

WISCONSIN STATE
LEGISLATURE
COMMITTEE HEARING
RECORDS

2007-08

(session year)

Senate

(Assembly, Senate or Joint)

Committee on
Economic
Development
(SC-ED)

(Form Updated: 08/11/2009)

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**Building Wisconsin's Workforce:
The Link Between Education and Economic Development**

Informational Hearing for the
Senate Committee on Economic Development
Tuesday, November 13, 2007
10 a.m. – 1 p.m.
State Capitol
411 South

Welcome Address *Tom Hefty,*
Kern Family Foundation

Dr. Hefty will begin the discussion by introducing the committee to the correlation between academics, industry and a strong economy. Dr. Hefty is the president of the Kern Family Foundation. Dr. Hefty has a B.A. in Economics from the University of Wisconsin-Madison, an M.A. in Economics from John Hopkins University, a J.D. from the University of Wisconsin Law School, and an Honorary Doctorate from Ripon College and from the Medical College of Wisconsin. He previously served as counsel at Reinhart, Boerner, Van Deuren, S.C., and as an adjunct faculty member in business and economics at Ripon College. Mr. Hefty has also served 17 years as chairman and chief executive of Cobolt Corporation and its subsidiary, Blue Cross & Blue Shield of Wisconsin. He has held the position of Interim County Executive of Waukesha County, President of the Waukesha County Economic Development Corporation, and Co-chair of Governor Jim Doyle's Council on Economic Growth, and has served on Health and Human Services Secretary Tommy Thompson's Advisory Committee on Regulatory Reform.

Introduction.....*Douglas Harris,*
University of Wisconsin – Madison

Dr. Harris will establish the framework for the hearing by providing an overview of how education at every level directly and indirectly affects economic development. Dr. Harris is an Assistant Professor of Educational Policy Studies at the University of Wisconsin – Madison, a UW Faculty Affiliate for the Institute for Research on Poverty, Wisconsin Center for the Advancement of Postsecondary Education, Interdisciplinary Training Program in Education Sciences, and Department of Educational Leadership and Policy Analysis, and is a Research Associate for Arizona State University's Education Policy Studies Lab, the Center for American Progress in Washington, D.C., the Economic Policy Institute in Washington, D.C., and the Michigan State University Education Policy Center. Dr. Harris has a B.S. in Business Administration and Economics from Central Michigan University, an M.A. in Public Affairs and Policy Analysis from the UW – Madison, and his Ph.D. in Economics from Michigan State University. His research is frequently cited in current policy debates and he consults widely on policy matters with organizations such as the National Academy of Sciences, RAND/AIR Technical Working Group on Value-Added Models, the U.S. Department of Education, and state education agencies.

Early Education*Ellen Frede,*
National Institute for Early Education Research

David Edie,
Wisconsin Council on Children and Families

Dr. Frede will discuss the effects of early education and child development on the future economy. Mr. Edie will supplement Dr. Frede's presentation by briefing the committee on research that analyzes investment in early childhood education in Wisconsin. Dr. Frede is Co-Director of the National Institute for Early Education Research and an associate professor at The College of New Jersey. Dr. Frede has a B.A. in Early Childhood Education from the University of Michigan, an M.A. in Human Development from Pacific Oaks College and a Ph.D. in Developmental Psychology from Utah State University. She previously has served as Assistant to the Commissioner for Early Childhood Education at the New Jersey Department of Education, an editor on the review boards of national journals, and as a consultant to local agencies, state governments, and the World Bank.

Dave Edie is the Early Education Policy Analyst for the Wisconsin Council on Children and Families. Mr. Edie has a B.A. in American Studies from Amherst College in Massachusetts and an M.A. in Early Education from Springfield College. Mr. Edie was a lead state planner on child care issues for more than 20 years for state government in Wisconsin from 1980-2002. He held several positions during his state tenure, including Director of the Office of Child Care and Director of the Office of Regulation and Licensing. From 2002-2006 he worked as a state technical assistance specialist for the National Child Care Information Center, while also holding a position as Public Policy Education Specialist at the University of Wisconsin-Extension as part of the Wisconsin Child Care Research Partnership, specializing in public policy and child care issues. Prior to his work in state government, he served as Executive Director of the Wisconsin Early Childhood Association, taught and administered child care programs in Indiana and Massachusetts, and worked in inner-city public elementary schools as a member of the National Teacher Corps. He brings an international perspective to his work, having served on a 14-member American delegation that studied the French early care and education system in 1989.

K-12 Education.....**Mary Bell,**
Wisconsin Education Association Council

Ms. Bell will focus on the impact K-12 education has on preparing and developing Wisconsin's economy and workforce. Ms. Bell is the President of the Wisconsin Education Association Council and a library media specialist at West Junior High School in Wisconsin Rapids. Ms. Bell has a B.A. in English and Education and an M.A. in Library and Information Studies, both from the University of Wisconsin – Madison. Ms. Bell has held a variety of positions within WEAC, including secretary-treasurer, chair of the Resolutions Committee and co-chair of the Statewide Bargaining Goals Committee. She has also served on the National Education Association Resolutions Committee and on the Central Wisconsin UniServ Council.

Higher Education.....**John Clark,**
Mid-State Technical College
Robert Haveman,
University of Wisconsin - Madison

Dr. Clark and Dr. Haveman will examine the economic returns of investing in higher education with Dr. Clark focusing on technical and vocational schools and Dr. Haveman focusing on four-year colleges. Dr. Clark is President of Mid-State Technical College. He has a B.A. in Industrial/Vocational Education and an M.A. in Vocational Education with an Administration and Curriculum emphasis, both from the University of Wisconsin-Stout, and a Ph.D in Educational Administration from the University of Wisconsin-Madison. Dr. Clark's various positions at MSTC include Automotive Technology Instructor, Technical & Industrial Department Head, Division Dean, Facilities Director, Vice-President of Academic Affairs.

Dr. Haveman is a John Bascom Emeritus Professor for the Department of Economics and La Follette School of Public Affairs at the University of Wisconsin – Madison, Adjunct Professor at Australia National University – Canberra, and Research Associate at the Institute for Research on Poverty. He has an A.B. in Economics from Calvin College and a Ph.D. in Economics from Vanderbilt University. Dr. Haveman has held a variety of academic positions, such as Senior Economist of the Subcommittee on Economy in Government in the Joint Economic Committee for U.S. Congress, Fellow at the Russell Sage Foundation and, on two occasions, Research Associate at Resources for the Future. He has authored a number of publications for U.S. Congressional Committees, scholarly journals, books, conference proceedings, textbooks, and research monographs.

International Case Studies.....*David Nixon,*
University of Wisconsin – Washington County

Dr. Nixon will explore the educational revolution in countries such as Ireland and China and how human capital investments have impacted economic growth in those countries. Dr. Nixon is the Dean and CEO of the University of Wisconsin – Washington County. He has a B.A. from Indiana University – South Bend and an M.A. and a Ph.D in Political Science from the UW – Madison. Prior to joining UW-WC in June 2005, he was an Associate Professor and Department Head in the Department of Political Science at Oklahoma State University. His teaching experience also includes stints at Ohio University and UW-Milwaukee. Nixon has presented his research on Ireland to the Blue Ribbon Panel for Enhancing the Mission of UW-Colleges and to the Wisconsin Counties Association 2007 Legislative Exchange. He has worked with National Universities on graduate program development in Great Britain, Turkey, China, Kazakhstan, Uzbekistan, and Kyrgyzstan. Dr. Nixon is also a voting member of the National Homeland Security Training Center Advisory Council.

