Testimony on Access to Quality Pre-K and the Strong Start for America's Children Act

Mr. Chairman and members of the Committee, I'm pleased to testify before you. My name is Steven Barnett. I direct the National Institute for Early Education Research (NIEER) at Rutgers University where I am a Board of Governors Professor of Education. As a unit of Rutgers University, NIEER conducts, archives, and disseminates research to inform policy making regarding early childhood care and education. I am an economist, and I have studied investments in early learning and development for more than 30 years, including publishing with colleagues the first benefit-cost analyses of the economic returns to the Perry Preschool and Abecedarian programs, based on actual data from preschool to adulthood. In addition, I am the lead researcher on an annual survey of state preschool policy that has collected data on access, quality standards, and funding for more than 10 years.

The scientific basis for the *Strong Start for America's Children Act* overall is extensive. It is well established that the first five years are a time of rapid development that is sensitive to a child's experiences. It is equally well established that many young children have less than optimal conditions for their development, with those whose parents have the lowest incomes and least education most disadvantaged (Barnett & Lamy, 2013; Nores & Barnett, in press). This problem is not limited to children in poverty; indeed an unacceptably high percentage of children from middle-income families are poorly prepared to succeed in school and are far too likely to fail a grade and to drop out of high school.

Yet, rigorous studies find that educational programs over the first five years can meaningfully enhance early learning and development, and thereby produce long-term improvements in school success and social behavior that generate benefits to individuals and the broader society (Barnett, 2008, 2011). Positive outcomes found in rigorous studies include increased achievement, decreased grade repetition and special education, increased educational attainment, decreased behavior problems and crime, decreased risky behaviors like teen pregnancy and smoking, and improved health (Barnett, 2008; Campbell et al., 2014).

My brief remarks today will be limited to just one part of *Strong Start*--high-quality preschool education for children at ages 3 and 4. Although adequately investing in every year of a child's life is important, I focus narrowly on current public support for such programs, what is known about the effects of high quality preschool education, and what should be done to produce substantive gains for children in large-scale public programs.

Although some might point to a proliferation of public policies supporting preschool education, in fact there are only 3 large sources of support for preschool programs--child care subsidies, including the Food Program; Head Start; and state-funded pre-K programs (Haskins & Barnett, 2010). Taken together, they are insufficient to support quality preschool education for even those 3- and 4-year-olds below 200 percent of the Federal Poverty Level. Only about half of American children attend any kind of preschool program at ages 3 and 4, and for about 30 percent this is a publicly supported program (Nores & Barnett, in press). Moreover, most programs that children attend are not high quality. Even families with relatively high incomes who purchase private preschool do not, for the most part, find good programs.

Over the last decade, the only real expansion has been in state-supported pre-K for 4-year-olds and much of this has been through adoption of Head Start and private programs (Nores & Barnett, in press). In some states, that has meant that the quality of these programs was substantially improved, but in others it has not. Standards are too low and there is far too little money in the system across all programs to support high quality, educationally effective programs (Barnett & Carolan, 2013).

This situation is unfortunate and calls for change. Comprehensive reviews of the entire literature on preschool program effectiveness, including statistical summaries--often called meta-analysis-- find that high-quality preschool programs have substantial positive impacts on cognitive development and on a variety of other child outcomes, including school success and socio-emotional development. They also find that even when cognitive advantages decline after school entry, they do not disappear. As I will explain, it is not accurate to characterize this pattern entirely as "fade out."

The research is clear that if society wishes to produce substantive long-term gains for children from preschool education, public policies must support high-quality programs that produce relatively large initial impacts. Therefore, it is important to ask what program features are associated with larger gains. A recent comprehensive meta-analysis (Camilli et al., 2010) found that explicit instruction and an emphasis on working with children one-on-one and in small groups was associated with larger cognitive gains. It also found that providing comprehensive services, such as health and family services, was associated with smaller cognitive gains. I interpret this finding as indicating that trying to do too much with too little can result in losing a focus on strong teaching, which must be at the core of a successful preschool education program. Based on the meta-analysis, moderate improvements in these aspects of program design could greatly enhance long-term program effects.

