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# **Social Costs of Faltering Child Development**

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# 1

## Introduction

Meager child development results in myriad costs and consequences for society. The family and child experience personal losses. Taxpayers and society bear varied costs—evident in schools as children fail to achieve grade-level conduct and academic expectations, in communities as youth manifest antisocial behaviors, in welfare payments as tax dollars are transferred to those unprepared and unable to meet the demands of the workforce, and in future generations as poorly developed adults attempt to nurture their own offspring. Improvements in these outcomes are widely acknowledged as possible, desirable, and even necessary. Nonetheless, the best way to improve them is still a matter of debate.

Here we quantify costs to society of problems associated with impaired development. Faltering development may lead to poor school outcomes, teenage pregnancy, juvenile crime, welfare dependency, reduced earnings, unemployment, and even premature death. These costs represent the potential benefits—in avoidable costs—associated with prevention or intervention. These potential benefits can then be weighed against the costs of prevention. The results suggest potential benefits for an effective intervention to help parents and children prevent these problems.

At a more disaggregate level, our cost estimates suggest a useful menu of possible benefits for evaluating the potential or actual outcomes of interventions targeted at specific developmental problems. We estimate the annual costs and, for some categories, the costs per case for each problem presented. This information,

combined with information on a potential intervention's outcomes, could be used to calculate the dollar benefits derived from the intervention. Note that these estimates alone are insufficient to evaluate potential or actual effects of interventions; the estimates must be supplemented with reliable data on the intervention's outcomes.

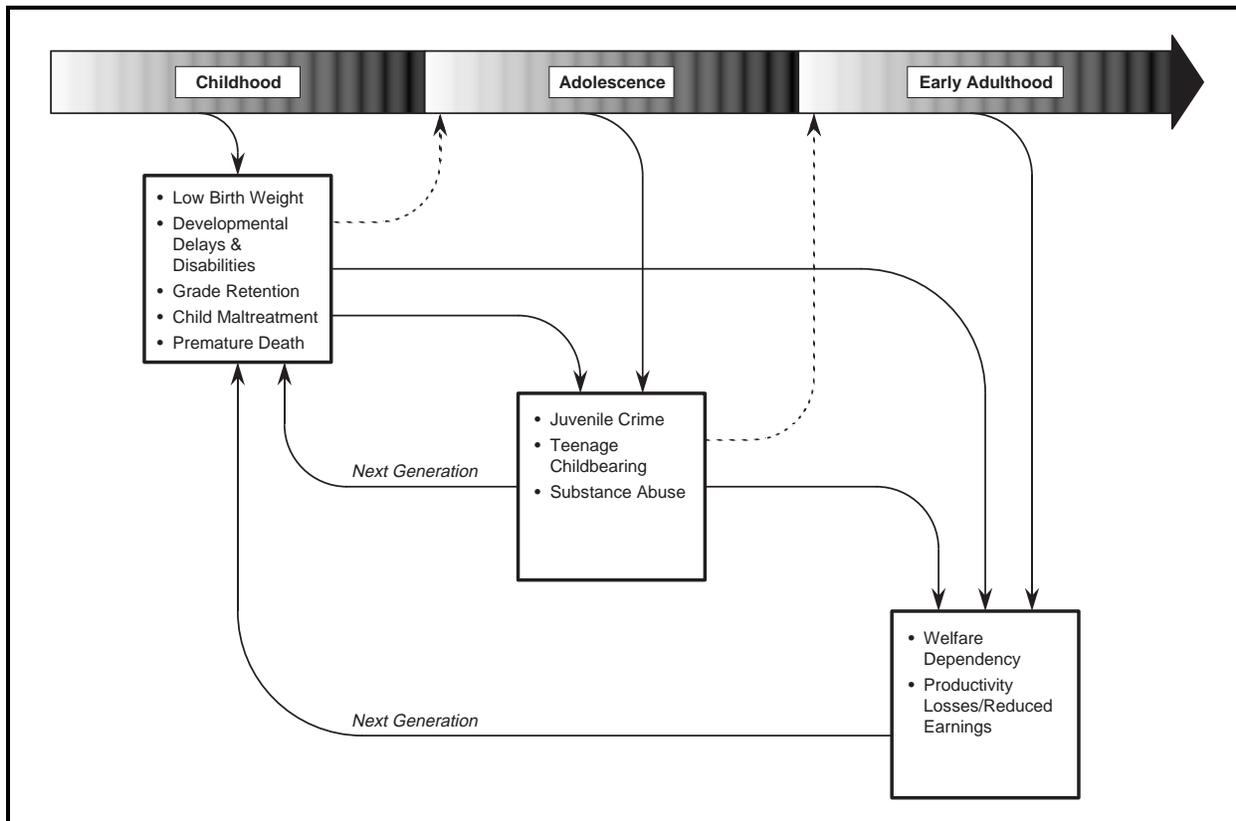
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## **1.1 AN ORGANIZATIONAL FRAMEWORK OF DEVELOPMENT**

The multiple theories of child development are complex and still evolving; an outline of some major influences appears in a related work (Research Triangle Institute, 1997) and will not be summarized here. For our purposes, Figure 1-1 provides a useful representation of child development problems, and we use this representation to guide the organization of our paper. The large arrow across the top of the diagram represents “typical”—albeit stylized—development through the chronological stages of childhood, adolescence, and early adulthood. Figure 1-1 presents deviations from the typical path. We adopt this approach and focus on developmental problems that impose costs on children and society.

In the diagram, the developmental problems are grouped within childhood, adolescence, and early adulthood stages. The chronological classifications are necessarily arbitrary (e.g., while we classify child maltreatment as a problem in childhood, it might be viewed as an adult problem, because it is usually an adult who is committing abuse). The classifications are nonetheless useful for this discussion.

The developmental problems are linked by arrows in descending order, which represent the cascading trajectories leading to the likelihood of further problems as a child ages. The degree of serious delinquency and drug use is strongly correlated with the number of earlier problems that adolescents have experienced (Smith et al., 1995). Thus, the full costs of a disruption in early childhood may include subsequent long-term costs in adolescence or early adulthood (McLanahan and Sandefur, 1994). For example, children who experience maltreatment are more likely to commit

**Figure 1-1. Faltering Developmental Trajectories and Pathways, Grouped by Life Stages**

juvenile crimes or become teenage parents and are subsequently more likely to drop out of school and incur earnings losses or become dependent on welfare than those who do not suffer maltreatment (Widom, 1995).

In addition to the cascading trajectories, the diagram also includes reverse arrows labeled “next generation” to represent the complicated intergenerational effects of these problems on development. For example, a substance-abusing teenage mother is more likely to give birth to a low-birth-weight child who incurs high medical costs and who is more likely to experience developmental delays or disabilities. Similarly, the teenage child of a welfare-dependent mother and absentee father may be more likely to have a child and become welfare-dependent or abandon the child, continuing the “welfare cycle.”

However, as indicated by the dashed arrows leading from the problems of childhood and adolescence to the next stages of

development, these problems do not inevitably lead to later problems. For example, Smith et al. (1995) find that 60 percent of high-risk youth are resilient to delinquency and drug use.

The flow of problems in Figure 1-1 suggests opportunities for interventions that might reduce the prevalence of these problems and promote more optimal development. Programs might be designed to help keep children who have failed grades from going on to commit juvenile crimes. Policies might be developed to help parents promote healthy child development from infancy through adolescence. Earlier interventions in childhood or adolescence may result in improved outcomes.

Alternatively, interventions might focus on the intergenerational aspects of development. For example, an intervention might aim to reduce the low-birth-weight outcomes of teenage mothers or break the cycle of welfare dependency or the cycle of violence passed on from generation to generation.

We do not debate the relative merits of the alternative options for intervention. Rather, we quantify the magnitude of current costs associated with children who start out or end up on a destructive developmental path. Such a quantification can clarify the potential benefits from intervention, even if it does not identify which intervention is most likely to achieve these benefits.

The remainder of this paper is organized as follows: We describe our methodology and data sources in Chapter 2. The chapters that follow address outcomes associated with problems occurring during different stages of development (childhood, adolescence, and young adulthood). For each problem, we discuss the best estimates of the annual costs and, when available, the cost per case. We also examine the potentially avoidable costs for each problem.

In Chapter 3, we discuss the costs of five outcomes associated with problems in childhood:

- medical care costs of low birth weight,
- developmental delays and disabilities,
- grade retention and poor school performance,
- child maltreatment, and
- premature death.

Chapter 4 examines the costs of problems that generally appear in adolescence:

- juvenile crime,
- teenage childbearing, and
- substance abuse.

Chapter 5 focuses on the costs of problems in early adulthood:

- welfare dependency and
- productivity losses or reduced earnings

Finally, we conclude by discussing the limitations of and summarizing this analysis in Chapters 6 and 7, respectively.

# 2

## Methodology and Data

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### 2.1 ECONOMIC APPROACH

In this study, we examine several points of view and a variety of consequences in an inclusive approach. We identify 10 categories of costs related to problems associated with disrupted or hindered development:

1. Medical-Care Costs of Low Birth Weight
2. Developmental Delays and Disabilities
3. Grade Retention
4. Child Maltreatment
5. Premature Death
6. Juvenile Crime
7. Teenage Childbearing
8. Substance Abuse
9. Welfare Dependency
10. Productivity Losses/Reduced Earnings

We discuss these 10 categories chronologically from the early identification of delays, through elementary school, to adolescent and adult outcomes.

