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By the Numbers

The Public Costs of Teen Childbearing

By
Saul D. Hoffman, Ph.D.

October 2006

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Summary:

How Much Does Teen Childbearing Cost?

Early pregnancy and childbearing remain pressing concerns in the United States. In 2002, there were over 760,000 pregnancies to women under the age of 20 and some 420,000 births to teens in 2004. Despite a 36 percent drop in the teen pregnancy rate between 1990 and 2002 (the most recent data available) and a 33 percent decline in the teen (girls aged 15-19) birth rate between 1991 and 2004, the United States still has the highest teen pregnancy and birth rates in the industrialized world. In fact, rates of teen pregnancy in the United States are two to six times higher than those in most of Western Europe including France, Holland, Denmark, and Sweden.

**TEEN CHILDBEARING
COSTS TAXPAYERS AT
LEAST \$9.1 BILLION
ANNUALLY**

Teen childbearing is associated with adverse consequences for teen mothers, fathers, and their children. Teen childbearing is also costly to the public sector—that is, to federal, state, and local governments and the taxpayers who support them. While the consequences of teen childbearing are many, this report focuses exclusively on the public sector costs of teen childbearing.

A decade ago, a group of researchers estimated that births to mothers age 17 and younger cost taxpayers nearly \$7 billion annually. Costs to society as a whole were more than twice as much as that. These cost figures, presented in the award-winning and widely cited book *Kids Having Kids: Economic Costs and Social Consequences of Teen Pregnancy*, compared the costs of childbearing by teen mothers 17 and younger to the costs of childbearing by mothers aged 20-21.

The new research detailed in this report provides:

- updated estimates of the public sector costs of teen childbearing in 2004;
- cost estimates of childbearing for those aged 17 and younger *and* for those aged 18-19;
- the first-ever estimates of the cost of teen childbearing in each state and Washington DC. (Please see Appendices 1-6 for state cost information and visit www.teenpregnancy.org/costs for detailed fact sheets on each state and Washington DC.)

The report's primary findings include:

- Teen childbearing in the United States cost taxpayers (federal, state, and local) at least **\$9.1 billion** in 2004. Put another way, the average annual cost associated with a child born to a teen mother is \$1,430.
- Most of the costs of teen childbearing are associated with negative consequences for the **children of teen mothers**. These costs include \$1.9 billion for increased public sector health care costs, \$2.3 billion for increased child welfare costs, \$2.1 billion for increased costs for state prison systems, and \$2.9 billion in lost revenue due to lower taxes paid by the children of teen mothers over their own adult lifetimes.
- The public sector costs of young teens (those aged 17 and younger) having children are particularly high. These births account for **\$8.6 billion** of costs, an average of \$4,080 per mother annually.
- The taxpayer costs associated with teen childbearing to those aged 18-19 are estimated at \$0.4 billion annually.
- Between 1991 and 2004 there were 6,776,230 births to teens in the United States. The estimated cumulative public costs of teen childbearing during this time period is **\$161 billion** dollars.
- The steady decline in the teen birth rate between 1991 and 2004 has already yielded substantial cost savings. As noted above, the national teen birth rate declined by one-third between 1991 and 2004. This progress in reducing teen childbearing saved taxpayers an estimated **\$6.7 billion** in 2004 alone.
- Because not all costs can be measured, and because the estimates themselves are constructed conservatively, it is certain that the **full public sector costs of teen childbearing are larger than those noted in this analysis**.

The cost estimates presented in this report are divided into two broad categories: (1) those associated with teen mothers and their partners, and (2) those associated with the children of teen mothers. The public costs for teen mothers are measured as the difference in the taxes that they pay because their earnings are lower and the difference in the cost of public assistance they receive (TANF, Food Stamps, and housing assistance). The costs for fathers are also associated with lower taxes paid. For the children, the costs are those associated with publicly-provided health care, foster care and other child welfare services, incarceration (for sons of

Figure 1: Public Sector Costs of a First Birth to a Teen Mother Compared to a First Birth at Age 20-21

All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|---|---------------------------------------|-------------------------------|-------------------------------------|
| Lost Tax Revenue | \$4.89 | \$1.43 | \$6.32 |
| Income & Sales Taxes (Mothers) | \$0.92 | -\$0.65 | \$0.27 |
| Income & Sales Taxes (Fathers) | \$1.71 | \$1.45 | \$3.16 |
| Income & Sales Taxes (Children) | \$2.26 | \$0.63 | \$2.89 |
| Public Assistance (Mothers) | -\$0.95 | -\$2.62 | -\$3.56 |
| TANF | -\$0.72 | -\$1.26 | -\$1.98 |
| Food Stamps | -\$0.45 | -\$0.91 | -\$1.35 |
| Housing | \$0.22 | -\$0.45 | -\$0.23 |
| Health Care Costs (Children) | \$0.95 | \$0.98 | \$1.92 |
| Child Welfare (Children) | \$1.84 | \$0.46 | \$2.30 |
| Incarceration of Sons of Teen Mothers (Children) | \$1.90 | \$0.17 | \$2.07 |
| Total Annual Cost (Billions) | \$8.63 | \$0.42 | \$9.06 |

Numbers in this table and throughout the report may not quite total due to rounding.

teen mothers as adults), and lost tax revenue due to lower earnings when the children of teen mothers enter the labor force.

The cost estimates provided in this report are based on a very conservative research approach that only includes costs that can be *confidently* attributed to teen childbearing itself rather than to other traits or disadvantages that often accompany teen childbearing (such as poverty). While this report presents new estimates of the national costs of teen births, it draws on the work of many of the same researchers who developed the original 1996 estimates presented in *Kids Having Kids* and it follows the same conservative research approach.

While no estimate of the cost of teen births can ever be perfect and beyond critique, the costs presented here reflect state of the art research techniques, are the fullest and most reliable estimates to date, and reflect only those costs clearly associated with a teen birth rather than associated risks. The goal of this new research is to provide timely, scientifically sound evidence of the public costs that teen births impose on the public sector in the United States and to make apparent the economic value of preventing early childbearing.



Context:

Teen Births in the United States

Teen pregnancy and birth rates in the United States have fallen steadily since the early 1990s, when nearly a decade of steady and substantial increases in the rates came to an end. In 1991, more than one million adolescent girls became pregnant and more than half a million had a birth. Of every 1,000 girls aged 15-19 in 1991, 116 became pregnant and 62 had a birth.

Now, after more than a decade of decline, the teen birth rate is a third lower than in 1991. Instead of 62 births for every 1,000 15-19 year old girls, there are just 41 (Martin, et al).

Still, despite the very substantial progress in reducing the teen birth rate since 1991, the United States' rates of adolescent pregnancy and childbearing are still conspicuously different from other countries that share our level of income and eco-

nommic development and are even higher than countries with far lower average incomes. One study compared the United States to 45 developed countries—from Albania to Yugoslavia—as of the late 1990s (Singh and Darroch). Of these 45 countries, just one had a higher teen fertility rate—Armenia, which barely nosed out the United States. In much of Europe, teen birth rates were one-quarter to one-fifth of the rate in the United States. Denmark, France, Germany, Netherlands, Portugal, Spain, Sweden and Switzerland are just some of the many European countries with teen birth rates a fraction of our own. Our close neighbor Canada has a teen birth rate less than half the U.S. rate. Clearly, despite the country's substantial progress, there is still much room for improvement. For example, the National Campaign estimates that nearly one-third of young women in the United States become pregnant by age 20.



The Cost of a Teen Birth: What the Study Measures and How

Determining the cost of a teen birth is a complex research task. It is particularly important, therefore, to be clear about what is being measured and how it is being measured. Different measures of costs are appropriate for different purposes. The primary goal is to measure the costs that could be averted if today's teen mothers delayed their first birth to their early 20s. The focus is on public sector costs—that is, those costs paid for by the state, local, or federal government with revenue provided by federal, state and local taxpayers.

The first step in measuring the costs of a teen birth is to determine how giving birth as a teen alters subsequent life outcomes for the teen mother (e.g., her educational attainment, earnings, and welfare receipt), the father (e.g. earnings), as well as the life course of the child born to the teen mother (e.g., health, educational attainment, and earnings). The second step is to determine the cost per person of providing specific public services that result from these altered outcomes. Combining the impact of a having a birth as a teen with the per person cost of program services and summing up all relevant outcomes and programs yields a measure of the costs of teen childbearing.

While this procedure is straightforward in principle, executing it is difficult. The major challenge is that it is often difficult to determine how much of the poorer outcomes of teen mothers, their partners, and their children are due to the early age of first birth and how much is due to other risk factors. The young women who become teen mothers often face many disadvantages arising from the families and communities in which they live. Their families may have lower average income, their communities may have fewer public amenities and support systems, and their public school systems may be weaker. Each of these disadvantages, including the early age of their first birth, contributes uniquely to the poorer outcomes for these women, their partners, and their children. If too much weight is assigned to giving birth as a teen, there is a very real risk of overstating what can be accomplished by a delay in the age at first birth.

Therefore, in measuring the impact of a teen birth, it is particularly important to attempt to identify the unique or causal role that age alone plays in whatever poor outcomes are noted. The causal role corresponds to this thought experiment: “If we could change a young woman’s age at first birth, but not change anything else about her, what

impact would that have on her subsequent life outcomes and the life outcomes of her child and partner?” The resulting impact of a teen birth is its *net* effect, that is, its effect above and beyond the impact of other risk factors that are not changed. The net effect represents a causal impact, not just a correlation.

To compute the net effect of teen childbearing, it is necessary to compare young women who are as similar as possible in all respects except for the age at which they first had a birth. This is done using a variety of statistical techniques that *control for* or *adjust for* all the other risk factors that contribute to the outcome being studied. The specific way in which this is done varies from study to study, depending on the data source that is used and the measures of family and community available in that data. The result is equivalent to finding the average difference in outcomes between young women who are identical except for the ages at which they first had births.

The cost of a teen birth is then the *increased* costs associated with the net effect of a teen birth on a wide range of outcomes. This cost measure—referred to throughout the report as the *net cost* of a teen birth—includes the costs that could potentially be averted if a first birth were delayed. Alternatively, these are the benefits or cost savings of delaying the age of first birth.

Consider, for example, the foster care system in the United States, which, along with associated child welfare programs, costs federal, state, and local taxpayers more than \$23 billion annually. What is the impact of the mother’s age at birth on the costs of maintaining the foster care system in the United States? To answer that question, it is necessary to first determine the causal impact of a teen birth on the probability that a child will enter the foster care system. How much more likely are children of teen mothers to enter foster care than

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ELSE ABOUT HER, WHAT IMPACT
WOULD THAT HAVE ON HER
SUBSEQUENT LIFE OUTCOMES
AND THE LIFE OUTCOMES OF
HER PARTNER AND HER CHILD?”**

the children of women who are 20 or 21 at the time of their first birth? In measuring this, it is important to carefully account for other risk factors that also affect the probability that a young child enters foster care in order to identify the causal effect of a teen birth. Second, it is necessary to determine the annual cost of a typical foster care case by combining detailed cost and caseload data. Combining these two quantitative estimates—the net impact of a mother’s age at birth and the cost per case—and multiplying by the number of teen births in 2004 yields an estimate of the impact of a teen birth on foster care costs.¹

It is important to understand that this approach yields a conservative measure of the cost of a teen birth in the sense that it does not attribute to teen childbearing the impact of other correlated family and community factors.² A less conservative measure is the *gross* cost of a teen birth. This measure is based on the full or unadjusted difference between teen mothers and mothers aged 20-21 in the many outcomes that lead to public sector costs. The concept of gross costs of a teen birth corresponds to this thought experiment: “If we could change a young woman’s age at first birth *and* all other differences between her and the average women who has a later birth, how much lower

1 See the Appendix for detailed information about how all cost estimates are constructed.

2 This measure might be too conservative in one way. A successful teen pregnancy intervention program will almost always change *something* about a young woman that enables her to delay her first birth. If that “something” is valuable in the labor market or elsewhere, it may improve her prospects. The statistical practice of “holding everything else constant” does not typically allow for this indirect effect.

would public sector costs be for her and her children?” The gross costs reflect the correlation between a teen birth and the various outcomes, rather than a causal relationship.