Another meta-analysis found that average estimated effects have declined in more recent studies (Duncan & Magnusson, 2013). Possible explanations include: older research more often studied intensive model programs; it has become more common for control groups to attend another preschool program; and, state funding for quality has declined, potentially weakening public programs. For example, the well-known Perry Preschool and Abecedarian programs had adult-child ratios of 1 to 6 or 7 which has not been replicated in public programs. Head Start evaluations have included in the control group children who attended state pre-K, which did not exist when older Head Start studies were conducted. Perhaps most worrying, NIEER's annual survey of state-funded preschool programs finds that funding per child declined by more than $1000 over the last decade, and it would be surprising if that had not undermined program quality and effectiveness (Barnett & Carolan, 2013). Some of the largest state pre-K programs serving the most children, including Florida and Texas, have especially low quality standards.

Despite its advantages, meta-analysis is at best a blunt instrument for identifying the features of highly effective programs. Another approach is to ask what those programs that produced very large long-term gains for children have had in common. Frede (1998) reviewed the model programs that produced large impacts and found that they shared a use of reflective teaching practices, a strong emphasis on language development, and a school-like discourse pattern including initiation-reply-evaluation sequences and categorization. These practices, and intensity and continuity of teacher-child

interaction, were facilitated by a highly developed curriculum, training and professional development, reasonable ratios, and strong monitoring and supervision. To this can be added levels of teacher qualifications and compensation comparable to that in the public schools. All of the programs that have been found to produce large long-term gains in rigorous studies have had these features. There are no counter-examples in rigorous studies of preschool programs with less educated teachers, large classes, and poor pay producing large long-term gains in children's learning and development.

I do not mean to suggest by this that current public programs are typically ineffective, or that their benefits do not exceed their costs. First, public preschool programs, almost without exception, are found to improve academic readiness for school, sometimes quite a lot. Second, there is substantial evidence of persistent impacts on achievement well beyond school entry, even though these are somewhat smaller than short-term impacts. Some slippage between initial and later effects should be expected for any preschool program (Barnett, 2011). High quality preschool prepares children to start off well. It does not guarantee that nothing later interferes with their progress. In addition, to the extent that schools focus more resources on children who are behind to help them catch up--an emphasis no doubt accentuated by No Child Left Behind--most studies of preschool will tend to underestimate lasting effects.

When interpreting the research, it is important to understand that most studies of the effects of preschool programs are not designed to capture the systemic effects of preschool education. For example, bad behavior in the classroom is of concern not only because it impairs that child's ability to learn, but also because disruption reduces the learning of all the other children in a class. If preschool leads some children to better behavior in kindergarten, it benefits everyone, including the control or comparison group children who did not attend preschool. Similarly, if preschool attenders enter kindergarten much better prepared to meet its learning goals, then teachers can spend more time and effort on other children who are less well prepared.

So what happens when we conduct a large scale randomized trial or other rigorous evaluation comparing children who attend preschool to others in the same schools who do not? When children in the study enter kindergarten, the schools have a lighter overall load because of the benefits from preschool and they offer more compensatory services (on average) to the children who did not attend, helping them to catch up over time. It is possible for all of the children in the affected schools to have higher achievement, whether or not they went to preschool, and this will not be captured at all by the evaluation. It would be a mistake to interpret this as preschool's effects having faded out, when in fact all children converged to a higher level.

Evidence of compensatory behavior by schools is in fact common, even in studies that show persistent cognitive advantages after school entry. It is usual, particularly in studies where initial impacts were large, to find lower rates of grade repetition and special education for children who go to preschool. This is a significant source of cost-savings from preschool, but it is also likely that these additional services received by those who did not go to preschool are successful at helping the comparison children in the study catch up, mimicking "fade out." When initial effects of preschool are relatively modest, or focus on quickly learned skills like letter and number knowledge, compensatory efforts within the

classroom may be sufficient to rapidly catch up those who did not go to preschool (of course, this does not mean kindergarten teachers could produce the same results if no children had gone to public preschool).

