, including the Food Stamp Program (renamed Supplementary Nutrition Assistance Program), family assistance, and Unemployment Insurance will act as a job loss buffer, reducing the stresses created by the loss of employment.

A cost of job loss measure was first introduced by Bowles and Schor (1987) in order to explain the weak performance of the United State's economy in the 1970's. Their measure isolated the share of income gained by a job loser from the available income replacements relative to a standard of living. They considered the duration and incidence of job loss in their measure. Since then, the measure's applications have been growing and it is possible that as job losses get more costly, abuse rates will increase.

Stress will likely be intensified by the costs associated with job losses. Modifying the Bowles and Schor (1987) cost of job loss measure to consider the share of income lost by a job loser relative to a standard of living. This measure will include the relevant government transfer payments as well as a living standard measurement. The cost of job loss variable for state i at year t will be represented by:

$$CJL_{it} = 1 - (TP_{it}/U_{it})/Yd_{it}$$

where TP_{it} is the sum of family assistance, Food Stamp Program, and Unemployment Insurance payouts, U_{it} is the number of unemployed persons, and Yd_{it} is the average after

tax income level. A higher cost of job loss would imply that the stress of an individual losing his/her job would increase and therefore increase the propensity to abuse a child.

From this variable it is also possible to create a unique income replacement variable to measure simply the amount of income supplements available to unemployed families in each state i during each year t :

$$IR_{it} = TP_{it}/U_{it}$$

where TP_{it} and U_{it} are defined the same way as before. In this case, we would expect that a higher level of income supplements per unemployed persons would be related to a lower rate of child maltreatment.

In addition to using the cost of job loss variables individually, an interaction term with the unemployment rate can be created to measure the effect of unemployment and the costs associated with this event. It will help to show the cost of not only losing a job, but the incidence and duration of that job loss as well. For the interaction term in state i at year t :

$$UCJL_{it} = Ur_{it} * CJL_{it}$$

where Ur_{it} is the unemployment rate and CJL_{it} is the cost of job loss as defined above. As the unemployment rate increases and the cost of job loss increases we would expect a compounding effect on the reported rate of child abuse and maltreatment. If the measures move in different directions, the net effect will isolate which is more influential as an abuse trigger, the loss of a job or the cost associated with it.

A death in the family may be another possible abusive behavior trigger. If a loved one passes away, the emotional and psychological stress on the family increases significantly and some may not be able to handle the situation in an effective manner.

This could induce an abusive reaction, therefore increasing the likelihood of child maltreatment. States with higher death rates would likely have higher rates of reported maltreatment.

From these hypotheses, a formal empirical model can be presented, namely:

$$\text{Childabrt}_{it} = \alpha_{0it} + \beta_1 \text{Urate}_{it} + \beta_2 \text{DthRate}_{it} + \beta_3 \text{AvgInc}_{it} + \beta_4 \text{PercbelPov}_{it} + \beta_5 \text{CJL}_{it} + \varepsilon,$$

where i indexes states, t indexes years, childabrt is a measure of the rate of substantiated cases of child abuse and neglect, urate is the unemployment rate, dthrate is the death rate per 1,000 individuals, avginc is an average income value, percbelpov is the percent of individuals below the federal poverty line, and CJL is the measure of an individual's gain from unemployment assistance programs to their loss in average living standard, a measure of the lost living standard when employment is terminated.

Similarly, the model can be estimated using the income supplement variable alone:

$$\text{Childabrt}_{it} = \alpha_{0it} + \beta_1 \text{Urate}_{it} + \beta_2 \text{DthRate}_{it} + \beta_3 \text{AvgInc}_{it} + \beta_4 \text{PercbelPov}_{it} + \beta_5 \text{IR}_{it} + \varepsilon,$$

where IR_{it} is the income replacement measure.

To measure the interaction of the cost of job loss and the unemployment a separate model will be estimated:

$$\text{Childabrt}_{it} = \alpha_{0it} + \beta_1 \text{Urate}_{it} + \beta_2 \text{DthRate}_{it} + \beta_3 \text{AvgInc}_{it} + \beta_4 \text{PercbelPov}_{it} + \beta_5 \text{CJL}_{it} + \beta_6 \text{UCJL}_{it} + \varepsilon,$$

where UCJL_{it} is the interaction between the unemployment rate and the cost of job loss.