Typically, the gross cost of a teen birth is larger than the net cost and sometimes much larger.³ As already noted, the young women who become teen mothers usually differ in many ways from the women who delay their first birth and those other differences are sometimes important contributors to the outcomes that are being analyzed. It is always possible that teen mothers may do poorly for reasons other than the age at which they have a child. A comparison of gross and net costs reveals the impact of other risk factors on the outcomes of interest. The gross costs themselves are also a meaningful measure of costs that could be avoided by a comprehensive and aggressive intervention program that addressed all the disadvantages of potential teen mothers.

The costs measured in this study are based on the total number of teen births in 2004. There were 422,043 teen births in 2004 of which 140,761 were births to girls age 17 and younger, (including 6,781 to girls age 10-14), and another 281,282 were births to girls age 18 and 19. The costs are those associated with a specific number of years of motherhood, beginning either with a teen birth or a birth delayed to ages 20 or 21. In some instances, the costs are measured through the first 15 years of motherhood; in other cases the costs are measured for a shorter or longer period of time. Readers should note that in all cases, however, the specific ages are noted throughout the paper. Age 20-21 was chosen as the age for delay of first birth because it is long enough to make a meaningful difference in the life options of the young mothers and their children and because it is potentially attainable through aggressive and effective efforts to prevent teen pregnancy. The costs measured here are the annual costs of a teen birth, based on the characteristics of

government programs and taxes as of 2004 and measured in 2004 dollars. The appendix explains exactly how the births in 2004 are used to estimate the annual cost of teen births.

The public sector costs included in this analysis are limited to those linked to outcomes that have dollar costs associated with them *and* for which there are reliable national estimates of the net impact of a mother’s age at birth on that outcome. Some things, such as life satisfaction, are important, but do not have measurable and explicit dollar costs. Others do have measurable dollar costs, but reliable net impact estimates from representative samples are not available. For example, the children of teen mothers may have educational issues that cause them to disproportionately use costly public school services for special education, but there are no reliable national estimates of the net impact of teen childbearing on this outcome. Again, because not all costs can be measured and included, it is certain that the full costs of a teen birth are greater than the cost estimates presented here.

The costs that are examined fall into two broad categories: those for this generation (the teen mother and the father of her child) and those for the next generation (the children of teen mothers). For the mother and father, the public costs are the difference in the taxes that they pay due to lower earnings as compared to older mothers and their partners. Also for the mothers, the public costs are the difference in the cost of public assistance they receive—TANF, Food Stamps, and housing assistance—compared to mothers who delay childbearing until age 20-21. For the children, the costs are those associated with publicly-provided health care, foster care and other child welfare services, incarceration as adults (sons only), and the lower taxes associated with their lower earnings when they enter the job market (due to lower educational attainment).

3 A third and yet larger measure of the costs of a teen birth includes the costs of all the services consumed by teen mothers and their families. This measure implies that it is possible to eliminate *all* of the costs of teen childbearing by delaying a young woman’s age at first birth. That, unfortunately, is unlikely to be true. There are also public sector costs for some older mothers and their children.

The cost estimates presented here are based on the average impact of a mother's age at birth on the mothers, fathers, and their children. Because teen mothers, their partners, and their children are individuals, each one is unique in some way. Their life experiences after a birth will vary considerably. Certainly, some will have lives that are very different from this average. Undoubtedly, some may fare much better than the average and some much worse. Nothing in the analysis implies or requires that each teen birth will impose the costs that we describe.

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Costs of Teen Childbearing: Consequences for the Children

The public sector costs of teen childbearing detailed below are divided into costs for those aged 17 and younger at the time of a birth and costs associated with births to those aged 18-19. Readers will note that the net costs to younger mothers are far greater than the net costs to older mothers despite the fact that they account for only about one-third of all teen births. This is due, in part, to the fact that the delay for younger mothers to age 20-21 is longer than the delay for the older mothers and also because the teen mothers aged 18-19 are more mature at the time of the birth. As a result, the net effects of a teen birth are much greater for young teen mothers than for the older teen mothers.

Health and Medical Care

Young Teen Mothers – Age 17 and Younger

Research about the health status of the children of young teen mothers presents a complex picture. As of the late 1980s, children of teen mothers had poorer health (self-reported) than the children of older mothers (Wolfe and Perozek), but a more recent examination based on a 2002 study using the Medical Expenditure Panel Survey (MEPS) finds little or no difference in self-reported health status (Wolfe and McHugh). This newer study finds that children of young teen mothers are slightly more likely to have a chronic medical condition, but less

Figure 2: Health Care Costs of a First Birth to a Teen Mother Compared to a First Birth at Age 20-21
All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|------------------------------|--------------------------------------|---------------------------|------------------------------------|
| Health Care Costs - Children | \$0.95 | \$0.98 | \$1.92 |

likely to report an acute condition.⁴ Also, their mothers are about as likely to report that their children are in “excellent” health and no more likely to report “fair or poor” health. It is clear that children of young teen mothers are less likely to see a medical provider than the children of older mothers.

At young ages (0-4), annual health expenditures are 25-40 percent larger for children of teen mothers 17 and younger than for the children of mothers who were age 20 or 21 at first birth, but from ages 4-7, health expenditures are considerably less than for the other children. On average, from age 1-14, the children of teen mothers 17 and younger receive less health care spending than the children of aged 20-21 mothers, but the difference is not particularly large (Wolfe and McHugh). In general, it is unclear whether the differences reflect genuine differences in health or differences in utilization of the health care system. It is difficult, therefore, to conclude whether the lower health care expenditures are a good or bad thing for the children involved.

Publicly-provided health care through Medicaid, State Children’s Health Insurance Program (SCHIP)⁵, Civilian Health and Medical Program of the Uniformed Services in the United States (CHAMPUS), and Medicare (for disabled children) is an important resource for children of mothers of all ages, but children of younger mothers rely on these sources of health care more heavily. From ages 1-14, 60 percent of the health care of children of young teen mothers is provided through these sources, compared to 50 percent for children of mothers who were 20 or 21 at first birth. About three-quarters of health care expenses for pre-school children of young teen mothers are provided through these programs. The average child of a young teen mother uses almost \$145 more in publicly-provided health care annually than the child of a woman who had her first birth at age 20 or 21.

Based on the new estimates of the net impact of a mother’s age at birth on public sector health costs per child, the corresponding total annual costs to federal, state, and local taxpayers in 2004 for children from birth to age 14 are estimated to be \$950 million.

Older Teen Mothers – Age 18 and 19

From birth to age 14, children of older teen mothers are, on average, about as healthy as the children of non-teen mothers, according to a recent analysis of 2002 data (Wolfe and McHugh). Similar to the young teen mothers, older teen mothers are slightly more likely to report a chronic medical condition that their child has, but less likely to report an acute condition. These mothers are also about as likely to report that their children are in “excellent” health and are no more likely to report “fair or poor” health. The only exception seems to be for children from birth to age 3, where the children of older teen mothers are considerably less likely to be in excellent health and more likely to have a chronic condition compared to children of mothers aged 20-21.

Average total health expenditures for infants of older teen mothers confirm this health disparity: expenditures for infants (0-1 year) are 75 percent higher than for infants of non-teen mothers. Surprisingly, this expenditure pattern does not persist and as a result, from ages one to 14, these children have average annual health expenditures that are only slightly higher than for the children of mothers who have a first birth at age 20 or 21. As always, health expenditure differences may reflect differences in access and utilization as well as differences in health.

The children of older teen mothers actually receive a larger share of their health expenditures through public programs than do the children of younger teen mothers or the children of non-teen

4 The definition of acute and chronic conditions are from the Wolfe and McHugh paper, and are grouped from individually reported conditions using ACG/ADG software which maps International Classification of Diseases (ICD-9) codes into groups based on the need for specialty care, severity, and chronicity. Refer to the paper for more information.

5 Most publicly provided healthcare for children is provided through Medicaid and SCHIP.

mothers. Sixty-three percent of their health expenditures are paid for by public programs, primarily Medicaid and SCHIP, compared to 50 percent for children of mothers who were 20 or 21 at first birth and 60 percent for the children of younger teen mothers. Eighty-four percent of health care expenses for children ages 0-1 of teen mothers aged 18-19 are provided through these programs.

Like the children of young teen mothers, the children of teen mothers 18– 19-years-old have about 0.25 fewer medical visits in an average year, after controlling for other risk factors such as the underlying health status of the children themselves. This is a difference of about 10-15 percent compared to otherwise similar children of mothers aged 20-21. Their total health expenditures are slightly higher than those of the children of mothers aged 20-21 after controlling for health-related risk factors, and the cost for public healthcare services for children of teen mothers aged 18-19 is approximately \$110 more per child per year compared to the cost for children of non-teen mothers.

Based on this increased cost per child, the total annual increase in medical care costs for children born to 18-19-year-olds is estimated to be \$980 million.

Child Welfare Services

Young Teen Mothers – Age 17 and Younger

In 2004, 532,000 children were in foster care and nearly 5.5 million children were referred to state and local authorities for suspicion of abuse

and neglect. According to an Urban Institute study of federal, state, and local spending on child welfare, total federal spending on programs to support foster care, adoption, and other activities amounted to \$11.6 billion; state and local spending added another \$11.6 billion (Scarcella et al). Most of this—probably 90 percent or more—was spent on foster care, adoption, and related services.

The best estimate of the impact of teen child-bearing on abuse and neglect and on foster care is based on information from Illinois, where a state database allows researchers to examine all births and link them to administrative records of incidents of abuse/neglect or foster care placement. Goerge and Harden have examined the impact of a teen birth on these outcomes for children born between 1989 and 1998. Having a child placed in foster care is a relatively rare event. However, young teen mothers were 2.2 times more likely (3.12 percent vs. 1.44 percent) to have a child placed in foster care during the first five years after a birth compared to women who had a first birth at age 20-21. They were also twice as likely to have a reported case of abuse or neglect as women who had a first birth at age 20-21— almost one in ten children of young teen mothers were reported for abuse or neglect, compared to one in 20 for children of mothers aged 20-21. After controlling for a number of other risk factors that also affect these outcomes, delaying a birth from age 17 or earlier to age 20-21 would lower the foster care placement rate for these women’s children by a third, while instances of abuse and neglect would fall by almost 40 percent.

Figure 3: Child Welfare Costs of a First Birth to a Teen Mother Compared to a First Birth at Age 20-21

All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|---|--------------------------------|------------------------|------------------------------|
| Foster Care / Child Protective Services | \$1.84 | \$0.46 | \$2.30 |

If the foster care placement and abuse and neglect rates for children born to mothers 17 and younger were as low as the rates for children born to mothers aged 20-21, the overall foster care placement rate would fall by more than 13 percent and cases of abuse and neglect would drop by 13 percent. This is a measure of the gross impact of a teen birth. Based on the net effects of an early birth, a delay in age at first birth to age 20 or 21 would reduce the foster care placement rate for all families by 8 percent and cases of abuse and neglect by almost 11 percent. In this instance, gross and net effects are not too different.

The demographic characteristics of the Illinois child population are quite similar to those of children across the United States. Therefore, it is likely that the relationship that holds in Illinois between a mother's age at first birth and foster care placements and abuse/neglect reports also holds elsewhere. Applying these figures to national data suggests that costs would fall by \$3.6 billion annually if teen mothers had the same foster care rate and abuse/neglect rate as mothers who delayed childbearing until 20-21. This is an estimate of the gross child welfare and foster care costs of teen births. The net effect estimates suggest that successfully delaying first births to age 20-21 would reduce the number of children in foster care by about 45,000 and the number of incidents of abuse or neglect by almost 600,000 annually. Annual total costs for foster care, adoption, and associated child welfare programs would fall by \$1.8 billion if young teen mothers delayed their first birth to age 20 or 21.⁶

Older Teen Mothers – Age 18 and 19

Children born to mothers aged 18-19 at first birth are one-third more likely to be in foster care and 39 percent more likely to have a report of abuse or neglect during the first five years after birth than children born to mothers aged 20 or 21. After adjusting for a variety of risk factors, children

of mothers aged 18-19 at first birth are 13 percent more likely to be in foster care and 24 percent more likely to be the subject of a report of abuse or neglect than otherwise similar children born to mothers aged 20-21.

