Government Spending and Children's Educational Attainment and Eventual Income

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Preliminary draft – please do not cite or circulate

I. The Issue

In the 1968 Economic Report of the President, Lyndon Johnson declared war on poverty saying, "Let us, above all, open wide the exits from poverty to the children of the poor." He went on to describe the "keys to earning power" as:

- *Education.* "Poverty and ignorance go hand in hand. …We must up-grade the education of all our youth. But, most vitally, and with Federal support we must upgrade the education of the children of the poor, so that they need not follow their parents in poverty."
- *Health*. "The poor, and the children of the poor, are handicapped by illness and disability that could be avoided. … We must speed and intensify our efforts to make good health more accessible to the poor."

Thus the intent of the war on poverty programs was to promote economic growth and equality of opportunity for all children.[2]

Figure 1 shows the growth in total government spending on means-tested programs between 1960 and 1993, the last year for which comparable data were available, indicating which president was in office. These expenditures include the major social programs that were implemented or expanded in the war on poverty, such as Aid to Families with Dependent Children, Medicaid, the Earned Income Tax Credit, compensatory education funding, the school lunch and the school breakfast programs. Two things are evident from this figure. First, spending on means-tested benefits increased in nearly every year between 1965 and 1993. Second, spending on the poor is not partisan. Increases occurred in every presidency (and whether Congress and President were of the same party or not). Note also that these government expenditures are not highly correlated with the poverty rate. Although the data are not

[1] The authors would like to thank William Duncombe for his data on state-level expenditures and advice on state finance and Christopher Berry for allowing us to use his data from the Census of Governments.

[2] Johnson also included community development and racial equality as part of the war on poverty.

consistent after 1993, government spending on means-tested programs continued to increase. Total government spending (not per capita as shown in Figure 1) increased from $265.4 million in 1990 to $391.7 million in 1998 (Green Book 2000, Table K-1).[3] The percent of families in poverty decreased from 10.7% in 1990 to 10.0% in 1998.

This paper takes a "big picture" view of the efficacy of government programs by asking whether the large increases in government spending has moved the nation closer to the goals of the war on poverty. As we describe below, we use state government expenditure as an approximation of government investments in children and assess its relationship to two long run outcomes related to economic growth, namely children's eventual educational attainment and income. In order to understand whether there is a positive relationship between government spending and children's outcomes, we must consider both how much government spends and also what it spends the money on. States vary greatly in levels of overall spending and in spending on specific programs such as health or education. Thus it is clear that different states value some kinds of spending over others. We focus on the difference in state spending on schooling (elementary, secondary and post-secondary), health care, and on income transfers to poor families with children. Specifically, this project assesses:

- The importance of government expenditures to children's eventual educational attainment and economic well-being (i.e., income).
- The extent to which government spending increases equality of opportunity by reducing the correlation between parent's income and children's eventual educational attainment and income.
- Which kinds of government spending produce the greatest improvement in children's eventual educational attainment and income and the greatest increase in equality of opportunity.

II. Background

The model of child well-being implicit in the war on poverty was the human capital model. The human capital model holds that children's success depends on the child's

[3] Changes in total expenditures varied between 1990 and 1998. Over this period expenditures for medial care, cash aid, services and food aid increased. But expenditure for job training and education declined. From published data we cannot tell whether per capita expenditures increased. But the share of the federal budget allocated to means-tested programs increased from 12.1 percent to 16.8 percent.

endowments and parents' investment in the child's human capital. Children of rich parents are more likely than poor children to succeed because their parents can invest more. The rationale of government spending on children is that government investments can substitute for family investments and thereby improve children's outcomes. The rationale for government income transfers is that they provide more money for families to invest in children.

Traditionally, government programs have been evaluated by assessing whether a particular program achieves the goal or set of goals that it is intended to accomplish. Thus many studies have tried to estimate whether Head Start raises test scores and improves children's behavior, whether the school lunch and breakfast programs improve nutrition, and whether Medicaid increases access to health care. Often such studies find small but statistically reliable benefits of these programs. Other research tries to determine whether more spending on a program improves the targeted outcomes of children. For example, several studies assess whether greater per pupil school expenditures increase test scores. The findings of those studies have been equivocal, but most experts agree that how school expenditures are used matters as much as the overall level of spending.

While individual government programs usually have particular goals, and it is appropriate to assess how successful they are at achieving these goals, the overall government effort on behalf of children is intended to improve the well-being of children, promote equality of opportunity by reducing the correlation between family background and children's outcomes, and as a result increase economic growth. Even if each government program is successful when measured against its specific goals, collectively government spending may not improve children's life chances or increase equality of opportunity if states must reduce spending on one program in order to increase spending on another. As we discuss in more detail below, state expenditures on children's health care, schooling, and on welfare benefits are not highly correlated across states, suggesting that states do make such trade-offs. On the other had, even if each government program has a relatively small effect on its intended outcomes collectively government programs might add up to big changes in children's life chances and greater equality of opportunity. Thus while it is important to evaluate specific programs against their goals it is also important to "sum up" all the benefits from government spending to evaluate the nations progress towards improving child well-being and promoting equality of opportunity.

A relatively large research literature has tried to assess the extent to which parental income predicts children's outcomes.[4] This research generally finds that although child outcomes such as test scores, educational attainment, and future earnings and income are positively related to parents' income, once exogenous characteristics of parents and children are controlled, the effect of parental income declines and in many cases is quite small. Most research also finds that the effect of parental income is greater for low-income than for high-income children, but the differences in effects among high- and low-income families is relatively small. Mayer (1997) concluded that one possible reason for the relatively modest effect of parental income on most child outcomes is the rather large government investment in children. If investing in children makes them more likely to succeed, it should not matter who makes the investment. Thus government investments should in principle improve children's well-being as much as parental investments. If government spending on disadvantaged children narrows the gap in investments between rich and poor children, the importance of family income to children's future success would decline, making success depend more on ability and effort and improving economic efficiency, promoting economic growth and increasing living standards.

Government spending can improve children's outcomes and increase equality of opportunity when it redistributes spending from rich to poor children so long as spending on poor children has a greater pay-off than spending on rich children. If spending improves well-being equally for rich and poor children, then taxing the rich to spend on the poor could hurt rich children as much as it helps poor children. This might increase equality of opportunity in the sense that poor children would become more like rich children, but it would result in no overall improvement in children's outcomes. In fact, depending on how much it costs the government to implement the redistribution (the "leaky bucket") such programs could reduce overall child well-being. In addition, even when some government spending on children improves their well-being, *additional* spending might not result in additional improvement. Voters who vote "no" on school bonds may have this principle in mind – they believe that spending on schools is a good thing, but that schools do not need more money to do a better job. Finally, it is possible for government spending to improve overall child outcomes without increasing equality of

[4] See Mayer (2002) for a review of this research.

opportunity. This can happen if government spending helps affluent children as much as poor children.

