

The Economic Rationale For Investing in Children: A Focus On Child Care:

Appendix C

Public Investment in Education: Lessons for Child Care Policy

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Abstract

The dramatic increase in labor market participation of married women and single parents with young children has led to a considerable expansion in day care and other early education programs. Widespread concern that many children attend low quality day care centers or preschools has led to a call for substantial funding increases and a much more active government role in regulating these sectors. The widely held belief that readiness to learn upon entering kindergarten is a key to future academic performance for economically disadvantaged children has only added to the demand for better early education.

This paper draws from the experiences of elementary and secondary education in the U.S. to consider the rationale for government intervention in childcare and early education as well as the desirability of specific policies. Section II considers the rationale for government intervention in the elementary and secondary education sector and the relevance of these arguments for early education. It focuses on issues of market failure, equality of opportunity and protection of minors. Section III turns to a review of the

evidence on the determinants of school quality. Though there is evidence that resources such as smaller classes improve the rate at which some students learn, the primary determinant of school effectiveness is the quality of instruction. Importantly, the majority of the variation in teacher quality is not explained by differences in salary, teacher education or other factors that lend themselves to simple government interventions. The final section offers a number of policy recommendations based upon the evidence from research on public schools. It emphasizes the importance of instructional quality and the lack of success that public schools have had in trying to procure better teaching simply by raising requirements that prospective teachers must meet. The section also highlights the dynamic nature of the education sector, in particular the need to learn from experience.

I. Introduction

A guiding principle behind President George W. Bush's education policy is that "no child should be left behind," and Congress is currently formulating legislation to assist and place additional pressure on failing schools to raise their level of performance. This commitment is well placed because of the dramatic increase in the economic penalty for poor quality schooling. Murphy and Welch (1992), Levy and Murnane (1992) and many others document the substantial increase in the return to both years of schooling and school quality during the latter part of the 20th century.

Yet despite numerous education reforms and the expenditure of substantial resources, the view that the public schools can be prodded and helped to succeed in providing at least a basic education for all children seems rather farfetched. In a recent New York Times Magazine article, Traub (2000) raises doubts about the ability of schools to lift disadvantaged children out of poverty. He argues that even the most ambitious school reforms are unlikely to produce dramatic improvements in student performance "in the face of the kind of disadvantages that so many ghetto children bring with them to the schoolhouse door, and return to at home." To Traub, the popularity of school reform as a solution to the problem of poverty emanates in part because "school reform involves relatively little money, asks practically nothing of the nonpoor and is accompanied by the enabling sensation that comes from expressing faith in the capacity of the poor to overcome disadvantage by themselves."

Though Traub refers to myriad disadvantages, perhaps the most important concern is the readiness of children to learn upon entering public school at age five or six. Importantly, the government role in early childhood care and education is far less intensive than in elementary and secondary education. Perhaps the most active involvement is through State Departments of Children and Family Services, where these often understaffed and overburdened agencies attempt to identify and rectify the most egregious cases of child abuse and neglect.

This raises the important question of why those arguments that justify government regulation, finance, and provision of elementary and secondary education have not been applied to the preschool years. Importantly, not all forces for change push greater government involvement. To the contrary, the rise in home schooling, expansion of charter schools and growth of voucher programs all demonstrate movements toward less government intervention along a number of dimensions.

In this paper consideration is given to the experience of government involvement in elementary and secondary education in order to provide another perspective from which to examine government early education policies. Section II describes the standard issues that enter the debate over the appropriate government role in education. Section III reviews the evidence on the determination of school quality and the productivity of investments in elementary and secondary education. This section emphasizes the determinants of teacher quality and the returns to smaller classes and other expenditures, focusing on economically disadvantaged students. The final section offers a number of policy recommendations for

early education based on the experiences from elementary and secondary schooling. Reaching a consensus that the private sector fails to provide the optimal quantity of education along a number of dimensions does not imply that government intervention will be beneficial. Any regulations or investments must be made with great care and a commitment to evaluation and learning from experience.

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II. Rationale for Government Role in Education

The various levels and branches of governments have played quite active roles in the financing, attendance patterns, content, and other aspects of education in the United States. States mandate the minimum age at which children may drop out, the maximum age by which students must begin attending school, the number of days students must attend school per year, and a variety of requirements and regulations that must be met by schools and teachers. States also provide a substantial portion of education funding, though there exists wide variation from state to state. While playing a less active role, the federal government has promoted school integration and appropriate education for students with disabilities through both legislation and court decisions. It has devoted resources to the education of disadvantaged children. Finally, local jurisdictions not only provide much of the funding, but they also have the primary governance responsibilities over elementary and secondary education.

