# ACCESSIBILITY OR ACCOUNTABILITY? THE RHETORIC AND REALITY OF NO CHILD LEFT BEHIND

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## ABSTRACT

*Can school choice and school accountability truly leave no child behind? Politically and socially popular beliefs in the power of the free market have led to a movement towards accountability and quality assurance that relies on the powers of competition. The No Child Left Behind Act (NCLB) promotes the idea that competition between schools will increase the efficiency and effectiveness of the education system. At the same time, the rhetoric of NCLB maintains the progressive message of the "Common School" era. Specifically, the forms of school choice and school accountability are at odds with the concept of universal provision of education outlined in the verbiage and title of NCLB. This article employs a model of an education production function to explore the dichotomy existing between the rhetorical intent and practical implications of the NCLB. The analysis centers on the classic efficiency/equity trade-off to show that NCLB is leading to an educational environment attempting to reach two conflicting and incompatible goals. Federal, state, and local policymakers must confront this incompatibility in order to design a policy that reflects the values most preferred by society.*

*The cultural faith in the power of free market competition has led to a movement towards accountability and quality assurance in the provisioning of education. The No Child Left Behind Act of 2001 (NCLB) promotes the idea that competition between schools will increase the efficiency and effectiveness of the education system. At the same time, the rhetoric of NCLB maintains the progressive message of the "Common School" era. The competitive aspects of school choice and school accountability are at odds with the concept of universal provisioning of education outlined in the verbiage and title of NCLB.*

*This article employs economic theory to explore the dichotomy existing between the rhetorical intent and practical implications of the NCLB. The analysis centers on the classic efficiency/equity trade-off and shows that NCLB creates an educational environment deadlocked in a battle with itself over how to reach two conflicting and incompatible goals.*

# AMERICAN CULTURAL VALUES OF EDUCATION

The idea that all children in the United States have the right to a publicly supported education regardless of race, social class or religious beliefs is an American value. Not only access to a public education, but the expectations of a common educational experience, is part of the American culture. This common school idea is based on the view that education should be an equitable, assimilative, and inclusive institution designed to prepare students to be future productive citizens (Meyer, 2006).

The development of the common school ideal has its roots in the nineteenth century rural, one room school house (Pulliam and Van Patten, 1999). These schools were funded by local property taxes, free to all (white) children, and governed by the local communities with little state regulation. Schools and the education students received were seen as products representing the community. Today public schools are still financed through local property taxes (although states, and to a lesser extent the federal government, do provide funding), are still open to all (all) students and governed by local school boards. And, not unlike the nineteenth century school, today's public school is seen as a representation of the community. Arguably, the public school is more locally entrenched and community based than any other economic, social, or political institution.

While historians date the end of the common school era in the United States at the end of the nineteenth century, the common school ideal remains. The rhetoric of twentieth century education policy, through Supreme Court decisions and federal legislation, reiterates the importance of attempting to achieve social equity through public education. The history of American education is rife with changes; changes in the role of the Federal government, in curriculum, in funding, in assessment, just to name a few. However, the common theme, at least in the rhetoric, is that public education in America provides all children with a "level playing field".

The 1954 Brown *v*. Board of Education decision reiterates the importance of the common school ideal as an American value. The court found the separate but equal clause of the Plessy *v*. Ferguson case in violation of the 14th Amendment. In their decision, the court made clear the importance of equality in public education, equality for all. Writing the Court's opinion, Chief Justice Warren stated:

> Today, education is perhaps the most important function of state and local governments. Compulsory school attendance laws and the great expenditures for education both demonstrate our recognition of the importance of education to our democratic society. It is required in the performance of our most basic public responsibilities, even service in the armed forces. It is the very foundation of good citizenship. Today it is a principal instrument in awakening the child to

cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment. In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms (Brown *v*. Board of Education, 347 U.S. 483 , 1954).

Another Supreme Court decision, which further illustrates the common school ideal as a fundamental aspect of the American character comes from the 1963 Abbington School District *v*. Schempp case. Justice Brennan, writing a concurrence to the court's opinion, stated:

> It is implicit in the history and character of American public education that the public schools serve a uniquely public function: the training of American citizens in an atmosphere free of parochial, divisive, or separatist influences of any sort - an atmosphere in which children may assimilate a heritage common to all American groups and religions (Abbington School District v. Schempp, 372 U.S. 241, 1963).