Although the human capital model holds that success is the result of investments in children's human capital, investment is seldom measured. Instead parental income serves as a proxy for parental investment. Not all parents with the same income spend the same amount in their children, and parents who spend the same amount often buy different things. Given the same income some parents will spend a lot on say, consumer goods for their children while others will spend a lot on their children's schooling. How much parents spend and what they spend on depends on child characteristics as well as parental preferences. Parents may have to spend more on health care if their child has a disability or illness, and they can spend less if they live where the cost of living is low. Parental income is an imperfect indicator of parental investment. Most research tries to control some of the main factors that might cause differential investment among parents with the same income such as the number of children in the family and perhaps parental education. Very few studies have tried to assess what kinds of parental expenditures benefit children the most.

Using government spending as a proxy for government investment has many of the same imperfections as using parental income as a proxy for parental investment: states that spend the same amount might spend on different things and have different levels of efficiency in their spending depending on a variety of circumstances. Just as estimates of the effect of parental income can take into account many of the family and child characteristics that could make parents with the same income spend differently, we will try to take into account factors that lead states to spend differently. We discuss this below.

Harknett et al. (2003) estimate the effect of state spending on several child outcomes. They find that children born in states that spend a lot on medical care have lower death rates than children born in states that spend less. Similarly, children who live in states that spend a lot on schooling average higher test scores and lower dropout and teenage childbearing rates than children who live in states that spend less. But state spending on medical care does not improve test scores or adolescent outcomes and state spending on schooling does not reduce child mortality. The authors take this as evidence that the observed effect of state spending is causal. Harknett et al.'s results also imply that children have lower test scores in states that spend a lot on programs other than education compared to states that spend less on these things. Higher

AFDC benefits are also associated with lower test scores. This is what we would expect if states trade-off high education expenditures for lower non-education expenditures. But Harknett et al. uses only aggregate data on 50, states so they could not completely control for differences across states that could result in different outcomes, and they could not estimate the extent to which government spending promotes equality of opportunity. In addition, Harknett et al. also looked only at government spending on programs for children. This can be misleading about the efficacy of government efforts on behalf of children because spending on programs for adults may be at least as important to child outcomes as spending on programs for children. This sentiment was articulated in the debate over welfare reform that focused on the benefits to children of having a working rather than welfare-dependent parent. Spending for transportation, housing, and adult job training may all benefit children. Spending on police and other things that reduce crime and violence might be as important to children as additional spending on schools or health care. Our study will estimate the effect of overall state spending as well as state spending on children's programs on children's eventual educational attainment and income.

A few other studies examine the effect of government spending on particular outcomes. For example state spending on health care has been associated with a decline in infant mortality (Mayer and Sarin 2003). Several studies assess the effect of per pupil expenditures on test scores. Some of these find no effect (Hanushek 2001, Hoxby 2002), while others find that spending increases test scores (Hedges, Laine, and Greenwald 1992). If we confine ourselves to studies in which the outcome is educational attainment or earnings, the list is shorter. Research suggests that state per pupil spending on elementary and secondary schooling is associated with higher wages once children are adults (Grogger 1996).[5] Mayer (2002) finds that greater spending on elementary and secondary schools increases low-income but not high-income children's educational attainment. This is what we would expect if government spending helps the poor without hurting the rich. But this study also suggests that high-income but not low-income children get more schooling in states that provide more college financial aid. This suggests that spending on elementary and secondary schooling but not spending on post-secondary schooling promotes equality of opportunity. Thus it is important to estimate not only

[5] District and school-level spending seems to have little effect on children's earning once they are adults, but this is accounted for by error in measures of school spending at the district level and below (Grogger 1996, Hanuschek …).

the average effect of state spending but also whether spending affects different children differently.

Other studies also suggest that the effect of government spending can differ for different groups. For example, in a series of papers Janet Currie and co-authors (Currie and Gruber 1996) estimate the effect of the expansion of Medicaid after 1987 on the use of medical care and health outcomes of infants and children. Because Medicaid expanded very differently across states and over time, there was great variation in children's access to Medicaid. Medicaid expansions appear to have increased use of medical care and improved health outcomes for very disadvantaged children.[6] But among more advantaged children (those whose mother had more income or education), Medicaid expansions crowed out private insurance which meant that many women went from having more to having less generous insurance for their children.

A few studies have estimated the effect of welfare benefit levels on educational attainment and wages. Income transfers to families can allow parents to invest more in their children. But they can also provide a disincentive for some children to stay in school and get a job once they are adults. Mayer (1997) using state and time variation in cash welfare transfers found children in single parent families who are the main beneficiaries of welfare benefits, got more schooling and earned higher wages once they became adults in states with high welfare benefits. But children in married couple families experienced even greater increases in educational attainment and wages than children in single parent families even though very few such children were the beneficiaries of welfare transfers. Thus the apparent gains from greater cash transfers must be due to factors other than the higher benefits.[7] However, welfare benefit levels might not be a good measure of a state's income redistribution effort. In principle one state could provide high benefits to a small proportion of the poor while another state provides lower benefits but to more poor families. For example, in 1990 Georgia, Kentucky and North Carolina had similar AFDC benefit levels. But 70% of Georgia's poor children received AFDC compared to 50% of Kentucky's and 55% of North Carolina's poor children. Texas and Tennessee has similar benefits but 57% of Tennessee's poor children received benefits while only 37% of Texas' poor children received them (Green Book 1998, pg 420 and 430). A better

[6] Meara (2002) also finds that Medicaid is associated with a decline in infant and child mortality.
[7] Mayer (1997) also summarizes other studies that have estimates the effect of welfare benefit levels on educational attainment and earning.

way to assess whether income transfers help children would be to estimate the effect of state expenditure on cash transfers per poor child in the state.

We can find no research on the relationship between health care spending and children's educational attainment or eventual earnings. However, a considerable amount of research suggests that health is related to schooling (Berger and Leigh 1989) and to labor force participation and wages (Berkowitz and Johnson 1974).

III. Analytical Strategy

We wish to estimate two aspects of the effect of state spending on children's educational attainment and adult income. First we want to estimate the extent to which a change in government spending overall or spending on specific programs affects children's educational attainment and future income. Second we wish to estimate the extent to which an increase in government spending increases equality of opportunity by reducing the effect of parental income. We would like this analysis to be as useful as possible to policy makers, so we want to approximate a true causal estimate. Ideally we would use an experimental design in which we assign children randomly to live in locations (states) that vary in how much they invest in children but that are identical in every other way. Clearly we cannot do this any more than we could randomly assign children to families with different incomes. Thus we need to find a way to approximate this experimental design using observational data.

Our preferred analytical strategy for estimating the effect of state spending on children's educational attainment and income is to estimate the effect of a change in expenditures within a state holding constant changes in spending that are common to all states (such as a change resulting from a new federal law) and relevant state characteristics and characteristics of children and their parents.