IV. Data Sources and Methods

This study will employ pooled time series cross section (panel) data from all fifty United States and the District of Columbia between 1995 and 2004. The means and standard deviations of each variable are depicted in Table 1 (below).

Table 1.

Variable	Observations	Mean	Std. Dev.
Child abuse rate	489	0.013	0.009
Unemployment rate	510	4.863	1.227
Death rate	507	8.720	1.337
Income per capita	510	27,491.250	4651.27
Percent below poverty	510	12.137	3.211
Cost of job loss (CJL)	510	0.703	0.073
Income Replacement	510	9334.051	2890.743
Interaction CJL	510	0.034	0.009

The dependent variable, child abuse rate, measures the rate of victimization regularly published by the United States Department of Health and Human Services from 1995 to 2004. This data was collected from the National Data Archive on Child Abuse and Neglect (NCANDS). The 0.013 mean indicates that about 13.2 children out of 1000 were reported to be abused or neglected on average between the years 1995 and 2004.

The unemployment rate is the reported annual state unemployment rate from the Current Population Survey (CPS) as published by the Bureau of Labor Statistics. The death rate is the number of deaths per 1,000 individuals per state as reported by the U.S. National Center for Health Statistics. The income per capita measurement is the state average annual income per person in constant dollars published by the Bureau of Labor Statistics. Percent below poverty is the percentage of people below the Federal poverty line according to the U.S. Census Bureau. The cost of job loss's mean of 0.703 implies that

on average 70% of income is lost when an individual unexpectedly loses his/her job. The income-replacement measure shows that there is about \$9,334 dollars available for each job loser. This data was collected by the U.S. Department of Agriculture Economic Research Service from the Bureau of Economic Analysis.

Psychological researchers indicate that reported rates of child maltreatment will be affected by considerable underreporting. Abuse underreporting is a systemic issue caused by a number of factors. Finkelhor et al. (2007) report that victims often repress memories of abuse well into adulthood. Family members of victims can be embarrassed of the perceived social stigmas associated with an abusive situation and therefore avoid reporting. Even if a case of child maltreatment is reported, states' child protective services are often overburdened and are unable to process every request in a timely manner. These factors introduce considerable distortions into the child abuse reported rates.

Therefore, NCANDS data must be interpreted with caution. The ideal data set for this study would be at the individual level so that implications would be generalized to the individual level. With any state level aggregate data, the ecological fallacy can be committed. Namely, what is true at the state level is not necessarily true for the individual level. However, inferences can still be made in light of the data issues.

V. Results

Before considering how policy influences child maltreatment rates, a model was estimated for other factors alone. Table 2 (below) shows the OLS parameter estimates.

Table 2.

Variable	Dependent variable: child maltreatment rate				
Unemployment rate	.00052** (.00025)	.00074*** (.00023)	.00055** (.00023)		.00027 (.00024)
Death rate		.00459*** (.00124)	.00240* (.00139)	.00258* (.00137)	.00269* (.00137)
Income per capita			-5.28e-7*** (1.30e-7)	-3.31e-7** (1.49e-7)	-3.49e-7** (1.51e-7)
Percent below poverty				.00081*** (.00029)	.00068** (.00032)
Model Statistics	F=4.55** R ² = .0973	F=9.09*** R ² = .0025	F=11.76*** R ² = .0000	F=12.5*** R ² = .0058	F=9.5*** R ² = .0062

Model includes state and year fixed effects. Robust standard errors are in parentheses.

* denotes significance at $\alpha = .1$, ** denotes significance at $\alpha = .05$, *** denotes significance at $\alpha = .01$.

Table 2 provides compelling evidence for economic factors influence on reported rates child abuse and neglect rates. The unemployment rate is positive and significant in four of the five model specifications. Possibly states with higher unemployment rates have job losing households that trigger abusive behaviors and therefore have increased rates of maltreatment. The estimated coefficient is relatively small, implying that between 3 to 7 additional cases of maltreatment are substantiated with an increase in the unemployment rate of 1 percentage point.

The death rate follows the expected positive sign and is significant in all of the model specifications. States and years where the death rate is higher experience between .002 and .005 higher reported rates of child abuse and neglect. This supports the claim that a death in the family will produce undue stress on a family and induce irrational behaviors that would lead to child abuse.