Building Wisconsin's Workforce: The Link Between Education and Economic Development

Correlation between academics, industry, and economic development
Thomas R. Hefty, President of the Kern Family Foundation

There is a clear connection between educational attainment and economic success. To best make that connection, education systems need to be matched to workforce needs such as STEM education (science, technology, engineering, and math). In order to meet workforce needs, an education pipeline that links K-12 education to college is required. Project Lead the Way (PLTW) is an example of a successful program fulfilling this connection for engineering and technical fields. These assertions are demonstrated in the outline that follows.

- 1) Wisconsin lags behind the national average in per capita income and in educational attainment.
 - a. Illinois and Minnesota, neighboring states, rank above us and the national average (U.S. Commerce Department, 2005).
 - i. National Average: \$34,586
 - ii. Wisconsin per capita income: \$33,565
 - iii. Illinois per capita income: \$36,120
 - iv. Minnesota per capita income: \$37,373
 - b. Again, Illinois and Minnesota outrank Wisconsin when comparing percentage of adult population who have a college degree—25 years or older (Corporation for Economic Development 2006).
 - i. Wisconsin: 25.4% (National Rank: #28)
 - ii. Illinois: 27.8% (National Rank: #18)
 - iii. Minnesota: 32.6% (National Rank: #9)
 - c. Science & engineering degrees conferred in 2003 (National Science Foundation)

| | Bachelor's | Master's & Doctoral | Total |
|---------------|------------|---------------------|---------|
| United States | 432,788 | 131,656 | 564,444 |
| Wisconsin | 9,490 | 1,809 | 11,299 |
| Illinois | 17,572 | 7,691 | 25,263 |
| Minnesota | 8,064 | 1,809 | 9,873 |

2) Mismatch of majors and workforce needs

- a. Azim Premji, CEO and Chairman of multi-billion dollar Indian tech company WIPRO, commented on a visit to the U.S. in 2006, "The U.S. will graduate more sports therapists this year than engineers." We are competing internationally. It is a concern that our graduate rate of 60,000 to 70,000 engineers per year is severely below India's 350,000 and China's 600,000 engineering graduates. (Business and Economic Reporting Program, New York University).
- b. Bachelor degrees conferred nationally by discipline division (2003-04 NCES):
 - i. Engineering: 63,558; 4.5% of all fields
 - ii. Social Sciences and History: 150,357; 10% of all fields
 - iii. Visual and performing arts: 77,181; 5.5% of all fields
- c. Brain drain issue/Net loss of people: Young people leave Wisconsin for work opportunities (Governor Jim Doyle's Grow Wisconsin Report)
 - i. Note Wisconsin's lower educational attainment percentage: 25.4%
 - ii. Wisconsin does not attract many graduates from outside the state and loses most of the out-of-state students.

3) Like the national trend, Science, Technology, *Engineering*, and Math (STEM) skills are a particular area of concern in Wisconsin because they support key industries.

- a. Milwaukee 7 Report indicates that the greatest opportunity for the Milwaukee metro area is to *cultivate its ability to innovate* rather than simply manufacture.
 - i. Developing high quality engineering talent made the list of the top ten strategies to embrace "Next Generation Manufacturing."
 - ii. On the technology side, the report also calls for the region to accelerate and market industry-specific training programs. In the future, the Milwaukee 7 region needs to attract small, agile companies that *need highly skilled technical labor*. The expected future trends also rely heavily on engineering talent: Water research, Clean & green technologies, and Biotechnology.
- b. Research on Project Lead the Way (PLTW) and its impact on Wisconsin students.
 - i. Professor L. Allen Phelps, researcher at the UW Center on Education and Work, released a report in February 2007 entitled *Pre-Engineering Education in Wisconsin: Early Developments, Emerging Priorities* that shows promising results for PLTW's impact. Specifically, the study found that PLTW

graduates were 10-20% more likely to pursue education beyond high school, and students credited the program with helping them to define career goals and to prepare for real-world problem solving.

- ii. Professor Phelps reports that “job openings in the state that require expertise in science, technology, engineering, and mathematics are projected to increase 18.3% through 2014, compared to 11.5% for all other occupations.”
 - iii. According to the Wisconsin Technology Council, that means “Wisconsin needs another 150,000 workers with an advanced degree.”
- c. Engineering enrollment trends in Wisconsin
- i. Overall, engineering enrollment is dropping. More specifically, UW-Madison and UW-Milwaukee, which enroll the majority of the state’s students, have seen significant drops. UW-Platteville has seen slight increases and private schools have seen increases as well, though not large enough to offset the losses in the UW System. See chart below.

Engineering Enrollments

| | # of Students 2006 | Five Year Growth Rate (2001-06) |
|----------------------|-----------------------|---------------------------------------|
| Marquette University | 1010 | 8.3% |
| MSOE | 1475 | 7.1% |
| UW-Madison | 2939 | -19.5% |
| UW-Milwaukee | 1203 | -26.4% |
| UW-Platteville | 1644 | 1.6% |
| UW-Stout | 134 | -1.5% |

- 4) PLTW is an effective way for schools to increase student interest and preparation for the high wage, high tech 21st century careers that will be the basis of Wisconsin’s economic prosperity in the future. It has been a great success in Wisconsin and nationally.
- a. The Foundation extends thanks to the state legislators for partnering in funding this initiative.
 - b. PLTW is currently in **113 schools in 57 districts** teaching **7,500 students** in Wisconsin.
 - i. The number of PLTW schools in Wisconsin is growing (see first chart on p. 6). The second chart on p. 6 compares this growth to declining engineering

bachelor degrees conferred. PLTW will play a role in increasing these enrollments with quality students.