If the foster care placement and abuse and neglect rates for children born to older teen mothers were as low as the rates for women who had a first birth at age 20 or 21, total foster costs would decrease by approximately \$1 billion annually. The net effect estimates indicate that the number of children in foster care would fall by nearly 13,000 and the number of children reported for abuse or neglect would fall by 284,000 if these women delayed their first births to age 20 or 21. Total child welfare costs would fall by \$460 million if these young women delayed their first births to age 20 or 21.⁷

Education and Earnings

Young Teen Mothers – Age 17 and Younger

Children of young teen mothers are far more likely to drop out of high school than are children born to later childbearers (Haveman, Wolfe, and Peterson; Hoffman and Scher). Of children born to teen mothers in the mid-1970s and early 1980s, only 66 percent earned their high school diploma by age 22, compared with 81 percent of the comparison group of children of women who had a first birth at age 20 or 21 (Hoffman and Scher). Although a part of the difference in high school graduation rates can be explained by background differences between the two groups, the impact of a mother's age at birth remains sizeable. Recent estimates show that about half of the difference in graduation rates is due to the difference in the timing of a first birth. That is, if these teen mothers had delayed their first birth to age 20-21, their children's high school graduation rate would rise to 73 percent, an increase of ten percent (Hoffman and Scher).

6 Both the gross and net cost estimates include the impact of a delay in age at first birth on the total number of children born to a teen mother. See the appendix for further details.

7 This estimate also takes account of the impact of a delay in age at first birth on total fertility.

Figure 4: Lost Tax Revenue Costs For Adult Children of a Mother with a First Birth as a Teen Compared to Adult Children of a Mother with a First Birth at Age 20-21
All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|--|---|-----------------------------------|---|
| Income & Sales Taxes (Children over their career) | \$2.26 | \$0.63 | \$2.89 |

Children of young teen mothers end up completing an average of 0.8 fewer years of education than children of mothers who first gave birth at age 20-21. After adjusting for other risk factors, the children of young teen mothers complete an average of about a quarter of a year less education. Put another way, one quarter of the children of teen mothers—35,000 adolescents—each obtain one less year of education.

Not surprisingly, reduced educational attainment affects the earning capacity of these children throughout their adult lives. Economists have widely noted the increased importance of schooling in the labor market of the 1990s and early 2000s (Katz and Autor). Average earnings differences between more educated and less educated workers are at historic highs. This means that the negative impact of a mother’s age at birth on the educational attainment of her children is likely to be more costly than in the past. Using information on the average earnings of workers with a high school or college degree along with the net impact of a mother’s age at birth on children’s educational attainment, researchers estimate that an early teen birth reduces the average earnings of the children by \$810 per year or almost \$35,000 over a career⁸ (Maynard and Hoffman). Based on the 140,761 births in 2004 to young teen mothers (17 and younger), this is equivalent to lost earnings equal to \$4.9 billion.

How much does this lower educational attainment cost the public sector in the form of lower tax

revenues? Based on the tax rates that apply in a typical state and on federal income tax rates, the \$4.9 billion earnings loss reduces taxes paid by the children of young teen mothers by just over \$1.14 billion annually. This loss applies to each child of a teen mother. Adjusting further for the total births a typical teen mother has over the first fifteen years after her first birth yields an annual tax loss of about \$2.3 billion annually. These lower tax revenues are a substantial cost to federal, state, and local taxpayers.

Older Teen Mothers – Age 18 and 19

The children of older teen mothers are also less likely to graduate from high school than are children born to later childbearers (Haveman, Wolfe, and Peterson; Hoffman and Scher). However, these differences are relatively small – about 3.5 percentage points (77.5% vs. 80.9%). Most of the gross effect is due to risk factors other than being the child of an older teen mother (Hoffman and Scher). Recent estimates suggest that high school graduation rates for these children would increase by one percentage point if their mothers delayed their first births to age 20-21.

Children of older teen mothers end up receiving about half a year less total education than children of mothers who had a first birth at age 20-21. After adjusting for other risk factors, there is only a very small difference in educational attainment (Hoffman and Scher). Applying this small differ-

8 This is defined as 43 years, from age 22 through age 65.

ence to the average benefit of a year of additional education yields a total lost earnings equal to \$1.1 billion for the 281,282 children of older teen mothers. The tax loss due to these lower earnings is approximately \$260 million, based on typical tax rates. Further adjusting for the average number of children older teen mothers will have over their lifetime increases the total tax loss to \$630 million.

Incarceration

Young Teen Mothers – Age 17 and Younger

The sons of adolescent mothers are 2.2 times more likely to spend time in prison than the sons of mothers who delayed childbearing until their early twenties (Scher and Hoffman; Grogger). Data are not available to measure the likelihood of incarceration for the daughters of teen mothers.⁹ Nearly 14 percent of the sons of adolescent mothers have been in prison by their late-30s, compared to six percent of the sons of mothers aged 20-21.¹⁰ By that same age, the son of a teen mother had spent an average of 0.57 years in prison, more than 2.5 times longer than the average prison time of the sons of women who had a first birth at age 20-21.

The net impact of a mother’s age at birth on a son’s incarceration is smaller than these gross dif-

ferences. Based on a very conservative estimate, delaying a teen birth to age 20-21 would reduce the probability of a son’s incarceration by 10.6 percent and reduce the average years spent incarcerated by 13.4 percent. In turn, this would reduce the total prison population by approximately 4.0 percent. A less conservative, but still reasonable, estimate is that the probability of incarceration would fall by 31 percent and years of incarceration would fall by 38 percent if a young woman delayed her first birth from age 17 or younger to age 20-21. This would result in a decline in the total state prison population of 11.2 percent.¹¹

How much does this elevated risk of incarceration cost taxpayers? In 2004, a total of 1.2 million males were in state prisons. Total public sector costs to build and maintain prisons were approximately \$29 billion, almost all of which was the responsibility of the states. If the incarceration rates for the sons of teen mothers were as low as the rates for the sons of mothers age 20-21, prison costs would fall by \$5.3 billion annually, representing a decline in the prison population of 220,000 persons. This is an estimate of the gross cost of a teen birth. The net cost is smaller than this. Based on the analysis above and incorporating the effects of delay in age at first birth on total fertility, early adolescent childbearing in and of itself costs U.S. taxpayers a minimum of \$1.9 billion each year for incarceration,

Figure 5: Incarceration Costs for Adult Sons of a Teen Mother Compared to Sons of a Mother with a First Birth at Age 20-21
All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|-----------------------------------|---------------------------------------|-------------------------------|-------------------------------------|
| Incarceration of Young Men | \$1.90 | \$0.17 | \$2.07 |

9 Incarceration rates for women are too low to determine whether having a teen mother is a risk factor. In 2004, 92,000 women were in state prisons, accounting for less than seven percent of all prisoners.
 10 This proportion measures whether the sons were in prison at a particular point in a year and it therefore misses short prison terms altogether. While the true percentage of sons who were ever in prison is certainly larger than the ones reported here, the increased relative risk associated with having a teen mother is still valid.
 11 This analysis does not capture the costs for incarceration in federal prisons since there are many fewer prisoners in federal prisons.

using the very conservative measure, and possibly as much as \$4.2 billion (using the less conservative measure). This represents a decline in the number of prisoners ranging from 100,000 to nearly 175,000.

This cost estimate is almost certainly an underestimate of the total impact of a mother's age at birth on public sector correctional system costs because it does not include some obvious related costs. For example, costs associated with the juvenile justice system are not included, because national estimates of the net impact of a teen birth on the risk of involvement with this system are currently unavailable. One older study estimated that the annual average cost of incarcerating a juvenile for one year is between \$35,000 to \$64,000 (ACLU); a more recent study found that New York City spent \$358 a day (or more than \$130,000 on an annual basis) to detain a juvenile offender (Roy-Stevens). Since sons of young teen mothers are more likely to use the adult correctional system, it is very likely that they are similarly more likely to use the juvenile correctional system, but the quantitative magnitude is unknown. Moreover, in addition to the measurable incarceration costs, criminal activity has other negative effects such as damage to property, injury to people, and a decrease in the quality of residential and neighborhood life. There are, unfortunately, no estimates of the net impact of teen childbearing on these areas and thus there are no available cost estimates.

Older Teen Mothers – Age 18 and 19

Sons of mothers who were age 18 or 19 at their birth also have an elevated risk of spending time in prison. They are 40 percent more likely to ever have been in prison and they spend, on average, about 30 percent more time in prison through age 40 than the sons of mothers who delayed childbearing until their early twenties (Scher and Hoffman). Controlling for other risk factors, a delay in their mother's age at their birth to 20-21 would reduce their likelihood of incarceration by 5.8 percent and reduce their average years of incarceration by 6.7 percent. That translates into a decrease in the

prison population of more than 7,000 and a reduction in public sector costs of \$175 million.

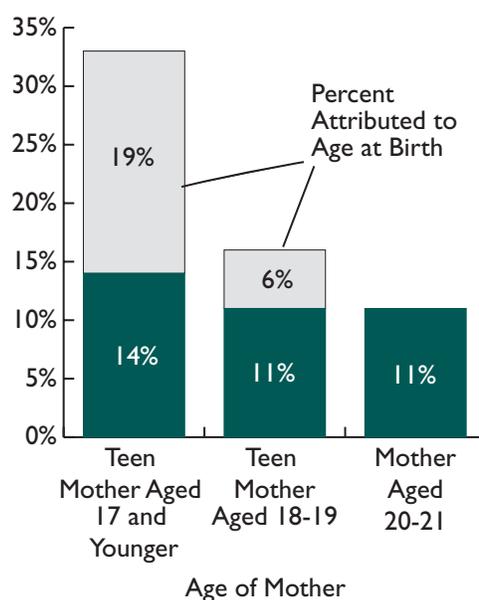
Adolescent Mothers from One Generation to the Next

Young Teen Mothers – Age 17 and Younger

The daughters of adolescent mothers are far more likely than those born to older mothers to become teen mothers themselves. Nearly one-third of the daughters of young teen mothers had their first child as a teenager, compared to 11 percent of those whose mothers had a first birth at age 20-21 (Hoffman and Scher). Being the daughter of a teen mother has a strong net effect, even after accounting for other risk factors such as family background and academic ability. If a young woman's mother had delayed her own first birth to age 20-21, her daughter's risk of having a birth as a teen would fall by almost 60 percent, from one-third to just 14

Figure 6: Daughters who Have a Teen Pregnancy

Daughters of Teen Mothers Compared to Daughters of Mothers Age 20-21



percent. This is a particularly powerful effect—a potential decrease in the number of teen births by more than 27,000 annually.

Older Teen Mothers – Age 18 and 19

The daughters of teen mothers aged 18-19 are also far more likely than daughters born to mothers aged 20-21 to become teen mothers themselves. Nearly 17 percent of the daughters of these teen mothers had their own first birth as a teenager compared to 11 percent of those whose mothers had a first birth at age 20-21. Being the daughter of a teen mother has a strong net effect, even after accounting for other risk factors such as family background and academic ability. If a young woman's mother had delayed her own first birth to

age 20-21, her daughter's risk of having a teen birth would fall by one-third, from 17 percent to 11 percent. This is a strong effect—a potential decrease in the number of teen births of more than 16,000 annually.

There are no available estimates of the costs associated with these additional teen births, although they are likely to be considerable. It is probable that these new teen mothers will have lower incomes resulting in lost tax revenues and that their children—the grandchildren of the original teen mother—may experience some of the same problems as their own mothers, the first generation children. When teen births are repeated from generation to generation, the costs accumulate substantially.