This type of compensatory behavior in schools is, of course, at best a partial explanation for differences in outcomes across studies and the disappointing results of some public programs. As indicated earlier, program features do matter. While the Head Start national impact study likely underestimates Head Start's impacts, it still appears that effects are smaller than anyone would want. The Camilli et al. (2010) meta-analysis and other evidence clearly predict such a result. Head Start has been given a huge mission and asked to do too much with too little. Teacher qualifications and pay were too low and there was too little focus on intentional teaching. That is why it is particularly instructive that Head Start reforms over the last decade demonstrate that changing such policies can improve outcomes for children.

Head Start's Family and Child Experience Surveys (FACES) measured children's learning during a year of Head Start in the 2003, 2006, and 2009 school years. The national impact evaluation was conducted on children entering Head Start in the 2002 school year. FACES 2003 provides the closest FACES measure of how much children gained in Head Start at the time of the national impact study. Subsequent FACES surveys allow us to see how children's learning gains changed after the impact study. NIEER analyses of these data reveal that Head Start children made greater gains in language and literacy in 2006 and 2009 than in 2003. Language and literacy gains are larger for all three major ethnic groups in 2009 compared to 2003, sometimes two or more times as large. Policy changes in Head Start are likely to be behind these results. Additional data from FACES indicate that both the frequency of intentional literacy activities and the percentage of teachers with a 4-year college degree had increased by 2009 (Hulsey et al., 2011).

The *Strong Start for America's Children Act* is designed to support precisely these features of effective programs. Prominent among them are: attention to the needs and development of the whole child, highly qualified teachers who are adequately compensated, reasonable class sizes and ratios, a sufficient amount of preschool provided, and a continuous improvement system. I focus on these features not because they are the only features of importance, but because they are the most salient in policy debates and have significant implications for cost. (For example, I do not deal with parent engagement because everyone agrees that preschool programs should engage with parents to support learning and development.) These features matter because they greatly facilitate the types of teacher-child interactions and other child experiences that most powerfully influence learning and development.

To be perfectly clear, like the 10 benchmarks for quality standards which NIEER uses to compare state preschool standards, the standards set by the *Act* are minimums that set floors below which programs should not fall, not recommendations that optimize chances of success. For example, a maximum class size of 15 is likely to lead to larger gains for children than 20 students per class, especially in classes with high concentrations of children in poverty, Dual Language Learners, or children with special needs. Many states and localities may be expected to improve upon the requirements of the Act as funding permits.

While academic abilities that directly contribute to achievement are important, executive functions, social and emotional development, habits, dispositions, and orientations toward learning, such as curiosity are equally important (Barnett, 2008, 2011; Diamond et al., 2007; Hirsh-Pasek et al., 2008). So is the child's physical development. Clearly this is about more than simply raising test scores. The primary reason to attend to a child's nutritional needs is so that he or she does not go hungry and develops healthy eating habits from an early age, not to raise test scores. Better social skills make for better neighbors and a more productive workforce. Stronger executive functioning skills keep kids out of trouble and adults out of jail. Early learning standards that address all of these domains have been developed and adopted by virtually every state, which is a great accomplishment. However, not all state preschool programs adequately reflect their standards.

Initial teacher qualifications provide a foundation for high quality teaching. In some state preschool programs, teachers are not even required to have completed a two-year degree to lead a classroom. Based on an analysis of the knowledge and skills preschool teachers must have to be highly effective, and a review of the research on teacher effectiveness, a National Resource Council Report concluded that every the lead teacher in every preschool classroom should have at least a BA degree and specialized training in early childhood education (Bowman, Donavan & Burns, 2000). They and others have concluded that this is a necessary, but not sufficient, condition for a highly effective preschool education system. For example, it does no good, and might do harm, to require all teachers to have a BA degree without adequate funding to pay teacher salaries consistent with that level of education. And, no program feature should be expected to succeed on its own. Not even the best teacher, when given too many children and no instructional support from a coach or other educational leader--can be expected to succeed. Unsurprisingly, meta-analyses find only very small average effects of a BA degree over other levels of education (which includes teachers working toward the BA, it should be noted). However, this does not negate the evidence that large effects have been produced *only* when this ingredient was in place.