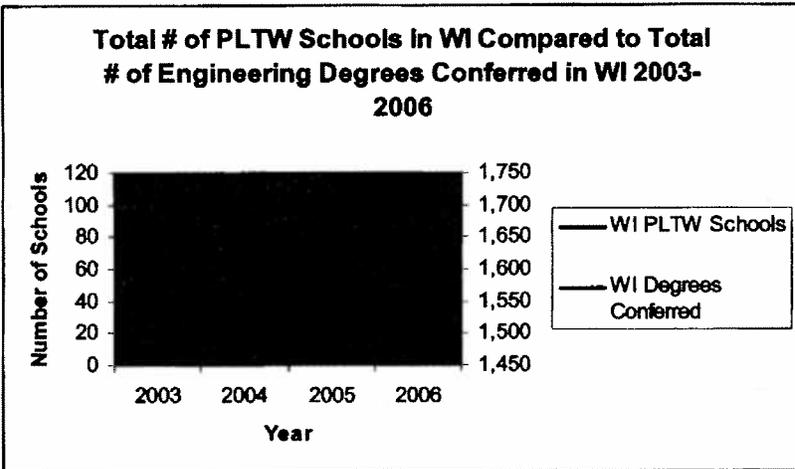
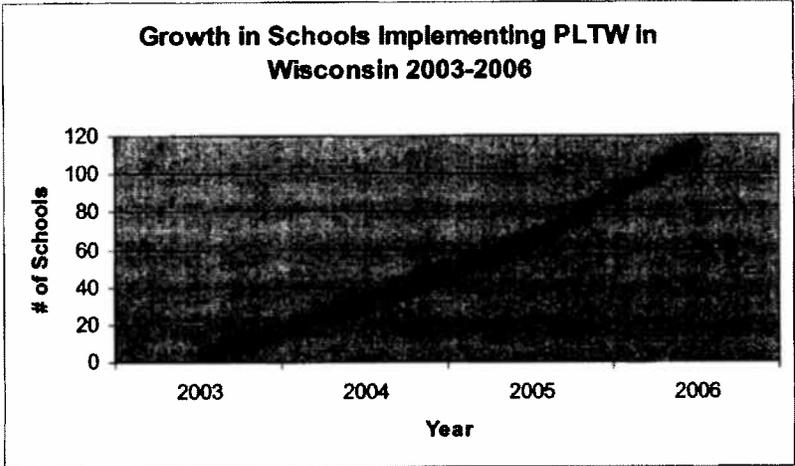
- c. A list of Wisconsin schools implementing PLTW is attached. Central Wisconsin schools include Wisconsin Rapids Lincoln High School (district 24); Manawa Middle School and High School (district 14); Colby High School and Edgar High School (district 23); and Wausau East and West High Schools (district 29).
- d. Milwaukee Public Schools received the Public Policy Forum's "private-public cooperation" innovation award for its commitment to and participation in Project Lead the Way through the Forum's "Salute to Local Government" program, which honors partnerships that produce impressive, demonstrable results.

Quality education linked to workforce needs is essential for economic development.

Wisconsin Project Lead the Way Sites
Fall 2007
CITY/SCHOOL NAME

Appleton: Tesla Engineering Charter School (HS)
 Appleton: North HS, West HS, four middle schools (2007)
 Arrowhead HS
 Beloit HS, MS
 Blackhawk Technical College
 Brodhead HS
 Brodhead MS
 Brown Deer HS, MS
 Clinton HS
 Colby HS
 Cuba City HS
 Delavan HS, MS (2007)
 DePere HS
 Eau Claire North HS, MS
 Edgar HS
 Green Bay: East HS, Preble HS, Southwest HS, West HS
 Greendale HS
 Hamilton-Sussex MS, HS
 Highland HS
 Iowa-Grant HS, MS
 Janesville: Parker HS, Craig HS
 Kenosha: Tremper HS, Bradford HS, Lakeview Academy (HS)
 Kenosha School for Technology Enhanced Curriculum (MS)
 Kettle Moraine HS, MS
 LaCrosse: Central HS, Logan HS
 Lake Geneva: Badger HS
 Madison Metropolitan School District
 Madison East
 Madison LaFollette
 Madison Memorial
 Madison West
 Manawa School District MS, HS
 McFarland HS
 Menomonee Falls HS, MS
 Menomonie HS
 Milwaukee
 Bruce Guadalupe MS
 Milwaukee Area Technical College Adult High School
 Milwaukee Academy of Science
 Pius XI HS
 Thomas More HS
 St. Joan Antida HS

St. Roman Parish MS
 Milwaukee Public Schools:
 HS: Washington, Riverside, Hamilton, & South Division
 HS: Bradley Tech
 MS/K-8: Golda Meir, Samuel Morse, Bell Academy, Audubon Technology, Kosciuszko MS, Vieau K-8 Hartford University K-8, Starns Discover Center
 Monona Grove HS
 New Berlin West HS, MS
 Eisenhower HS, MS
 New Richmond HS
 Nicolet HS
 Northland Pines HS
 Oak Creek HS
 Oconomowoc HS, MS
 Oshkosh North HS, West HS
 Platteville HS
 Prairie du Chien HS
 Pulaski HS
 Racine: Washington Park HS, Horlick HS, Mitchell MS
 Rhinelander HS
 River Valley HS
 Sauk Prairie HS, MS
 South Milwaukee HS
 Southwestern HS
 Superior HS
 Watertown HS
 Waukesha: North HS, South HS, West HS, Central MS
 Waunakee HS
 Wausau: East HS, West HS
 West Bend: East HS, West HS
 Wisconsin Rapids: Lincoln HS





Doug Harris Testimony

11/13/07

I want to thank Senator Lassa and members of the committee for organizing this hearing and for having me take part. As someone who lived in Wisconsin in the past and recently moved back, I viewed the invitation to speak here as an opportunity to take a fresh look at the “state of the state” in terms of its education system and the economy, and to see what general conclusions and recommendations I could draw.

I would like to start by discussing a few important ideas that inform my overall perspective on these topics and that set up the more specific comments I and the other speakers, will make:

(1) Questions about education and the economy are, like other important questions faced by the state senate and state government, questions about the quality of life in the state of Wisconsin. Keeping this idea in mind will us remember that there is much more to the state’s economy than just short-term fluctuations in jobs, income, unemployment, and tax revenue. Thinking in terms of quality of life also forces us to think carefully about what the “quality of life” means for the citizens of Wisconsin and about the hard choices and trade-offs that come with it.

(2) There is fairly broad agreement among educators, business people, and citizens that the public education system contributes to the quality of life by producing many and diverse skills. While reading and math are currently gaining increased attention, these are far from the only skills that students need when they become workers later in life. In addition to academic skills, creative thinking, innovation, entrepreneurship, problem-solving, perseverance, and teamwork are all important for the high-paying jobs we hope to create. These same skills are required for our students to grow up as informed and active citizens, as are knowledge of history, geography, and religion.

I want to make two specific observations that reinforce the importance of the many and diverse skills:

a. Our public schools have long seen these diverse skills as part of their educational mission and it is for this reason that competitor countries such as Korea are trying to make their education systems more like the U.S. system. The educational systems in those countries have been almost completely driven by high-stakes tests and they are now seeing how this limits the quality of their workforces and the long-term growth of their economies.

b. Also, if you look at the data, the best predictor of student success later in life is not student test scores, but years of education and degrees. This doesn’t mean that test scores are unimportant. On the contrary, students who do poorly in school will be less prepared to go on to higher levels and therefore receive less education. Achievement and years of education are interconnected. I’ll return to this point later in my discussion of accountability in K-12 and higher education.

(3) As you know perhaps better than anyone else, the benefits of education come with some costs. So, we have to ask how the value of investments in education compares with investments in roads, health care, and other public programs, as well as the potential private uses that might come with lower taxes. Also, even once we decide how much to invest in education, we have to decide where exactly to focus those resources: early childhood, K-12, and higher education are three general categories and the topics of the present hearing. I'll talk about each in turn before turning to some overarching recommendations.

Early childhood

One of the most important facts to know about education is that cognitive skills begin to be formed at a very early age. Some children are actively engaged with parents and other adults who use broad vocabularies, read books to them, and help them learn to think and explore the world. Other students receive relatively little of this rich engagement. As a result, we see large differences in cognitive and verbal skills among children in kindergarten and before.

There is also strong evidence that we can do something about this. A large number of experiments and other data analyses suggest that early education can increase the amount of education children receive later in life, reduce dependency on welfare, and raise employment possibilities. I'm sure the other speakers later in the hearing will talk about this evidence in greater detail.