Costs of Teen Childbearing: Consequences for Parents

Education

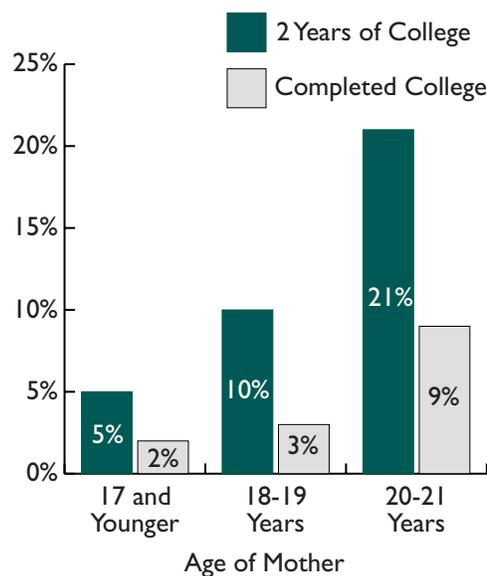
Young Teen Mothers – Age 17 and Younger

Only 40 percent of young teen mothers graduate from high school, compared to about three-quarters of women who delayed their first birth to age 20-21 (Hoffman). Another 23 percent of young teen mothers earn a GED. Even so, when high school completion and a GED are combined, there is still a very large gap (more than 20 percentage points) in completion rates. Moreover, economic research suggests that a GED degree is not equivalent to a high school degree in terms of its labor market value (Cameron and Heckman).

Higher education follows the same pattern. There is a 16 percentage point difference between the proportions of mothers who completed at least two years of college by their late 20s—five percent for teen mothers aged 17 and younger vs. 21 percent for mothers aged 20-21. Less than two percent of young teen mothers completed college by age 30, compared to nine percent for women who had their first birth at age 20 or 21.

As always, it is essential to determine what portion of the gross difference between teen mothers and mothers aged 20-21 is due to being a teen at time of birth rather than to other risk factors. Most studies that control for a large set of other risk fac-

Figure 7: Educational Attainment of Teen Mothers Compared to Mothers Aged 20-21



tors typically find that more than half of the high school graduation gap and about one-third of the high school or GED gap is attributable to the mother's age at birth itself (Hoffman; Hoffman and Scher; Haveman, Wolfe, and Peterson). By these estimates, a delay in a teen birth would increase the proportion with a high school degree by 15 percentage points and the proportion with a traditional degree or a GED by 8.5 percentage points (Hoffman).

In *Kids Having Kids*, researchers Hotz, Sanders, and McElroy used a new and innovative research approach that potentially controls for individual risk factors that cannot be directly measured and that can potentially lead to misleading (biased) estimates of the impact of a mother's age at birth. This new approach used a "natural experiment"—that is, a group of women who became pregnant and had a birth as a teen are compared to a group of women who became pregnant as a teen but had a miscarriage—as a way to approximate the results of a random assignment to having a teen birth (Hotz, Sanders, and McElroy). While there are concerns about sample sizes and other related measurement issues in this particular application, the Hotz et al. approach has substantial value in measuring true causal impacts. Results from this natural experiment approach suggest that the high school graduation rate would increase by seven percentage points with a delay in age at first birth, amounting to an increase of more than 15,000 young women completing high school. However, when GED completion is taken into account, there is no measurable difference between women who have a birth at age 17 or younger and women who delay a birth until age 20-21 in the proportion with either a high school degree or a GED that is due solely to the difference in their age at first birth.

An early birth has a larger net effect on post-secondary education. Even using the natural experiment approach, just under half of the gross differences in attending college and in completing college are due to a teen's age at birth. If these young teen mothers had delayed their first birth to age 20 or 21, the proportion attending college would triple and the proportion completing college

would double. Although the absolute proportions acquiring these educational levels would still be quite low—15 percent and 4 percent respectively—the increasing importance of post-secondary education discussed earlier heightens the importance of these differences.

Older Teen Mothers – Age 18 and 19

Only 63 percent of older teen mothers graduate from high school and another 11 percent earn a GED (Hoffman). Taken together, 74 percent of teen mothers aged 18-19 have either completed high school or a GED, compared to about 85 percent for women who have their first birth at 20 or 21. These differences are not as dramatic as for the younger teen mothers, but given their ages at birth and high school graduation, this is not surprising. The effects on higher education of teens who give birth at a later age are even larger. About ten percent of teen mothers aged 18-19 have completed at least two years of higher education by the time they are age 30 and three percent have attained a college degree, compared to 21 percent and nine percent respectively for women who delay their birth to age 20 or 21.

Traditional studies suggest that after controlling for other measured risk factors, mothers who give birth at age 18-19 reduce their probability of completing high school by 13 percentage points and the probability of graduating from high school or receiving a GED by about five percentage points. These impacts account for about three-fifths of the gross difference in graduation rates between the two groups of mothers. The natural experiment research suggests that the impact of a later teen birth is smaller than this. According to this research, the impact of a birth at age 18 or 19 on high school graduation is seven percentage points, still sizeable but about half the size of the impact in the traditional studies. The proportion holding either a high school degree or a GED would increase by only three to five percentage points if these teen mothers delayed their first birth to age 20 or 21.

For post-secondary education, having a birth at age 18-19 significantly reduces the probability of

attending and/or completing college—a pattern similar to that of the younger teen mothers. These impacts appear even in the natural experiment studies that control for risk factors that cannot be directly measured. For older teen mothers, the proportion with some post-secondary schooling would increase by almost ten percentage points—from ten to 20 percent— if their first births were delayed, holding constant all other risk factors. The proportion completing four-year college degrees would more than double, from three percent to seven percent.

Consistently, a mother’s age at birth is an important causal factor in determining the probability that a young woman attends or completes college. This is true for young teen mothers and older teen mothers and for both of the research approaches noted above.

Earnings

Young Teen Mothers – Age 17 and Younger

Average earnings among women aged 18-35 who first had a child at age 17 or younger are about \$6,900 per year, \$3,350 less than the average of women who delay their first birth to age 20 or 21. Even in their early-to-mid 30s, women who gave birth at an early age earn an average of less than \$11,000 per year. When earnings are compared over the first 15 years of motherhood, the earnings deficit between early teen mothers and mothers who first give birth at age 20 or 21 is even larger – more than \$84,000, or an average of \$5,600 per year. These earnings differences are gross differ-

ences and do not control for other factors that contribute to low earnings ability.

Research that controls for other measurable risk factors has found that approximately one-third of the \$3,350 earnings difference is due to a mother’s age at birth; the other two-thirds due to other risk factors such as having lower academic ability and being raised in a family with low income and/or one that received welfare (Hoffman). Research using the Hotz, et al. natural experiment approach finds instead that teen motherhood does not adversely affect the earnings of the young women who become teen mothers (Hotz et al; Hoffman). That is, this research suggests that these young women would not earn any more if they delayed their first birth.

Because this research approach involves implicit control for otherwise unmeasured individual and family risk factors, it does not and, indeed, cannot identify which specific risk factors are responsible for this surprising result. Taken at face value, this research finding suggests that the net earnings difference attributed to a mother’s age at birth actually reflects the impact of personal and family characteristics that are correlated with having an early birth and that are unmeasured in traditional research, rather than the age at which the mother gives birth. Hotz, et al. speculate that this finding may occur because those who first have a child at age 17 or younger “are less likely to be successful in school and, as such, are less likely to end up in occupations which require higher education...Concentrating their childbearing at early ages may prove more compatible with their likely

Figure 8: Lost Tax Revenue Costs For a Mother with a First Birth as a Teen Compared to a Mother with a First Birth at Age 20-21
All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|---|---|-----------------------------------|---|
| Income & Sales Taxes (Mothers) | \$0.92 | -\$0.65 | \$0.27 |

labor market career options than would postponing motherhood (pp.77-78).” This explanation may well be true, but at this time, there is still no consensus and no specific evidence whatsoever on which personal risk factors account for the surprising finding about the impact of a mother’s age at birth on earnings. We simply do not know why delaying a teen birth does not seem to improve the earnings of these women. Nevertheless, the natural experiment approach and its results have become the research standard at this point and they are used here for that reason.

Through age 35, mothers who first had a child at age 17 or younger actually are estimated to earn about \$6,000 more than if they had delayed their birth to age 20 or 21, according to the research technique discussed above. Measured over the first 15 years after a birth, however, teen mothers earn \$28,000 less than if they had delayed childbearing. (The difference between these two results reflects the older ages at which the earnings are measured as earnings tend to increase with age.) In either comparison, however, teen mothers earn little in absolute terms.

Because mothers who first gave birth as a young teen earn less over the first 15 years of motherhood than if they had delayed their birth, they also end up paying less in taxes. These lower taxes are another public sector cost of a teen birth. Based on the average earnings deficit over the first fifteen years of motherhood, the number of teen mothers, and the average federal and state tax rates, it is estimated that \$925 million dollars of tax revenues were not paid in 2004 because of teen births. Just like additional expenditures, lower tax revenues are a cost associated with teen births.

Older Teen Mothers – Age 18 and 19

Average earnings among women aged 18-35 who first had a child at age 18-19 are about \$6,900

per year, \$3,855 less than the average of women who delay their first birth to age 20 or 21. Over those years, older teen mothers earn almost \$70,000 less than the women who had first births at age 20-21. Even in their early-to-mid 30s, older teen mothers earn an average of less than \$11,000 per year. Their earnings profile is remarkably similar to that of the younger teen mothers.

For these teen mothers, research that controls for other measurable risk factors finds that approximately half of the gross earnings difference is due to a mother’s age at birth, and half is due to other risk factors (Hoffman).¹² Therefore, having a child at age 18 or 19 is responsible for a tax revenue loss of more than \$2.9 billion or more than \$10,500 associated with each teen mother. Applying the new research approach suggests that teen mothers would actually earn a bit more (\$900 annually on average) if they delayed their first birth (Hotz et al; Hoffman). Evaluated over the first 15 years after a birth, older teen mothers earn about \$10,000 more than if they had delayed their first births to age 20 or 21. As a consequence, a delay would actually reduce the taxes they pay by a total of \$650 million.

Public Assistance

Young Teen Mothers – Age 17 and Younger

The main forms of public assistance for adults with children now are:

- Temporary Assistance for Needy Families (TANF)¹³;
- Food Stamps, which provides cash-like assistance that can be used exclusively to purchase food; and
- Housing assistance, either in the form of public housing or a housing subsidy allowance through the Section 8 program.

12 Important risk factors include having low academic ability and being raised in a family with low income and/or one that received welfare income.

13 This analysis only looks at the cash assistance provided through TANF; it does not capture the other benefits and services states also provide through their TANF block grant.

Figure 9: Public Assistance Costs of a First Birth to a Teen Mother Compared to a First Birth at Age 20-21
All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|--------------------------|---------------------------------------|-------------------------------|-------------------------------------|
| Public Assistance | -\$0.95 | -\$2.62 | -\$3.56 |
| TANF | -\$0.72 | -\$1.26 | -\$1.98 |
| Food Stamps | -\$0.45 | -\$0.91 | -\$1.35 |
| Housing | \$0.22 | -\$0.45 | -\$0.23 |

Researchers have examined how a mother’s age at birth affects participation in many of these programs and have found very large gross differences between young teen mothers and older mothers in most of these programs. Through age 35, mothers who first have a child at age 17 or younger collect an average of \$37,000 in cash assistance through welfare, compared to \$17,000 for those who first have a child at age 20-21.¹⁴ Teens who give birth at age 17 and younger also spend a greater length of time receiving assistance—an average of 6.9 years v 3.6 years for the older mothers through age 35. They are more likely to receive benefits from Food Stamps—an average of 5.7 years receiving assistance compared to 3.0 years through age 35. On average, 11 percent of young teen mothers received some housing assistance in a given year, compared to six percent for the older mothers. Based on these differences, teen mothers receive more than \$2 billion in additional cash assistance, \$680 million in additional Food Stamp payments, and \$800 million in additional housing assistance. These are the gross public assistance costs of birth to younger teens.

Just as with earnings, there is a range of net impact estimates, depending on the research approach taken. Estimates based on the traditional approach that controls for measured risk factors suggest that for cash assistance and Food Stamps, being a teen 17 and younger at time of birth is

responsible for about one-fifth of the gross difference—\$3,700 additional cash assistance and six months additional Food Stamp receipt through age 35. The new, natural experiment approach indicates that, except for housing assistance, a teen’s age at birth is not the cause of any of the public assistance differences between young teen mothers and women who have a first birth at age 20-21. When cash assistance is compared by year of motherhood, young teen mothers receive about \$5,100 less in benefits over fifteen years than if they had delayed their first birth to 20-21 (Hoffman). This implies that a delay would actually increase cash assistance by a total of \$720 million annually.