Government Investments. To determine the importance of government spending on children's outcomes, we begin by estimating the following baseline equation:

(1) $Y_{ist} = \beta_0 + \beta_1 E_{st} + \varepsilon_{ist}$,

where the subscript *i* represents a child, the subscript *s* represents a state, the subscript *t* represents a birth cohort, Y represents the outcome (either income or educational attainment), and E is the government expenditure. We report results using each category of spending. This model tells us the unadjusted relationship between each spending category and each outcome.

Estimating the relationship between individual level outcomes and aggregate covariates could be misleading due to the bias created by omitted variables. For instance, states with generous expenditures may have more affluent residents than states with lower expenditures, or states with many elderly residents may spend more on health care and less on each student in the state. Therefore in Model 2, we add variables for per capita income, the proportion of the state that is poor, the proportion of the state that is aged 65 or older, and the proportion of the state that is African American. This model is similar to the specification used by Harknett et al. (2003).

In principle a properly specified aggregate model will yield the same results as a properly specified individual-level model. However, some characteristics of children's families that are related to their educational attainment and income are not available at the aggregate level and aggregate data does not allow one to model non-linearities in the relationship between family background factors and outcomes, which can lead to biased estimates of their effect. In particular several studies suggest that a dollar of income is more important to outcomes of poor than of rich children. Therefore, in Model 3 we add a vector of individual level covariates: the log of parental income, parental education, parental marital status (all measured when the child was an adolescent), indicators for African American and Hispanic, and an indicator for the child's sex.

These covariates may not include all factors that are related to both state spending and children's outcome. One common way to control at least some potentially relevant omitted variables is to include state fixed effects. Such a model would be equivalent to estimating the within-state effect of a change in expenditures. However, this strategy has two important disadvantages for our purposes. First, it increases the relative importance of measurement error in independent variables measured at the state level, including the measure of state spending, which would likely downwardly bias the estimated effects. Second, including state dummy variables greatly reduces the degrees of freedom available to estimate the model, which in turn increases the standard errors of the estimates. We begin with an alternative strategy and that is to include dummy variables for each of the nine census divisions, year effects, and division-year fixed effects. This model (Model 4) uses variation within the division in a given year to estimate the expenditure coefficients. Thus factors that are constant within a division in a given year,

even if unobserved, are removed from the estimation and should not bias the coefficients for the spending measures. Model 5 is the state fixed effects model with year indicator variables.[8]

As we explain below, some of the expenditure categories are strongly correlated. Attributing the estimated effects to one spending category when the others are highly correlated may be misleading. Therefore, we also estimate expenditure models using all of the individual spending categories. These models may prevent erroneously attributing the impact to one category when it is highly correlated to other categories.[9]

Equality of Opportunity. To determine the impact of state expenditures on equality of opportunity we use the following thought experiment. If we assume that educational attainment or economic status depends on parental investment, then parental income will have a large effect on these outcomes. But if government investment supplements parental investment, parental income will have a smaller effect on children's outcomes in states that spend a lot on children compared to states that spend a little. To estimate the intergenerational elasticity of economic status, economists (see, for example, Mulligan 1997; Solon 1992) usually estimate the relationship between the logarithm of parent's income (Y_p) and the logarithm of children's (Y_c) economic status using the following equation:

$$(2) \qquad \ln Y_c = \alpha + \beta_p \ln Y_p + \varepsilon_c,$$

where ε is a stochastic error term, the subscript c indicates the child and the subscript p indicates the parents. In our case the child's economic status is measured by the total family income in the year the individual turned 30 (in addition to this economic measure we also use the years of education completed by age 25). In equation 2, $\beta_p \left(= \frac{\partial \ln Y_c}{\partial \ln Y_p}\right)$ is the elasticity of a child's income with respect to the child's parents' income. Ideally, we would estimate the elasticity of a child's income with respect to parental income averaged over all the years after a child was born until investment stops in order to reduce error introduced by the transient component of income.

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[8] It is not obvious whether the division*year fixed effects model or the state fixed effects model is superior (although we know neither is perfect). The state fixed effects model removes state specific factors compared to the division fixed effects model which only removes those factors constant within divisions. At the same time, the division*year fixed effects model removes regionally specific time shocks, while the state fixed effects model only removes time shocks consistent across the nation. The least biased model will depend on whether the within-division state differences or regional time shocks are the greater biasing factors.

[9] Of course, multicollinearity becomes an issue once all of these variables are added, and it may be difficult to determine the estimated slopes with any precision.

Unfortunately, requiring so many years of parental income would result in a very small sample. To approximate permanent income, we average parental income over the years when a child was aged 15 to 17.[10] Families with less than two years of income were excluded in order to minimize error in the measurement of the parents' permanent income.

To estimate the impact state spending has on the elasticity of the child's income with respect to the child's parents' income, we estimate the following model:

(3) $\ln Y_c = \gamma_0 + \gamma_1 \ln Y_p + \gamma_2 E_{cs} + \gamma_3 \ln Y_p * E_{cs} + \eta_c,$

where the subscript s represents the state in which the teen resided when 15, E represents per capita total state expenditures and the rest of the symbols are the same as above.

(4) $$\frac{\partial \ln Y_c}{\partial \ln Y_p} = \gamma_1 + \gamma_3 E_{cs}.$$

As shown in equation 4, the change in the log of child's income created directly by a change in the log of parental income is equal to $\gamma_1 + \gamma_3 E_{cs}$. Equation 5 describes the change in the change in the relationship between the child's income and the parents' income as state spending increases.

(5) $$\frac{\partial^2 \ln Y_c}{\partial E_{cs} \partial \ln Y_p} = \gamma_3.$$

In other words, equation 5 suggests that the change in the relationship between a child's and parent's income as state spending increases is γ_3. If state spending substitutes for parental investments, then we would expect the elasticity to decline suggesting an increase in economic mobility.

Below, we estimate equation 3 focusing on γ_3. Next, we add several individual level covariates to equation 3 including indicators for African American and Hispanic, the parents' marital status, the parents' education level, and the child's sex, and state-level expenditure categories, total expenditures per capita, per pupil elementary and secondary expenditures, expenditures per 18-24- year-old in the state population on four-year public institutions of higher

[10] Because we use the Parent Identification File, we are able to obtain income information from the child's parents in the years the child was 15 to 17 independent of whether the child resided with his/her parents. The measure of parental income includes income from all sources in the mother's household. If, for example, the parents divorced and the mother remarried, the income measure would include the income from the mother's spouse but not the child's father. Even in a case such as this, the correlation between family income when the son was aged 15 to 17 and family income when the son was younger is likely to be high because remarriages tend to be to individuals with economic characteristics similar to the previous spouse (Mueller and Pope 1980).

education, per poor person expenditures on public welfare, per poor person expenditures on health care, and per poor person expenditures on housing and community development (called Model 4) to control for factors that are potentially correlated to parental income and state spending.