For this reason, we need to continue shift the idea of child care to one of early education. One problem we face in making that transition is that the average salary among child care workers is about \$8.50 per hour and, as a result, there are high turnover rates of 25-35 percent per year.

K-12

Despite recent stagnation, Wisconsin continues to be a strong investor in K-12 education. As of 2004, the state spent \$1,000 more per pupil than the national average. This is noteworthy considering that average income in the state is somewhat below the national average. There are two significant caveats, however:

(1) Nationally, teacher salaries are lower, and generally declining, compared with comparable occupations. So, being above the national average on overall K-12 spending or salaries isn't necessarily saying much.

(2) For this same reason, one needs to be careful about the argument that the rate of growth in education spending has been greater than the rate of inflation. While this is generally a reasonable way to judge the real resources going into education or any other sector, the public sector is different because it competes with a private sector where salaries and wages generally (though not recently) grow faster than the rate of inflation. This means that the public sector in general, and education in particular, must increase funding faster than the rate of inflation just to attract the same resources.

One reason I have focused on teacher salaries and benefits to this point partly because this is where the vast majority of K-12 funding goes. A second reason for focusing on teachers is the wide agreement among researchers of all political stripes that teachers represent the most important school resource. There is growing evidence, for example, that students learn much more with some teachers compared with others and that these effects persist over time.

Unfortunately, there is much less agreement about how to improve the quality of teachers and teaching. In addition to raising salaries, there are two main strategies I'd like to talk about--accountability and certification--which I have focused on in my own research.

As I have written elsewhere, the traditional "characteristics" strategy to improving teacher quality involves preparing teachers in university schools of education, certifying graduates of these programs as qualified to teach, and compensating teachers based on these and other characteristics. This approach is counter-intuitive to people outside the education system who are accustomed to a focus not on characteristics but on job performance. There is also growing evidence, including some of my own, that the characteristics of teachers we typically focus on, especially graduate degrees and certification, do not seem to explain the differences in performance among the most at least effective teachers. For these reasons, there is considerable experimentation going on right now with alternative forms of preparation and performance-based compensation, though there is not much clear evidence that they work. There is also experimentation with so-called "value-added" models, a topic that I have spent considerable time on myself. It will be worth watching these experiments closely.

Performance pay is of course not the only form of accountability. We are all aware of the increased focus on student standardized testing, resulting from No Child Left Behind. There are many flaws in the law and many of these will likely be fixed at some point, though not for a few years. Let me just note a few of the most significant flaws:

- inordinate focus on student achievement
- poor testing regimes that do not measure higher order thinking skills
- failure to identify the contributions of schools to student outcomes

I would be glad to elaborate on these in the discussion period.

Higher education

Discussion of accountability provides a good segue into the next topic--higher education. There is considerable interest in increasing accountability in higher education, stemming from increasing costs and tuition and a perceived absence of accountability of the sort now common in K-12. As in K-12, the apparent goal of these ideas is to increase the return on existing educational investments.

There are two problems with extending high-stakes testing to higher education: The first is that test-based accountability becomes more difficult as we move to higher levels of education, for the simple reason that the skills being produce are much more

diverse. It is not coincidence that No Child Left Behind focuses on grades 3-8. Even extending it into high schools is a challenge. Extending it into higher education, where there are thousands of courses, is a monumental challenge and is likely to accomplish little, while diminishing the strong national reputations of our colleges and universities.

Accountability is of course not the only important topic in higher education. I believe Dr. Haveman will show in his remarks that the economic return to education is high. This begs the question, why don't people get more education? While I and my colleagues at UW are trying to better answer this question, there are some things we already know that the state government can do to help: (a) make sure that the costs of higher education, especially for students in the lower family income categories, is not too high; (b) make sure students are aware, early on, about what they have to do during their K-12 years to succeed in college; and (c) make sure students are aware of the significant benefits they will receive in terms of future income. Regarding these first two, I argued earlier this year in a policy brief that the Wisconsin Covenant proposed by Governor Doyle represents an important step in this direction. This policy brief was co-authored with colleague Sara Goldrick-Rab and published by UW's WISCAPE center.

Finally, let me point out that higher education institutions are the lynch pins for the high-skill, high-paying jobs that the state is hoping to attract. Our colleges and universities not only produce skilled students, but the faculty themselves are often involved in developing new business ventures on state of the art technology. One counter-argument to all of this that I'm sure is in the back of your minds is that many of our students leave the state after graduating. This is a legitimate concern, however, as a colleague, Dr. Phil Trostel, points out, an educated population is also essential to attracting people and businesses from outside the state to move into Wisconsin. We cannot control where individuals move, but we can control how attractive Wisconsin is as a place to live and work. Our colleges and universities are a key piece of that puzzle.

Final thoughts and policy recommendations

One aim of these points on early childhood education, K-12, and higher education, has been to show how the various parts of the education system are connected to one another—how each one builds on what comes before it. For example, the Wisconsin Covenant highlights the fact that early education will do more good if students see opportunities for themselves down the road in higher education.

In addition, as I mentioned in my opening comments, it is important to think about both what these types of education each contributes to the economy, and at what cost. This perspective is necessary to determining to what degree further investments in education should take precedence over other public programs, as well as what form those education investments should take. Let me conclude with a few specific recommendations that are based on both the economic return to investments in education, as well as the other contributions of education to the quality of life.

(1) The evidence suggests that investing in the education of children before they enter kindergarten is probably the best investment we can make. Again, there is considerable support for this direction from evidence that cognitive and verbal skills

develop very early on and evidence that early education and improve these skills and long-term outcomes.

(2) This does not mean, however, that we can ignore K-12 and higher education. As suggested above, it is important to maintain funding levels and improve accountability in K-12. Likewise, we must continue to invest in higher education. Whether we like it or not, colleges and universities compete in a national market and the surest way to fall behind the competition of other states in terms of high-skill jobs is continue to allow funding to stagnate.

(3) Put much greater attention to evaluating the effectiveness of educational policies and programs. It is difficult enough to make these decisions without tying our hands by failing to account for our successes and failures. We will never know the return on any of our investments if we do not study them. Policies and programs are generally not implemented in a way that facilitates evaluation. Also, too few resources are put into evaluation. Good evaluations generally require less than one percent of the funds that the programs and policies themselves demand. If we could identify just one failure out of a hundred, these evaluations will more than pay for themselves.

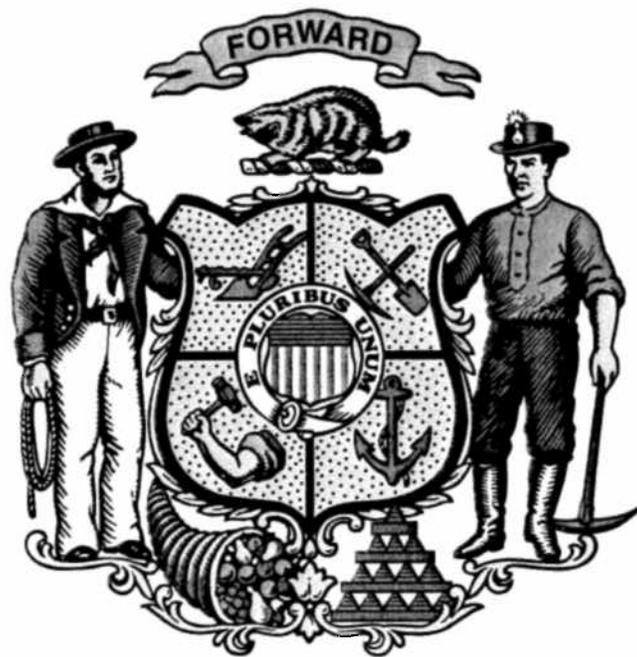
A related point, and the one I want to spend the remainder of my time on here, is that the data are insufficient to provide sound evaluation. You might think, "Isn't the collection of the data the role of the evaluator?" Yes and no. It's true that the evaluators need to collect some of the data necessary for their analyses. But much of the data that are necessary are already collected by the state and, even if it were possible, it would make little sense to make the evaluators collect the data all over again.