A similar pattern holds for Food Stamps. Instead of being more likely to receive Food Stamp benefits, this research suggests that young teen mothers would receive more Food Stamp benefits if they delayed their birth. Through the first fifteen years of motherhood, a delay would add an average of 1.1 years of receipt, costing taxpayers about \$450 million at current Food Stamp benefit levels. These results reflect a life-cycle pattern of receipt: teens who have a child at an early age typically have higher levels of Food Stamp receipt than those who delay childbearing to age 20-21, but gradually have lower levels as they age. It is not known what accounts for these counter-intuitive findings. It may be that mothers who delay childbearing until age

14 During most of the time period used in the underlying analysis, cash welfare was provided through Aid to Families with Dependent Children (AFDC). Beginning in 1996, TANF replaced AFDC. Rules regarding receipt under TANF are different than under AFDC. Because of that, the estimates here may not apply fully to the current time period.

20-21 are more likely to rely on public assistance perhaps due to less family financial support.

Even after fully controlling for other risk factors, young teen mothers are about ten to 15 percent more likely to receive housing assistance. Over the first fifteen years of motherhood, this is equivalent to an average of about three additional months of assistance. The average family receiving housing assistance receives about \$6,600 a year in benefits, with administrative costs adding another \$646 (CBPP). Given the additional assistance and the per unit cost of providing housing assistance, births to teens 17 and younger add \$220 million in housing costs annually.

Older Teen Mothers – Age 18 and 19

Teen mothers age 18-19 collect more in public assistance than women who delay their first birth to age 20 or 21; an average of \$22,000 in cash assistance by age 35, compared to an average of \$11,700 for older mothers. They also receive assistance for more years—4.5 years compared with 2.7 years for mothers aged 20-21. In addition, they are also more likely to receive benefits from Food Stamps through age 35— an average of 3.9 years receiving assistance compared to 2.3 years. Through age 35, eight percent of older teen mothers received some housing assistance in a typical year, compared to four percent for the older mothers. Based on these differences, older teen mothers received almost \$4 billion in additional benefits—more than \$2 billion in cash assistance, \$850 million in Food Stamp benefits, and \$930 million in additional housing assistance.

These are the gross public assistance costs of births to older teens.

It appears that risk factors besides being a teenager are the primary causes of these higher rates of receipt of public assistance. For all forms of assistance considered here, there is no evidence using either research approach that a mother’s age at birth meaningfully increases the probability that women who first have a child at age 18 or 19 will receive public assistance. For example, research suggests that if these teen mothers delayed their first births, they would receive more cash assistance through age 24, but less thereafter. Being African-American, Hispanic, or the daughter of a mother who received cash assistance herself are the primary predictions for receiving cash assistance, Food Stamp receipt, and housing assistance.

On the basis of the results of the natural experiment approach, a delay in the age at first birth would increase public assistance costs for these mothers over the first fifteen years of motherhood by a total of \$2.6 — \$1.3 billion for cash assistance, \$910 million for Food Stamps, and \$450 million for housing assistance.

Fathers

Partners of Young Teen Mothers – Age 17 and Younger

Much less is known about the fathers of children born to adolescent mothers and about how a mother’s age at first birth affects the earnings prospects of her child’s father. A 1996 study found

Figure 10: Lost Tax Revenue Costs For the Partner of a Mother with a First Birth as a Teen Compared to the Partner of a Mother with a First Birth at Age 20-21

All Costs in Billions of 2004 Dollars

| OUTCOME MEASURES | 1st Birth at Age 17 or Younger | 1st Birth at Age 18-19 | 1st Birth Age 19 and Younger |
|---|---------------------------------------|-------------------------------|-------------------------------------|
| Income & Sales Taxes (Fathers) | \$1.71 | \$1.45 | \$3.16 |

that over the first 18 years following the birth of their first child, the fathers of children born to mothers age 17 and younger earn, on average, \$27,000 less than the fathers of children born to mothers age 20-21 (Brien and Willis). This amount is the net of the impact of other risk factors associated with being the partner of a young mother, factors that further tend to reduce labor market earnings. Based on the Brien and Willis study, Maynard in *Kids Having Kids* estimated that early births cost the public sector \$1.7 billion in 1996 in the form of the lower taxes paid by these fathers on their lower earnings.

No new study of the impact of early births on fathers is available. It is, however, possible to construct a 2004 estimate by adjusting the 1996 estimate for changes in the price level between 1996 and 2004, the number of teen births, and the probability that a birth will be non-marital. Doing so suggests that teen births reduced the taxes paid by the fathers of the children of young teen mothers by a total of \$1.7 billion annually over the first fifteen years after a birth.

Partners of Older Teen Mothers – Age 18 and 19

The same research used to estimate the earnings impact of being the father of a young teen

IF THE TEEN BIRTH RATE HAD NOT DECLINED BETWEEN 1991 AND 2004, IT IS ESTIMATED THAT THE ANNUAL COSTS OF TEEN CHILDBEARING TO TAXPAYERS WOULD BE \$15.8 BILLION RATHER THAN \$9.1 BILLION. THE DECLINE IN THE TEEN BIRTH RATE BETWEEN 1991 AND 2004 SAVED \$6.7 BILLION IN 2004 ALONE.

mother's child can be used to estimate the impact for partners of older teen mothers. Over the first 18 years following the birth of their first children, the fathers of children born to mothers aged 18-19 earn, on average, \$13,200 less than the fathers of children born to mothers age 20-21 (Brien and Willis). This amount is net of the impact of other risk factors associated with being the partner of a young mother that tend to reduce labor market earnings. Using this estimate and adjusting it for 2004 data indicates that older teen births cost the public sector \$1.4 billion annually over the first fifteen years after a birth in the form of lower taxes paid by the fathers of the children.

BY THE NUMBERS: THE COST SAVINGS OF THE DECLINE IN TEEN BIRTHS

Between 1991 and 2004, the overall teen birth rate in the United States fell by a third. At the same time, the size of the teen population increased by 21 percent as a result of the steady increase in the annual number of births in the United States that began in the early 1970s and lasted through the early 1990s. If teen birth rates had remained at 1991 levels, an additional 199,000 children would have been born to teen mothers in 2004, an increase of 48 percent. Absent the decline in birth rates, teen births would have risen by 95,000 in 2004 alone, rather than falling by 104,000, as they actually did. Put another way, instead of the 415,262 births to teens age 15-19 in 2004, there would have been more than 614,000 births.¹⁵

Between 1991 and 2004, birth rates fell especially sharply for teens aged 15-17—a 43 percent decrease compared to a 26 percent decrease for teens aged 18-19. In addition, the young teen population grew more rapidly than the older teen population—25 percent and 15 percent respectively. This population change makes the large decline in the birth rate for 15-17-year-olds all that much more important. Without the decline in birth rates, births to teens aged 15-17 in 2004 would have been 75 percent higher—235,000 births rather than 134,000. Births to 18-19-year-olds would have been 35 percent higher—380,000 rather than 281,000.

The progress the nation made in reducing teen childbearing between 1991 and 2004 has already had a very substantial effect on public sector costs. This is due in large part to the dramatic decrease in the birth rate to teens aged 15-17 and the particularly large public sector costs of births to this age group (most of which, as noted earlier, attach to the children of these young teen mothers). It is not known exactly how much higher the costs of teen births in 2004 would have been had the teen birth rates not fallen, because it is not known exactly which women would have had births and whether a teen birth would have affected their lives and the lives of their children in exactly the same way that a birth affected the lives of the women who did have a birth in 2004. Still a reasonable assumption can be made. On average, if the costs imposed by those additional births were comparable to the costs of the teen births that actually occurred in 2004, then the annual total costs of all teen births would have been \$15.8 billion, rather than \$9.1 billion. In other words, the decline in the teen birth rates between 1991 and 2004 saved \$6.7 billion in 2004 alone.

15 In addition, births to girls aged 10-14 fell from 11,952 in 1991 to 6,781 in 2004.



Conclusion – Public Sector Costs of Teen Births

Young Teen Mothers – Age 17 and Younger

The total public sector costs of births to girls age 17 and younger are substantial. The best current research suggests that, while other risk factors are important, the timing of a first birth makes a real difference. If teen mothers aged 17 and younger delayed their first birth to age 20 or 21, they would earn somewhat more over the first 15 years of motherhood and pay \$0.9 billion more in taxes. Surprisingly, this is largely offset by the net change in public sector assistance. If they delayed their first births, they would use less in housing assistance, but more in welfare payments and Food Stamps. This finding underscores that the other risk factors in the lives of early teen mothers are also substantial.

Most of the measured public sector costs of teen childbearing are associated with negative consequences for the *children* of the teen mothers. This analysis estimates that the annual public sector costs associated with the children of young teen mothers is \$6.9 billion. This consists of \$0.95 billion in public health care costs (primarily Medicaid and SCHIP), \$1.8 billion in child welfare costs, \$1.9

billion in incarcerations costs, and \$2.3 billion in lost tax revenue over their career due to lower educational attainment and earnings.

In addition, there are tax losses associated with the lower earnings of the partners of young teen mothers. Specifically, this analysis estimates that in 2004 the tax losses amounted to \$1.7 billion for the fathers.

In sum, the total public sector cost in 2004 of births to teens aged 17 and younger is \$8.6 billion. The average annual cost associated with a child born to a mother in 2004 17 and younger is \$4,080. These are costs attributed directly to a teen birth to girls 17 and younger rather than other risk factors—costs that could be averted if the mother delayed childbearing until age 20 or 21.

Older Teen Mothers – Age 18 and 19

The total public sector costs of births to teens age 18-19 are smaller than those for children born to teens 17 and younger. This reflects the somewhat older age at which the mother gives birth, (which may provide them greater maturity and skills) and

the shorter time period to reach age 20-21 (the age of the comparison group used throughout this report).

Total public sector costs in 2004 of births to mothers aged 18-19 are \$424 million. This total includes: \$2.2 billion in additional costs for the children in the form of health care, foster care, incarceration, and \$1.4 billion in lower taxes paid by the fathers of the children. Approximately \$3.2 billion of these costs, however, are offset by the finding that a delay in age at first birth from age 18-19 to age 20-21 would decrease earnings and increase use of cash welfare, Food Stamps, and housing assistance.

Adding It Up: What Does It Cost?

The 422,043 births to teens 19 and younger cost taxpayers a total of at least \$9.1 billion in 2004 for additional public services and reduced tax revenues. Because not all costs can be accurately calculated and because the estimates themselves are constructed conservatively, it is certain that the full

costs are larger than this. The \$9.1 billion total includes:

- health care for children of teen mothers (\$1.9 billion),
- foster care for children of teen mothers (\$2.3 billion),
- incarceration of the sons of teen mothers (\$2.1 billion)
- total tax revenue losses due to lower earnings of the mothers, fathers, and the children themselves when they are adults (\$6.3 billion), and
- offsetting public assistance savings costs for teen mothers (\$3.6 billion).

Between 1991 and 2004 there were 6,776,230 births to teens in the United States. The estimated cumulative public costs of teen childbearing during this time period is \$161 billion dollars. The progress the nation has made in achieving a one-third reduction in the teen birth rate between 1991 and 2004 saved taxpayers an estimated \$6.7 billion in 2004 alone.