The most expansive Federal legislation regarding public education was the Elementary and Secondary Education Act (ESEA) of 1965. This legislation was a major component of President Johnson's "War on Poverty". Congress has reauthorized ESEA eight times since 1965, the No Child Left Behind Act of 2001 was one such reauthorization of ESEA. The most significant provision of ESEA is Title I. Title I provides funds to school districts with high concentrations of economically disadvantaged children. Title I's statement of purpose reads:

> The purpose of this title is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments (No Child Left Behind Act of 2001, Title I).

Again, the common school ideal remains in the rhetoric of the most important piece of Federal legislation regarding public education. Title I reflects the Federal government's commitment to equality for all, in this case, through funding.

While the common school ideal remains an important American cultural value, another important American cultural value, freedom, has become a part of the discussion of public education. (Bartlett, Frederick, Gulbrandsen, and Murillo, 2002) Regarding public education, freedom is realized through school choice. The ability of parents to decide what school their children will attend is freedom extended to education. The momentum of choice over the past few decades has been so pervasive that most parents now take choice for granted. While

historically freedom has always been an important aspect of the American culture, freedom as reflected in public school choice is a relatively new phenomenon. There is an extensive history of private school education in the United States and parents have historically "chosen" schools by locating their household in a certain city or neighborhood. However, intra-district open enrollment, inter-district open enrollment, charter schools, and home schooling as public school choice options only began entering state policy at the end of the 1980s (Colvin, 2004).

NCLB legislated school choice at the Federal level. Regarding the array of choices for parents under NCLB, the U.S. Department of Education website states:

> The *No Child Left Behind Act* provides new education options for many families. This federal law allows parents to choose other public schools or take advantage of free tutoring if their child attends a school that needs improvement. Also, parents can choose another public school if the school their child attends is unsafe. The law also supports the growth of more independent charter schools, funds some services for children in private schools, and provides certain protections for homeschooling parents. Finally, it requires that states and local school districts provide information to help parents make informed educational choices for their child (No Child Left Behind Act of 2001).

Title V of NCLB requires local school districts to provide parents with information so that they may make well-informed decisions regarding what school to send their children. Much of the information parents receive is also legislated by NCLB in Title VI. NCLB requires states to administer standardized tests to assess student achievement. The results of these tests are typically aggregated at the school level. While different states have different tests and different formats to present information to the public regarding student achievement, the information parents receive is used as a measure of how well students at a specific school are performing.

The intent of NCLB regarding school choice and accountability is clear: provide information to parents regarding the performance of the school their child is attending (using a variety of metrics), as well as performance information regarding other schools their child *could* be attending. NCLB has, therefore, created a basis and framework for competition between schools. Parents look primarily at the test scores of students at various schools to see which school is the performing the best (based on higher test scores), and for many parents the scores will influence their choice of schools. Assessment and accountability drive choice. Choice is freedom; a very central American value.

The most far-reaching impacts of NCLB on the public education landscape are the Federal mandates to state governments regarding: the assessment of student achievement through standardized testing (assessment); the provision of information regarding student/school performance (accountability); and introduction of legislation that provides parents with options regarding which school their children may attend (choice). Can the ideal of the common school

be maintained within this context of assessment, accountability, and choice?   This is the fundamental question studied in this paper.

## ECONOMIC NATURE OF EDUCATION

Economists have long discussed the dichotomous nature of the public and private sectors and therefore the realms in which each should engage.  Further, there has been much discussion regarding where the line separating the two realms should be drawn.  It is the spirit of those discussions that leads the following debate regarding the nature of public education as a good.