For this reason, states such as Florida, have implemented extremely sophisticated data systems that allow each student to be matched to the resources they receive, beginning in kindergarten, continuing through K-12, through higher education, and into the workforce. We know what programs the students participate in, which teachers they have, which schools they attend. I have used these data from Florida and can attest to their extraordinary value for understanding program effectiveness, as well as program costs. Further, the systems are designed to maintain student and teacher confidentiality, well within the confines of the federal FERPA laws.

In fact, when I leave this hearing after my presentation, I will going to the airport to go to Washington, DC to meet the National Center on Education Statistics which is trying to develop advice for those states making these great strides in their data systems. While I understand that some efforts are being made in this direction in Wisconsin, I can tell you from experience that we are far behind.

One of the most important advantages of these data systems is that they allow us to measure accurately the most important outcomes in the education system—years of education and degrees, which, as I have said, is the best predictor of long-term success, and workforce. Further, these systems allow us to look both backwards to the causes of our successes and failures and forward to see the investment return that education produces. This is important both for improving program evaluation and for improving accountability systems.

Again, I thank you for the opportunity to speak and I hope that comments have been useful.



Effects of early education and child development on future economy



A presentation to the Wisconsin Senate Committee on Economic Development
November 13, 2007

Ellen Frede, Ph.D.
National Institute for Early Education Research
www.nieer.org

Impacts of Quality Early Education

Increased Educational Success and Adult Productivity

- Achievement test scores
- Special education and grade repetition
- High school graduation
- Behavior problems, delinquency, and crime
- Employment, earnings, and welfare dependency
- Smoking, drug use, depression

Decreased Costs to Government

- Schooling costs
- Social services costs
- Crime costs
- Health care costs (teen pregnancy and smoking)

Demery, W. S. (2002). Early childhood education in A. McKay (Ed.) *School reform proposals: The research evidence* (pp. 1-35). Greenwich, CT: Information Age Publishing.

Randomized Trials

- Long Term
 - Perry Preschool¹, IDS², Early Training Project³
 - Abecedarian⁴, Milwaukee⁵, CARE⁶
 - IHDP⁷ (not Disadvantaged), Houston PCDC⁸
 - Mauritius Preschool Study⁹
- Short Term
 - National Early Head Start¹⁰
 - National Head Start¹¹
 - Many smaller scale studies

*See slides at the end of the presentation for references.

Quasi-Experimental Studies: Follow-up Into School Years

- Chicago Child Parent Center Study (12th grade)¹²
- Michigan School Readiness (4th grade)¹³
- South Carolina Pre-K (1st grade)¹⁴
- New York Pre-K (3rd Grade)¹⁵
- Ludwig & Miller Head Start (12th grade +)¹⁶
- RAND National study of 4th grade NAEP¹⁷
- Cost Quality and Outcomes (3rd grade)¹⁸
- Vandell NICHD Early Care and Education¹⁹
- Early Provision of Preschool Education (England)²⁰

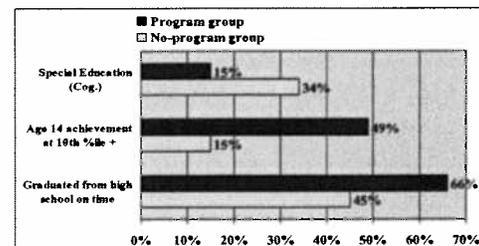
*See slides at the end of the presentation for references.

Three Benefit-Cost Analyses with Disadvantaged Children

| | High/Scope | Abecedarian | Chicago |
|------------------|-----------------------|----------------------|-----------------------|
| Year began | 1962 | 1972 | 1985 |
| Location | Ypsilanti, MI | Chapel Hill, NC | Chicago, IL |
| Sample size | 123 | 111 | 1,539 |
| Design | RCT | RCT | Matched neighborhood |
| Ages | Ages 3-4 | 6 wks-age 5 | Ages 3-4 |
| Program schedule | Half-day, school year | Full-day, year round | Half-day, school year |

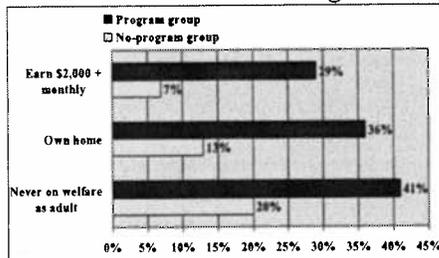
Demery, W. S., & Mason, L. N. (2007). Early childhood program design and economic returns: A comparative benefit-cost analysis of the Abecedarian program and policy implications. *Economics of Education Review*, 26, 113-125. Temple, J. A., & Reynolds, A. J. (2007). Benefits and costs of investment in preschool education: Evidence from the Child Parent Center and related programs. *Economics of Education Review*, 26(1), 29-46. Schweinhart, L. J., Meisel, J., Wang, Z., Thomas, W. S., Barthel, C. R., & Horn, M. (2005). *Lifetime effects: The High/Scope Perry Preschool study through age 40* (Monographs of the High/Scope Educational Research Foundation, 14). Ypsilanti, MI: High/Scope Educational Research Foundation.

High/Scope Perry Preschool: Educational Effects



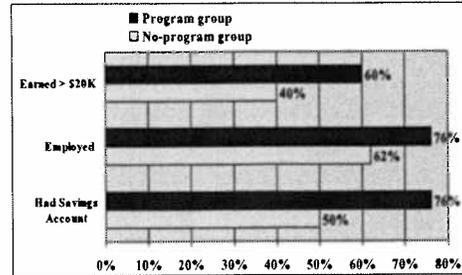
Demery, W. S., & Schweinhart, L. J. (2007). *High/Scope Perry Preschool: The effects of the Perry Preschool Program on youth through age 19* (Ypsilanti, MI: High/Scope Press).

High/Scope Perry Preschool: Economic Effects at Age 27



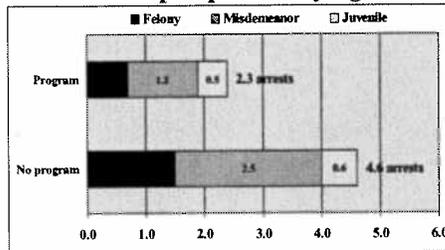
Barnett, W. S. (1996). *Even in the balance: Benefit-cost analysis of the Perry Preschool Program through age 27*. Monographs of the High/Scope Educational Research Foundation, Ypsilanti, MI: High/Scope Press.