Appendix 1: Total Costs to Taxpayers Associated with Teen Childbearing (in Millions 2004 \$)

| State | Federal Costs | Percent Federal | State/Local Costs | Percent State/Local | Total Cost to Taxpayers |
|----------------------|---------------|-----------------|-------------------|---------------------|-------------------------|
| Alabama | \$93 | 52% | \$85 | 48% | \$178 |
| Alaska | \$15 | 50% | \$15 | 50% | \$30 |
| Arizona | \$126 | 50% | \$126 | 50% | \$252 |
| Arkansas | \$56 | 50% | \$55 | 50% | \$112 |
| California | \$421 | 47% | \$475 | 53% | \$896 |
| Colorado | \$66 | 39% | \$101 | 61% | \$167 |
| Connecticut | \$46 | 47% | \$52 | 53% | \$98 |
| Delaware | \$9 | 32% | \$19 | 68% | \$28 |
| District of Columbia | \$11 | 43% | \$15 | 57% | \$26 |
| Florida | \$250 | 52% | \$231 | 48% | \$481 |
| Georgia | \$167 | 48% | \$177 | 52% | \$344 |
| Hawaii | \$7 | 33% | \$15 | 67% | \$22 |
| Idaho | \$20 | 51% | \$19 | 49% | \$39 |
| Illinois | \$206 | 44% | \$261 | 56% | \$467 |
| Indiana | \$70 | 36% | \$125 | 64% | \$195 |
| Iowa | \$35 | 42% | \$47 | 58% | \$82 |
| Kansas | \$39 | 43% | \$51 | 57% | \$91 |
| Kentucky | \$60 | 41% | \$87 | 59% | \$148 |
| Louisiana | \$80 | 49% | \$85 | 51% | \$165 |
| Maine | \$5 | 30% | \$11 | 70% | \$16 |
| Maryland | \$65 | 34% | \$130 | 66% | \$195 |
| Massachusetts | \$31 | 28% | \$79 | 72% | \$109 |
| Michigan | \$105 | 35% | \$197 | 65% | \$302 |
| Minnesota | \$49 | 35% | \$93 | 65% | \$142 |
| Mississippi | \$67 | 49% | \$69 | 51% | \$135 |
| Missouri | \$88 | 47% | \$99 | 53% | \$186 |
| Montana | \$8 | 46% | \$10 | 54% | \$18 |
| Nebraska | \$20 | 40% | \$30 | 60% | \$50 |
| Nevada | \$36 | 54% | \$31 | 46% | \$67 |
| New Hampshire | \$8 | 44% | \$10 | 56% | \$18 |
| New Jersey | \$41 | 24% | \$126 | 76% | \$167 |
| New Mexico | \$48 | 56% | \$38 | 44% | \$86 |
| New York | \$185 | 44% | \$236 | 56% | \$421 |
| North Carolina | \$128 | 41% | \$184 | 59% | \$312 |
| North Dakota | \$7 | 59% | \$5 | 41% | \$13 |
| Ohio | \$138 | 39% | \$214 | 61% | \$352 |
| Oklahoma | \$67 | 45% | \$82 | 55% | \$149 |
| Oregon | \$29 | 32% | \$62 | 68% | \$91 |
| Pennsylvania | \$145 | 37% | \$244 | 63% | \$389 |
| Rhode Island | \$8 | 24% | \$27 | 76% | \$35 |
| South Carolina | \$80 | 51% | \$76 | 49% | \$156 |
| South Dakota | \$12 | 61% | \$8 | 39% | \$20 |
| Tennessee | \$71 | 39% | \$110 | 61% | \$181 |
| Texas | \$552 | 55% | \$450 | 45% | \$1,002 |
| Utah | \$28 | 45% | \$35 | 55% | \$63 |
| Vermont | \$4 | 34% | \$8 | 66% | \$12 |
| Virginia | \$66 | 38% | \$110 | 62% | \$177 |
| Washington | \$43 | 38% | \$72 | 62% | \$115 |
| West Virginia | \$15 | 39% | \$23 | 61% | \$38 |
| Wisconsin | \$49 | 31% | \$107 | 69% | \$156 |
| Wyoming | \$7 | 50% | \$8 | 50% | \$15 |
| U.S. Total | \$3,983 | 44% | \$5,026 | 56% | \$9,009 |

Appendix 2: Average Annual Cost Associated with a Child Born to a Teen Mother 17 and Younger

| State | Average Cost | Rank (1=Highest) |
|----------------------|--------------|------------------|
| Alabama | \$3,494 | 40 |
| Alaska | \$5,909 | 6 |
| Arizona | \$3,364 | 44 |
| Arkansas | \$3,375 | 43 |
| California | \$4,224 | 24 |
| Colorado | \$4,056 | 27 |
| Connecticut | \$6,850 | 2 |
| Delaware | \$4,194 | 25 |
| District of Columbia | \$5,791 | 7 |
| Florida | \$3,652 | 37 |
| Georgia | \$3,526 | 38 |
| Hawaii | \$4,104 | 26 |
| Idaho | \$3,863 | 34 |
| Illinois | \$4,368 | 21 |
| Indiana | \$3,953 | 32 |
| Iowa | \$5,286 | 11 |
| Kansas | \$4,238 | 23 |
| Kentucky | \$4,279 | 22 |
| Louisiana | \$3,143 | 48 |
| Maine | \$4,448 | 19 |
| Maryland | \$5,150 | 12 |
| Massachusetts | \$6,001 | 5 |
| Michigan | \$4,951 | 16 |
| Minnesota | \$5,506 | 9 |
| Mississippi | \$3,318 | 46 |
| Missouri | \$4,043 | 28 |
| Montana | \$3,285 | 47 |
| Nebraska | \$4,393 | 20 |
| Nevada | \$3,040 | 49 |
| New Hampshire | \$5,327 | 10 |
| New Jersey | \$5,017 | 14 |
| New Mexico | \$2,991 | 51 |
| New York | \$6,094 | 4 |
| North Carolina | \$3,868 | 33 |
| North Dakota | \$4,881 | 17 |
| Ohio | \$4,534 | 18 |
| Oklahoma | \$3,807 | 35 |
| Oregon | \$4,972 | 15 |
| Pennsylvania | \$5,563 | 8 |
| Rhode Island | \$6,317 | 3 |
| South Carolina | \$3,330 | 45 |
| South Dakota | \$3,523 | 39 |
| Tennessee | \$3,404 | 42 |
| Texas | \$2,997 | 50 |
| Utah | \$4,015 | 30 |
| Vermont | \$7,836 | 1 |
| Virginia | \$3,964 | 31 |
| Washington | \$4,032 | 29 |
| West Virginia | \$3,480 | 41 |
| Wisconsin | \$5,133 | 13 |
| Wyoming | \$3,790 | 36 |
| U.S. Total Average | \$4,080 | |

Appendix 3: Cumulative Number of Teen Births and Cumulative Costs, 1991-2004

| State | Number of Teen Births | Rank (# of Teen Births 1= Highest) | Cost of Teen Births (in Billions of 2004 \$) | Rank (Cumulative Cost 1=Highest) |
|----------------------|-----------------------|------------------------------------|--|----------------------------------|
| Alabama | 143,078 | 15 | \$3.4 | 13 |
| Alaska | 16,053 | 47 | \$0.5 | 42 |
| Arizona | 158,350 | 13 | \$3.4 | 12 |
| Arkansas | 91,804 | 27 | \$2.0 | 29 |
| California | 855,973 | 1 | \$17.3 | 1 |
| Colorado | 96,529 | 26 | \$2.4 | 25 |
| Connecticut | 48,774 | 36 | \$1.9 | 30 |
| Delaware | 18,624 | 42 | \$0.5 | 43 |
| District of Columbia | 18,524 | 43 | \$0.6 | 41 |
| Florida | 354,190 | 3 | \$8.1 | 5 |
| Georgia | 249,071 | 7 | \$5.7 | 9 |
| Hawaii | 25,383 | 40 | \$0.4 | 44 |
| Idaho | 31,230 | 39 | \$0.7 | 39 |
| Illinois | 308,795 | 5 | \$8.7 | 4 |
| Indiana | 157,190 | 14 | \$3.6 | 11 |
| Iowa | 53,620 | 34 | \$1.5 | 33 |
| Kansas | 65,138 | 32 | \$1.5 | 32 |
| Kentucky | 115,362 | 21 | \$2.9 | 20 |
| Louisiana | 164,607 | 12 | \$3.2 | 18 |
| Maine | 19,159 | 41 | \$0.3 | 45 |
| Maryland | 101,436 | 24 | \$3.4 | 14 |
| Massachusetts | 80,734 | 28 | \$2.2 | 27 |
| Michigan | 218,028 | 8 | \$5.8 | 8 |
| Minnesota | 75,211 | 29 | \$2.3 | 26 |
| Mississippi | 116,913 | 20 | \$2.7 | 22 |
| Missouri | 141,696 | 16 | \$3.3 | 16 |
| Montana | 18,364 | 44 | \$0.3 | 48 |
| Nebraska | 33,783 | 38 | \$0.8 | 37 |
| Nevada | 48,982 | 35 | \$0.9 | 36 |
| New Hampshire | 14,239 | 48 | \$0.3 | 46 |
| New Jersey | 120,787 | 18 | \$3.3 | 15 |
| New Mexico | 66,708 | 31 | \$1.3 | 34 |
| New York | 317,653 | 4 | \$8.9 | 3 |
| North Carolina | 212,975 | 10 | \$5.2 | 10 |
| North Dakota | 10,403 | 50 | \$0.2 | 51 |
| Ohio | 271,966 | 6 | \$6.9 | 7 |
| Oklahoma | 108,981 | 23 | \$2.5 | 24 |
| Oregon | 71,622 | 30 | \$1.8 | 31 |
| Pennsylvania | 214,054 | 9 | \$7.0 | 6 |
| Rhode Island | 18,264 | 45 | \$0.6 | 40 |
| South Carolina | 119,026 | 19 | \$2.7 | 23 |
| South Dakota | 16,566 | 46 | \$0.3 | 47 |
| Tennessee | 165,677 | 11 | \$3.3 | 17 |
| Texas | 745,080 | 2 | \$15.1 | 2 |
| Utah | 56,216 | 33 | \$1.3 | 35 |
| Vermont | 7,944 | 51 | \$0.3 | 50 |
| Virginia | 140,557 | 17 | \$3.1 | 19 |
| Washington | 114,445 | 22 | \$2.2 | 28 |
| West Virginia | 45,341 | 37 | \$0.8 | 38 |
| Wisconsin | 97,448 | 25 | \$2.8 | 21 |
| Wyoming | 12,365 | 49 | \$0.3 | 49 |
| U.S. Total | 6,774,918 | | \$160.8 | |

Appendix 4: Cost Savings in 2004 from Decline in Teen Birth Rates from 1991-2004

| State | Percent Decline in Teen Birth Rate from 1991-2004 | Rank (Decline in Teen Birth Rate 1=Greatest Decline) | Savings in 2004 (In Millions of \$) | Rank (Savings 1=Highest) |
|----------------------|---|--|--|-----------------------------|
| Alabama | -28.8% | 27 | \$103 | 21 |
| Alaska | -41.1% | 8 | \$29 | 36 |
| Arizona | -24.6% | 40 | \$101 | 23 |
| Arkansas | -24.2% | 42 | \$59 | 30 |
| California | -46.5% | 2 | \$1,146 | 1 |
| Colorado | -24.7% | 39 | \$64 | 29 |
| Connecticut | -39.2% | 13 | \$103 | 22 |
| Delaware | -28.0% | 32 | \$16 | 45 |
| District of Columbia | -39.1% | N/A | \$42 | N/A |
| Florida | -37.6% | 16 | \$432 | 3 |
| Georgia | -29.7% | 25 | \$227 | 9 |
| Hawaii | -39.0% | 14 | \$21 | 41 |
| Idaho | -28.4% | 30 | \$26 | 38 |
| Illinois | -37.7% | 15 | \$346 | 4 |
| Indiana | -28.0% | 33 | \$123 | 17 |
| Iowa | -25.6% | 38 | \$40 | 33 |
| Kansas | -26.5% | 35 | \$37 | 35 |
| Kentucky | -28.5% | 28 | \$107 | 19 |
| Louisiana | -26.1% | 37 | \$106 | 20 |
| Maine | -44.1% | 4 | \$22 | 40 |
| Maryland | -40.1% | 11 | \$174 | 12 |
| Massachusetts | -40.5% | 10 | \$144 | 13 |
| Michigan | -42.1% | 5 | \$297 | 7 |
| Minnesota | -28.4% | 29 | \$72 | 28 |
| Mississippi | -27.4% | 34 | \$92 | 25 |
| Missouri | -32.6% | 20 | \$136 | 14 |
| Montana | -23.5% | 44 | \$6 | 49 |
| Nebraska | -15.3% | 50 | \$14 | 46 |
| Nevada | -31.4% | 21 | \$37 | 34 |
| New Hampshire | -45.0% | 3 | \$21 | 42 |
| New Jersey | -41.6% | 7 | \$186 | 11 |
| New Mexico | -23.5% | 43 | \$26 | 39 |
| New York | -40.9% | 9 | \$484 | 2 |
| North Carolina | -30.3% | 24 | \$219 | 10 |
| North Dakota | -23.4% | 45 | \$8 | 48 |
| Ohio | -36.4% | 17 | \$300 | 6 |
| Oklahoma | -22.9% | 46 | \$56 | 31 |
| Oregon | -39.2% | 12 | \$83 | 27 |
| Pennsylvania | -34.7% | 18 | \$287 | 8 |
| Rhode Island | -26.4% | 36 | \$27 | 37 |
| South Carolina | -28.1% | 31 | \$92 | 26 |
| South Dakota | -19.1% | 49 | \$9 | 47 |
| Tennessee | -30.3% | 23 | \$135 | 16 |
| Texas | -20.2% | 48 | \$327 | 5 |
| Utah | -29.2% | 26 | \$42 | 32 |
| Vermont | -46.7% | 1 | \$20 | 43 |
| Virginia | -34.1% | 19 | \$135 | 15 |
| Washington | -41.7% | 6 | \$116 | 18 |
| West Virginia | -24.5% | 41 | \$20 | 44 |
| Wisconsin | -30.9% | 22 | \$97 | 24 |
| Wyoming | -21.4% | 47 | \$5 | 50 |
| U.S. Total | -33.5% | | \$6,820 | |