In pure economic terms, private goods are those that the private or for-profit sector of the economy willingly produces since that production offers opportunity to earn profit.  These goods exhibit two defining traits within their nature:  rivalry and excludability.  Rivalry arises when the consumption of the good by one patron decreases the remaining supply of that good for other patrons.  Excludability arises when a patron is prevented from receiving benefits from the good if they have not paid for the privilege.  Within the context of these defining traits, education is a private good:  it is rival (one additional student within the classroom will decrease the amount of personal attention received by other students in that same classroom) and excludable (if you have not paid the school's tuition, you may not attend).  In the context of this simple definition, the provision of education should lie in the realm of the private sector.  However, it is often argued that education generates positive externalities, thereby justifying public involvement in correcting the market failure.  Much of the historical intent of the "common school" and subsequent judicial and legislative actions regarding the importance of education to the proper functioning of society reflect the externalities resulting from education.

In addition to the externality issue that leads to public sector intervention, there also arise issues related to the "proper" distribution of educational opportunities.  As discussed in the previous section, education, to Americans, has not been a commodity that is available only to those with the means and the will to pursue it.  Public education is funded primarily through the taxation of real property; and property ownership is highly correlated with higher levels of wealth.  Providing educational opportunities to children of non-property owner families basically involves a redistribution of income.

In his seminal work, *Equality and Efficiency: The Big Tradeoff*, economist Arthur Okun describes inefficiencies associated with redistributive activities in terms of a "leaky bucket", wherein he states that when transferring income from wealthy individuals to poorer individuals, a portion of the income is lost in the process.  The reasons for the leaky bucket as identified by Okun, include administrative costs associated with the redistribution and behavioral changes induced by the redistribution.  These behavioral changes impact work effort; savings and investment decisions; and attitudes and motivations toward acquiring human capital (Okun, 1975).  The value that society places on a more equitable distribution is illustrated by their willingness to forgo some level of efficiency to achieve it.

## THEORY

In this section, we formally model the trade-off between equity and efficiency in education. Stigliz (1974; 2000) argues that the gain from education can be measured in terms of productivity. Admittedly, there are many benefits from education beyond its effect on productivity, but it is instructive to begin by restricting the model to a one-dimensional outcome measure. Other outcomes, and how they relate to the efficiency/equity trade-off, are discussed in later sections.

Stiglitz (1974) defines the education production function for student $i$ as $\theta_i m(x)$, where $\theta_i$ measures the difference in ability across individuals and $m(x)$ is a function mapping a level of education spending, $x$, into a given level of productivity. It is assumed that there are positive but diminishing returns to education spending throughout, i.e., $m' > 0$ and $m'' < 0$.

Stiglitz's formulation allows only for differences in the marginal effect of education on productivity. We add a "shift" parameter, $\alpha_i$, to allow for differences in the initial level of productivity for an individual who has no formal education. Specifically, our production function is $\alpha_i + \theta_i m(x)$, where $m(0) = 0$. Both the initial advantage and the marginal advantage may be due to either innate or environmental factors (or a combination of both).

In later work, Stiglitz (2000) discusses the trade-off inherent in the allocation of a fixed level of education spending. He defines "compensatory education" as that level of spending for which productivity is equalized across the groups. Compensatory education requires spending a larger proportion of the fixed education dollars on the "less able" individuals, in order to compensate them for their less advantageous starting point.

Compensatory education relies on an outcome-based assessment of student achievement, specifically measured in productivity, and does not address the equality of pedagogical quality (or educational inputs) used to achieve that level of productivity. The distinction between compensatory education and equalization of education expenditure is important. As Stiglitz observes, either of these measures may be viewed as the equitable policy. The difference between these two views is based on whether one believes government should attempt to equalize inputs (expenditure) or outputs (achievement). While we do not take a direct stance on which is a better measure, we do note that NCLB's Title VI focuses on accountability, which in practice has employed outcome based measurements of student achievement to assess school quality. It is our contention therefore that the goal of Title VI is to ensure some minimum degree of compensatory student achievement. Stiglitz does argue that under certain conditions (which we make more explicit below), there exists a trade-off between efficiency (defined as maximum output when summing over all students) and either measure of equity.