The logic of supporting small classes and reasonable ratios is obvious. Smaller classes and more adults per child permit more one-to-one and small group interactions. Not only are small classes and high ratios of teacher to children common features of effective programs, but there is also consistent evidence from education research generally that smaller class size is associated with greater effectiveness (Swanzenbach, 2014). This includes a large randomized trial that finds smaller class size produced substantive gains for kindergarten children (Nye et al., 2000). Most recently, a randomized trial of smaller class size in Chicago Public School preschools found that smaller class sizes led to greater learning gains even though it did not change quality as measured by commonly used observational measures (Francis, 2014).

The amount of preschool education provided matters, once the quality of that education has been established. Although half-day programs have produced strong results, a randomized trial has found that an extended day and extended year produced greater learning gains (Robin, Frede, & Barnett, 2006). Preliminary results from a more recent randomized trial with Chicago Public Schools also indicate that a full-day program produced larger gains than a half-day. Other studies have found mixed results. It is possible to use the added time poorly; and, when quality is low generally more of the same is

unlikely to be of much benefit. Another consideration is that when only half-day programs are offered, some children may not participate at all, because such programs conflict with their parents' work schedules. Finally, another aspect of duration is the number of years of preschool. None of the programs for which we have evidence of large effects and solid benefit-cost analyses were just one year of preschool at age four.

Teacher qualifications, class size, ratio, duration, and other structural features of programs are best thought of as resources that make quality possible, but do not by themselves guarantee results. For this reason it is critical that preschool programs have continuous improvement systems (CIS) that constantly evaluate practices and outcomes; feed this information back to teachers and those who support them (supervisors and coaches); and guide practice, professional development, and planning. Much like a GPS, a CIS tells everyone from the classroom level on up where they are, where the children are, and how to get everyone where they should be from there. Ensuring that goals for learning and teaching are met requires a CIS infrastructure that articulates these goals, monitors progress toward the goals, provides supervision and coaching, and engages teachers and those who support them in a continuous improvement process (Frede, 1998; Mashburn et al, 2008; Pianta et al., 2009).

The approach to quality and effectiveness outlined above and supported by *Strong Start* actually works when applied to public programs As the result of a state Supreme Court order in the Abbott v Burke school finance case, New Jersey has implemented a version of this approach in a public program serving more than 40,000 3- and 4-year olds annually. There are clearly articulated standards for learning and teaching and evidenced-based curricula. Each classroom of no more than 15 children is staffed by certified teacher and an assistant, both receiving strong support and supervision, and paid at public school scale. High standards and a continuous improvement system transformed a patchwork of private and public programs into a highly effective mixed-delivery system that includes Head Start. Teachers in existing programs were supported to return to school to obtain the appropriate qualifications and then coached to success. Annual quality observations document this transformation. In 1999-2000, less than 15% of pre-K classrooms were rated good to excellent and nearly 1 in 4 was less than minimal quality. By 2007-08 the vast majority of classrooms were rated good to excellent. These are much the same programs (2/3 private) children had been attending previously, with the lower standards and funding that typifies much of American preschool education.

The consequences for children of this support for quality has been seen in a series of studies that found strong initial gains in children's learning and development, with persistent gains now documented through grade five (Barnett, Jung, Youn, & Frede, 2013). Substantive gains are found in language arts and literacy, math, and science on the state's standardized tests at fourth and fifth grade. Abbott pre-K also reduced grade repetition from 19% to 12% and special education from 17% to 12% through 5th grade.

Unfortunately, as I documented at the beginning of my testimony few children in the United States receive the kind of preschool programs that would be supported by the *Strong Start Act* and that is available in New Jersey's Abbott program. Moreover, the trend over the past decade has not been good. Although states have made some progress in raising standards, and there are exceptions among

the states, in general funding per child is inadequate to support high standards and total funding is to limited to reach even children in the bottom half of the income distribution, much less all children. The Great Recession was particularly damaging to state programs and demonstrated that states have difficulty maintaining quality standards during economic downturns, precisely when the opposite should be occurring (Barnett & Carolan, 2013). Clearly our nation's children would benefit from financial incentives and support that would help states expand access to high quality preschool. As I have shown (Barnett, 2013), over time the long-term cost-savings to states from providing quality preschool to all children under 200 percent of poverty will offset the costs making easier for states to sustain high quality preschool a decade down the line. Federal support will make it much more likely that they make the investments in the short-term needed to produce those long-term cost-savings.