Constitutional provisions form the basis for much of the state and federal government actions with regards to education. The Supreme Court ruling striking down the tenet of separate but equal as it applies to education (*Brown v. Board of Education*, 1954), court imposed school finance reform based on state constitutional guarantees of an adequate schooling, and a number of other interventions emanate from constitutional protections⁽¹⁾. Rather than exploring the details of these constitutional issues and their applications to K thru 12 schooling, this paper focuses on the more abstract economic arguments regarding the appropriate roles of government in the education sector. These include the by now standard issues of market failure, distribution and protection of minors⁽²⁾. Subsequently, there is discussion of their relevance to childcare and preschool.

A. Market Failure

Why would family decisions regarding investments in education diverge from socially optimal allocations? One answer is that education is not a purely private good, in that there are benefits from schooling above and beyond those that accrue to students and their families. Education may promote social cohesion, reduce crime and welfare, foster a more active and productive democracy, and improve other factors for which the value to society exceeds the value to students. However, in the absence of government intervention, families would seek to maximize private welfare and would presumably consider only the private aspects of the return to schooling. This might lead to under investment in years of schooling or school quality, and perhaps more importantly, to under investment in the external benefits of schooling at the expense of factors more closely linked with private benefits.

A second source of market failure is inadequate information regarding school quality. Families, particularly immigrant families who face language barriers, may have a very difficult time sorting schools on the basis of quality. Of course schools produce a number of outcomes, and there is little agreement over how to separate the contributions of schools from the myriad other factors that affect achievement and other school products. Consequently, while information on test scores, absenteeism and other quality indicators can be disseminated, their association with actual differences in school

effectiveness is often weak.

A third potential source of market failure is monopoly power. Consider a rural area in which there are only enough students to fill a single school. There is no reason to believe that a profit maximizing firm would provide an appropriate quality of schooling. In fact much criticism of public schools focuses on the problems created by their virtual monopoly in many areas⁽³⁾.

B. Equity and Fairness

While there is considerable debate over the relative importance of external versus private benefits of schooling, there is much more consensus over the notion of equality of educational opportunity. The lack of material resources should not deprive children of the opportunity to acquire human capital and scale the social and economic ladder. Certainly there is disagreement over the interpretation of equality of opportunity and the extent of redistribution justified by this principle, but the basic tenet that all children deserve access to a quality education underlies the notion of meritocracy and the fairness of the ensuing distribution of wealth.

C. Protection of Minors

A final justification for government intervention is the protection of minors. Some parents might choose to put children to work at a young age, while others might exhibit very little interest in their development. Just as a lack of resources should not limit educational opportunity, parental preferences or indifference also should not limit educational options. By mandating school attendance, limiting child employment and regulating public schools, government takes an active role in the determination of both the quantity and quality of schooling.

D. Implications for Child Care and Preschool

Many of the arguments in support of government intervention in the realm of elementary and secondary schooling also apply to earlier ages, though the details may differ somewhat. Consider first issues related to market failure. If readiness for first grade is a primary determinant of school performance, by definition it is an important determinant of the public aspects of schooling such as good citizenry, etc. Preschool may be a particularly good time to expose children to different religions, ethnic groups, etc., and to inculcate values of tolerance and a shared experience. There may also be inadequate information regarding day care quality, though measurement problems might be even more difficult at early ages. The final issue raised under market failure is the potential for monopoly power in low density areas. Particularly for a single parent who works irregular or odd hours, there may not be enough demand to justify the presence of a number of child care providers.

Perhaps the most compelling justification for government intervention in early education is equality of educational opportunity, and growing evidence suggests that schools may find it difficult if not virtually impossible to overcome severe disadvantages in early childhood. If substantial resources, expanded choice, remedial programs and other interventions do not significantly improve academic outcomes for economically or socially disadvantaged students, investments in early childhood care and schooling may be a far better investment. At this time, however, early education programs such as Head Start are not entitlements and they do not have a clear academic objective⁽⁴⁾. The disparity between the universal support for elementary and secondary school years and the limited support for early education seems unjustified. Importantly, early childhood education should not be viewed as an entirely separate entity, and tradeoffs between investments in the quality and availability of early education and support for elementary and secondary schooling should be considered.