For simplicity, we restrict our analysis to two types of individuals, who we call "A" and "B." We assume that type "A" has an advantage over type "B" due to natural, familial, and/or environmental differences. This advantage may manifest itself through differences the initial

level of productivity, $\alpha_A > \alpha_B$, or through differences in the marginal productivities, $\theta_A > \theta_B$ , or both. We assume, without loss of generality, that $\alpha_A = \alpha \geq 0$ and $\alpha_B \equiv 0$ throughout the analysis, meaning that type "A" may be able to achieve a positive level of productivity in the absence any educational spending and group "B" always requires some minimum amount of spending to achieve a positive level of productivity.

## EQUITY AND EFFICIENCY CONDITIONS

*Compensatory Education:* The first condition of interest is the compensatory level. In this case, spending must ensure equal productivity across groups. Letting $A^c$ and $B^c$ be the compensatory spending levels for groups A and B, respectively, the required condition for compensatory education is:

$$\alpha + \theta_A m \left( A^c \right) = \theta_B m \left( B^c \right) \tag{1}$$

*Equal Expenditure:* The equal expenditure condition simply requires that spending is the same for each group. Letting $A^e$ and $B^e$ represent these levels, the condition is:

$$A^e = B^e \tag{2}$$

*Efficiency (Pareto Optimality):* Efficiency requires that funds are spent so as to maximize total productivity summed across both types. Let $G$ be total government expenditures on public education. Since the model is formulated in terms of education spending, one additional dollar spent on group A means one less dollar spent on group B. In other words, the slope of the education "budget line" is -1. Thus we have:

$$\max_{A,B} \left( \alpha + \theta_A m(A) + \theta_B m(B) \right) \ s.t. \ A + B \leq G$$

The Lagrangian function is:

$$L = \alpha + \theta_A m(A) + \theta_B m(B) + \lambda(G - A - B)$$

The first order conditions (assuming all allocated money is spent) are:

$$\theta_A m'(A) - \lambda = 0$$

$$\theta_B m'(B) - \lambda = 0$$

$$G - A - B = 0$$

Thus, the key condition needed for efficiency is:

$$\frac{\theta_A m'(A^o)}{\theta_B m'(B^o)} = 1 \tag{3}$$

where $A^o$ and $B^o$ are the Pareto Optimal levels of spending on groups A and B, respectively.

## COMPARISON OF SPENDING LEVELS

We now compare these spending levels under different assumptions in order to show the conditions under which the efficiency and equity goals of NCLB are incompatible. In each of the figures below, three representative isoquants are shown. Each isoquant represents all combinations of spending on groups A and B that results in equal social productivity.

Each figure also shows the "compensatory path," the "efficiency path," and the "equal expenditure path". The compensatory path connects the combinations of spending on each group needed to achieve equal total productivity, while the efficiency path connects the efficient spending combinations. The equal expenditure path is the 45-degree line. Note that total productivity summed over all students rises as we move along any of the three paths.

We consider three cases: a baseline case, in which both groups are identical; the case in which group A has a higher initial productivity ($\alpha > 0$); and the case in which group A has a higher marginal productivity ($\theta_A > \theta_B$). The situation in which group A has an advantage in both the initial and marginal productivities is simply an aggregate of the previous two.