For these categories, we identify those costs for which data are available and discuss the exclusions resulting from data limitations. Some costs overlap categories; we separate these costs if the data are sufficiently detailed. For example, because the special education costs for children with low birth weight are identified in the developmental delays section, we address the medical care

costs of low birth weight in a separate section in our paper. Other costs, such as poor school performance, are captured in several categories: grade retention, welfare dependency, and productivity losses. Grade retention quantifies only the portion of poor school performance costs that accrue to taxpayers in cases of retained students. In the welfare dependency and productivity losses sections, we capture later employment and earnings outcomes that may result from dropping out of high school. These costs are borne by individuals and taxpayers. In each discussion section, we present the tangible and intangible costs that are quantified as well as those that have not been assigned a dollar value.

Within each cost category, we identify the current prevalence of negative outcomes and/or the level of expenditure needed to improve or repair their consequences. The current problems are the sum of unknown proportions of avoidable and unavoidable negative outcomes. If children developed optimally, the avoidable costs would not be incurred. The unavoidable costs, however, are those from the accidents of life, and we cannot eliminate all risks to life and health. Even with the best of care, some children will be orphaned, injured, disabled, or suffer premature death. Estimating the natural rate of life's difficulties is beyond the scope of this study. Therefore, we report the current prevalence and/or level of expenditures and suggest that some unknown portion, although not all, could be prevented and avoided.

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## **2.2 STAKEHOLDERS: COSTS TO WHOM?**

This analysis differs from a traditional societal (social) cost analysis in several ways. First, we describe the costs to diverse stakeholders without summing to a societal net cost (i.e., without viewing costs to one group as benefits to another group). Instead, we focus on viewing the costs from multiple perspectives. Second, we do not sum across stages, as might be expected. Summing in this analysis would lead to double-counting because some cost categories overlap life stages (e.g., teenage childbearing and productivity losses). Third, we describe costs that are transferred or shifted from one group to another that would cancel each other out in a traditional social cost analysis (e.g., welfare dependency costs are transferred from taxpayers to recipients within society). Our purpose in including multiple varieties of costs is to present the

perspectives of several stakeholders: the individual child, the child's family, the community, taxpayers, and the individual's offspring.

In this analysis, we include transfer payments and subsidies. Government transfer payments redistribute income from taxpayers to recipients within society. Examples of government transfer payments to individuals or families are social security benefits, welfare payments, veterans' benefits, earned income tax credits, and unemployment compensation. Recipients neither produce goods nor perform services in return for transfer payments (hereafter *transfers*). Likewise, a subsidy is an in-kind transfer to a household, firm, or institution that receives a specific good or service, such as medical care provided by Medicaid or Medicare, public education, housing programs, and price supports for agricultural goods.

A traditional social cost analysis excludes transfers because one group (e.g., taxpayers) pays but another group (e.g., the poor) receives, which results in neither net cost nor net gain to society as a whole. For example, Aid to Families with Dependent Children (AFDC) payments were a cost to the public but were not a net social cost because they were a transfer within society from the government to private families. The necessities of life—food and shelter—are still required by private families and cannot be eliminated. Income transfers from public to private are not social costs from a traditional societal cost perspective because the need for food and shelter is unavoidable.

Government transfers or subsidies may be interpreted as indicators of reduced earnings or lost productivity among recipients or their families. The amount of the transfer may be interpreted as the amount of income that recipients lack because they may not have developed sufficient human capital. Individual human capital develops from birth through young adulthood. Families teach their offspring to grow and learn based on their experiences. With training and education, each individual develops sufficiently to achieve his or her reasonable potential; however, development may be hampered by problems from infancy through young adulthood. Reduced human capital development may result in reduced competency and achievement below an individual's productive potential.

In any social cost assessment, the lost productivity or reduced income is a social cost because it is avoidable. It is this cost that is passed along from parent to child and from child to the public as each generation's behavior affects the next generation's development. Recognizing that this argument may be seen from two sides, we report both perspectives: the public expenditures (i.e., income transfers) and the lost productivity (i.e., difference in earnings and potential earnings).

We must be careful to avoid misinterpreting cost reductions that merely shift costs. U.S. taxpayers could reduce their costs without any real reduction in the problems by simply reducing funding for interventions such as medical care, special education, or prisons. By refusing to fund programs or interventions, the costs are shifted from taxpayers to rest solely on the families, children, and victims. With cost-shifting, the problem does not improve; only the stakeholder changes. Although we report costs from multiple stakeholder perspectives, we note that it is possible to reduce one stakeholder group's cost by shifting it to another stakeholder group without any real reduction in the prevalence of the problem.

The stakeholder perspectives included here are (1) the public as community, taxpayers, or crime victims and (2) the private family and individual as infant, child, adolescent, and young adult. Even though these categories overlap, we include them to provide different perspectives.

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### **2.3 A PREVALENCE APPROACH**

This analysis takes a prevalence approach rather than an incidence approach. Examining the prevalence during a single year captures the annual dollar values for the cost categories. Evaluating the incidence over a lifetime would assess the lifetime cost per individual. Incidence-based costing would measure the resources used or lost over the lifetime following the onset of a disease or condition. The incidence approach requires more detailed information than is currently available including the course of events over a lifetime and the probabilities associated with each event for each subpopulation.

A prevalence approach measures the resources used or lost during a base period (usually a year) regardless of the date of onset. We

use the prevalence approach because the data are more readily available. We count as costs the resources used or foregone during 1 year that would not otherwise be used or foregone over the long run, with optimal development. For example, if both parenting and child development improved, fewer children would need income support or juvenile justice services.

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## **2.4 DATA SOURCES**

Our analysis relies on secondary sources. For the 10 identified cost categories (see p. 2-1), we examine published sources or previous research on societal costs. Occasionally, we calculate an implied value based on the published data. These are identified in the tables and text. We cite numerous sources including publications and World Wide Web sites of the Centers for Disease Control and Prevention (CDC), Social Security Administration (SSA), National Center for Education Statistics (NCES), U.S. General Accounting Office (GAO), Bureau of Justice Statistics (BJS), the U.S. House of Representatives Committee on Ways and Means (*Green Book*, 1996), and the Congressional Research Service (i.e., Congressional Research Service, 1993). In addition, we have gathered previous studies regarding the costs of social problems, including the costs of teenage childbearing (Maynard, 1997); costs of drug abuse (Rice et al., 1990); costs of violence (Miller, Cohen, and Wiersema, 1996); and costs of injury (Rice, MacKenzie, and Associates, 1989).

# 3

## Childhood

The early years of a child's life form the foundation for later development. Missing or chaotic structures and supports may disrupt a child's development in key areas such as physical, emotional, social, cognitive, or language skills. Lack of dependable, consistent, positive interaction may obstruct a child's progress in necessary areas of development, such as nonviolent conflict resolution and perseverance in the face of frustration. Without these skills, children may be more likely to become discouraged or aggressive.

Evidence of delayed or atypical development is often apparent when a child encounters the structured demands of public school. Children may enter school without the skills to communicate effectively; participate in teacher-led activities; cooperate with others in a group; manipulate paper, crayons, or books; physically control body functions; or dress and care for their own personal hygiene.

In grade school, lack of appropriate developmental achievements may be evident if a child requires special education or repeated behavioral intervention. As the child fails, he or she may experience rejection by peers and adults. Rejection and acting out behaviors may become self-perpetuating. The inhibited or delayed cognitive and emotional development may also result in grade retention, which may be humiliating for the child and is costly to the public.

At any time from birth to young adulthood, maltreatment such as abuse or neglect may disturb a child's development. Preventable

injuries or illnesses may result in premature death. Exposure to drugs prior to birth and low birth weight are correlated with multiple childhood difficulties.

In this section, we discuss five categories of costs that affect children:

- medical care costs of low birth weight,
- developmental delays and disabilities,
- grade retention,
- child maltreatment, and
- premature death.

For each category, we describe the problem, identify the best estimate of annual costs, and discuss the costs that may be avoidable with improved child development. Table 3-1 presents an overview of these cost categories.

We focus on injuries related to child maltreatment or premature death. Other disabling injuries are addressed only in the developmental disabilities section (i.e., special education, supplemental security income, and Medicaid costs). Because we address disabling injuries in these sections, we focus on costs to taxpayers and do not explicitly estimate the costs to individuals. In the child maltreatment and premature death sections, we do provide some estimates of the value of individual intangibles.

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### **3.1 MEDICAL CARE COSTS OF LOW BIRTH WEIGHT**

The social costs of child development gone awry may begin at birth. Infants born with low birth weight, disease, disabilities, or addictions to alcohol or drugs incur costs to society. We discuss the neonatal costs associated with fetal exposure to alcohol or drugs with other substance abuse costs in Section 4.3. In this section, we focus on the costs of low birth weight.