The final and certainly most difficult issue philosophically is the protection of minors. While parents would not have their three-year-old child work rather than attend school, neglect, either benign or not so benign, could severely harm academic development. Evidence from the Coleman Report (1966) and many other studies documents the importance of family background in the determination of academic outcomes. Yet such quantitative analyses do not capture much of the variation in family support for schooling, as parents with similar ages, family structures, education and income appear to provide very different levels of support.

Even if it were a simple matter to identify children likely to receive the least support at home (e.g., children with teenage mothers without a high school diploma and no father in the home), a requirement that only these children must attend day care or preschool would likely be unconstitutional. Yet work requirements for public assistance recipients and other regulations essentially require many single mothers to place their preschool age children in the care of others.

Currently public funding for day care has not kept pace with the growing demand, particularly for public assistance recipients. It is difficult to identify a potentially more damaging unfunded mandate than child care for mothers on public assistance, making a strong case for full government financing of child care and preschool education for children whose mothers are required to work. The amount of the funding should depend upon the return to additional investments in early education in the form of higher quality programs.

Yet just as previous Medicaid eligibility requirements discouraged exit from public assistance, child care subsidies strongly linked with welfare participation would also inhibit departure from the program. One argument in favor of a more far-reaching program of government support for all low income children or even all children is that it would reduce or even eliminate this problem of perverse incentives while expanding protection for minors. However, more generous child care benefits for families not receiving public assistance would lead some families to substitute paid day care for home care, perhaps to the detriment of some children. In addition, the expansion of benefits would simply provide a transfer of resources to many families already using child care in much the same way that private school vouchers would transfer resources to students already attending private school.

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III. The Determinants of Elementary and Secondary School Quality

Debate over the effectiveness of public schools and the determinants of academic and labor market attainment has gone on for decades⁽⁵⁾. Two basic questions command a central position in most policy discussions. First, partly resulting from common misinterpretations of the Coleman Report, a surprising amount of controversy continues over whether schools and teachers "make a difference" or not. This issue comes down to a simple one of whether or not there are significant differences among schools and teachers in their abilities to raise achievement or improve other outcomes. Second, controversy exists over how much money matters, i.e., how much each additional dollar improves school quality. This section discusses evidence on each of these questions, focusing on findings most relevant for younger children.

A. Do Schools and Teachers Make a Difference?

Convincing evidence that home buyers pay a premium to live in particular school attendance zones (see

Black (1999)) and the emphasis on education in the national policy debate strongly supports the notion that parents and the public at large believe both that schools make an important difference and that there is substantial variation in school quality. However, the identification of actual differences in school quality has proven to be a more difficult task. The fact that families choose where to live and where to send their children to school impedes the separation of school and family effects on outcomes. Other factors including cost of living differences and the likely existence of compensating differentials (e.g., better working conditions) for teachers add additional complications. Moreover, a finding that specific, measurable school inputs including expenditures are not strongly related to student outcomes does not imply that other aspects of schools are not important.

Several recent papers have taken a different approach to the identification of school effects on achievement by examining within-school variation in teacher quality. Both Sanders and Horn (1994) Rivkin, Hanushek, and Kain (1998) document substantial variation in teacher quality within schools. Such evidence provides a lower bound estimate of the overall importance of schools and teachers, because it ignores between-school differences in both teacher quality and other factors.

The results from Rivkin, Hanushek and Kain (1998), in particular, provide powerful evidence in support of an important role for teachers and schools. The magnitude of the teacher effects is striking. Consider first the impact on students of moving up the mathematics teacher quality distribution by one standard deviation. This is roughly equivalent to lining up all teachers from least to most effective and passing one third of the teachers. The impact of moving up one standard deviation in teacher quality raises 5th and 6th grade mathematics test scores by at least twice as much (and probably much more) as the very expensive policy of reducing average class size by five students.

The comparison of teacher effects and of family differences provides another perspective. The gain from having a very good teacher (one standard deviation better) rather than an average teacher for five years in a row is at least as large as the average mathematics test score differential between lower income students eligible for a subsidized lunch and higher income students not so eligible. This finding that schools can exert an effect similar in size to family income contrasts sharply with research on education that focuses on specific characteristics such as expenditure, class size, or teacher education.