Perry Preschool: Economic Effects at 40



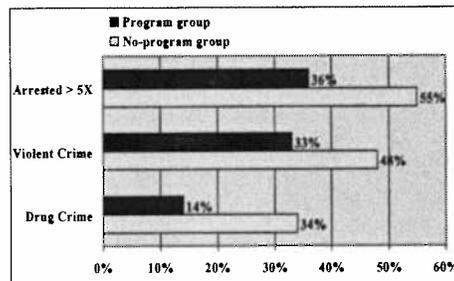
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High/Scope Perry Preschool: Arrests per person by age 27



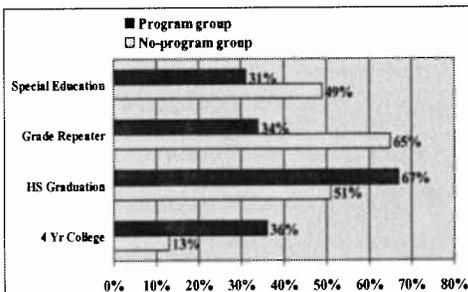
Barnett, W. S. (1996). *Even in the balance: Benefit-cost analysis of the Perry Preschool Program through age 27*. Monographs of the High/Scope Educational Research Foundation, Ypsilanti, MI: High/Scope Press.

Perry Preschool: Crime Effects at 40

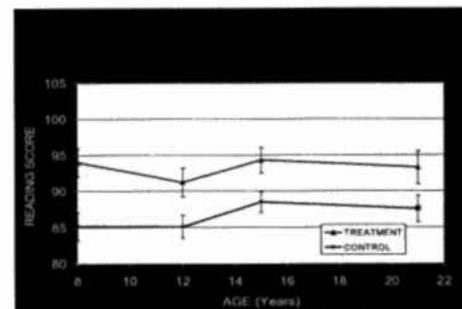


Schweinhart, L. J., Montie, J., Xiang, Z., Barnett, W. S., DeWitt, C. R., & Nixon, M. (2005). *Lifetime effects: The High/Scope Perry Preschool study through age 40* (Monographs of the High/Scope Educational Research Foundation, 14). Ypsilanti, MI: High/Scope Educational Research Foundation.

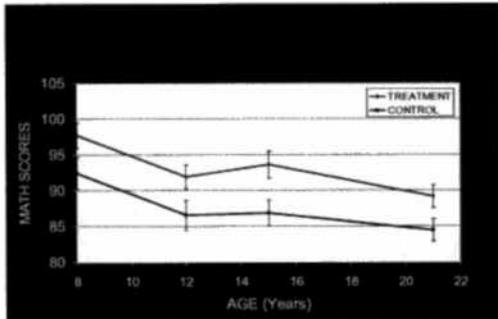
Abecedarian : Academic Benefits



Barnett, W. S., & Masse, L. N. (2007). Early childhood program design and economic returns: Comparative benefit-cost analysis of the Abecedarian program and policy implications. *Economics of Education Review*, 26, 115-125. Campbell, F. A., Ramey, C. T., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Long-term outcomes from the Abecedarian Project. *Applied Developmental Science*, 23(1), 9-27.

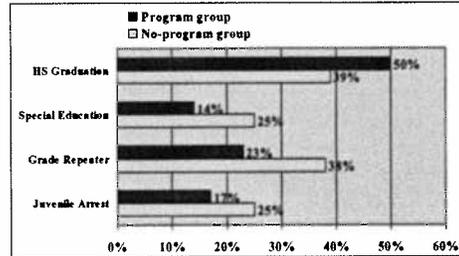


Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Bartlett, M., & Ramey, C. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology*, 37, 231-242.



Campbell, P. A., Pungello, E. P., Miller-Johnson, S., Brondino, M., & Ramsey, C. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology, 37*, 231-242.

Chicago CPC: Academic and Social Benefits at School Exit



Tangley, J. A., & Karpovska, A. J. (2007). Benefits and costs of investments in preschool education: Evidence from the Child-Parent Center and related programs. *Economics of Education Review, 26*(1), 126-144.

Economic Returns to Pre-K for Disadvantaged Children

(In 2006 dollars, 3% discount rate)

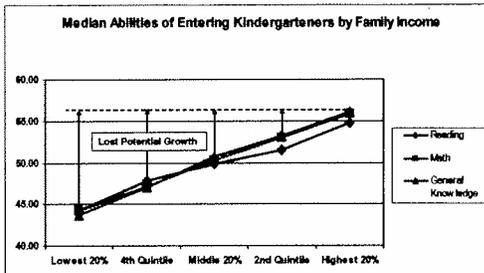
| | Cost | Benefits | B/C |
|---------------|----------|-----------|-----|
| ▪ Perry Pre-K | \$17,599 | \$284,086 | 16 |
| ▪ Abecedarian | \$70,697 | \$176,284 | 2.5 |
| ▪ Chicago | \$ 8,224 | \$ 83,511 | 10 |

Duncan, W. S., & Maize, L. N. (2007). Early childhood program design and economic returns: Comparative benefit-cost analysis of the Abecedarian program and policy implications. *Economics of Education Review, 26*, 115-125; Bellfield, C., Noss, M., Duncan, W. S., & Schreiner, L. J. (2006). The HighScope Perry Preschool Program. *Journal of Human Resources, 41*(1), 162-196; Tangley, J. A., & Karpovska, A. J. (2007). Benefits and costs of investments in preschool education: Evidence from the Child-Parent Center and related programs. *Economics of Education Review, 26*(1), 126-144.

Need Does Not Stop at the Poverty Line

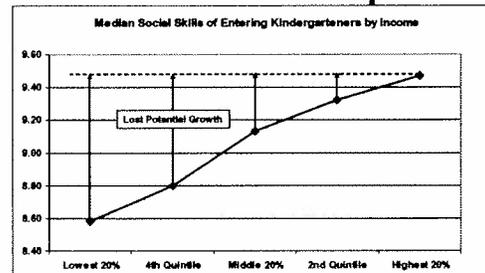
- Undeveloped potential at school entry
- Most school failure above poverty
- Poverty status is impermanent
- Pre-K "works" for all children

Cognitive Development Gap



Duncan, W. S. (2007). Original analysis of data from the US Department of Education, National Center for Educational Statistics, IRTL-E Data Year Data File and Electronic Codebook (2002).

Social Skills Gap



Duncan, W. S. (2007). Original analysis of data from the US Department of Education, National Center for Educational Statistics, IRTL-E Data Year Data File and Electronic Codebook (2002).

School Failure and the Middle Class

Middle class children have fairly high rates of failure. Reducing these problems could generate large benefits.

| Income | Retention | Dropout |
|-------------|-----------|---------|
| Lowest 20% | 12% | 18% |
| 20-80% | 8% | 9% |
| Highest 20% | 4% | 2% |

Source: Current Population Survey (Retention 2004, Dropout 2005)

High Quality Pre-K Requires



- Well-educated, adequately paid teachers
- Good curriculum and professional development
- Small classes
- Strong supervision
- High standards

Conclusions

- Preschool can be a sound investment
- Returns depend on quality
- Returns will vary based on who is served



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Testimony by David Edle, Wisconsin Council on Children and Families

Senate Committee on Economic Development, Job Creation, Family Prosperity and Housing November 13, 2007

Thank you, Senator Lassa and Committee members for this opportunity to talk to you about the importance of early education in Wisconsin. I am not a researcher, but I come to you with 38 years of experience in the trenches of early care and education. My experience includes teaching in elementary schools, teaching and directing in child care centers, 20 years in Wisconsin state government, and four years consulting with other states. I'd like to give you my perspective on early education in Wisconsin.