IV. Data

The models described above require individual-level data combined with aggregate-level data on state spending and other state characteristics over time. All individual-level data in our analysis come from the Panel Study of Income Dynamics (PSID). The PSID is a longitudinal data set initiated with a core sample of approximately 4,800 families in 1968.[11] When children in the original sample established their own households, they and all members of their new household were included in the data set, thereby increasing the sample size over time. This unique feature of the PSID allows us to link information from the individual's childhood to outcomes when the individual is older.

Our PSID sample includes all individuals born between 1956 and 1970 whose parents were respondents to the PSID and who had positive family income when they were 30 years old. The PSID sample includes about 2,300 cases for each analysis. Using family income allows us to include individuals who do not work but who have positive income from spouse's earnings or other sources.[12] The structure of the PSID implies that these individuals were either heads of household or wives of the head when they were 31.[13] For analytical purposes having children born between 1956 and 1970 are an advantage because after the passage of the Personal Responsibility and Work Opportunity Reconciliation Act in 1996, state spending patterns became much more complex and the data on state spending became less comparable to prior

[11] We use both the SRC and the SEO samples for these estimates. The SRC sample is nationally representative of families in 1967. The SEO has an over-sample of low-income families in 1967. We weight these cases to make them nationally representative. We assigned each individual his/her core weight in the 2001 survey year. For those who attritted before 2001, we assign them the core weight from the last year they were in the PSID (Hill 1992). To link these individuals to their mothers, we use the 2001 Parent Identification File.

[12] Data prior to 1993 are final release data. Data from 1993 through 2001 are early release files. Beginning in 1997, the PSID began to alternate years to survey respondents, thus we do not have data from 1998 and 2000. Since income and earnings are reported for the previous year, our analytical sample does not include children born in 1967 and 1969.

[13] The PSID does not distinguish between fathers and mothers. Instead, it reports information on the head of the household who can be either a male or female if single. If a couple is married or co-resides, the male is considered the head and the woman, the wife of the head.

spending. These policy changes should not however affect the interpretation of our results.[14] Using individual-level longitudinal data allows us to control a wide range of family background characteristics and it allows us to measure these over several years. We do not want to control characteristics of children that might be the result of differences in state spending so, for example, we do not want to control health or disability. Of course children can vary in ways not measured in the PSID. Fortunately, while children are not randomly distributed over states, their distribution across states is much more random than their distribution across families. Thus looking at differences across states and time also helps us control unobserved child characteristics.

Our dependent variables are the total family income reported by the child in the year the child turned 30 and the number of years of education completed by the child by age 25 (complete definitions of all variables and their source are located in the Data Appendix). We inflate all monetary values to 2000 dollars using the CPI-U-X1. In addition to these outcomes, we obtain the race and ethnicity of the child, parent's income, marital status, and education level from the PSID. These are generally measured during the child's adolescence. Table 1 shows some sample characteristics.

We merge state-level data onto the individual-level PSID data. The state spending variables include total state expenditures per capita, per pupil elementary and secondary expenditures, per 18-24 year-old four-year public institutions of higher education spending, per poor person public welfare expenditures, per poor person health care expenditures, and per poor person housing and community development expenditures. Ideally we would average both family income and government spending over all the childhood years. Unfortunately that is impossible with this data. Thus, we measure parental and government investments when children were between the ages of 15 and 17. In addition we merge on other state-level data for relevant factors such as the state poverty rate, the racial composition of the state, state cost of living, per capita income, and the percentage of state residents aged 65 or older.

[14] Under most circumstances, if children growing up in higher spending states in the 1970s and 1980s got more (or less) school and earned more (or less) income as adults the same should be true in the 1990s. Possible exceptions would be if in the 1990s states reach a level of spending beyond which additional spending is not useful then estimates of the benefit of the marginal dollar estimated in the 1970s and 1980s would not hold for the 1990s. Another possible exception would be if the spending categories were dramatically different in the 1990s than in the 1970s and 1980s. For example, states spent relatively more on childcare and the state EITC in the 1990s than in the 1980s, but both expenditures were relatively small even at the end of the 1990s.

V. Results

Table 1 shows the correlations between various state expenditures during adolescence and children's eventual education and income. It also shows means and standard deviations for each variable. These are the data from our sample, so they are approximately weighted by state population, and they represent differences across states and over time. Spending varies considerably for this sample with standard deviations between two-thirds and a fifth of the mean. The correlations between some of the expenditure categories is fairly high. For example, the correlation between spending on elementary and secondary schooling and on public welfare is 0.758. Elementary and secondary schooling is the largest single category of state spending so the high correlation (r = 0.868) between total state spending and per pupil elementary and secondary school spending is not surprising. States that spend a lot on elementary and secondary schooling are often the most generous in terms of welfare benefits (r = 0.751) and health care (r = 0.703) and housing and community development (r =0.696) but not spending on post-secondary schooling (r = 0.149). Neither total state spending nor any spending category is strongly correlated with children's educational attainment or future income.

Effect of government spending.

Children's Income. Table 2 shows that with nothing controlled, a $1,000 increase in state per capita spending is associated with an increase in log child income of 0.101. The same increase in state per pupil expenditure on elementary and secondary schooling is associated with a 0.098 increase in a child's log income at age 30. State spending on public welfare, health care and housing and community development are all associated with increases in children's future income. Only spending on post-secondary schooling has little effect on future income. However, once other characteristics of states are controlled all these coefficients decrease markedly. Adding individual-level family background factors further reduces most coefficients. Only spending on housing and community development has a statistically significant coefficient with these controls. Using variation within a division in a year, reduces the coefficient for housing and community development, and it is no longer statistically significant at conventional levels. The coefficient for health care expenditures in this model, however, is negative and statistically significant. Finally, in Model 5 we remove state fixed effects as a check of robustness for the Model 4 specification. None of the spending coefficients are statistically significant in this model.

These models could be misleading about which spending categories are important because of the correlation among spending categories. The next two models include all the spending categories in the same model. In Model 6, both higher education expenditures and housing expenditures are positively related to the child's income. Health care expenditures, on the other hand, is associated with lower income. In Model 7, none of the expenditure categories is statistically significant.

State spending could have a modest effect on children's future income if it helps poor children (due to targeted spending) but hurts affluent children (due to taxes). Thus Tables 3 and 4 show these same models for the top and bottom half of the parents' income distribution. Models 4 and 5 in Table 3 show consistently that among high-income families per capita state spending is positively related to a child's income. Model 5 also shows a positive relationship between health care expenditures and income, and housing expenditures and income for high-income families. At the same time, higher education expenditures are negatively related with a child's income. Model 5 in Table 4 shows no relationship between state spending categories and a child's income for low-income families.