These results support the notion that schools exert a very important influence on academic development, an influence much more similar in magnitude to the popular perception of the importance of schools. Importantly, this conclusion emerges only following the relaxation of the view of schools as monolithic institutions whose quality is determined by the salaries paid to teachers, the gleam of the laboratory, the size of classrooms, and the availability of the latest computers. While these factors do exert both a direct effect on students and an indirect effect via making the school more attractive to prospective teachers, it is only consideration of the substantial variation in teacher quality within school buildings that leads to the finding that the quality of school instruction is a primary determinant of academic achievement. Importantly, for policy purposes, a key element is that variations in teacher quality occur among teachers who look the same in terms of degree earned, experience, and class size.

B. School Resource Effects

The results from the existing large body of literature on the effects of school resources on a variety of outcomes remains highly variable, in large part due to the aforementioned difficulty of controlling for all relevant achievement inputs⁽⁶⁾. Failure to find a systematic relationship between outcomes on the one hand and either total expenditures or specific resources on the other may result from problems with the model or data, differences by grade or student demographics in the link between outcomes and resources or inefficiency in the operations of schools and districts. Because variations in the price of teacher

quality due to the existence of compensating differentials and other factors are difficult to capture, the discussion emphasizes findings on class size, teacher experience and teacher education. As these variables are the primary determinants of total expenditures on teachers and in the case of class size the main lever for school policy during the latter half of the twentieth century, evidence for these factors provides important information on the effectiveness of school resource policies.

The clearest finding, from both recent studies as well as the bulk of past research, is the lack of a systematic relationship between teacher quality as measured by student performance and the possession of a Masters degree. There is little or no evidence that an M.A. raises outcomes, and the results do not appear to be driven by the fact that schools with more difficult to educate students are more likely to hire teachers who possess an M.A. Since most school districts pay a premium to teachers with advanced degrees and some require advanced degrees in order to teach, this evidence raises serious questions about the appropriateness of such practices and more generally about the belief that education requirements necessarily improve instructional quality.

Two closely related measures of teacher quality are college quality and scores on standardized tests. There is not a consensus as to whether or not either of these variables is significantly related to student performance⁽⁷⁾. Yet these variables explain little of the variation in teacher or school quality even in those papers that find a significant relationship.

Another important finding is that smaller classes appear to exert a significant, albeit small, effect on academic achievement. The random assignment experiment in the state of Tennessee described by Krueger (1999), the quasi-experimental study using data from Israel (Angrist and Lavy (1999)) and a study using matched panel data for the state of Texas (Rivkin, Hanushek and Kain (1998)) all produce qualitatively similar results. While the details vary somewhat, the impact of smaller classes appears to decrease with age, and it appears to be larger for economically disadvantaged students. The finding that the benefits of smaller classes are larger at lower grades suggests that benefits from smaller classes or low pupil to teacher or day care worker ratios might be substantial.

The findings for teacher experience present many similarities to those for class size in that effects appear to be larger in earlier grades and for lower income students, though the pattern is not quite as pronounced (Rivkin, Hanushek, and Kain (1998)). Importantly, the results show that only the first two years of experience have a significant impact on teacher quality as measured by student achievement gains. Teachers improve dramatically following their first year and by a somewhat smaller amount following the second year, but there is little or no evidence that additional years of experience have a significant effect on quality.

One additional finding that is relevant for early education is that special education appears to have a positive and significant effect on the achievement gains of children classified as disabled (Hanushek, Rivkin, and Kain (forthcoming)). Learning more about the effectiveness of diagnosing and treating learning disabilities and other special needs early in life should be included as part of a comprehensive evaluation of early education.

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IV. Policy Implications

This concluding section presents a number of policy recommendations for early education based on evidence for elementary and secondary school children. Most of the section emphasizes broad principles, though a few specific points are touched upon. Prior to this discussion, however, it is

important to describe the general financial and technological context within which early education providers function.

A. The Inevitability of Rising Costs

Between 1890 and 1990 real per student expenditure for elementary and secondary education (1990 dollars) rose from \$164 per student to \$4,622 per student, an almost thirty fold increase (Hanushek and Rivkin (1997)). While a longer school year and smaller classes contributed to the increase, a much larger portion of the change resulted from an increase in the price of teachers caused primarily by rising real wages. Because wages rise roughly in proportion to the average change in productivity, sectors with slow or nonexistent gains in labor productivity face steadily increasing costs.