I work for Wisconsin Council on Children and Families, the only multi-issue, private, nonprofit children's advocacy organization in the state. The Council has a 125-year history committed to assuring a set of conditions allowing every child to succeed in school and in life. The Council is particularly concerned about the school achievement gap for children from disadvantaged backgrounds. Education is essential to equal opportunity, but the achievement gap has been a difficult problem to address. The Council believes that high quality early care and education has great promise to address this problem. It is rare to find such a rich research base with so much agreement on benefits and effectiveness as the last quarter century of research on early care and education.

Parents and practitioners in early care and education all understand intuitively how important the early years are, and how early investment pays off. I went into preschool education because I saw up front the frustration and failure of children in public schools who came from disadvantaged backgrounds. They weren't ready, they felt inadequate, and they often became disruptive. Kindergarten and elementary school teachers are keenly aware the importance of the early years in preparing children for school.

But a much broader group is becoming convinced not only that the early years are crucially important, but that we know how to narrow school achievement gaps, based on a growing body of research on children's development and intervention programs.

Economists, business leaders, and politicians are increasingly intrigued by what the science tells us.

James Heckman, University of Chicago Economist and Nobel Laureate, 2005: ***"Investments in high-quality early learning programs have the greatest rate of return of any social investment."***

Committee for Economic Development, Washington, D.C., 2006:
".. high-quality preschool programs offer societal benefits that far outweigh program costs by improving later education, employment, earnings, and crime outcomes"

A Member of 

Ben Bernanke, Federal Reserve Chairman, 2007:

"Starting early in life is crucial. Recent research has documented the high returns that early childhood programs can pay in terms of subsequent educational attainment and in lower rates of social problems"

Jeff Joerres, CEO of Manpower, Inc., 2005:

"Wisconsin will not succeed as a state without investment in early education"

 The National Governors Association's, Policy Position on Early Education, 2006:
"The intent is to create a system that is more responsive to the needs of working parents and that supports opportunities for children to participate in high-quality school readiness programs... The research on the importance of quality early care and education is compelling, and these programs are critical to promoting school readiness."

Why do researchers and others think the early years are so important?

Research tells us that early brain development in the first five years creates the foundation for a child's healthy development and learning. And that foundation is essential to intellect, personality and skill development. As economist Heckman puts it, there is a cumulative process: Skill begets skill, and motivation begets motivation. Success breeds more success. And the earlier the investment, the greater the return on the dollar.

Ellen Galinsky, President of the Families and Work Institute, interviewed the lead researchers of three extraordinary studies that followed children who participated in high-quality early childhood programs from early childhood into adulthood. All three studies showed remarkable outcomes and cost-benefit ratios, averaging \$7 of benefits for every \$1 invested. The researchers believe that the programs prepared children for school, with more skills and confidence than the control groups, and as they got more committed to school, the greater success they had. And school readiness was not just about academics—the researchers believe that the children's early social and emotional development was key to their later success.

Why is investing in early care and education a particularly good investment?

First of all, investing in high-quality early learning programs is not a silver bullet. It does not solve all problems. But those who have carefully studied investments to improve child outcomes in school and beyond have been astonished at the number of carefully designed scientific studies that show remarkable long-term gains, including lower rates of special education and grade retention in school, higher graduation rates, lower crime rates for juveniles and adults, and higher earnings.

Economists believe there can be very promising benefit/cost ratios from high-quality early childhood programs. There is tremendous promise here. However, we have to be careful about what the research tells us:

- Strong benefits come from high-quality programs, with well-designed approaches with a focus on the whole child, well-trained staff, parent engagement, and small staff-to-child ratios. Mediocre programs are not likely to bring strong benefits.

- Benefits are significantly higher for children from disadvantaged backgrounds, but newer studies are showing positive effects for middle-class children as well.
- There may be a reduction in benefits when program models are replicated on a larger scale—it's difficult to control for quality when programs go to scale. But even if the benefit/cost ratios may be diluted, they still are likely to be much higher than most economic development investments.

Let me focus on two reports in particular:

1. Chicago Child-Parent Center Program

The first is the research of Arthur Reynolds formerly at the University of Wisconsin. Reynolds completed a cost-benefit analysis of the federally funded Chicago Child-Parent Center program. The program, funded by Title I of the No Child Left Behind Act, serves children between the ages of 3 and 9 in Chicago's inner-city public schools. The program is probably the largest-scale early childhood intervention program where children were tracked to adulthood and compared to a control group. There were nearly 1,000 children in the program, with 550 in the comparison group. The results were remarkable.

- 20 percent higher rate of high school completion
- 42 percent lower rate of juvenile arrest for violent offense
- 52 percent reduction in abuse and neglect
- 86 percent higher percentage of children who meet literacy skills norms at age 5
- 59 percent higher percentage of children meet school achievement norms at age 14

The program's had a very positive 7 to 1 benefit-to-cost ratio, due to benefits including reduced need for grade retention and special education, reduced juvenile and adult crime arrest, and reduced child welfare expenditures. The benefit/cost ratio improves significantly over time as the children get older.

Experts and economists who reviewed the Chicago program point to several key elements that led to its success: well-trained and compensated teachers, strong parent involvement, early health and developmental screening, small class sizes, and a comprehensive curriculum focusing on early learning and social/emotional skill development.

2. Report by Economist Robert Lynch

The second report is a book released this year by economist Robert Lynch. Lynch took all the cost-benefit research under consideration in calculating likely impacts of public investment in high-quality early childhood programs in a book published by the Economic Policy Institute this year. He points to research measuring return on investment in preschool education at 16 percent annually, outperforming the stock market yearly average gains of 6 percent. The report by Lynch measures investments in both targeted and universal early education investments for 3 and 4 year-olds. He uses the Chicago Child-Parent Center program as his model for what the preschool program would look like.

According to Lynch, if Wisconsin invested in programs following the Chicago model, and targeted services to the 25 percent of the children in Wisconsin with the most need, the benefits would exceed \$5 billion in 2050 – a benefit more than 13 times that of the annual investment that year. Benefits from investment in universal preschool

education would be about 9.5 times the investment, according to Lynch's calculations. Lynch estimates benefits due to lower K-12 expenses from less special education costs, lower juvenile and adult crime rates, lower child welfare expenditures, and higher taxes paid because of higher work rates and higher incomes. While Lynch acknowledges that the benefits his estimates may not be precise, he believes he is in the ballpark and that he is using conservative assumptions.

So, there appears to be remarkably good evidence that investing in early learning is a wise investment.

What do we know about child care and early education in Wisconsin?

Wisconsin Strengths

Wisconsin has a strong foundation of support for early care and education:

- **4K:** Wisconsin is a national leader in four-year-old kindergarten (4K), with two-thirds of school districts participating serving over one-third of four-year-olds.
- **Child care:** Wisconsin's child care subsidy program, Wisconsin Shares, is also ranked very high among states, providing affordable access to children of low-income families without waiting lists
- **Head Start:** Wisconsin is one of only 16 states that supplement federal funds with state dollars.
- **Services to children with disabilities:** Wisconsin is well above the national average in reaching young children with disabilities
- **Collaboration:** Recent collaboration between school districts, child care, Head Start programs and disability programs has helped strengthen early learning opportunities. Of particular note is the work of several school districts who are delivering 4K in collaboration with child care centers, Head Start, and other community-based programs.