With the other spending categories controlled in Model 6, spending on post-secondary schooling is associated with higher future income for low-income children as is housing expenditures but spending on health is associated with lower future income. Model 7 shows no relationship between spending categories among low-income families. No spending category is associated with higher income for children raised in high-income families in Model 6, but Model 7 shows a negative relationship between higher education spending and a child's income.

Educational Attainment. Table 5 shows that with nothing controlled total state spending and all the categories of spending except spending on post-secondary schooling are statistically significantly associated with more schooling for children. Once state characteristics are controlled in Model 2, all the coefficients for spending decline and all except the coefficient for spending on housing and community development become statistically insignificant. This coefficient remains significant when individual-level covariates are included in the model. But when division and year effects and their interaction are included none of the coefficients for spending are statistically significant, although some coefficients (health care, housing and post-secondary schooling) are nontrivial in size. None of the coefficients are statistically significant in Model 5 either.

To assess whether the correlation with other spending categories is a problem, Model 6 includes all the spending categories. In this model spending on elementary and secondary schooling has a large negative coefficient and spending on post-secondary schooling and housing has a large positive coefficient. In Model 7, however, none of the point-estimates is statistically significant.

Model 6 in Table 6 shows that for high-income children spending for elementary and secondary schooling has a large negative and statistically significant effect while spending on post-secondary schooling and housing has a large positive and significant effect. However, once state fixed effects are removed (Model 7), only the positive effect of higher education expenditures is statistically significant. In fact, this positive finding for higher education spending is consistent for Models 5 through 7 and is consistent with Mayer (2002).

Table 7 does not reveal any findings that are consistent across models. Again higher education expenditures are statistically significant across models, but the sign flips from positive in the division*year fixed effects models to negative in the state fixed effects models.

Equality of Opportunity. Table 8 shows estimates of the effect of parental income on children's income at age 30. The first column shows that the elasticity of children's income with respect to parental income is 0.429. This is similar to other estimates of intergenerational mobility using the PSID and averaging parental income over several years (Chadwick and Solon 2000; Solon 1992; Solon 1999). The second column (Model 2) shows little change in the elasticity of child's income with respect to parental income once per capita total state spending is added, but that state spending is positively related to a child's income. In Model 3, we interact total state spending and parental income, our findings suggest that γ_3 is negative as expected. In other words, as state spending increases, the intergenerational correlation between parents and their children falls. Since per capita state spending is highly correlated to the interaction, we jointly tested the significance of all these two coefficients simultaneously, and they were statistically significant at the 0.01 level. In Model 4, we add the individual level and state level covariates. Neither the state measure nor the interaction was jointly significant in this model.

Discussion/Conclusion

These results do not yet provide a very consistent story about the effect of state spending on children's educational attainment and income, and we are not prepared to draw strong

conclusions about the effect of government spending on children's eventual educational attainment or income. In this analysis we have several competing concerns. First, we use both a division*year fixed effects model and a state fixed effects model. Both of these models have advantages and disadvantages. The division*year model removes potential bias created by regional specific time shocks. However, it does not address the potential bias caused by time invariant state characteristics that are different within states. The state fixed effects model removes the time invariant state factors, but can not address the region specific time shocks. These differences would be less a cause for concern if results in both models were consistent, but they were not. Compounding this issue was the high correlation between spending categories. In models with a single expenditure category, we have to be concerned that omitted expenditure categories are a source of bias. Including all of the categories simultaneously reduces the precision of our estimates due to multicollinearity.

Nevertheless, a couple of findings were consistent across specifications. First, total spending is positively related to a child's income among affluent families. Models 4 and 5 in Table 3 suggest that a $1000 per person increase in per capita state spending will increase income among the relatively affluent between 7.8 and 29.1 percent. Second, among high-income families, higher education spending is positively related to educational attainment. This finding is consistent across most of the models and with Mayer (2002) and may be explained by the failure of the children in low-income families to attend college. Spending on higher education, therefore, benefits only the relatively wealthy. Some models suggest that higher education expenditures may harm the children from low-income families because any resources devoted to higher education are unavailable in other domains, but this result was more tenuous.

Overall, our findings do indicate that the results are sensitive to what else is in the model, and they strongly suggest the possibility that states make trade-offs among spending categories such that more spending on one thing may lead to less spending on another. It also suggests the real possibility that not all kinds of additional spending benefit children. Besides the trade-offs among spending categories and remaining issues of omitted variables, the following explanations could explain why additional state spending does not benefit (and could hurt) children's educational attainment and future income.

1. **Equal effects for rich and poor children.** State spending might not improve children's outcomes if transferring resources from the rich (taxation) to the poor (redistribution)

hurts the rich as much as it helps the poor. This would not imply that investment is not important. It would imply that each dollar of investment is equally important to rich and poor children. We can assess the feasibility of this hypothesis by looking at the effect of state spending in different parts of the income distribution because it implies that state spending hurts the rich and helps the poor and that these effects offset one another.

2. **Inefficiency in state spending**. Say that for every dollar that a state spends on schooling $.90 goes to something that has little benefit for children, like bigger school swimming pools or transportation to support a busing plan. The spending would in some sense be "wasted" in terms of increasing children's educational attainment or earnings (although such spending might address legitimate political or equity concerns). Or state spending could be less efficient than parents at knowing what is good for particular children. For example, states may spend money to increase teacher quality, which is on average important. But if parents had the same amount of money to spend they could spend it in a way that met their particular child's needs. If this explanation were correct we would also expect income transfers to have a greater effect than direct provision of services by states because income transfers increase parents' income which should increase the efficiency of money spend on children, all else equal.

3. **The marginal monetary investment is not what children need.** Imagine that even the lowest spending state provided the most important inputs for educational attainment and future income that money could buy. In that case the things that would make the biggest difference to children's outcomes might be things that money can't buy like more parental attention or more (or less) structure in daily activities. In this case states that spend even more on child inputs would not improve child outcomes by much.

4. **Investment does not matter.** This is a more extreme version of number 3. Imagine that only genetic transmission or only role modeling matters for children's educational attainment and future income. Then neither state spending nor parental income would be important. They might appear to be important inasmuch as parental income is correlated to genetic factors or their quality as role models in a simple model with inadequate controls.

Data Appendix

PSID

Parental Income is averaged over the years when the child was 15 to 17 and inflated to 2000 dollars using the CPI-U-X1. Individuals must have at least two years of parental income data to remain in the sample. In principle we wish to measure parental income over a child's entire childhood. However, averaging income over such a long period would reduce the sample size to an unworkably small number. We assume that family income when children are 15 to 17 is strongly correlated with their family income when they were younger. *Source*: PSID.

Parents' marital status is an indicator variable equal to one if the child's parents were married when the child was 15. *Source*: PSID.