Maternal age, marital status, nutrition, and prenatal care each affect infant birth weight. Prenatal provision of adequate nutrition and health care reduces the risk of low birth weight. In developed

**Table 3-1. Annual Societal Costs of Faltering Child Development: Childhood**

Cost Categories	Current Prevalence	Current Costs	Current Cost/Case
<b>Medical Care Costs of Low Birth Weight</b>			
Medical care costs of low birth weight	7.1% of all births <sup>a</sup> 271,000 infants <sup>b</sup> (1988)	\$4 billion (1988) <sup>c</sup>	\$15,000 more than costs for infants of normal birth weight <sup>c</sup>
<b>Developmental Delays and Disabilities</b>			
<b>Special Education</b>			
Individuals with Disability Education Act (IDEA), Part B, State Grants Program for Children with Disabilities	5 million (age 0-21, 1993-94) <sup>d</sup>	Estimated \$31.8 billion (federal, state and local shares, 1995-96) <sup>e</sup>	\$7,800 (1989-90) <sup>f</sup>
IDEA, Part H, Infant and Toddler Intervention <sup>g</sup>	165,000 (December 1994)	Federal appropriation funding for FY 1995-96: \$315 million <sup>h</sup>	Average costs of services for each type of disability (1990-91 dollars):  Learning disability—\$5,648  Educable mentally retarded—\$5,769  Emotional handicap—\$5,428 <sup>i</sup>
<b>Supplemental Security Income (SSI) and Medicaid Costs</b>			
SSI disability for low-income, disabled children	950,901 <sup>j</sup>	\$4.52 billion <sup>j</sup> (federal funding, FY 1994)	\$420 monthly per child <sup>k</sup>
Medicaid for youth with disabilities ( <i>Medicaid costs also listed under "Costs of Welfare Dependency," Table 5-1</i> )	831,000 <sup>k</sup>	\$3.3 billion <sup>k</sup> for disabled youth under 21, not including 21% to 50% state/local contribution <sup>l</sup>	Implies \$3,971 per youth
<b>Grade Retention</b>			
Grade retention	2.4 million students per year (1989)	\$10 billion (1989)	\$4,051 (1989) <sup>m</sup>
<b>Child Maltreatment</b>			
Child abuse costs per victimization – Amount (Tangible + Intangible)	No. of victims: 794,000 No. of victimizations: 926,000	\$55.8 billion	\$60,302 (\$7,931 + \$52,371) <sup>n</sup>

(continued)

**Table 3-1. Annual Societal Costs of Faltering Child Development: Childhood (continued)**

Cost Categories	Current Prevalence	Current Costs	Current Cost/Case
<b>Child Maltreatment (continued)</b>			
Child welfare, foster care, and adoption services	2 million maltreatment reports <sup>o</sup>  1 million substantiated maltreatment incidents (1994) <sup>o</sup>  260,737 children in foster care (FY 95) <sup>j</sup>  78,000 children receiving adoption assistance each month (FY 95) <sup>j</sup>	\$3.97 billion (FY 1995) <sup>k</sup>	\$329 – \$407 per month <sup>l</sup>
<b>Premature Death</b>			
Lost earnings due to injury-related premature mortality <sup>p</sup>	9,325 children under age 15 <sup>o</sup>	\$2.5 billion <sup>p</sup>	\$213,000 – \$321,000 <sup>p</sup>
Mortality losses implied by mid-point Value of Statistical Life (VSL)	9,325 children under age 15 <sup>p</sup>	\$46.6 billion	\$5 million

<sup>a</sup>Healthy People 2000, 1990.

<sup>b</sup>Data from the 1988 Child Health Supplement to the National Health Interview Survey, as cited in Lewitt et al., 1995.

<sup>c</sup>Lewitt et al., 1995. Incremental direct costs reflect resource utilization above and beyond the level of resources used by normal-birth-weight infants and children.

<sup>d</sup>U.S. Department of Education, 1995.

<sup>e</sup>Parrish and Chambers, 1996.

<sup>f</sup>Chaikind, Danielson, and Brauen, 1993.

<sup>g</sup>Note that Part H no longer exists and recent legislation refers to Part C for these services.

<sup>h</sup>Smith, 1996.

<sup>i</sup>Garwood, J. March 15, 1989. Final Report: A Study of the Fiscal Impact of Providing Special Education and Related Services to South Carolina's Unserved Preschoolers with Handicaps. (Unpublished manuscript, cited in Bowden et al., 1990.)

<sup>j</sup>Green Book, 1996.

<sup>k</sup>Smith, 1996.

<sup>l</sup>Smith, 1996 (based on data from the U.S. Department of Health and Human Services, Medicaid Bureau).

<sup>m</sup>Shepard and Smith, 1990 (per-pupil cost from the U.S. Department of Education Center for Education Statistics).

<sup>n</sup>Miller, Cohen, and Wiersema, 1996.

<sup>o</sup>DHHS, NCCAN, 1996.

<sup>p</sup>Rice, MacKenzie, and Associates, 1989.

countries, low birth weight (defined as less than 2,500 grams) is the major determinant of infant mortality. It also contributes substantially to childhood disabilities, including cerebral palsy, deafness, blindness, epilepsy, chronic lung disease, learning disabilities, and attention deficit disorder (Paneth, 1995). Special education, early intervention, and other support services are consumed disproportionately by children with low birth weight.

### **3.1.1 Best Estimate of Costs of Low Birth Weight**

Lewitt et al. (1995) estimate that in 1988, health care, education, and child care for the 3.5 to 4 million children ages 0 to 15 born with low birth weight imposed direct costs between \$5.5 billion and \$6 billion more than if they had been born with normal weight. Despite the social resources expended on compensatory activities during infancy and childhood, low-birth-weight infants carry a disproportionate share of health and developmental problems into adulthood. The social costs of low birth weight continue to accrue throughout the life span in the form of increased morbidity, lost earnings, and increased demand for health and social services (Lewitt et al., 1995).

In Table 3-1, we report only the medical care costs for low-birth-weight infants. Other related costs, such as special education and grade retention, are listed separately. Medical care costs account for about 75 percent of the social costs of low-birth-weight infants. As noted in Table 3-1, about 271,000 infants were born weighing less than 2,500 grams in 1988; the incremental medical care costs for those infants were approximately \$4 billion (Lewitt et al., 1995). That estimate represents 35 percent of all expenditures on infant health care in 1988. The authors estimate that, on average, each low-birth-weight infant consumed about \$15,000 more in medical costs than average-birth-weight infants. Infants who weighed less than 1,000 grams (extremely low birth weight) or who experienced respiratory distress syndrome consumed an average of \$33,900 more than the average-birth-weight infant. These medical costs are borne by taxpayers, families, and insurers. The children and families bear the intangible costs of disability and pain.

### **3.1.2 Avoidable Costs of Low Birth Weight**

What percentage of problems related to low birth weight could be realistically avoided? We lack the research to be able to answer this question. First, we do not fully understand all of the causes of low birth weight, which is correlated with a variety of risk factors, only some of which could be alleviated through improved prenatal care. In addition to individual maternal behaviors such as substance abuse, other factors are related to birth weight including race/ethnicity, limited access to health care, and poverty (Hughes and Simpson, 1995). Second, studies evaluating the efficacy of preventive and service activities have had mixed results (Alexander and Korenbrot, 1995), precluding our ability to estimate the potential reduction in this problem that may be possible through various interventions or policies. However, given that low birth weight causes pain and disability and costs \$4 billion annually in medical care costs alone, even small reductions could produce significant benefits.

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## **3.2 DEVELOPMENTAL DELAYS AND DISABILITIES**

Schools and taxpayers reach out to assist children and youth with developmental delays and disabilities. Assistance comes through several paths such as special education in public schools and income support as well as provision of medical care through Medicaid. Although many of these developmental delays and disabilities have genetic causes, or unknown natural causes, some have postnatal causes that are preventable. Thus, at least some of the costs of special education, income support, and medical care are avoidable.

### **3.2.1 Special Education**

Children and youth with developmental disabilities require special education in public and private schools. The Individuals with Disabilities Education Act (IDEA) requires that all children and youth with disabilities receive appropriate education. Federal funding for all eligible students with disabilities is provided under the IDEA Grants to States (Part B) and the Early Intervention for Infants and Toddlers with Disabilities (Part C, formerly Part H) programs. Part B provides special education services funds to states for preschool and school-age children with disabilities. Part C

(formerly Part H) supports state efforts to develop comprehensive, interagency-coordinated early intervention services for disabled and at-risk infants and toddlers. However, the majority of special education funding comes from state governments and local school districts.

### **3.2.1.1 Best Estimate of the Costs of Special Education**

Special education for students with disabilities is the largest categorical program in public schools, serving approximately 4.6 million students (National Center for Education Statistics [NCES], 1993). Exact current expenditures for public special education services in grades K through 12 are unknown but were estimated at nearly \$32 billion for FY 1995-1996 (Gerald and Hussar, 1995, as cited in Parrish and Chambers, 1996). Chaikind, Danielson, and Brauen (1993) estimate that the average total per-pupil special education costs were approximately \$7,800 in 1989-90 dollars, or about 2.3 times the cost of regular education. Because special education services are funded through a combination of local, state, and federal funds, and states most recently reported these amounts for the 1987-1988 school year, the figures shown in Table 3-1 are estimates rather than actual costs. Bowden et al. report Garwood's (Garwood, 1989, as cited in Bowden et al., 1990) estimates of national average costs of serving preschool-age children with various types of disabilities in 1990-1991 dollars: \$5,648 for learning disability; \$5,769 for educable mentally retarded; and \$5,428 for emotional handicap.

Part H services were funded through a variety of federal, state, and local sources. Most states do not report total expenditures (Parrish, 1996). We do know, however, that Part H enrollment was growing at a much faster pace than other special education services (Parrish, 1996). Part H enrollment for the population from birth through age 36 months increased 157 percent between the 1987-1988 and 1992-1993 school years (Parrish, 1996). Recent Part C changes are not addressed here. As shown in Table 3-1, 167,000 students were enrolled in Part H programs. Presumably, these growth trends are driving program costs up as well. In FY 1997, the federal government appropriated over \$315 million for this program

(*Special Education Report*, 1996). (State and local funds are excluded from this estimate.)