One explanation for the stagnation of labor productivity in education is that the nature of the production technology limits substitution possibilities. Many argue that the link between school quality and the pupil/teacher ratio is quite strong and resistant to substitution of capital for labor. The plight of such slow productivity growth sectors such as education, as described by Scitovsky and Scitovsky (1959), Baumol (1967), and Baumol and Bowen (1965), is steadily rising costs resulting from increases in labor productivity in other sectors. Of course other factors may have discouraged potentially cost saving opportunities for capital substitution, in which case the failure to adopt new technologies would be an additional manifestation of inefficiency. Yet even if technological innovations exist at higher grades, it seems highly unlikely that they would be relevant for early education.

Two other changes have contributed to the cost increases in the education sector. One is the decline in discrimination against women that has raised wages and thus the price of teachers, roughly two thirds of whom are women. Rising opportunities for women probably have an even larger impact on education for younger children where females constitute a larger percentage of teachers and care-givers. A second development that has raised the price of teachers has been the increase in the return to education. Though many child care and early education workers do not currently possess a bachelors degree, an expanded program modeled on elementary schools might lead to increases in the education requirements. Importantly, the increase in the value of education also raises the value of pre-school and child care, so the return on the investment remains largely unaffected. These and other factors that adversely affect the labor market position of early education providers should be considered at the time policy decisions are made.

B. Policy Recommendations

Role of government in child care and preschool education. The substantial difference in the roles of government prior to and following the age of six has lessened over time and will likely continue to diminish. A number of questions arise over the appropriate role for government in the regulation, financing, provision, and other support for early education. The following are my recommendations.

1. ***Long run outcomes should be emphasized and policies for all levels of schooling should be coordinated.*** Though the details of child care and early education provision may differ dramatically from elementary and secondary education, the objectives largely coincide. Therefore tradeoffs between support for older and younger children should be considered as a part of decisions over where to allocate resources. Institutions should be judged on their contribution to development rather than on the basis of behaviors that do not correlate with future success.
2. ***Additional years of schooling for preschoolers should not simply be added on to the current structure of schools.*** In other words, universal public provision of early education by local monopolies does not constitute an appropriate policy. The innovations, experimentation, and

critical evaluations currently taking place in the elementary and secondary school sector should lead to productive changes. As evidence on charter schools, voucher programs, school accountability, public and private competition, and other structural reforms accumulates, much more will be learned about effective provision of schooling⁽⁸⁾. The mediocre quality of many schools that precipitated the widespread demand for reform should not be replicated for early education.

3. ***Competition and choice should be encouraged, at least in pilot programs.*** While the appeal of competition in theory is quite clear and well stated by Friedman (1962) and many others, there is little solid evidence that competition actually improves outcomes. The literature on Catholic schools beginning with Coleman, Hoffman, and Kilgore (1982) finds that private school students outperform those in public schools, though questions remain concerning the ability of these researchers to separate causal effects from other factors that differ systematically between the sectors. The aforementioned preliminary evidence on merit schools, accountability programs, charter schools, vouchers, competition from other public schools and from private schools suggests that schools may respond to competition, but definitive answers have yet to emerge.
4. ***Program evaluation requires extensive information to disentangle the contribution of families, teachers and institutions.*** One reason for the general resistance by elementary and secondary school administrators and teachers of incentive systems is a concern about what is rewarded. We know that families make a huge difference in the education of students. An implication of this is that we should not reward or punish pre-school personnel for the education they are not responsible for. If some children come to school better prepared than others, their teachers and administrators should not receive extra rewards. Similarly, if students come from disadvantaged backgrounds that leave them less well prepared for schools, we should not punish their teachers.
5. ***Government should disseminate information about the quality of early education providers.*** Information on inputs including child/staff ratios, teacher qualifications and facilities are important and should be provided, but attempts should be made to develop measures of value added (the impact of the school on academic or other outcomes) despite the difficulty of measuring outcomes at early ages. Longer term outcomes might provide the best information for policy makers and parents alike. Evidence from elementary and secondary education demonstrates that resources and easily observable school and teacher characteristics do not explain the bulk of the variation in quality.
6. ***The Federal Government has an important role to play in terms of research and development.*** Given the lack of knowledge of a single best practice, it is imperative that evaluation accompanies any expanded participation in early education. However, learning about reforms takes more than merely collecting data. There must be a stated commitment to evaluation of outcomes. Unfortunately, most past experience reveals little systematic learning about what programs do and do not work in elementary and secondary education as well as early education and child care. This slow learning has resulted both from a lack of commitment to evaluation and a failure to build evaluation into the design. The simple example of the California class size reduction program of 1997 illustrates the issue. The State of California instituted a program of fiscal incentives designed to bring down class sizes in early grades. This program was put in effect for all districts across the state and, at the time, there was limited measurement of student performance. As a result, even though California is currently spending some \$1.5 billion annually on class size reduction, it is extremely difficult to discover whether or not the program has been beneficial in terms of student outcomes.
7. ***The Perry Preschool evaluation provides a model that should be replicated in many different settings to learn much more about a variety of policies and pedagogies⁽⁹⁾.*** Though it is quite difficult to measure outcomes and separate the contributions of elementary or high schools from other factors using statistical techniques, it is probably even more difficult in the case of early education. This increases the importance of undertaking well-structured random assignment experiments. Long as well as short term outcomes should be studied, and objective measures