Income per capita also supports the abusive trigger hypothesis. A negative and significant sign is reported in each model. Intuitively, as income or standard of living increases, families will feel less stress regarding economic decisions. Bill payments will not be as great of a hassle; households will be able to afford more consumer staples, luxury goods, and save more, possibly increasing their wealth. Factors creating a potentially abusive environment are greatly reduced with a higher income per capita. The coefficient is small, but significant and negative.

Similarly to income per capita, the poverty rate will isolate those in a family environment conducive to child maltreatment. The model estimates a positive and significant coefficient for this variable, implying that a higher proportion of the population in poverty correlates with a higher reported incidence of child abuse and neglect. Poverty creates an atmosphere of stress, where basic necessities are extremely tight. This would likely drive an individual to irrational actions like abuse.

Moving away from the basic economic determinants, policy factors are now considered. The effects of public policies were increasingly difficult to fit into model specifications due to multicollinearity issues. Food stamp program payouts and unemployment insurance move in tandem with the unemployment rate and poverty rate, therefore making estimates of standard errors large. With this in mind, models were estimated.

The cost of job loss variable was found to be an insignificant predictor of reported child maltreatment rates. The expected positive sign is present implying that as the cost of a lost job increases reported rates of child maltreatment increase. However, the insignificant result does not give evidence for this relationship existing. This may be due

to a reporting issue, or by the development of the variable itself. It is possible that irrational behaviors are triggered regardless of the actual cost of a job loss to an individual. In addition, states with higher standard of living may also have higher income replacements, making the measurement not as useful in capturing the true cost of a job loss. Reporting standards for both all parts of this variable as well as the dependent may be playing a role as well. In this model specification, we see similar results for the other predictor variables. Removing the income per capita variable has no significant effect on the model results. Table 3 reveals the results.

Table 3.

Variable	Dependent variable = child maltreatment rate
Unemployment rate	.000239 (.00024)
Death rate	.002719 ** (.00138)
Income per capita	-3.49e-7 ** (1.52e-7)
Percent below poverty	.000686 ** (.00032)
Cost of job loss	.002021 (.00490)
Model Statistics	F=8.18*** R ² = .0055

Model includes state and year fixed effects. Robust standard errors are in parentheses.

* denotes significance at $\alpha = .1$, ** denotes significance at $\alpha = .05$, *** denotes significance at $\alpha = .01$.

Rather than just analyze the cost of a lost job on child abuse and neglect rates, the interaction between unemployment and its cost is estimated. This specification is displayed in table 4.

Table 4.

Variable	Dependent variable = child maltreatment rate
Unemployment rate	-.001115 (.00195)
Death rate	.002698 *** (.00924)
Income per capita	-3.64e-7 ** (1.41e-7)
Percent below poverty	.000674 ** (.00030)
Cost of job loss	-.00715 (.01426)
Interaction	.19438 (.01641)
Model Statistics	F=14.81 *** R ² = .0132

Model includes state and year fixed effects. Robust standard errors are in parentheses.

* denotes significance at $\alpha = .1$, ** denotes significance at $\alpha = .05$, *** denotes significance at $\alpha = .01$.

The model estimates insignificant results for both the cost of job loss as well as the interaction between the unemployment rate as well as the cost of job loss.

In order to better estimate the effects of public assistance programs on the reported incidence of child abuse and maltreatment, the income replacement alone was used as a predictor variable. The results of estimation are depicted in table 5.

Table 5.

Variable	Dependent variable = child maltreatment rate				
Income Replacement	-5.61e-7 *** (1.29e-7)	-5.26e-7 *** (1.24e-7)	-3.44e-7 *** (1.31e-7)	1.71e-8 (1.61e-7)	-1.81e-7 (1.38e-7)
Unemployment Rate		.000332 (.00023)	.000587 ** (.00023)	.000554 ** (.00023)	.000140 (.00023)
Death Rate			.004062 *** (.00136)	.002393 * (.00138)	.003632 *** (.00127)
Income per capita				-5.37e-7 *** (1.64e-7)	
Percent below poverty					.001011 *** (.00029)
Model Statistics	F=18.97*** R ² = .0298	F=9.46*** R ² = .0082	F=10.27*** R ² = .0082	F=9.61*** R ² = .0000	F=10.23 R ² = .0100

Model includes state and year fixed effects. Robust standard errors are in parentheses.