### **3.2.1.2 Avoidable Costs of Special Education**

Special education classification includes both physical disabilities (such as visual or hearing impairment) and disabilities defined by social system models (e.g., behavior, intelligence, or communication abilities) (Reschly, 1996). The largest portion of students served under IDEA have learning disabilities, followed by speech and language disorders and mental retardation (Terman et al., 1996). As with the other problems discussed in this paper, these disabilities have a variety of causes, not all of which we could hope to prevent. However, some postnatal developmental disabilities are preventable through improved early childhood development efforts, improved parenting, reductions in child abuse, and reductions in other child injuries.

### **3.2.2 Supplemental Security Income (SSI) and Medicaid Costs**

Children and youth with mental impairments and other disabilities receive support for income and medical services. Supplemental Security Income (SSI) is an entitlement program serving low-income persons (including children) who are blind or disabled. The SSI program is the largest cash assistance program for the poor and one of the fastest growing entitlement programs. In 1995, SSI expenditures totaled \$27 billion while AFDC totaled \$22 billion (*Green Book*, 1996). One of the factors influencing this growth was eligibility changes in the SSI program that increased the number of children eligible to receive SSI benefits. A Supreme Court ruling regarding children's eligibility for SSI, coupled with new regulations expanding eligibility standards for assessing mental impairments, allowed a wider range of children to qualify as disabled for support (GAO, 1995). Between 1990 and 1994, the growth in the number of children receiving SSI averaged 25 percent annually. Mental impairments accounted for over half of all cases. Mental disability awards to children with behavior problems, such as attention deficit disorder, accounted for 22 percent and were growing in 1994 (GAO, 1995).

Public Law 104-193 will discontinue the eligibility of some children under SSI and will ban SSI benefits for children who are illegal aliens. Because the impact of these changes on costs are unknown, we report estimates of costs prior to the passage of this legislation.

### **3.2.2.1 Best Estimate of Costs of Income and Medical Care Support**

As of September 1995, 950,901 children with disabilities were receiving SSI payments (*Green Book*, 1996, p. 294) at a cost of \$4.52 billion (federal funding only). SSI provides an average monthly payment of \$420 per child with a disability (Smith, 1996). Low-income children with disabilities also qualify for Medicaid assistance. In FY 1994, Medicaid covered 831,000 youths with disabilities, at a cost of \$3.3 billion (Smith, 1996). These figures are shown in Table 3-1.

### **3.2.2.2 Avoidable Costs of Income and Medical Care Support**

Although some mental and physical disabilities occur naturally, such as genetic anomalies and diseases of the central nervous system, others such as head injury and adverse prenatal influences are related to environmental factors that are amenable to change (Congressional Research Service, 1993). For example, shaken baby syndrome and fetal alcohol syndrome are arguably 100 percent preventable because they are clearly linked to behavioral causes. Perhaps with improved parenting, fewer children would be at risk for permanent mental and physical developmental disabilities that require taxpayer income support.

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## **3.3 GRADE RETENTION**

Although no national statistics have been collected on grade retention, a study of 13 states and the District of Columbia suggests that about 5 to 7 percent of public school children in the U.S. are annually retained in their current grades.<sup>1</sup> This study estimated that by ninth grade, about half of all students in the U.S. have been retained for at least one grade or are no longer in school (Shepard

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<sup>1</sup>Approximately 10 percent of 5- to 17-year-olds have repeated at least one grade (Smith et al., 1997).

and Smith, 1989, as cited in Shepard and Smith, 1990). Because this study was not conducted on a national scale, the generalizability of the estimate is ambiguous.

### **3.3.1 Best Estimate of the Costs of Grade Retention**

As reported in Table 3-1, Shepard and Smith (1990) estimate that U.S. school districts spend nearly \$10 billion annually to pay for the extra year of school required by retaining 2.4 million students. Their estimates are based on an annual retention rate of 6 percent and a per-pupil cost of \$4,051. We found no published sources for intangible values of below-grade-level performance and failure for the children and their families. Intangible values would capture the value of suffering for the individuals and their families of being retained in their grade, of being assessed as performing below their grade level, and of dropping out before completing high school.

### **3.3.2 Avoidable Costs of Grade Retention**

In 1996, 28 percent of preschoolers were not read to or told stories regularly (National Education Goals Panel [NEGP], 1996). Early childhood development is key to preparing the foundation for later development. Public school teachers and administrators lament that the proportion of students who enter school ready to learn is too low. As a result of being unprepared, some children have not learned to cooperate in a group or to use nonviolent communication skills. Because children develop at differing rates, some grade retention may be unavoidable. Yet some of the differences in school readiness, reading and mathematics performance, grade retention, and high-school completion between those children with age-appropriate development and those with faltering development may be prevented.

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## **3.4 CHILD MALTREATMENT**

Child maltreatment has devastating effects on child outcomes and accrues significant social costs (for a description of child welfare burdens see Besharov, 1994). Parents at risk for child maltreatment may not have developed adequate emotional coping mechanisms for themselves or appropriate expectations for the needs of young children. The reactions of parent and child may become destructive aberrant patterns that repeat unless new behaviors are developed.

According to the ecological model of child abuse and neglect, risk factors for maltreatment include child factors such as a difficult temperament, family factors such as a large number of children and an unsupportive marital relationship, social factors such as poverty and a lack of social supports, and parental factors such as unsupportive parental attitudes, poor parenting skills, and stressful life events (Kotch et al., 1995).

The tangible costs to taxpayers of child maltreatment include medical treatment costs for injuries and disabilities caused by physical abuse and the costs associated with removing children from their homes and placing them in out-of-home care. Other costs to families and children may include school difficulties, involvement with the juvenile justice system, and mental health problems. Research has demonstrated that maltreated children have much poorer school outcomes than the general student population, including lower test scores and grade point averages, higher likelihood of dropping out of school, more absences, and higher grade-retention rates (Leiter and Johnsen, 1994). Research also shows that victims of child maltreatment are at greater risk of becoming juvenile delinquents (Lewis, Mallouth, and Webb, 1989) and of developing mental health problems such as depression and dissociation (Becker-Lausen, Sanders, and Chinsky, 1995). Victims are more likely to become victimizers as well (Besharov, 1994).

#### **3.4.1 Best Estimate of the Costs of Child Maltreatment**

In a comprehensive analysis of the costs of crime, Miller, Cohen, and Wiersema (1996) report that child maltreatment costs \$60,000 per victimization, of which \$7,931 are tangible costs, with the majority of costs capturing the value of emotional and psychological suffering for sexual or physical abuse. This average child maltreatment cost includes the federal taxpayer costs of investigating and treating child maltreatment, the costs of death due to child abuse, and the costs of treating injuries due to abuse. The total cost burden estimate is \$55.8 billion, as shown in Table 3-1. Tangible costs of medical care and foster care tend to accrue to taxpayers while intangible suffering burdens the victimized children and their families. The victims' intangible costs of suffering from maltreatment overwhelmingly exceed the value of tangible costs to the public.

In 1994, over 1 million children were the victims of substantiated child abuse and neglect, and another 2 million were the subjects of reports of alleged maltreatment (DHHS, National Center on Child Abuse and Neglect, 1996). An estimated 18,000 children suffered disabilities and 141,700 suffered serious injuries as a result of maltreatment in 1993 (Curtis et al., 1995). Forty-three states reported that 1,111 child fatalities resulted from maltreatment in 1994 (DHHS, National Center on Child Abuse and Neglect, 1996). This figure is conservative, as it mostly represents cases known to the social services system.

The Social Security Act provides the bulk of federal funds for child welfare services. These federal programs include the Title IV-B Child Welfare and Family Support/Family Preservation Programs, Title IV-E Foster Care, Independent Living and Adoption Assistance Programs, and the Title XX Social Services Block Grant (*Green Book*, 1996). As indicated in Table 3-1, the federal government spent nearly \$4 billion in FY 1995 for child welfare, foster care, and adoption services (*Green Book*, 1996). In 1995, approximately 260,000 children received foster care and 78,000 children received adoption assistance each month (*Green Book*, 1996). Foster care for children and independent living maintenance payments for older adolescents make up the greater part of taxpayer costs, reaching \$3 billion in FY 1995 (*Green Book*, 1996).

These figures indicate that the costs of child maltreatment range from \$4 billion in federal dollars to \$55.8 billion for tangible and intangible costs.

### **3.4.2 Avoidable Costs of Child Maltreatment**

If parents developed the emotional and cognitive skills necessary to nurture their children and enjoyed community support regarding the challenges of parenting, perhaps much of child maltreatment could be avoided. As with the other problems discussed in this paper, child maltreatment is associated with a variety of individual and environmental risk factors (Daro, 1988). As such, we need to consider both individual- and community-level issues in order to eradicate the problem and costs of child maltreatment.

Adults can learn parenting and coping skills; however, the emotional skills required of a parent are first developed in the early

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years of the individual's childhood. Developing suitable responses to avoid destructive behaviors would reduce child maltreatment and associated tangible and intangible costs. Even a 10 percent reduction in child maltreatment implies a reduction of \$400 million to \$5.6 billion in avoidable suffering and support costs associated with child maltreatment.

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### **3.5 PREMATURE DEATH**

In this section, we discuss the costs of the final category of problems for childhood—premature death. In 1993, the leading causes of premature death for children age 1 to 4 years were accidents, congenital anomalies, cancer, and homicide (U.S. Bureau of the Census, 1996). For children age 5 to 14, the causes were similar except suicide caused more deaths than homicide. Certain injuries such as accidents, suicide, and homicide could potentially be avoided with behavioral changes to improve children's development and to strengthen their family and environment.