Child's income is total family income at age 30 for children who either head their own household or are the wives of the head of the household inflated to 2000 dollars using the CPI-U-X1. We trim the top and bottom 1 percent of the child income distribution to remove the influence of outliers. *Source*: PSID.

Child's earnings is total labor force income at age 30 for children who either head their own household or are the wives of the head of the household inflated to 2000 dollars using the CPI-U-X1. *Source*: PSID.

Child's education is the total number of years of education completed by age 25 for children who either head their own household or are the wives of the head of the household. Education levels are top-coded at 17. *Source*: PSID.

Parents' education is the number of years of education the mother completed when her child was 15-years-old. When this value was missing we used mother's education in the first available subsequent year up to the time when the child was 17. If mother's education was still missing, we used the education of the father reported when the child was 17. *Source*: PSID.

Child's Race/Ethnicity are each an indicator variable based on the report from the child's head of household in 1972 when race and ethnicity information on the parents was last obtained. For those missing information, we used the first available preceding year until 1968. *Source*: PSID.

State-Level Measures

Most of the information on government expenditures were obtained from the Census of Governments. Every five years a Census of Governments is conducted by the U.S. Bureau of the Census. The Census of Governments includes information at the federal, state, and local levels. We utilized expenditure data from the 1972, 1977, 1982, and 1987 Census of Governments to generate expenditure data in a variety of categories. For the intervening years, we interpolated using the Census data.[15]

[15] In non-Census years, the Census Bureau draws a sample of governments and collects financial data. As a test of robustness, we tested our results using the annual data in the years between censuses and found little difference in our results.

As noted below, these values serve as the numerators in several of our expenditure variables. To estimate the government investment in children, we average the per capita state expenditures values (or per poor person depending on the expenditure category) from the state within which the individual resided at ages 15 through 17.

For the denominators we either use the total state population. Our source for this data was Robert Moffitt's publicly available data: http://www.econ.jhu.edu/People/Moffitt/DataSets.html. Our data on the number of the poor come from a variety of sources. Data from 1980 through 1990 come from the U.S. Bureau of the Census, Current Population Survey, Annual Social and Economic Supplements. 1969, 1979, and 1989 data come from the U.S. Census and are located at http://www.census.gov/hhes/poverty/census/cphl162.html. Data from 1975 come from the 1975 U. S. Statistical Abstract. All intervening years were interpolated.

Total State Per Capita Expenditures is the total state expenditures divided by the state population. *Source*: numerator: Census of Governments.

Per Pupil Elementary and Secondary Expenditures is the total school expenditures per elementary and secondary pupil registered in the fall. *Source*: National Center for Health Statistics. Data located at http://nces.ed.gov/pubs98/98018/data/tab42.xls.

Per 18-24 Year-Old Expenditures on Public Four-Year Institutions of Higher Education is the total expenditures for public four-year higher education institutions divided by the population of 18-24 year-olds in the state. *Source*: National Center for Health Statistics. Numerator data located at http://nces.ed.gov/pubs98/98018/data/tab53.xls

Per capita public welfare expenditures are the total expenditures on public welfare programs divided by the number of poor in the state. Public welfare expenditures includes but is not limited to cash assistance through AFDC/TANF, SSI, Aid to the Blind, Aid to the Disabled, and Medicaid. *Source*: Census of Governments.

Per capita health care expenditures are the total expenditures for health care divided by the number of poor in the state. Health care expenditures include nursing, educational programs, immunizations, ambulance services, research, and school health services provided by health agencies. *Source*: Census of Governments.

Per capita housing expenditures are expenditures on construction and operation of housing and community development. *Source*: Census of Governments.

Percentage of the state population aged 65 and older. *Source:* Bendheim-Thoman Center for Research on Child Wellbeing and Columbia School of Social Work State Database.

Percentage of the state population African American. *Source:* Bendheim-Thoman Center for Research on Child Wellbeing and Columbia School of Social Work State Database.

Per capita state income. Source: Bureau of Economic Analysis. http://www.bea.doc.gov/bea/regional/spi/

Cost of Living Adjustment (COLA). *Source:* Berry, Fording and Hanson (2000) located at: http://ssdc.ucsd.edu/ssdc/icp01275.html

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Table 1: Correlations, Means, and Standard Deviations for Expenditure Categories

	1	2	3	4	5	6	7	8
1.Total per capita	1.00							
2. Elementary and secondary schooling per student	0.868	1.00						
3.Postsecondary schooling per 18-25 year old	0.365	0.149	1.00					
4. Public welfare per poor person	0.758	0.751	0.009	1.00				
5. Health care per poor person	0.714	0.703	0.156	0.721	1.00			
6. Housing and community development per poor person	0.648	0.698	-0.277	0.748	0.676	1.00		
7. Income at age 30	0.130	0.152	-0.010	0.131	0.140	0.157	1.00	
8. Educational Attainment	0.121	0.121	0.002	0.102	0.116	0.134	0.343	1.00
Means (SD)	3893 (845)	4553 (1042)	2463 (584)	3863 (2072)	597 (268)	467 (324)	52423 (33355)	13.00 (2.06)

Notes: All expenditures are adjusted to 2000 dollars using the CPI.

Table 2: Model of Child's Income on State Expenditures, by Category

	Total Expend.	Elem/Sec. Expend.	Higher Ed. Expend.	Public Wel. Expend.	Health Care Expend.	Housing Expend
Model 1: Expenditure only	0.101***	0.098***	-0.003	0.044***	0.341***	0.326***
	(4.41)	(5.88)	(-0.06)	(4.04)	(4.29)	(4.42)
Model 2: Add proportion of state AA, proportion of state aged 65 and older, poverty rate, per capita income and COLA	0.023	0.021	-0.006	-0.002	0.085	0.157***
	(1.02)	(0.72)	(-0.15)	(0.18)	(0.98)	(2.61)
Model 3: Add AA, Hisp, female, parents' education, parents' martial status, and parents' income (ln)	0.014	0.030	0.003	0.005	0.005	0.114***
	(0.59)	(1.06)	(0.11)	(0.53)	(0.08)	(2.25)
Model 4: Add division, year, and divison*year fixed effects	0.013	0.002	0.061	-0.012	-0.141**	0.090
	(0.44)	(0.05)	(1.20)	(-0.58)	(-1.99)	(1.56)
Model 5: Substitute state fixed effects for division and division*year	0.060	0.052	-0.065	0.034	0.102	0.022
	(0.43)	(0.60)	(-0.41)	(0.84)	(0.51)	(0.11)
Model 6: Model 4 covariates with all expenditure categories except total		-0.037	0.124*	-0.014	-0.289**	0.286***
		(-0.84)	(1.88)	(-0.56)	(-2.21)	(3.44)
Model 7: Model 5 covariates with all expenditure categories except total		0.044	-0.076	0.028	0.088	-0.08
		(0.48)	(-0.46)	(0.62)	(0.34)	(-0.34)