*Baseline Case:* The baseline case is established by assuming the two groups are identical: $\alpha = 0$ and $\theta_A = \theta_B = \theta$. In this case, it is easy to see that spending levels coincide for all three conditions. Since the functions are the same, using equal spending for each group [condition (2)] equalizes total productivity [condition (1)] and also ensures the ratio of the marginal products equals 1 [condition (3)]. This case, shown in Figure 1, is useful for understanding how the conditions diverge once the assumption of identical groups is relaxed.
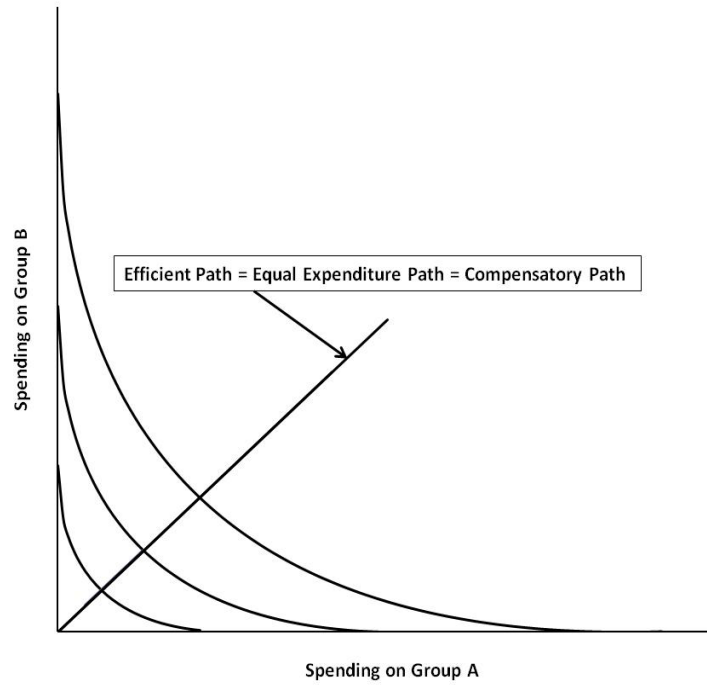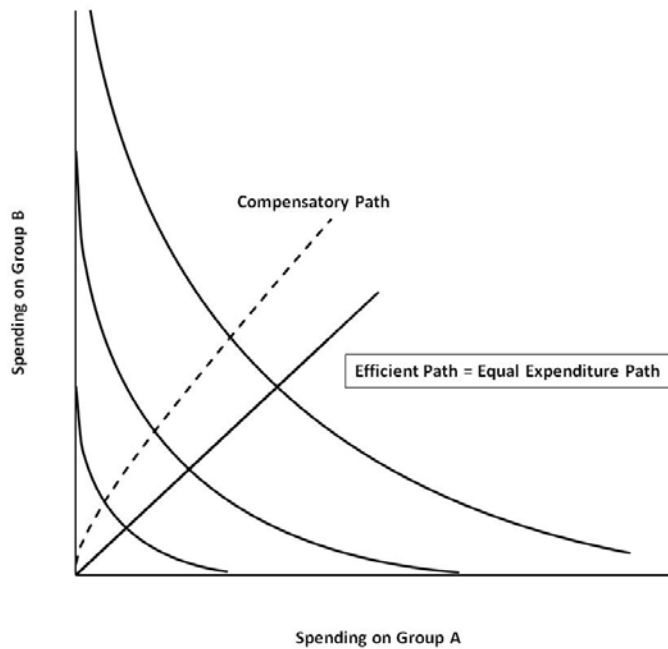
**Figure 1: Both groups are identical**

Spending on Group B

Efficient Path = Equal Expenditure Path = Compensatory Path

Spending on Group A

**Figure 2: Group A has higher initial productivity**

Spending on Group B

Compensatory Path

Efficient Path = Equal Expenditure Path
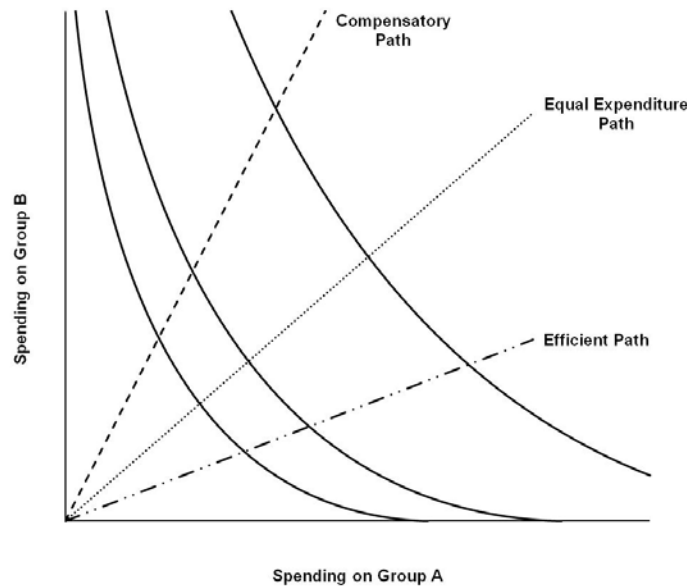
Spending on Group A