To estimate a dollar value for the loss of life either to compensate families for accidental deaths or to calculate the acceptable expenditures for avoiding potential deaths, two primary approaches are used.

The human capital approach (HCA) to valuing life focuses on the value of earnings lost, such as paying surviving dependent family members the wages of someone (i.e., an employee) who dies as a result of premature death. The value of statistical life (VSL) approach focuses on the amount individuals as a group are willing to pay or willing to accept on average to reduce their probability of death (e.g., safety devices) or to accept an increase in their probability of death (e.g., wage premiums for hazardous jobs). Government policies (e.g., OSHA policies to improve worker safety) are often assessed using the VSL approach.

We report estimates for the costs of premature death using both the HCA and VSL approaches. Table 3-1 presents estimates for this cost category.

### 3.5.1 Best Estimate of Costs of Premature Death

In an analysis of the cost of injury, Rice, MacKenzie, and Associates (1989) use HCA methodology to assess estimates for premature death. As shown in Table 3-1, the injury-related mortality losses total \$2.5 billion<sup>2</sup> for children under 15. The authors apply different values for children under age 5 than for those between ages 5 and 15. The HCA estimation procedure requires data concerning mortality, future earnings, and an appropriate discount rate to calculate present values to estimate social costs. This approach results in higher values for whites and males resulting from their higher expected wages and labor-force participation rates. The major criticism of HCA centers on placing value on workplace productivity only, without valuing other aspects of life or quality of life (Grabowski and Hansen, 1990).

To avoid ignoring the value of pain and suffering as well as the racial and gender biases inherent in labor earnings, economists recommend valuing mortality losses based on VSL estimates. Estimates using the VSL approach are derived from studies estimating individual's willingness to pay for risk-reducing devices (e.g., smoke detectors, seat belts) and estimating wage premiums for increased risks of death in employment. In Table 3-1, we report total costs of premature death based on the value of a statistical life. The VSL method implies that the injury-related mortality losses of 9,325 children under 15 totals \$46.6 billion (i.e., \$5 million each<sup>3</sup>).

The VSL method estimate of \$5 million per life is far greater than the HCA estimate of \$321,000 per life. Clearly, if a life is valued only in terms of lifetime wages the HCA estimate is more accurate. The VSL method is based on estimates extrapolated from the amount people are willing to pay (e.g., safety devices) or receive

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<sup>2</sup>This study team examined the costs of injury-related deaths in 1985. They calculated the \$931 million estimate based on a per-case value of \$213,000 for 4,363 injury-related deaths of children under age 5. Injury-related mortality losses for children between ages 5 and 14 totaled \$1.6 billion based on a per-case cost of \$321,000 each for 4,962 deaths (Rice, MacKenzie, and Associates, 1989).

<sup>3</sup>The values for statistical life range dramatically from \$0.07 million to \$29.4 million depending on the study; however, the majority of estimates are between \$3 million and \$7 million (Viscusi, 1993). In a particularly well-designed study, Moore and Viscusi (1988) estimate \$5 million as the value of a statistical life. The \$5 million VSL is also the midpoint of a range (\$1.6 million to \$8.5 million) of estimates from studies reviewed by Fisher, Chestnut, and Violette (1989) and those reviewed by Viscusi (1993).

(e.g., wage premiums) in return for a change in their probability of death. Extrapolating from small changes in annual mortality probabilities across many individuals allows estimation of the value of reducing the probability of a statistical death in a large population. These estimates range from \$2 million to \$7 million in studies of large populations; however, in courts in which families are seeking damages for the loss of an individual the value can be much higher.

Some may view a lifetime earnings estimate as capturing tangible costs of premature death. Others may consider that the costs of premature death are entirely intangible. Regardless of estimation technique, the costs of premature death are significant. We do not attempt to identify any cost reductions associated with premature death (e.g., death of potential criminals).

### **3.5.2 Avoidable Costs of Premature Death**

Whether we estimate the dollar value of 9,325 children who died from injuries in 1985 to total \$2.5 billion or \$46.6 billion, the human loss is immense. Improving parental skills and improving child development could potentially reduce the risk of premature death for children. Providing safer environments—from child-proofing homes and using bicycle helmets and seatbelts to reducing neighborhood violence and crime—could mean healthier development and improved prospects for each child.

# 4

## Adolescence

Adolescence is a difficult time of adjustment to physical and emotional changes as well as a period of increased freedom and responsibility. Children who have not developed the necessary skills and motivation to succeed in school and relationships may develop antisocial behaviors. Antisocial behaviors are associated with rejection by peers and parents, academic failure, depressed mood, and antisocial attitudes. Antisocial behavior is also correlated with poverty, low intelligence, and neurological and biological factors (Yoshikawa, 1994). Early childhood difficulties are strongly associated with poor cognitive and socioemotional development in adolescence (Korenman, Miller, and Sjaastad, 1995; Federman et al., 1996). In middle and high school, an adolescent whose development has been impaired may exhibit delinquent behaviors: truancy, teenage sex, substance abuse, theft, or assault. Eventually, these problems may result in a young adult with limited employment or earnings.

In this section, we discuss three categories of costs related to the adolescent stage of life:

- juvenile crime,
- teenage childbearing, and
- substance abuse.

Table 4-1 presents an overview of these cost categories.

**Table 4-1. Annual Societal Costs of Faltering Child Development: Adolescence**

Cost Categories	Current Prevalence	Current Costs	Current Cost/Case
<b>Juvenile Crime</b>			
Juvenile justice costs of crime (under age 18)	Total reported violent crime offenses by juveniles: 119,678  (18.5% of total violent crime) <sup>a</sup>		
Estimate using reported juvenile offenses and average loss	119,678	\$3.4 billion	\$28,125 average loss per offense
Estimate based on 18 percent of violent crimes committed by juveniles, <sup>a</sup> estimate of total violent crime, and total crime costs to victims <sup>b</sup>	2.88 million	\$81 billion	\$28,125 average loss per offense
Total crime costs to victims: Annual losses (1993\$)	16 million total	\$450 billion <sup>b</sup>	Implies \$28,125 average loss per offense
Tangible losses of crime (medical and other tangible)		\$105 billion <sup>b</sup>	
Intangible losses of crime		\$345 billion <sup>b</sup>	
Murder costs per victimization – Amount (Tangible + Intangible)		Included above	\$2.7 million (\$800 thousand + \$1.9 million) <sup>b</sup>
Rape/sexual assault costs per victimization – Amount (Tangible + Intangible)		Included above	\$86,600 (\$5,200 + \$81,400) <sup>b</sup>
Robbery costs per victimization – Amount (Tangible + Intangible)		Included above	\$8,000 (\$2,300 + \$5,700) <sup>b</sup>
Total justice system payroll		\$4.8 billion <sup>c</sup>	
Direct expenditures for the justice system		\$94 billion <sup>d</sup>	

(continued)

**Table 4-1. Annual Societal Costs of Faltering Child Development: Adolescence (continued)**

Cost Categories	Current Prevalence	Current Costs	Current Cost/Case
<b>Teenage Childbearing</b>			
Annual cost to society of teenage childbearing	520,000 adolescents <sup>e</sup>	\$6.9 billion <sup>e</sup>	Implies \$13,269 per adolescent mother
Lost tax revenue from lower earnings for teenage fathers (included above)		\$1.3 billion <sup>e</sup>	
Public assistance benefits (welfare and food stamps) necessitated by teenage childbearing (included above)		\$2.2 billion <sup>e</sup>	
Medical care for children of teenage mothers (included above)		\$1.5 billion <sup>e</sup>	
Foster care for children of teenage mothers (included above)		\$900 million annually <sup>e</sup>	
Incarceration of people whose mothers were teenagers when they were born (included above)		\$1 billion annually <sup>e</sup>	
<b>Substance Abuse</b>			
Publicly funded substance abuse services	Ages 12 to 17:  (n=4,429,000) 20.3% ever used illicit drugs <sup>f</sup>  (n=9,079,000) 41.7% ever used alcohol <sup>f</sup>	\$3.6 billion (includes adults FY 1993) <sup>g</sup>	
Total costs of substance abuse in 1985		\$114 billion (includes adults) <sup>h</sup>	

<sup>a</sup>Maguire and Pastore, 1995 (Table 4.8).

<sup>b</sup>Miller, Cohen, and Wiersema, 1996 (Table 5 for cost and Table 1 for prevalence).

<sup>c</sup>Maguire and Pastore, 1995 (Table 1.21; 1992 total of federal, state, and local governments).

<sup>d</sup>U.S. Department of Justice, 1996.

<sup>e</sup>Maynard, 1997.

<sup>f</sup>DHHS, 1994.

<sup>g</sup>NASADAD, 1995.

<sup>h</sup>Rice et al., 1990.

## **4.1 JUVENILE CRIME**

Criminologists and psychologists describe delinquent youths as *early starters* or *late starters* relative to whether their first identification by law enforcement as offenders occurred before or after age 13. The early starters can be identified by peers and teachers as well as by standardized instruments as antisocial by the fourth grade (Patterson, Capaldi, and Bank, 1991; Patterson, DeBaryshe, and Ramsey, 1989). The adolescent with delinquent behaviors imposes costs on diverse stakeholders: the child himself or herself, who suffers frustration and rejection; the schools as they attempt to cope with problem behavior and remediate development; peers whose safety is threatened and learning disrupted; the community members who suffer as victims of assault or theft; and the taxpayers who transfer resources to prisons, courts, or law enforcement for delinquent crime, to medical services, and to children and families as income supplements.