should be utilized wherever possible.

Personnel Policies. The findings from research on elementary education highlight both the importance of teacher quality in the determination of academic outcomes and the difficulty of predicting quality from observable characteristics such as degree earned, experience, college quality or even test scores. Though Ballou (1996) finds strong evidence that higher skilled applicants are not systematically preferred over other prospective teachers, even those administrators who utilize very thorough hiring procedures may find it difficult to consistently select those who turn out to be high quality teachers. The fact that teachers improve considerably in their first two years on the job makes it that much more difficult. I believe that the lack of predictive power of observable characteristics in combination with substantial within school variation in teacher quality supports a number of specific recommendations:

8. ***Requirements for prospective teachers and staff including mandatory degrees and formal examinations should be adopted with great care*** — While a move to professionalize teaching or day care could improve the quality of applicants and training, it may also reduce the supply of teachers without a corresponding improvement in quality. All meaningful requirements increase the opportunity cost of becoming a pre-school or child care worker thereby reducing supply. Most are very blunt screening devices, eliminating some competent teachers. This includes education requirements such as a community college associates degree or even a high school diploma. There may be many immigrants or elderly workers who could provide quite good care, particularly for very young children. Even an examination that has fairly good predictive power will explain little of the variation in teacher quality. Claims that a particular training pedagogy teaches 'best practice' methods should be scrutinized closely. The belief that teachers learn by doing, respond to a variety of methods, and require very different skills depending upon characteristics of children likely provides a better framework for developing appropriate training and hiring policies. In general it is not possible to prescribe good teaching with specific teacher training pedagogy, magic in-service development programs, or a series of requirements that must be satisfied.
9. ***Successful policies must take the substantial variation of skill and effort into consideration rather than attempt to eliminate it through a series of regulations.*** There is little reason to believe that any new regulations will reduce substantially the variation in the quality of teaching except possibly by discouraging high quality students from entering the profession. In fact it is the variation in teacher skill and effort, even among those with similar educational backgrounds, that is and will continue to be one of the most important characteristic of teachers and child care workers, just as it is an important characteristic of doctors, lawyers, and virtually all other occupations. Administrators must focus on individual performance in their hiring, retention and mentoring practices in order to select the best possible staff and encourage effort.
10. ***Rigid salary structures that determine pay on the basis of education and experience are unlikely to attract and retain the best teachers. At the very least organizations should not link salaries with characteristics not significantly related to outcomes, and organizations should experiment with more flexible pay and promotion structures that reward superior performance.*** Most current pay structures lead teachers to invest in low cost programs in order to move up the pay scale. If performance rather than credentials were rewarded directly there would be a much stronger incentive to seek out more productive training programs. While the evidence does not provide strong support for merit pay (c.f. Cohen and Murnane (1986)), additional experimentation with alternative pay structures might prove to be quite rewarding. Recently, districts including the Cincinnati, Ohio, school district have adopted an alternative form of performance pay in which pay would depend on the teacher job classification. Teachers ranked quite highly by peers and administrators are classified in special, higher paying categories. To date there is little or no evidence on the effectiveness of this approach in raising teacher quality.
11. ***College Scholarships that require recipients to teach a minimum number of years following graduation raise problems that should limit their use until pilot programs show them to be***

effective. Not only is the ability to enforce such contracts questionable, forcing someone who dislikes teaching to complete her obligation is unlikely to yield positive results in the classroom or day care center. While such scholarships enable the state to raise the compensation of new teachers without affecting that of current teachers, the costs may not justify the benefits.