REFERENCES

Barnett, W. S. (2008). Preschool education and its lasting effects: Research and policy implications. Boulder and Tempe: Education and Public Interest Center & Education Policy Research Unit.

Barnett, W.S. (2011). Effectiveness of early educational intervention. *Science*, *333*, 975-978.

Barnett, W.S. (2013). Why expanding access to quality pre-K is sound public policy. New Brunswick, NJ: National Institute for Early Education Research.

Barnett, W.S. & Carolan, M.E. (2013). Trends in State Funded Preschool Programs: Survey Findings from 2001-2002 to 2011-2012. New Brunswick, NJ: National Institute for Early Education Research.

Barnett, W. S. & Lamy, C. (2013). Achievement gaps start early: Preschool can help in Carter, P. L., & Welner, K. G. (Eds.). *Closing the opportunity gap: what America must do to give every child an even chance*. Oxford: Oxford University Press.

Barnett, W.S., Carolan, M.E., Fitzgerald, J., & Squires, J.H. (2012). *The state of preschool 2012: State preschool yearbook*. New Brunswick, NJ: National Institute for Early Education Research.

Barnett, W.S., Jung, K., Youn, M., & Frede, E., (2013). *Abbott Preschool Program Longitudinal Effects Study: Fifth Grade Follow-Up.* New Brunswick, NJ: National Institute for Early Education Research.

Bowman, B. T., Donovan, M. S., & Burns, M. S. (Eds.). (2000). Eager to learn: Educating our preschoolers. National Academies Press.

Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., & Pan, Y. (2014). Early Childhood Investments Substantially Boost Adult Health. Science, 343(6178), 1478-1485.

Camilli, G., Vargas, S., Ryan, S., & Barnett, W.S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record*, *112*(3), 579-620.

Diamond, A., Barnett, W. S., Thomas, J., & Munro, S. (2007). Preschool program improves cognitive control. *Science*, *318*(5855), 1387.

Duncan, G. J., & Magnuson, K. (2013). Investing in preschool programs. The Journal of Economic Perspectives, 27(2), 109-132.

Francis, J. (2014). Relating preschool class size to classroom life and student achievement. Doctoral Dissertation, Loyola University of Chicago and Erikson Institute.

Frede, E. C. (1998). Preschool program quality in programs for children in poverty. In W.S. Barnett & S.S. Boocock (Eds.), *Early care and education for children in poverty* (pp. 77-98). Albany, NY: SUNY Press.

Haskins, R. & Barnett, W.S. (Eds.) (2010). Investing in Young Children: New Directions in Federal Preschool and Early Childhood Policy. Washington, DC: Brookings Institution and National Institute for Early Education Policy.

Hirsh-Pasek, K., Golinkoff, R. M., Berk, L. E., & Singer, D. (2008). *A mandate for playful learning in preschool: Applying the scientific evidence*. Oxford: Oxford University Press.

Hulsey, L. K., Aikens, N., Kopack, A., West, J., Moiduddin, E., & Tarullo, L. (2011). Head Start Children, Families, and Programs: Present and Past Data from FACES. OPRE Report 2011-33a. Washington, DC: ACF.

Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in pre-kindergarten and children's development of academic, language and social skills. Child Development, 79(3), 732-749.

Nores, M. & Barnett, W.S. (in press). Access to High Quality Early Care and Education: Readiness and Opportunity Gaps in America. New Brunswick, NJ: Center for Enhancing Early Learning Opportunities (CEELO) & National Institute for Early Education Research (NIEER).

Nye, B. A., Hedges, L. V., & Konstantopoulos, S. (2000). The effects of small classes on academic achievement: The results of the Tennessee Class Size Experiment. *American Educational Research Journal*, *37*, 123-151.

Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. Psychological Science in the Public Interest, 10(2), 49-88.

Robin, K. B., Frede, E. C., & Barnett, W. S. (2006). Is more better? The effects of full-day vs. half-day preschool on early school achievement (NIEER Working Paper). New Brunswick, NJ: NIEER.

Schwanzenbach, D. W. (2014). Does class size matter? Boulder, CO: National Education Policy Center, University of Colorado.

Yoshikawa, H., et al. (2013). Investing in our future: the evidence base on preschool education. Society for Research in Children and Foundation for Child Development.