### **4.1.1 Best Estimate of the Costs of Juvenile Crime**

In 1993, reported juvenile violent crime prevalence figures indicated that

- over 1,000 offenses were committed by children under age 10;
- about 8,000 offenses were committed by children between ages 10 and 12;
- 27,000 offenses were committed by juveniles between ages 13 and 14;
- 23,000 offenses were committed by 15-year-olds;
- 29,000 offenses were committed by 16-year-olds; and
- 30,000 offenses were committed by 17-year-olds.

According to criminal justice statistics, 119,678 reported offenses, as shown in Table 4-1, or 18.5 percent of all violent crime (648,000 total, committed by offenders of all ages) was committed by juveniles under the age of 18 (Maguire and Pastore, 1995). Violent crimes include murder, forcible rape, robbery, and aggravated assault.

In contrast, Miller, Cohen, and Wiersema (1996) report the annual average of all violent crimes to be 16 million offenses, as shown in Table 4-1, instead of the 648,000 violent crimes reported by

Criminal Justice Statistics (Maguire and Pastore, 1995). The authors' estimate of 16 million crimes includes those that are *not reported* to law enforcement officials. Neither estimate includes child abuse crimes. Based on the 16 million offenses, Miller, Cohen, and Wiersema (1996) estimate the total crime costs to victims to be \$450 billion (1993 dollars) of which \$105 billion are tangible and \$345 billion are intangibles (i.e., trauma, pain, and suffering). They estimate that \$18 billion of the tangible costs are for medical care excluding care for perpetrators. Other tangible costs include the value of stolen items such as motor vehicles or cash during a robbery or aggravated assault.

We can roughly estimate juvenile crime costs to victims if we assume that 18 percent of violent crimes are committed by juveniles, as indicated by Maguire and Pastore (1995). The implied juvenile crime costs to victims would be approximately \$81 billion, as shown in Table 4-1, based on the Miller, Cohen, and Wiersema (1996) estimate of total crime costs to victims.

Alternatively, if we restrict the estimate to the reported 119,678 violent juvenile crimes and extrapolated an average cost to victims (i.e., \$28,125 based on Miller, Cohen, and Wiersema [1996]) for violent crime, the juvenile crime costs to victims is approximately \$3.4 billion per year.

Neither the \$3.4 billion nor the \$81 billion estimate includes the \$4.8 billion payroll expenditures for police, judicial, legal, and corrections personnel shown in Table 4-1 (Maguire and Pastore, 1995). The total annual costs for direct expenditures for the justice system in 1992 are reported as \$94 billion in Table 4-1 (Maguire and Pastore, 1995). This figure includes funds from municipalities, counties, states, and the federal government for adolescents and all adults. The total \$94 billion primarily funds three law enforcement activities: \$41.3 billion (44 percent) for police protection; \$21 billion (22 percent) for judicial and legal services; and \$31.5 billion (34 percent) for corrections (Maguire and Pastore, 1995).

The expenditures for law enforcement are borne by taxpayers. Intangible costs are primarily borne by victims. Tangible costs of medical care and stolen property are borne by diverse individuals and groups including victims, taxpayers, insurers, and the insured.

#### **4.1.2 Avoidable Costs of Juvenile Crime**

Some research indicates that victims of abuse and crime become the perpetrators of abuse and crime: this is identified as the “cycle of violence” (Widom, 1995). Children exposed to violence in their neighborhoods, families, or homes suffer traumatically. Being tough or violent may be viewed as a rational adaptation given the violence surrounding them. Too often, these children fail to develop nonviolent problem-solving abilities to overcome the multitude of difficulties surrounding them; too many of these children become delinquent youth. Although studies show that some portion of antisocial and criminal behavior may be explained by genetic or neurological factors, other correlates are avoidable environmental factors such as inadequate family management skills to guide a child’s development. We cannot estimate the proportion of juvenile crime that would necessarily remain after environmental factors were improved. However, a 10 percent reduction in juvenile crime would avoid tangible and intangible costs to victims ranging from \$340 million to \$8.1 billion each year.

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#### **4.2 TEENAGE CHILDBEARING**

Each year, about 175,000 adolescent girls give birth to their first child before the age of 18 (Maynard, 1997). These young mothers and their children are especially vulnerable to adverse social and economic consequences (Maynard, 1997). Their children are more likely than children of adult mothers to have health and cognitive disadvantages and to be neglected or abused. Daughters of adolescent mothers are more likely to become adolescent mothers themselves, and sons are more likely to be sentenced to prison. Few adolescent mothers complete high school before their first child is born. The majority are unmarried, and very few unwed fathers provide economic support to their children. Those teenage fathers who do work to support their children have low earnings. (Adult fathers are not included in Maynard’s analysis.) Prior to the implementation of welfare reform, more than 70 percent of adolescent mothers depended on welfare, with 40 percent on welfare for 5 years or more during the decade after their first birth.

### 4.2.1 Best Estimate of the Costs of Teenage Childbearing

Maynard (1997) reports that primary taxpayer costs due to adolescent childbearing (by teens age 17 or younger) include higher public assistance benefits (\$2.2 billion), higher medical care expenses (\$1.5 billion), higher incarceration rates (\$1 billion), higher rates of foster care placement (\$.9 billion), and lost tax revenue from the effect of childbearing on the work patterns of fathers (\$1.3 billion). These estimates indicate that taxpayers would save \$6.9 billion each year if childbearing could be delayed until adulthood (Maynard, 1997). As shown in Table 4-1, this total and the 520,000 births reported by Maynard implies annual costs to taxpayers of \$13,269 per adolescent mother.

Teenage sons of adolescent mothers are 2.7 times more likely to be incarcerated than sons of mothers who delayed childbearing.

—Maynard, 1997

This figure underestimates the total social costs of adolescent childbearing. One unmeasured cost is lost opportunities and national productivity from the diversion of social resources toward the excess health care, foster care, and incarceration caused by adolescent childbearing. Maynard does not estimate the earnings losses (unrealized potential) or lost tax revenues of teenage mothers. Other unmeasured costs include higher levels of learning disabilities and social problems among children born to teen mothers, which affect the costs of education and social services and lead to lost productivity (Maynard, 1997). Personal costs such as venereal diseases are excluded from Maynard's study. Recent studies indicate that some children of teenage mothers are fathered by adult males (Males and Chew, 1996; Lindberg et al., 1997). This raises the issue of sexual abuse by adult perpetrators. We report the value of intangible costs of rape in the juvenile crime section separately but do not estimate costs specifically for teenage mothers. The value of intangible losses for the parents, children, and their families is also not included in the \$6.9 billion annual cost to taxpayers.

### 4.2.2 Avoidable Costs of Teenage Childbearing

If we could prevent teenage pregnancies, we could save nearly \$7 billion annually in public assistance costs for these young parents and their children, the public costs of addressing the adverse consequences of adolescent childbearing (e.g., foster care, criminal justice), and foregone tax revenues of teenage fathers (Maynard, 1997). Maynard estimates that we would save twice that

amount if we could simultaneously persuade adolescent girls to postpone childbearing until age 20 or 21 *and* address the set of factors that precipitate or compound the consequences of early childbearing—motivation, educational opportunities, and peer group influences—that contribute to the poor observed outcomes for adolescent parents and their children.

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### **4.3 SUBSTANCE ABUSE**

Fetal exposure to alcohol and drugs, infectious diseases among the substance-dependent, and violence related to drug distribution are just a few of the adverse consequences associated with substance abuse. Enumerating the multitude of direct harm and indirect harm resulting from the use and abuse of alcohol, drugs, or other substances is beyond the scope of this analysis (see Besharov, 1994, for further information).

In 1994, 8.2 percent of adolescents between 12 and 17 reported that they had used illicit drugs in the previous month, 15.5 percent had used drugs in the previous year, and 20.3 percent had ever used drugs (DHHS, 1994). Alcohol use was higher. In 1994, 21.6 percent of adolescents between 12 and 17 reported that they had consumed alcohol in the previous month, 36.2 percent had consumed alcohol in the previous year, and 41.7 percent had ever consumed alcohol (DHHS, 1994). The individual, the family, taxpayers, and the individual's children may suffer the consequences of substance abuse.

#### **4.3.1 Best Estimate of the Costs of Substance Abuse**

The costs of substance abuse are intertwined with law enforcement costs, medical costs, and the opportunity costs of lower productivity and earnings. Unfortunately, we cannot specifically identify the proportion of costs related to adolescents separate from adults based on published data. In Table 4-1, we report totals for funded substance abuse services and for the total costs of alcohol abuse, drug abuse, and mental illness, including adults.

In 1993, publicly funded substance abuse services alone totaled \$3.6 billion, as shown in Table 4-1 (NASADAD, 1995). Rice et al. (1990) estimate that the economic costs of alcohol abuse, drug abuse, and mental illness totaled \$218.1 billion in 1985. Of these

costs, 37 percent are morbidity costs and 16 percent are mortality costs. Of the \$51.4 billion in core direct costs, taxpayers provided 56 percent of this total (28 percent federal sources, 28 percent state and local sources), with 44 percent supplied by private sources. Excluding the costs of mental illness, substance abuse costs totaled \$114 billion, including core costs and indirect costs such as lost workdays.

Fetal alcohol syndrome alone accounted for \$1.6 billion in 1985. The intravenous drug users' costs of acquired immunodeficiency syndrome (AIDS) accounted for another billion dollars in 1985.