Alternatives such as two tier contracts that would pay new entrants (and existing teachers who wish to enter the program) higher salaries but also impose greater accountability may prove more effective at raising school quality. Such programs are more difficult to organize at the state level, however. Another alternative is the provision of in kind benefits such as housing assistance to new teachers, which may be particularly useful in high cost metropolitan areas.

12. ***Reductions in the child/staff ratio should be undertaken with great caution. The hiring of additional teachers is quite costly, and any gains from more intense instruction might be offset by a dilution in average quality. A rapid expansion of the number of children enrolled in preschool or child care would likely exacerbate the negative impact on the quality of new hires.*** The aforementioned evidence suggested that reducing the pupil/staff ratio has a positive effect on achievement that is larger in earlier grades and for economically disadvantaged students. However, across the board class size reductions such as the California Class Size Reduction program have contributed to severe teacher shortages. The percentage of teachers with little or no experience more than doubled following the cut in average class size of roughly ten students for the early grades, while the percentage of teachers who lacked full certification rose by an order of magnitude. Importantly, economically disadvantaged and minority children appear to have borne the brunt of the decline in teacher quality, as the creation of additional teaching jobs in middle class communities led to movement of teachers out of lower income areas and into those districts. Investments in smaller pupil/staff ratios should be targeted towards disadvantaged children who derive the most benefit from such expenditures.
13. ***Pre-school or child care administrators play a crucial role in the determination of education quality, and institutional structures that reward good performance and hold administrators accountable should be the norm.*** Higher income families appear to have a number of child care alternatives, and that competition likely improves the quality of care. In contrast, the oversubscribed Head Start program provides little incentive for superior performance. Unless administrators maintain an important stake in the outcomes, as a group they are unlikely to make systematically the difficult choices necessary to achieve high quality outcomes. Moreover, some ambitious and effective administrators will choose not to work in child care if compensation and quality are not linked. Of course getting the incentives right is a far more difficult task than merely pointing out the fact that administrators and teachers respond to rewards and penalties.

C. Summary

The current structure of early education and child care is far more flexible than that of elementary and secondary education. However, rapid growth in the number of children in day care centers and preschools may lead to additional government involvement in a variety of dimensions. Policy makers must learn from other sectors, particularly elementary and secondary education, in order not to repeat many of the same mistakes. The lack of rigid structure today provides a golden opportunity to support innovative and dynamic early education sector.

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Endnotes

1. Murray, Evans and Schwab (1998) describe changes in school financing following judicial rulings.
2. This discussion follows the framework used by Stiglitz (1991).
3. See for example Chubb and Moe (1990).

4. Head Start is the main federally funded early education program for economically disadvantaged children.
 5. See Hanushek (1996) for a discussion of these issues.
 6. See Hanushek (1996) and Greenwald, Hedges and Laine (1996) for summaries of the education production function literature and the debate over the link between outcomes and resources.
 7. See Hanushek, Kain and Rivkin (1999) and Ferguson (1991) for evidence on teacher test scores and Brewer and Ehrenberg (1994) for evidence on a number of teacher characteristics.
 8. Tiebout (1956) describes the effects of residential choice on the provision of local public services. Clotfelter and Ladd (1996) find limited evidence that the merit school program in Dallas exerted a positive effect on performance, though the results are far from conclusive due to the difficulty of specifying appropriate control groups. The results in Hoxby (forthcoming) suggest that metropolitan areas in which students have more districts from which to choose tend to have more productive schools, and the results from Hoxby (1994) suggest that an expansion of the availability of private school alternatives also increases public school productivity. Rouse (1999) finds some support for the superiority of private schools, though the evidence is not overwhelming and the identification strategy may have some problems. To date the evidence for charter schools is quite limited.
 9. The Perry Preschool study randomly assigned students to treatment (Perry Preschool) and control groups and evaluated children for a number of years following preschool.
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