Appendix 5: Public Costs Associated with Children Born to Teen Parents (in Millions 2004 \$)

| State | Lost Tax Revenue | Health Care | Child Welfare | Incarceration |
|----------------------|------------------|----------------|----------------|----------------|
| Alabama | \$59 | \$40 | \$27 | \$16 |
| Alaska | \$4 | \$13 | \$8 | \$11 |
| Arizona | \$88 | \$48 | \$32 | \$43 |
| Arkansas | \$41 | \$22 | \$10 | \$14 |
| California | \$342 | \$227 | \$428 | \$294 |
| Colorado | \$48 | \$15 | \$45 | \$32 |
| Connecticut | \$20 | \$23 | \$34 | \$37 |
| Delaware | \$7 | \$6 | \$5 | \$12 |
| District of Columbia | \$8 | \$7 | \$23 | \$0 |
| Florida | \$146 | \$96 | \$89 | \$105 |
| Georgia | \$114 | \$66 | \$44 | \$65 |
| Hawaii | \$10 | \$6 | \$9 | \$8 |
| Idaho | \$12 | \$8 | \$6 | \$7 |
| Illinois | \$131 | \$77 | \$123 | \$92 |
| Indiana | \$64 | \$37 | \$40 | \$33 |
| Iowa | \$22 | \$14 | \$32 | \$13 |
| Kansas | \$30 | \$12 | \$23 | \$14 |
| Kentucky | \$50 | \$33 | \$36 | \$20 |
| Louisiana | \$59 | \$31 | \$21 | \$34 |
| Maine | \$6 | \$17 | \$4 | \$5 |
| Maryland | \$48 | \$44 | \$43 | \$46 |
| Massachusetts | \$34 | \$37 | \$65 | \$29 |
| Michigan | \$89 | \$44 | \$80 | \$115 |
| Minnesota | \$37 | \$38 | \$56 | \$18 |
| Mississippi | \$50 | \$26 | \$8 | \$18 |
| Missouri | \$58 | \$41 | \$52 | \$30 |
| Montana | \$6 | \$5 | \$5 | \$5 |
| Nebraska | \$15 | \$11 | \$16 | \$9 |
| Nevada | \$25 | \$7 | \$8 | \$13 |
| New Hampshire | \$3 | \$8 | \$9 | \$5 |
| New Jersey | \$46 | \$47 | \$50 | \$57 |
| New Mexico | \$31 | \$26 | \$9 | \$10 |
| New York | \$117 | \$186 | \$204 | \$203 |
| North Carolina | \$105 | \$54 | \$36 | \$61 |
| North Dakota | \$3 | \$4 | \$4 | \$2 |
| Ohio | \$104 | \$67 | \$92 | \$90 |
| Oklahoma | \$51 | \$23 | \$20 | \$26 |
| Oregon | \$27 | \$16 | \$32 | \$28 |
| Pennsylvania | \$93 | \$68 | \$168 | \$87 |
| Rhode Island | \$9 | \$8 | \$19 | \$9 |
| South Carolina | \$51 | \$39 | \$6 | \$29 |
| South Dakota | \$6 | \$6 | \$5 | \$3 |
| Tennessee | \$64 | \$33 | \$45 | \$30 |
| Texas | \$349 | \$165 | \$83 | \$161 |
| Utah | \$21 | \$13 | \$13 | \$9 |
| Vermont | \$3 | \$5 | \$8 | \$3 |
| Virginia | \$59 | \$25 | \$27 | \$51 |
| Washington | \$41 | \$42 | \$43 | \$34 |
| West Virginia | \$16 | \$11 | \$14 | \$4 |
| Wisconsin | \$41 | \$23 | \$38 | \$50 |
| Wyoming | \$4 | \$3 | \$3 | \$4 |
| U.S. Total | \$2,868 | \$1,925 | \$2,300 | \$2,094 |

Appendix 6: Decline in Teen Birth Rate per 1,000 Teens Aged 15-19 1991-2004 (by percent and state rank)

| State | Teen Birth Rate | | | Rank (1= Greatest Decline) |
|----------------------|-----------------|------|-----------------|-------------------------------|
| | 1991 | 2004 | Percent Decline | |
| Alabama | 73.6 | 52.4 | -28.8% | 27 |
| Alaska | 66.0 | 38.9 | -41.1% | 8 |
| Arizona | 79.7 | 60.1 | -24.6% | 40 |
| Arkansas | 79.5 | 60.3 | -24.2% | 42 |
| California | 73.8 | 39.5 | -46.5% | 2 |
| Colorado | 58.3 | 43.9 | -24.7% | 39 |
| Connecticut | 40.1 | 24.4 | -39.2% | 13 |
| Delaware | 60.4 | 43.5 | -28.0% | 32 |
| District of Columbia | 109.6 | 66.7 | -39.1% | N/A |
| Florida | 67.9 | 42.4 | -37.6% | 16 |
| Georgia | 76.0 | 53.4 | -29.7% | 25 |
| Hawaii | 59.2 | 36.1 | -39.0% | 14 |
| Idaho | 53.9 | 38.6 | -28.4% | 30 |
| Illinois | 64.5 | 40.2 | -37.7% | 15 |
| Indiana | 60.4 | 43.5 | -28.0% | 33 |
| Iowa | 42.5 | 31.6 | -25.6% | 38 |
| Kansas | 55.4 | 40.7 | -26.5% | 35 |
| Kentucky | 68.8 | 49.2 | -28.5% | 28 |
| Louisiana | 76.0 | 56.2 | -26.1% | 37 |
| Maine | 43.5 | 24.3 | -44.1% | 4 |
| Maryland | 54.1 | 32.4 | -40.1% | 11 |
| Massachusetts | 37.5 | 22.3 | -40.5% | 10 |
| Michigan | 58.9 | 34.1 | -42.1% | 5 |
| Minnesota | 37.3 | 26.7 | -28.4% | 29 |
| Mississippi | 85.3 | 61.9 | -27.4% | 34 |
| Missouri | 64.4 | 43.4 | -32.6% | 20 |
| Montana | 46.8 | 35.8 | -23.5% | 44 |
| Nebraska | 42.4 | 35.9 | -15.3% | 50 |
| Nevada | 74.5 | 51.1 | -31.4% | 21 |
| New Hampshire | 33.1 | 18.2 | -45.0% | 3 |
| New Jersey | 41.3 | 24.1 | -41.6% | 7 |
| New Mexico | 79.5 | 60.8 | -23.5% | 43 |
| New York | 45.5 | 26.9 | -40.9% | 9 |
| North Carolina | 70.0 | 48.8 | -30.3% | 24 |
| North Dakota | 35.5 | 27.2 | -23.4% | 45 |
| Ohio | 60.5 | 38.5 | -36.4% | 17 |
| Oklahoma | 72.1 | 55.6 | -22.9% | 46 |
| Oregon | 54.8 | 33.3 | -39.2% | 12 |
| Pennsylvania | 46.7 | 30.5 | -34.7% | 18 |
| Rhode Island | 44.7 | 32.9 | -26.4% | 36 |
| South Carolina | 72.5 | 52.1 | -28.1% | 31 |
| South Dakota | 47.6 | 38.5 | -19.1% | 49 |
| Tennessee | 74.8 | 52.1 | -30.3% | 23 |
| Texas | 78.4 | 62.6 | -20.2% | 48 |
| Utah | 48.0 | 34.0 | -29.2% | 26 |
| Vermont | 39.2 | 20.9 | -46.7% | 1 |
| Virginia | 53.4 | 35.2 | -34.1% | 19 |
| Washington | 53.7 | 31.3 | -41.7% | 6 |
| West Virginia | 58.0 | 43.8 | -24.5% | 41 |
| Wisconsin | 43.7 | 30.2 | -30.9% | 22 |
| Wyoming | 54.3 | 42.7 | -21.4% | 47 |
| U.S. Total | 61.8 | 41.1 | -33.5% | |

Appendix 7: National Cost Estimate Methodology

The costs presented in this paper are an estimate of the costs created by the actual number of births in 2004—140,761 births to girls age 17 or younger and 281,282 births to girls age 18 and 19 (Martin, et al). The costs are those incurred by federal, state, and local taxpayers in 2004; cost estimates to the mothers and to society at large are measured and presented in Maynard (1996) and Maynard and Hoffman (forthcoming).

Most of the information available to measure the costs of early childbearing examines these costs over a number of years following a birth. We follow that approach, typically measuring costs over the first fifteen years following a birth. In order to measure the costs of those births as of a single calendar year rather than over a fifteen year time period, it is assumed that the number of births is constant at the 2004 levels; this is equivalent to assuming a “steady-state” of the world exactly like 2004. Thus, for example, the cost analyses of early teen births assume there are 140,761 young teen mothers age 17 in their first year of motherhood, 140,761 young teen mothers age 18 in their second year of motherhood, and so on through the first fifteen years of motherhood. The analysis of costs of older teen births proceeds in exactly the same way, based on 281,282 births with years of motherhood beginning at age 19. Analytically, we are examining the costs contributed by 15 cohorts of teen mothers, identically sized to the 2004 birth cohort and distributed across the first fifteen years following a birth. The underlying information on costs over each year of a teen mother’s life-cycle is then used to measure the costs of these 15 cohorts of young women.¹⁶ This procedure is identical to the approach taken in Maynard (1996).

The costs measured here are annual costs as if they were incurred in 2004. All characteristics of

government programs and taxes that are used to compute costs are based on data for 2004, unless otherwise noted. In the short run, if one assumes that the underlying causal impacts of a teen birth are unchanged, it is possible to use the estimates presented here to estimate the costs for other years as well. As a first approximation, simply adjusting for the difference in the number of births and the inflation rate would give a reasonable estimate of the costs in a future year. Further adjustments for the cost of specific government programs and services or in the impact of a teen birth would be necessary for years further in the future.

All gross impact analyses are based on models that control only for age and mother’s age at first birth. Net impact analyses are based on the fullest set of available controls. The extent of control variables available varies across the studies. The analyses of foster care and child abuse/neglect use a more limited set of control variables, because they are based on Illinois administrative records. Analysis of the health care utilization, educational attainment, and teen fertility of the children of teen mothers use an extensive set of family background variables. Impact analyses for mothers’ earnings and receipt of public assistance are based on two methods: 1) a traditional approach that uses regression analysis to control for an extensive set of background variables ; and 2) a newer natural experiment approach that also controls for permanent unmeasured individual and neighborhood traits.¹⁷ The cost estimates are based on results from the natural experiment approach. The analysis of incarceration uses a different approach — differences in incarceration rates of brothers — to also control for otherwise unmeasured permanent individual traits of the mother.

16 One difference between this measure of costs and the corresponding costs from the standpoint of a young mother is that in this approach all costs occur in the same year rather than over fifteen years. The technical import of this difference is that the costs do not have to be discounted in this computation.

17 The estimation uses a teen miscarriage as an instrumental variable to approximate a random-assignment of a teen birth.