* denotes significance at $\alpha = .1$, ** denotes significance at $\alpha = .05$, *** denotes significance at $\alpha = .01$.

Using the income replacement aggregate proves to be a better predictor of child abuse and maltreatment rates. When regressed alone the model estimates a negative coefficient for the income replacement variable. This follows the hypothesized relationship. As the available income replacements from losing a job increase, the amount of stress created from a loss of employment is lessened. This environment would likely decrease the chance of abusive behaviors and therefore child abuse. States that have higher Food Stamp Program payouts, family assistance, and Unemployment

Insurance per unemployed person also have lower reported rates of child abuse and maltreatment over the years 1995 to 2004.

When the unemployment rate and death rate is added to the estimated equation, the coefficient for income replacement decreases in magnitude but still remains negative and significant. It is interesting to note that the unemployment rate is always positively associated with the reported maltreatment rate, confirming the trigger hypothesis, and it is significant in this version. Similarly, the death rate is positively associated with maltreatment rates and is significant.

The addition of income per capita to the model influences the sign of the income replacement variable and it becomes insignificant. This is possibly due to a collinearity issue. In states and years that have a higher standard of living, they may also devote more to income replacement and have fewer unemployed. Therefore a linear association may exist between them.

Finally, when percent below poverty is added to the model and income per capita is removed, the income replacement variable regains its negative sign but is insignificant. In this specification both the death rate and percent below poverty have expected positive signs and are significant. The coefficient for the unemployment rate is positive as well, but it is not significant.

It is important to consider the unobservable factors involved in estimating child abuse and maltreatment rates. It is impossible to measure the propensity of an individual to commit a crime like this accurately and there may be many internal family issues that are related. Many family dynamics are not observable in state level panel data. These factors will affect the estimates in the models in this study.

VII. Conclusions

This study finds evidence for unemployment, death, income, and poverty increases stresses on families which will possibly produce abusive behaviors. Economic factors play an important role the child abuse dynamic. States with higher unemployment rates, death rates, and poverty rates tended to have higher reported rates of child maltreatment. States with higher living standards tended to have lower reported rates.

Some evidence was also found for public policy's role in reducing the prevalence of child abuse and neglect. Higher income replacement for lower income working families and individuals that have lost their jobs was associated with lower reported rates of child maltreatment in certain model specifications. States that offer more income replacement funding as well as better access will possibly decrease the prevalence of this crime.

From this research it is clear that economic factors affect child abuse rates. Further research should attempt to isolate more labor force dynamics that influence reported rates of maltreatment including gender issues, insurance issues, and work hour issues. Additional economic and policy factors may also affect child maltreatment rates.

VIII. References

- Berger, L. M. (2004). Income, family structure, and child maltreatment risk. *Child and Youth Services Review*. 26(8), 725-748.
- Bitler, M. P., & Zavodny, M. (2004). Child maltreatment, abortion availability, and economic conditions. *Review of Economics of the Household*. 2(2), 119-141.
- Bowles, S., & Schor, J. B. (1987). Employment rents and the incidence of strikes. *The Review of Economics and Statistics*. 69(4), 584-592.
- Catalano, R., Dooley, D., & Steinberg, L. D. (1981). Economic antecedents of child abuse and neglect. *Child Development*. 52(3), 975-985.
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007). Re-victimization patterns in a national longitudinal sample of children and youth. *Child Abuse & Neglect: The International Journal*. 31(5), 479-502.
- Martin, M. J., & Walters, J. (1982). Familial correlates of selected types of child abuse and neglect. *Journal of Marriage and the Family*. 44(2), 267-276.
- Paxson, C., & Waldfogel, J. (1999). Parental resources and child abuse and neglect. *American Economic Review*. 89(2), 239-244.
- Paxson, C., & Waldfogel, J. (2002). Work, welfare, and child maltreatment. *Journal of Labor Economics*. 20(3), 435-474.
- Seiglie, C (2004). Understanding child outcomes: An application to child abuse and neglect. *Review of Economics of the Household*. 2, 143-160.
- U. S. Department of Health and Human Services (2006). *Child Maltreatment 2006*. Washington, DC.

Zuravin, S. J. (1991).Unplanned childbearing and family size: their relationship to child neglect and abuse. *Family Planning Perspective*. 23(4), 155-161.