Drug abuse costs totaled \$44 billion in 1985, with 76 percent in morbidity costs and 14 percent in mortality costs. For the \$70 billion economic costs of alcohol abuse, the distribution was different, with 39 percent in morbidity costs and 34 percent in mortality costs.

Rice et al. (1990) use the present value of lifetime earnings lost, accounting for gender and age, to estimate the value of mortality. These are lower-bound estimates of the value of life. If VSL estimates—more commonly used for evaluating health, safety, and environmental regulations—were used, the economic costs would be significantly higher. These estimates do not include intangible costs of reduced health and safety for the adolescents, their families, and communities.

### **4.3.2 Avoidable Costs of Substance Abuse**

Improved parenting and child development may be a pathway for reducing the negative outcomes related to substance abuse. Some previous early childhood intervention research has found reduced substance abuse among participants (Barnett, 1985). Even a small 5 percent reduction in the costs of alcohol abuse, drug abuse, and mental illness would represent an avoidable cost (savings) of \$5.7 billion.

# 5

## Adulthood

In adulthood, individuals who do not gain the necessary skills and motivation to achieve typical adult developmental levels may suffer from poverty and welfare dependency. More than one in five of all U.S. children and two in five of all black and Latino children are poor (Curtis et al., 1995; Duncan, 1991). Perhaps the most compelling social costs of poverty are its feedback effects on children's health, educational, and developmental outcomes.

Child poverty is associated with a host of poor developmental outcomes, including juvenile delinquency, substance abuse, high-school dropout, intergenerational economic dependency, and stunted adult productivity and attainment. Each of these problems increases the likelihood that the next generation will be poor (McLanahan, Astone, and Marks, 1991).

Poverty and adverse child development are intertwined (Ards and Mincy, 1994). We do not attempt to separate their respective contributions to negative outcomes in this paper. A variety of poverty cofactors (e.g., single parenthood, low maternal education, low cognitive skills, dangerous neighborhoods, schools with low achievement scores, crowded living conditions) are associated with negative outcomes, and we lack the data to determine the relative impact of each factor on child outcomes (Chase-Lansdale and Brooks-Gunn, 1995; McLanahan and Sandefur, 1994; Kotch et al., 1995).

Instead, we focus on the social costs of welfare dependency and reduced productivity evidenced in low earnings of workers with less than a high-school education. We speculate that improved

parenting and child development would produce improved adult outcomes.

In this section, we discuss two cost categories regarding adult outcomes:

- welfare dependency and
- productivity losses.

Table 5-1 presents an overview of these costs.

**Table 5-1. Annual Societal Costs of Faltering Child Development: Adulthood**

Cost Categories	Current Prevalence	Current Costs	Current Cost/Case
<b>Welfare Dependency</b>			
All income-tested benefits programs		\$344.9 billion <sup>a</sup>	
AFDC <sup>b</sup>	13.6 million recipients (1995)	\$22.3 billion (1995): federal, state, and local costs	Average monthly benefit/family: \$377 <sup>a</sup>
<b>Productivity Losses/Reduced Earnings</b>			
Reduced earnings based on number of children in poverty	14.6 million children in poverty <sup>c</sup>	\$36 billion – \$176.9 billion <sup>c</sup>	\$2,466 – \$12,105 <sup>c</sup>
Reduced earnings based on difference in earnings for 18- to 24-year-olds not completing high school	3.8 million high-school dropouts under age 25 <sup>d</sup>	Implies \$14.8 billion – \$21.6 billion	\$3,888 – \$5,688 <sup>e</sup>

<sup>a</sup>Prevalence, cost and average cost figures from *Green Book*, 1996.

<sup>b</sup>PRWORA of 1996 replaced AFDC with TANF block grants.

<sup>c</sup>CDF, 1994.

<sup>d</sup>U.S. Bureau of the Census, 1996 (Table 271).

<sup>e</sup>U.S. Bureau of the Census, 1996 (Table 244), costs extrapolated from earnings difference per month compared to high-school graduates for 18- to 24-year-olds.

## 5.1 WELFARE DEPENDENCY

The Aid to Families with Dependent Children (AFDC) program provided cash welfare payments to support families. Although there is substantial social mobility among children of families who received AFDC, these children remain more likely to bear children out of wedlock and turn to government assistance to support their

own children. Research indicates that daughters growing up in welfare-dependent families are much more likely to participate in the welfare system themselves as adults (Moffitt, 1990).

The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 replaces AFDC, JOBS, and Emergency Assistance Programs with the Temporary Assistance to Needy Families (TANF) block grants. In 1997, each state was required to begin program operation under the new block grant, ending the entitlement to assistance under federal statute (Greenberg and Savner, 1996). The legislation also affects other federal programs such as the Food Stamp and other nutrition programs, the Supplemental Security Income (SSI) Program, child support enforcement, and child care. Some of the changes (e.g., ban on benefits for illegal aliens, transition of entitlements into block grants) are intended to reduce taxpayer costs and reduce the rate of growth in spending. Other taxpayer costs may increase such as child care and child protection programs.

Because we do not know the overall effect that these changes will have on the costs of these programs, we report estimates on program costs prior to the new legislation. In addition to cash assistance (AFDC and SSI), we include the taxpayer cost of Medicaid; food stamps; free and reduced-price school lunches; Special Supplemental Food Program for Women, Infants and Children (WIC); child care assistance; and housing assistance.

### **5.1.1 Best Estimate of the Costs of Welfare Dependency**

Welfare dependency may be defined in various categories, such as *no dependency* to indicate no use of welfare, *moderate use* to refer to brief use of 1 to 2 years, and *highly dependent* meaning use for 3 years or more. Evaluating the distribution of dependency is outside the scope of this analysis. We focus here on the magnitude of welfare expenditures without identifying categories of dependency. As shown in Table 5-1, taxpayers provided \$344.9 billion (approximately 5 percent of gross domestic product) in cash and noncash aid for low-income persons in FY 1994 (*Green Book*, 1996). The programs included in this figure are AFDC, General Assistance, SSI, food stamps, Medicaid, and housing assistance. Although the majority of Medicaid funding assists the elderly, some of these funds support families with children. More specifically,

13.6 million individuals received AFDC cash assistance, costing federal, state, and local taxpayers just over \$22 billion in 1995 (*Green Book*, 1996). The average monthly benefit for each family was \$377 (1995 dollars). Most families who received AFDC assistance were eligible for a variety of other government assistance programs. For example, in 1994, 85 percent of AFDC recipients households received food stamps; 98 percent received Medicaid; 54 percent received free or reduced-price school meals; and 30 percent received housing assistance (*Green Book*, 1996).

We found no published sources for reporting intangible costs. The intangible costs of welfare dependency are unknown but may include personal feelings of parents and children such as shame, vulnerability, insecurity, abandonment, and hopelessness concerning lack of employment or child support. Other intangible costs may relate to the community and peers who are affected by their neighbors' welfare dependency.

The tangible costs of welfare dependency reported here are duplicated in previously reported estimates of the costs related to other problems (e.g., social costs of teenage pregnancy, Medicaid and SSI costs for children and youth with disabilities). One must avoid double-counting that would result from summing the costs of problems from various sources and perspectives presented in this analysis.

### **5.1.2 Avoidable Costs of Welfare Dependency**

Although some accidents of life are unavoidable, increased education, training, and employment may reduce the need to transfer so many funds from taxpayers to poor families. Improved early development provides the foundation for improved development later in elementary school, adolescence, and adulthood. High-school completion and delayed childbearing until adult employment and later family formation may reduce the likelihood of becoming welfare-dependent.

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## **5.2 PRODUCTIVITY LOSSES/REDUCED EARNINGS**

Economists recommend measuring total social costs by estimating the lost productivity rather than focusing on taxpayer transfer costs.

It is the reduced or lost productivity that results in the need to transfer resources from taxpayers to the needy. In addition, quantifying reduced earnings is more straightforward than assigning values to pain and suffering. Estimating the lost productivity quantitatively captures the income differences between what exists with faltering child development and what could be with normal child development. Several indicators show that the lack of adaptive development from birth to adulthood drives the multitude of costs described thus far.

As discussed in Chapter 2, government transfers and subsidies may be interpreted as indicators of reduced earnings or lost productivity among recipients. With training and education, individuals develop sufficiently to achieve their reasonable potential. Individuals accumulate the majority of their human capital from birth through young adulthood. Reduced human capital development may result in reduced competence and achievement below productive potential.

Lack of academic progress is correlated with reduced earnings. In 1992, high-school dropouts were three times more likely to receive income from AFDC or public assistance (17 percent) than were high-school graduates who did not go on to college (6 percent) (U.S. Department of Commerce, 1993). Reduced employment and earnings are associated with welfare dependence, violence and crime, teenage childbearing, and many other problems (Ashenfelter and Krueger, 1994; Angrist and Krueger, 1991; Ensminger and Slusarcick, 1992; Cairns, Cairns, and Neckerman, 1989).

### **5.2.1 Best Estimate of Lost Productivity**

The simple illustration below and the multiple approaches used in the Children's Defense Fund (CDF, 1994) study indicate productivity losses that range between \$14.8 billion and \$176.9 billion, as shown in Table 5-1. Productivity losses resulting from lower education and earnings are borne by the individuals, their families, and taxpayers who transfer resources to assist them.

In 1994, CDF published a report studying the qualitative and quantitative costs of the status quo. In Chapter 4 of that report,<sup>1</sup>

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<sup>1</sup>Chapter 4, "The Economic Costs of Child Poverty," was supervised by two economists: Robert M. Solow and Rebecca M. Blank.