The methodology of the latter two studies is conservative and may underestimate the benefits of a delay in age at first birth that results from an intervention program. An effective teen pregnancy prevention program may provide would-be teen mothers with life skills that are valuable not only in negotiating issues involving teenage sex and contraception, but also in their schooling, in the labor market, and in the marriage market. The methodology used in these studies measures the impact of a delay that occurs either randomly (via a miscarriage) or naturally (the delay between the birth of a first and second son). Neither estimate therefore

captures the impact of a “treatment” that that may alter outcomes positively. As a result, these estimates may underestimate the potential gains of an effective intervention program with broad impacts.

Cost estimates for outcomes involving children take account of the potential impact of a delay in age at first birth on the total number of births over the first fifteen years following a first birth. For early teen births, this involves a reduction in total births from an average of 2.37 to 1.97. For later teen births, delay increases the average number of births from 2.35 to 2.45.

Sources for National Estimates of Impacts and Costs:

Costs for Children of Teen Mothers

Health and Medical Care. Estimates are taken from Wolfe and McHugh (forthcoming) and are based on analyses of the 2002 Medical Expenditure Panel Survey. Information on health status, medical visits, and expenditures are taken from Tables 2-6. Net cost estimates are taken from Table 9, equation (2); these estimates allow child health to adjust when age at first birth is delayed. Cost estimates include the impact of a delay in age at first birth on total fertility over the first fourteen years of motherhood.

Foster Care and Abuse/Neglect. Estimates are taken from Goerge, Harden, and Lee (forthcoming). Data come from the Illinois Integrated Database on Children and Family Services and Illinois birth certificate data. Gross impact estimates are based on a comparison of mean foster care placement rates and abuse/neglect reports in the first five years after birth by age of mother at first birth. Net impacts are based on a logit model that further controls for characteristics of the mother. Simulations of the impact of a delay in age at first birth hold all characteristics of the mother except age at first birth constant. Data on total foster care placements and costs are derived from published tables in Scarcella et al. Cost estimates adjust for foster care placements after the first five years following the approach in Maynard (1996).

Incarceration. Estimates are taken from Scher and Hoffman (forthcoming), which updates Grogger's analysis of incarceration in *Kids Having Kids*. Data come from the National Longitudinal Survey of Youth 79 (NLSY) -Young Males sample, which includes a nationally representative sample of males who were between ages 14 and 21 in 1979. Gross impact estimates are based on a comparison of mean incarceration rates by age of mother at first birth. Net impact estimates are based on a model that controls separately for mother's age at first birth and mother's age at the birth of the

respondent child. In this specification, the impact of a teen birth on the probability that a son will be incarcerated is estimated conservatively from the difference in siblings' probabilities of incarceration. The less conservative estimates of net impacts are based on a model that relates the probability of son's incarceration to mother's age at first birth, rather than mother's age at the birth of the particular child. Impact estimates of the probability of ever being incarcerated are derived from logit models. Impact estimates of total years in prison are derived from Poisson models. Cost estimates are based on total years in prison. Data on incarceration are from Harrison and Beck (2005). Prison costs are for 2001 are from Stephan (2004); 2001 costs are adjusted to 2004 prices. Cost estimates adjust for the undercounting of short prison spells inherent in the data and the unobserved lifecycle from age 40 to end of life.

Educational Attainment and Lost Tax Revenue. Estimates are taken from Hoffman and Scher (forthcoming), which updates the analysis by Haveman, Wolfe, and Peterson in *Kids Having Kids*. Data come from the NLSY79-Young Adult sample, which includes children of the original NLSY79 sample of young women, ages 14-21 in 1979. Gross impact estimates are based on a comparison of mean high school graduation rates by age of mother at first birth. Net impact estimates are based on a model that controls for a large set of individual and family characteristics. High school graduation models are estimated by logit, years of education by tobit.

Costs are based on the net impact of a teen birth on the probability of high school graduation and value additional education using average earnings differences by level of education in 2003 (Source: Table 9. Earnings in 2003 by Educational Attainment of Workers 18 Years and Over, by Age, Sex, Race Alone, and Hispanic Origin, available at <http://www.census.gov/population/www/socdemo/education/cps2004.html>). Earnings are a weighted

average of male and female earnings for workers age 25-64, after adjusting for labor force participation. Additional years of education are assumed to be 80% high school and 20% post-secondary.

To compute public sector costs, it is assumed that earnings are received for 43 years (ages 22 through 65). All tax costs are as of 2004, computed at a 23.31% rate that reflects a Federal marginal tax rate of 15% and an average state income and sales tax rate of 8.31%. These are estimates of the rates that would apply to an individual with \$15,000 earnings and one child. State tax data are taken from the Tax Foundation, compiled by the Federation of Tax Administrators. The tax data is available at <http://www.taxfoundation.org/taxdata/show/228.html>.

Costs for Teen Mothers

Earnings, Taxes, and Public Assistance. All estimates are taken from Hoffman (forthcoming) which updates and corrects errors in the analysis by Hotz, McElroy, and Sanders in *Kids Having Kids*. As explained more fully in Hoffman, the cost estimates in Hotz, McElroy, and Sanders have substantial numerical errors and should not be relied on for any purpose. The most significant error results from an incorrect rescaling of incomes from the observed years (1978-1991) to constant 1994 dollars.¹⁸ This scaling error inflates estimates of the effect of a teen birth on all earnings and income measures, especially at older ages (later calendar years) where the scaling error is larger. A substantial portion of the positive “rebound effect” estimated by Hotz, McElroy, and Sanders is due to this error.

The estimates presented are based on data from the NLSY79 from 1979 through 2000. Estimates of gross impacts are based on OLS estimation of a model that controls only for a teen birth, age and/or age squared, and interactions between a teen birth and age and/or age squared. Estimates of net impacts are based on an instrumental variables estimation that uses a teen miscarriage as an instrument for a teen birth. Age/age squared and age/age squared x teen birth interactions are included and are used to construct age profiles for each of the outcome variables.

Costs for the Partners of Teen Mothers

Earnings and Taxes. These estimates are taken from the analysis by Brien and Willis in *Kids Having Kids*. The estimates were rescaled to 2004 prices and then adjusted for the difference in the number of teen births in 1996 and 2004 and the probability that a birth is marital (because earnings estimates for men are conditional on marital status). Marital status if a birth is delayed is not observed and is not estimated by Brien and Willis; following the procedures used in Maynard (1996), it is assumed that a delay would eliminate two-thirds of the difference in the probability of a marital birth between partners of teen mothers and partners of women who have a first birth at age 20 or 21. Earnings and tax loss estimates are based on the first eighteen years of fatherhood, but are converted to a 15 year equivalent. All tax costs are as of 2004, computed at a 23.31% rate that reflects a Federal marginal tax rate of 15% and an average state income and sales tax rate of 8.31%. Cohort size in 2004 at each year of adult age is equal to the size of the teen birth cohort in 2004.

18 The error is equal to the cumulative increase in the Consumer Price Index from 1978 to the data year in question and ranges from 0% for 1978 incomes to over 100% for 1991 incomes. The average scaling error is 68%. There are also probable errors in the coding of teen fertility and welfare receipt, incorrect use of sample weights, and the inclusion of data points corresponding to ages that were outside the years available in the NLSY79. See Hoffman for further details.

Appendix 8: State Cost Estimate Methodology

Cost estimates for states are based on national estimates for all teen births in 2004. The costs are measured relative to a delay of a first birth to age 20 or 21. As described in the Appendix 7, National Cost Estimate Methodology, the costs are “net costs;” that is, they are costs associated with being a teen at time of birth rather than other risk factors in the lives of the young women who have an early birth. Further details on the construction of national costs can be found in Appendix 7. All references to states include 50 states plus the District of Columbia. Comparable data were not available to replicate the analysis at the local level, nor for Indian Tribes or U.S. territories within the scope of this project. Wherever possible, state specific data were obtained for 2004, or were adjusted to 2004 from the most recent available year.

State costs are derived from the national costs by adjusting the national figure for the number of teen births in a state and for the particulars of a state’s tax and spending programs that may cause it to have larger or smaller costs than it would based on the number of teen births alone. Detailed information about the sources for state data are shown below.

The computation of state costs from national costs uses three multiplicative terms: 1) the state share of teen births; 2) the per client cost of a particular program relative to the national average; and 3) the utilization rate for a particular program relative to the national average, scaled relative to the state’s share of teen births. In effect, the latter two terms adjust the pro-rated costs for differences across states in the cost or generosity of particular programs and the rate of utilization of those programs. A state with cost and enrollment rates equal to the national average would have state costs strictly proportional to their share of teen births.

A specific example may be useful. In 2004, 19,240 young women age 17 and younger had a birth in Texas. These births accounted for 13.7% of all births to women age 17 and younger nationally. Foster care and associated child welfare costs for children of young teen mothers were estimated to be \$1.84 billion nationally. Texas’s pro-rated costs on the basis of teen births alone would be \$251.5 million. But Texas has a very low enrollment rate for foster care relative to the national average. In addition, cost per foster care case in Texas is slightly below the national average. Both of these factors reduce foster care costs for children of teen mothers in Texas below what would be expected based on their share of births. Texas’s adjusted cost for foster care equals \$66.1 million.

To identify how costs are allocated between different levels of government, the match or actual cost-sharing rates for each program were applied to the total costs for each program. Specifically, the analysis identified the share of costs for each program within a state that is borne by the federal government and federal taxpayers, and the share that is borne by state and local government and taxpayers. In some states, public assistance (specifically TANF and Food Stamps), health programs (specifically Medicaid and SCHIP), and child welfare are administered at the county level. In these cases, local government typically pays a share of the non-federal costs that would be borne entirely at the state level in states that are non-county administered.

On the tax side, the methodology incorporates the income and sales tax structure for each state and reflects the fact that some states do not have income or sales taxes.

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Federal: Table A — Line 5A Combined Federal Funds Spent in FY 2004 through 4th Quarter http://www.acf.hhs.gov/programs/ofs/data/2004/tableA_summary_2004.html

State: Table B — Line 5A State Maintenance of Effort (MOE) Expenditures in the TANF Program in FY 2004 http://www.acf.hhs.gov/programs/ofs/data/2004/tableB_2004.html and

Table C — Line 5A State MOE in Separate State Programs in FY 2004 http://www.acf.hhs.gov/programs/ofs/data/2004/tableC_2004.html

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Total Medicaid Spending, Children. Centers for Medicare and Medicaid Services. www.cms.hhs.gov/MedicaidDataSourcesGenInfo/02_MSISData.asp Included children and eligibility status unknown. Year: 2003

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www.kff.org/medicaid/upload/7348.pdf. Used December 2004 point estimate.

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Child Welfare. Total foster care caseload, 2004 Green Book: Table 11-7. Year: 2001.

Total child welfare expenditures. The Urban Institute, "The Cost of Protecting Vulnerable Children: Understanding State Variation in Child Welfare Financing," 2006. Includes federal, state and local spending for IV-B, IV-E, SSBG, and SSI. The expenditures also include Medicaid and TANF

funds used for child welfare (the TANF and Medicaid data above do not include expenditures for child welfare). To fully estimate the cost of children in foster care, the decision was made to include all of these funding streams because many children who experience abuse and neglect and end up in foster care funds use multiple funding sources (including funding for child protective services and adoption). www.urban.org/publications/311314.html Year: 2004.

Incarceration. Number of inmates. Bureau of Justice Statistics, Prisoners in 2004 NCJ 21067. <http://www.ojp.usdoj.gov/bjs/abstract/p04.htm> Prisoners in the Federal system are not attributed to any state, as these inmates are serving time for the federal government, and the budget and guidelines for these facilities are different than those for state systems.

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He has published extensively on the relationship between economic forces and demographic behavior, including research on the economic consequences of divorce and of teen and non-marital childbearing and also on the impact of the welfare system on family structure. He is the author of "Welfare: A Special Report" in the 1995 World Book Year Book. He serves on the Effective Programs and Research Task Force of the National Campaign to Prevent Teen Pregnancy.



The National Campaign to Prevent Teen Pregnancy is a nonprofit, non-partisan organization supported largely by private donations. The National Campaign's mission is to improve the well-being of children, youth, and families by reducing teen pregnancy. Our goal is to reduce the teen pregnancy rate by one-third between 2006 and 2015.

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