Notes: * p < 0.10; ** p < 0.05; *** p < 0.01; t-statistics in parentheses; all expenditures are in 1000s; Models 1-5 include a single expenditure category; Models 6-7 include all expenditure categories except the total expenditures

Table 3: Model of Child's Income on State Expenditures for Children with Parental Income above the Median, by Category

	Total Expend.	Elem/Sec. Expend.	Higher Ed. Expend.	Public Wel. Expend.	Health Care Expend.	Housing Expend
Model 1: Expenditure only	0.059	0.076***	-0.096**	0.023	0.217**	0.242***
	(1.63)	(3.67)	(-2.45)	(1.55)	(2.58)	(4.42)
Model 2: Add proportion of state AA, proportion of state aged 65 and older, poverty rate, per capita income and COLA	0.055*	0.101**	-0.064	0.012	0.215***	0.207**
	(1.80)	(2.60)	(-1.20)	(0.69)	(2.88)	(2.65)
Model 3: Add AA, Hisp, female, parents' education, parents' martial status, and parents' income (ln)	0.045	0.081	-0.058	0.013	0.176**	0.212**
	(1.26)	(2.22)	(-1.13)	(0.68)	(2.40)	(2.58)
Model 4: Add division, year, and divison*year fixed effects	0.078*	0.065	0.005	0.006	0.083	0.164
	(1.72)	(1.37)	(0.08)	(0.17)	(0.75)	(1.57)
Model 5: Substitute state fixed effects for division and division*year	0.291**	-0.009	-0.573***	0.011	0.468**	0.539**
	(2.08)	(-0.08)	(-2.81)	(0.24)	(2.09)	(2.30)
Model 6: Model 4 covariates with all expenditure categories except total		0.116	-0.064	-0.026	-0.042	0.124
		(1.37)	(-0.66)	(-0.56)	(-0.18)	(0.085)
Model 7: Model 5 covariates with all expenditure categories except total		-0.069	-0.548***	0.014	0.380	0.182
		(-0.71)	(-2.75)	(0.33)	(1.62)	(0.66)

Notes: * p < 0.10; ** p < 0.05; *** p < 0.01; t-statistics in parentheses; all expenditures are in 1000s; Models 1-5 include a single expenditure category; Models 6-7 include all expenditure categories except the total expenditures

Table 4: Model of Child's Income on State Expenditures for Children with Parental Income below the Median, by Category

	Total Expend.	Elem/Sec. Expend.	Higher Ed. Expend.	Public Wel. Expend.	Health Care Expend.	Housing Expend
Model 1: Expenditure only	0.072**	0.069**	0.091	0.035***	0.217**	0.232
	(2.19)	(2.41)	(1.65)	(2.76)	(2.02)	(1.61)
Model 2: Add proportion of state AA, proportion of state aged 65 and older, poverty rate, per capita income and COLA	-0.026	-0.060	0.097	-0.012	-0.144	0.005
	(-0.70)	(-1.21)	(1.67)	(-0.76)	(-1.11)	(0.04)
Model 3: Add AA, Hisp, female, parents' education, parents' martial status, and parents' income (ln)	-0.018	-0.025	0.061	0.001	-0.233*	0.002
	(-0.58)	(-0.55)	(1.17)	(0.06)	(-1.87)	(0.02)
Model 4: Add division, year, and divison*year fixed effects	-0.029	-0.041	0.141**	-0.035	-.483***	-0.063
	(-0.75)	(-0.80)	(2.35)	(-1.50)	(-4.70)	(-0.65)
Model 5: Substitute state fixed effects for division and division*year	-0.060	0.087	0.129	0.040	0.068	-0.190
	(-0.28)	(0.65)	(0.61)	(0.58)	(-0.22)	(-0.66)
Model 6: Model 4 covariates with all expenditure categories except total		-0.087	0.275***	-0.010	-0.623***	0.255**
		(-1.17)	(3.70)	(-0.26)	(-3.62)	(2.47)
Model 7: Model 5 covariates with all expenditure categories except total		0.067	0.093	0.034	-0.043	-0.209
		(0.50)	(0.43)	(0.41)	(-0.11)	(-0.57)

Notes: * p < 0.10; ** p < 0.05; *** p < 0.01; t-statistics in parentheses; all expenditures are in 1000s; Models 1-5 include a single expenditure category; Models 6-7 include all expenditure categories except the total expenditures

Table 5: Model of Child's Education on State Expenditures, by Category

	Total Expend.	Elem/Sec. Expend.	Higher Ed. Expend.	Public Wel. Expend.	Health Care Expend.	Housing Expend
Model 1: Expenditure only	0.294***	0.240***	0.007	0.100**	0.917***	0.851***
	(4.72)	(4.83)	(0.05)	(2.65)	(4.45)	(6.49)
Model 2: Add proportion of state AA, proportion of state aged 65 and older, poverty rate, per capita income and COLA	0.178	0.082	0.070	0.019	0.547	0.580***
	(1.63)	(0.62)	(0.53)	(0.29)	(1.83)	(3.49)
Model 3: Add AA, Hisp, female, parents' education, parents' martial status, and parents' income (ln)	0.143	0.095	0.023	0.024	0.323	0.436***
	(1.36)	(0.79)	(0.23)	(0.45)	(1.16)	(2.18)
Model 4: Add division, year, and divison*year fixed effects	0.172	0.074	0.273	0.023	0.331	0.481
	(1.66)	(0.55)	(1.51)	(0.37)	(1.11)	(1.56)
Model 5: Substitute state fixed effects for division and division*year	-0.228	-0.146	-0.221	0.100	0.208	-0.849
	(-0.71)	(-0.52)	(-0.58)	(0.92)	(0.47)	(-0.91)
Model 6: Model 4 covariates with all expenditure categories except total		-0.273*	0.453**	-0.041	0.140	0.722*
		(-1.97)	(2.50)	(0.060)	(0.37)	(1.96)
Model 7: Model 5 covariates with all expenditure categories except total		-0.068	-0.303	0.102	0.427	-1.257
		(-0.23)	(-0.76)	(0.80)	(0.98)	(-1.32)

Notes: * p < 0.10; ** p < 0.05; *** p < 0.01; t-statistics in parentheses; all expenditures are in 1000s; Models 1-5 include a single expenditure category; Models 6-7 include all expenditure categories except the total expenditures

Table 6: Model of Child's Education on State Expenditures for Children with Parental Income above the Median, by Category