CDF describes the four methods used to estimate the productivity losses for reduced worker output. The CDF analyses focus on the effect of poverty on lifetime earnings separable from other explanatory variables (e.g., family characteristics such as mother's education, number of siblings). The annual present value effect on earnings of a year of poverty for each child was determined to vary from \$2,466 to \$12,105. As shown in Table 5-1, extrapolating to 14.6 million poor children, CDF estimates the annual cost of an additional year in poverty to range from \$36 billion to \$176.9 billion in lost productivity or reduced earnings.

In Table 5-1, we alternatively illustrate the costs of lost productivity using another perspective. Consider the simple difference in earnings path between the average monthly income of those 18- to-24-year-olds who are not high-school graduates and those who have graduated high school only. The difference is \$324 (i.e., \$783 – \$459; 1993 dollars) per month for 18- to-24-year-olds and \$474 (i.e., \$1,380 – \$906) averaged across all persons (U.S. Bureau of the Census, 1996; Table 244). These figures suggest annual costs per high school dropout ranging from \$3,888 to \$5,688. In 1994, there were 3.8 million high-school dropouts under age 25 (U.S. Bureau of the Census, 1996; Table 271). The annual productivity loss implied for 3.8 million people with less than 12 years of schooling is between \$14.8 billion and \$21.6 billion. This is shown at the bottom of Table 5-1 as the reduced earnings based on the difference in earnings among the population between the ages of 18 and 24 who have not completed high school.

Whether we examine the present value of lifetime earnings losses from an additional year in poverty for children in poverty or the simple annual earnings difference between young adults with or without a high-school education, the tangible annual costs are tremendous and range from \$14.8 billion to \$176.9 billion. These costs are avoidable for those who are capable, with early training and education, of developing their human capital to approach a more typical potential productivity and earnings path.

We found no published sources for the value of intangible costs related to productivity losses or reduced earnings. The intangible costs are unknown but may include low self-esteem, feelings of being a burden to one's family or community, insufficient challenge and stimulation, and hopelessness concerning lack of employment

or education. The intangible costs to society may include the psychological burden related to observing the poverty of others and the extra efforts required to provide non-monetary assistance.

### **5.2.2 Avoidable Costs of Lost Productivity**

Although only a few studies of early childhood interventions have examined long-term outcomes, such as high-school completion and earnings, those studies suggest that children in families who participated in the interventions enjoyed better education and employment consequences (Barnett, 1985; The Consortium for Longitudinal Studies, 1983; Schweinhart et al., 1993). Whether we consider the productivity losses for a single cohort of poor children (14.6 million) or the losses for those who drop out of high school (3.8 million), the economic costs are startling. To illustrate the potential avoidable costs, consider that, in 1993, 12.7 percent of those between 18 and 24 had not completed high school (U.S. Bureau of the Census, 1996; Table 270). A reduction of 2.7 percentage points, to 10 percent, could result in avoided costs of between \$3.15 billion and \$4.6 billion annually. This shows that small changes in the prevalence of a problem can yield significant benefits.

# 6

## Limitations

Given the aggregation of costs and factors in the published data, we consider our analysis to be illustrative. The cost categories that we present provide insight into the diverse consequences of children with faltering development. However, a more detailed analysis might be able to isolate the association among correlated issues as well as delineate costs of resources to a finer level.

In our effort to include diverse stakeholder perspectives and present the multitude of costs and consequences of adverse child development, we may appear to oversimplify the multiple causes of the cost categories that we present. We emphasize that we do not propose that providing improved parenting and child development can, in itself, eliminate society's problems with poverty, crime, substance abuse, unemployment, disability, and illness. Nonetheless, improved child development could contribute to reducing the consequences and costs that we have described in this examination of individual development (e.g., developmental delays, grade retention, juvenile crime, teenage childbearing).

In order to consider a variety of perspectives, we report expenditures and values that are not usually included in societal cost analyses. For example, we include taxpayer costs rather than ignore their perspective. We recognize that taxpayers are a heterogeneous group with varying opinions concerning their costs.

Similarly, we present the various costs for each category to illustrate the multiple sources, linkages, and diversity of costs. Double-counting results when estimates from a variety of sources that overlap one another are summed. Assessing a *net* social cost

would require adjusting for double-counting across sources. Our description of costs overlaps in some cases (e.g., welfare dependency and teenage childbearing). However, we do not calculate a net social cost. Instead, we include multiple perspectives from a variety of sources.

In several cases, we describe federal, state, and local program budgets prior to the Personal Responsibility and Work Opportunity Reconciliation Act (PRWOR) of 1996. We acknowledge that these program costs may be an underestimate or an overestimate of actual expenditures. To present the total economic costs, we would prefer a more detailed reporting of the actual resources required—both actual expenditures and donated resources. We would also prefer prevalence and cost data for all categories in the same year. Prevalence rates and dollar values are reported as published and have not been adjusted to a single base year. In some cases, we would require access to the study's data and discounting algorithms to adjust present value figures to a single base year. These detailed data are not available; therefore, we report program cost data in the year published since it is the best available and provides sufficient information for illustration.

Finally, we recognize that a strict human capital approach would neglect the value of pain and suffering or other intangibles, such as safety and health; restrict the value of life to market earnings; and ignore values for time costs of children, homemakers, and retirees because they do not earn market wages. Only a few estimates that we include show the value of intangibles (e.g., cost of crime to victims). However, we realize that in some sense the intangibles may be regarded as the most valuable and significant of social costs.

# 7

## Summary

The social costs of fractured and obstructed child development are significant. Doing nothing further to improve child development will result in continuing losses for individuals, families, and communities. The continuing losses include compromised health and safety; needless distress and despair; and higher taxpayer costs for foster care, school programs, medical care, welfare support, law enforcement, and prisons.

Table 7-1 lists the variety of cost categories and annual costs related to each category that has been presented. We have summed the cost categories individually from each chapter. However, these costs may not be summed across life stages because some categories overlap. For example, some of the substance abuse costs include crime and some of the teenage childbearing costs include welfare support. In some sense, welfare dependency and productivity losses or reduced earnings are two sides of the same problem: dependence and lack of independence.

This overview illustrates the variety of costs. The estimates for adulthood costs and substance abuse costs are based on the broadest definitions of potential costs (e.g., all income-tested public support is included in the welfare dependency estimate). The other adolescent and childhood costs use more conservative estimates of prevalence and costs. The text of each chapter discusses the estimates in more detail.

**Table 7-1. Annual Cost Overview<sup>a</sup>**

Stage	Cost Category	Annual Costs
Childhood	Medical Costs of Low Birth Weight	\$4 billion
	Developmental Delays and Disabilities	
	Special Education	\$32 billion
	Supplemental Security Income	\$4.52 billion
	Medicaid	\$3.3 billion
	Grade Retention	\$10 billion
	Child Maltreatment	\$4 billion – \$55.8 billion
	Premature Death	\$2.5 billion – \$46.6 billion
Adolescence	Juvenile Crime	\$3.4 billion – \$81 billion
	Teenage Childbearing	\$6.9 billion
	Substance Abuse	\$114 billion
Young Adulthood	Welfare Dependency	\$344.9 billion
	Productivity Losses	\$14.8 billion – \$176.9 billion

<sup>a</sup>Refer to previous chapters for sources and explanation of annual cost estimates.

Welfare dependency appears as the largest cost category because it includes all cash and non-cash aid provided by taxpayers for low-income persons. This category includes programs that would not be related to faltering child development as well as programs such as AFDC that no longer exist with the PRWORA of 1996. This total is the most broadly defined cost category and must be interpreted carefully.

Productivity losses represent the second largest cost category. These losses indicate the productivity, as measured by earnings, that could be realized if individuals reached the average income of high-school graduates, as compared to the reduced employment and earnings experienced by those who do not complete high school or who suffer childhood poverty.

Young adulthood experiences such as substance abuse, welfare dependency, and reduced employment and earnings are not closely linked with early childhood experiences either in time or by existing research. Yet these are long-term outcomes that may result from too little investment in early interaction and development.

Few research studies examine young adulthood differences among comparable children 20 years after an early childhood intervention.

However, early childhood interventions with parents and children have been proposed to reduce crime (Earle, 1995). In a hypothetical case, assuming an intervention similar to Perry Preschool (Schweinhart, Barnes, and Weikart, 1993) and Head Start, Greenwood et al. (1996) analyze the benefits of diverting children from criminal activity. They suggest that this earliest intervention would be cost effective. Their analysis does not examine the noncrime benefits nor the child abuse victimizations prevented; instead, it focuses on the reduction in crimes perpetrated by the target child.

If Greenwood et al. (1996) had included the noncrime benefits such as increased productivity, reduced premature death, reduced welfare dependency, reduced child maltreatment, and reduced teenage childbearing, the early childhood intervention would be even more cost effective.

We do not know what proportion of the costs discussed in this paper could be prevented with improved parenting and child development. Some portion of the costs discussed that relate to childhood are closely linked in time and by research to parenting and child development. Changes in parenting and child behaviors that reduce the probability of injuries could reduce childhood premature deaths. Reduced child maltreatment may be possible with improved adult coping strategies and improved parenting education concerning age-appropriate child behaviors. Some portion of the costs of developmental delays and disabilities could be reduced with improved child development prior to entering school.

From infancy, children rely on their parents to provide what they need to grow physically, cognitively, emotionally, and socially, with each stage of development relying on the foundation developed previously. With improved parenting and child development, fewer of these costs would remain to be borne by individuals, their families, communities, and taxpayers.

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