*Case I:* The first case of interest assumes the two groups have the same marginal productivity, but group A has a higher initial productivity level: $\alpha > 0$ and $\theta_A = \theta_B$. In this case, the isoquants are shifted outward compared to the baseline case (because the same level of total spending results in higher total productivity summed over all students) but the slopes of the isoquants remain the same (because the ratios of marginal productivities are still equal). However, compensatory education will require more spending on group B in order for them to "catch up" to group A. Indeed, this is where the term "compensatory" comes from. Spending thereafter must remain higher for group B to keep the total productivity levels of the two groups equal. Thus, the compensatory path lies above the equal expenditure path. Since the marginal productivities of the two groups remain constant, the efficient path and the equal expenditure path still coincide. This is shown in Figure 2 above.

*Case II:* Another case of interest arises from the assumption that the two groups have the same initial productivity level, but the marginal return to education is higher for group A, that is: $\alpha = 0$ and $\theta_A > \theta_B$.

The first thing to note is that $\theta_A > \theta_B$ implies that the isoquants will be steeper than in the baseline case because the marginal rate of substitution is $\dfrac{\theta_A m(x)}{\theta_B m(x)} = \dfrac{\theta_A}{\theta_B} > 1$. This is shown in Figure 3.

**Figure 3: Group A has higher marginal productivity**

Also shown in Figure 3 are the three paths of interest. As can be seen from condition (1), compensatory education will again require spending more on group B, the disadvantaged group. In this case, the compensatory path intersects the origin because we assume that only the marginal productivities differ: the initial productivities are equal in this case. The compensatory path is also steeper than the equal expenditure path for two reasons: (1) group B initially has lower marginal productivity than group A, and (2) there are diminishing returns to education, so it takes more and more additional spending on group B relative to group A to achieve equal productivity levels for each group.

Alternatively, efficiency requires that more be spent on group A in this situation. This is clear from condition (3), which requires that $m'(A^o) < m'(B^o)$ when $\theta_A > \theta_B$. Recalling our assumption that there are diminishing returns to education, $m'' < 0$, the optimal level of spending on group A must be higher than the equal spending level while the spending on group B must be lower, that is, $A^o > B^o$.

This clearly illustrates the trade-off between equity and efficiency. In both Case I and Case II, compensatory education requires a higher level of spending on group B relative to group A than would be efficient. If the two cases were to be combined, meaning that group A had an advantage in both parameters, this divergence is amplified. Thus, if compensatory education is used as the metric of equity, it is impossible to achieve equity and efficiency simultaneously. Note that if there are marginal differences, then even equality of spending is inefficient. Thus, the desired objectives of NCLB are inherently mutually exclusive.

## RESULTS AND DISCUSSION

The analysis presented has shown that the objectives set forth in NCLB are ultimately incompatible; that the ensuing tradeoff between equality and efficiency makes creation of a policy that meets all of our cultural goals virtually impossible. Embedded within the American culture are the ideals of individual freedom and equal opportunity for all. To fully implement these ideals and truly realize the full extent of these convictions we, as a society, must closely examine and define the associated implicit parameters and prioritize these in the formation of policy which can strike a balance or compromise.

Much of the controversy within the current education debates have to do with the level of the contents of Okun's bucket and more specifically, how to measure the flow rates that affect the bucket's level. That is, how much is gained by investing in less-advantaged children compared to the loss resulting from redistribution? Explicit costs associated with education are easy to track but the implicit external benefits that accrue to society are much harder to assess. Blank (2002, p. 464) states, "when all children are in mandatory public schooling it is hard to measure the effects relative to a world with no public schooling, to determine the long-term returns on public school dollars."

## CONCLUSIONS

The No Child Left Behind Act attempts to achieve both equity and efficiency but we have shown it cannot do both.  The desire of the policymakers who developed NCLB to capture both American ideals is admirable but it is important for stakeholders (e.g., policymakers, education officials, and parents) to confront this dilemma honestly, so that an appropriate balance can be struck.  This balance can only be found by conscientiously acknowledging the trade-off and by understanding both the short-run and long-run consequences that result.

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