	Total Expend.	Elem/Sec. Expend.	Higher Ed. Expend.	Public Wel. Expend.	Health Care Expend.	Housing Expend
Model 1: Expenditure only	0.201*	0.188**	-0.191***	0.054	0.380	0.556**
	(1.85)	(2.33)	(-2.84)	(1.18)	(1.10)	(2.54)
Model 2: Add proportion of state AA, proportion of state aged 65 and older, poverty rate, per capita income and COLA	0.174	0.113	-0.022	0.041	0.357	0.378
	(1.58)	(0.79)	(-0.16)	(0.74)	(0.90)	(1.49)
Model 3: Add AA, Hisp, female, parents' education, parents' martial status, and parents' income (ln)	0.084	-0.031	0.056	0.008	0.142	0.235
	(0.63)	(-0.17)	(0.39)	(0.13)	(0.32)	(0.70)
Model 4: Add division, year, and divison*year fixed effects	-0.049	-0.185	0.093	-0.127	-0.030	0.306
	(-0.30)	(-0.95)	(0.36)	(-1.43)	(-0.06)	(0.85)
Model 5: Substitute state fixed effects for division and division*year	0.255	-0.292	1.720**	0.117	-0.434	-2.535***
	(0.48)	(-0.85)	(2.36)	(0.65)	(-0.64)	(-2.62)
Model 6: Model 4 covariates with all expenditure categories except total		-0.537**	0.606***	-0.151	0.138	1.001**
		(-2.25)	(2.79)	(-1.47)	(0.19)	(2.56)
Model 7: Model 5 covariates with all expenditure categories except total		-0.128	1.516**	0.116	0.241	-2.257
		(-0.37)	(2.07)	(0.62)	(0.28)	(-1.42)

Notes: * p < 0.10; ** p < 0.05; *** p < 0.01; t-statistics in parentheses; all expenditures are in 1000s; Models 1-5 include a single expenditure category; Models 6-7 include all expenditure categories except the total expenditures

Table 7: Model of Child's Education on State Expenditures for Children with Parental Income below the Median, by Category

	Total Expend.	Elem/Sec. Expend.	Higher Ed. Expend.	Public Wel. Expend.	Health Care Expend.	Housing Expend
Model 1: Expenditure only	0.165**	0.127**	0.138	0.063	0.704***	0.650***
	(2.17)	(2.10)	(0.86)	(1.59)	(2.97)	(4.46)
Model 2: Add proportion of state AA, proportion of state aged 65 and older, poverty rate, per capita income and COLA	0.139	0.051	0.253	0.015	0.680*	0.492
	(1.20)	(0.39)	(1.47)	(0.22)	(1.72)	(2.20)
Model 3: Add AA, Hisp, female, parents' education, parents' martial status, and parents' income (ln)	0.157	0.148	0.073	0.016	0.568*	0.538***
	(1.59)	(1.51)	(0.44)	(0.26)	(1.73)	(2.83)
Model 4: Add division, year, and divison*year fixed effects	0.348***	0.285**	0.562**	0.158**	0.906**	0.743**
	(2.81)	(2.09)	(2.39)	(2.30)	(2.56)	(2.27)
Model 5: Substitute state fixed effects for division and division*year	-0.336	-0.043	-0.852**	0.099	1.128	0.483
	(-0.73)	(-0.15)	(-2.52)	(0.79)	(1.61)	(0.37)
Model 6: Model 4 covariates with all expenditure categories except total		-0.277	0.621**	0.031	0.508	0.522
		(-1.36)	(2.09)	(0.32)	(0.94)	(1.30)
Model 7: Model 5 covariates with all expenditure categories except total		0.067	-0.820**	0.065	1.012	-0.531
		(0.20)	(-2.05)	(0.49)	(1.42)	(-0.41)

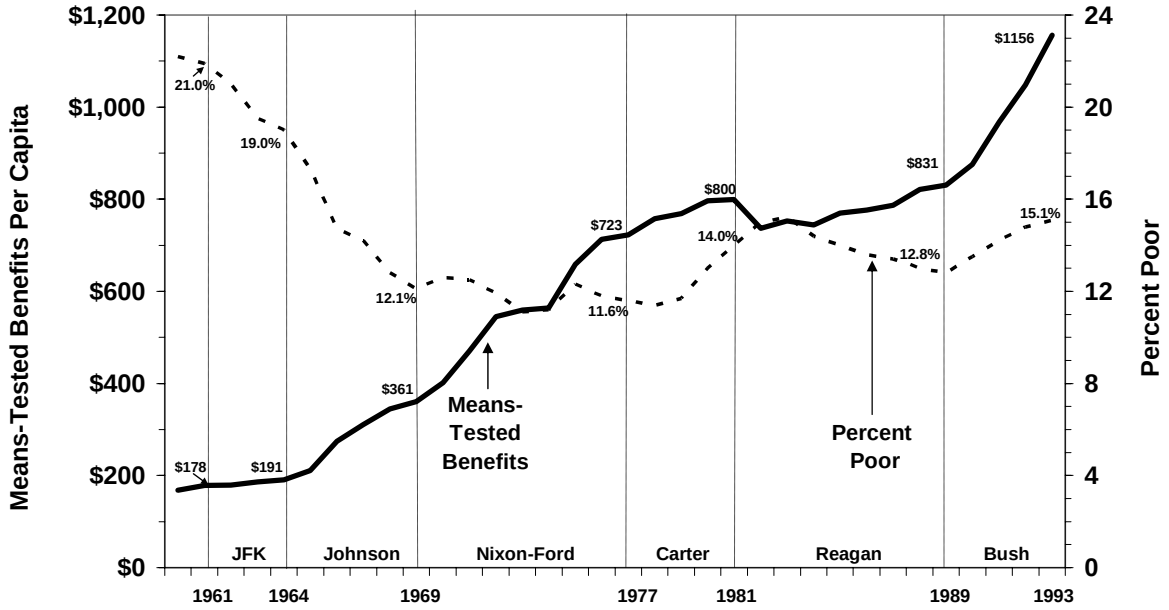
Notes: * p < 0.10; ** p < 0.05; *** p < 0.01; t-statistics in parentheses; all expenditures are in 1000s; Models 1-5 include a single expenditure category; Models 6-7 include all expenditure categories except the total expenditures

Table 8: OLS Regression coefficient for log parental income predicting log of children's family income at age 30 years, Full Sample.

Model	Model 1	Model 2	Model 3	Model 4
Parental income (ln)	0.429	0.418	0.472	0.185
	(13.69)	(13.97)	(2.58)	(1.34)
Adding total spending	-	0.055	0.209[a]	-0.109
		(3.44)	(0.37)	(-0.28)
Adding total spending*ln parents' income	-	-	-0.014[a]	0.011
			(-0.27)	(0.31)

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; [a] jointly significant at the 1 percent level

Figure 1.1: Official Poverty Rate and Per Capita Government Spending on Means-Tested Benefits in 1993 Dollars: 1960-1993



Sources: Government outlays from data assembled by Gary Burtless of the Brookings Institution. Poverty rates from US Bureau of the Census, "Poverty in the United States, 1997," *Current Population Reports* , P60-201, Washington, 1998.

Source: Christopher Jencks