The Wisconsin Council on Children and Families strongly supports four-year-old kindergarten, Head Start, and programs for young children with disabilities, all of which have strong teacher standards and curriculum. We support continuing to expand access to these services and to strengthen their early learning components.

However, our research points particularly to the need to build a strong early learning component into child care settings across the state. And child care settings are where a large proportion of Wisconsin's young children are being cared for.

Child Care for Children of Working Families

What do we know about child care settings in Wisconsin?

- **Most parents are working:** 71 percent of children under six have all parents in the workforce- the fourth highest rate in the nation. This is a dramatic change from 30 years ago.
- **High percentages of children are in organized early care and education:** We estimate that 74 percent of children ages 3-5 are in child care and early education programs, and 25 percent of children ages birth to 3
- **High use of child care:** About 72 percent of children who are in early childhood programs are in *child care* settings
- **Child care system inadequate:** These child care settings operate in a private market, funded primarily by parent fees. Basic child care is expensive, and

most parents cannot afford the costs of high quality. While Wisconsin's child care is generally safe and nurturing, most child care teachers and providers do not have strong training in early education. Child care teachers earn less than \$9 an hour. Over the last 25 years, wages have been stagnant, and the percentage of well-qualified teachers is on the decline. Early learning curriculums in child care programs are typically not strong.

- **High quality rare:** Recent research by the UW-Extension's Wisconsin Child Care Research Partnership found that only 15 percent of child care programs meet the kind of quality standards that are likely to produce significant positive effects on school readiness.
- **Free market does not produce high quality:** The free market system has not been able to produce a high quality product without additional financing

Wisconsin parents are often caught in a bind: worrying about their children's development as they work hard to make ends meet. Developing a system that provides needed child care services so parents can work *and* assures that their children have good early learning experiences has multiple benefits:

1. It helps children get ready for school and later success
2. It allows parents to work, providing a workforce for businesses and strengthening the economy and the tax base
3. It invests in thousands of small child care businesses, providing a strong economic benefit that stays in Wisconsin. (This service can't be outsourced to China or India.)

If Wisconsin is going to get the long-term benefits of early education touted by the research, it will need to focus more on the quality of early care and education settings, with a particular focus on child care. Wisconsin Council on Children and Families supports efforts to assure that all Wisconsin children have access to high quality early learning experiences and nurturing care, regardless of the setting they are in. Planning for a coherent early education system should be one of the economic development goals at state and local levels.

We believe that Wisconsin would be wise to build on its already strong foundation with new investments in early learning. We believe that investments in young children are the right thing to do, for our children, for our families, and for our economy.

Handouts:

1. Committee for Economic Development position on investing in high-quality preschool
2. University of Wisconsin report on Professor Arthur Reynolds research on economic benefits of early education
3. Wisconsin Fact Sheet based on economist Robert Lynch's book: *Enriching Children, Enriching the Nation: Public Investment in High-Quality Prekindergarten.*
4. WCCF Policy Brief: "Making the Grade—Making the Case for Well-educated, Well-trained Teaching Staff in Early Care and Education."

Testimony
Senate Committee on Economic
Development, Job Creation,
Family Prosperity and Housing

Dave Edie
Wisconsin Council on
Children and Families
November 13, 2007

1

**Economists and Leaders Impressed by
Scientific Evidence**

- James Heckman, Nobel Laureate
- Committee for Economic Development
- Ben Bernanke, Federal Reserve Chairman
- Jeff Joerres, CEO of Manpower, Inc.
- National Governor's Association

2

**Why Does Early Investment
Pay Off?**

- Early Years: foundation for healthy development and learning
- Heckman: cumulative process— skill begets skills, motivation begets motivation
- Success breeds success

3

3 Famous Long-term Studies

- Positive outcomes from high-quality early childhood programs targeted to at-risk children
- Average: \$7 of benefits for every \$1 invested
- Not just about academics— social and emotional development also key to success

4

Chicago Child-Parent Centers

Treatment group had:

- 20% higher rate of high school completion
- 42% lower rates of juvenile arrest
- 52% reduction in child abuse & neglect
- 86% higher rate meeting literacy norms at age 5
- 59% higher rate of meeting school achievement norms at age 14

5

Economist Robert Lynch

- Benefit 13 times the investment for low-income children by 2050
- Benefit 9 times the investment for universal program by 2050

6

Wisconsin Strengths

- ❑ **4K** serves over one-third of 4-year-olds and over two-thirds of school districts offer it
- ❑ **Head Start:** Wisconsin is one of 16 states that supplements Head Start funding
- ❑ **Disabilities:** Wisconsin is well above the national average in reaching disabled children with services
- ❑ **Child care:** Wisconsin's Wisconsin Shares child care subsidy program is ranked high among states

Working Parents and Child Care

- ❑ High percentage of Wisconsin parents working: 71% of young children have all parents in workforce— an enormous demographic change- 4th highest in US
- ❑ Most kids spend significant time in organized settings before they enter school
- ❑ An estimated 72% of children in organized settings are in child care settings

Child Care in Wisconsin

- ❑ Parents can't afford high quality child care
- ❑ Most child care teachers do not have strong training in early education
- ❑ The average child care teacher earns less than \$9 an hour
- ❑ Only 15% meet standards likely to produce large impact on school readiness

Child Care + Early Learning = Multiple Economic Effects

- ❑ Child care lacks resources for quality early learning- free market system is not able produce a high quality product without additional financing
- ❑ Multiple impact from solid early learning program in child care settings:
 - Helps children get ready for school
 - Helps parents work
 - Investment in small businesses— stays in the state

Future Consideration

- ❑ Consider investing in early learning, building on Wisconsin's strengths
- ❑ A wise investment in Wisconsin's future



WISCONSIN EDUCATION ASSOCIATION COUNCIL

Affiliated with the National Education Association

*Every kid
deserves a
Great School!*

Testimony of Mary Bell, President of the Wisconsin Education Association Council before the Senate Committee on Economic Development November 13, 2007

Good Morning. My name is Mary Bell. I am a library media specialist and English teacher and am currently serving as President of the Wisconsin Education Association Council, the largest union of education employees in the state. WEAC's membership is diverse and includes teachers, education support professionals, faculty and support staff in the Wisconsin Technical College System, and education and information professionals who are employed by the state. Thank you for the opportunity to speak to you today about one of the most important issues facing Wisconsin: public education, and more specifically its link to economic growth and development.

Few people, if any, deny the compelling bit of common sense which suggests that a healthy and successful child will contribute more to society in the long run than will a child that fails to thrive. The success of public education in helping today's children acquire the skills they need to participate in our democratic society, find gainful employment, and realize their full potential is in no small way linked to the overall prosperity of our state.

Human capital, after all, is the greatest resource we have, and much research in the field of economics points to a strong correlation between education and earnings. Recently, in fact, the Federal Reserve Bank of Minneapolis published a series of reviews, which concluded that investments in early childhood are the most effective investments society can make in order to promote economic development—bar none. The Federal Reserve concluded that preschool investments can provide “a 12 percent return, after inflation”—which, it suggests, is better than the

Mary Bell, President
Dan Burkhalter, Executive Director



stock market and other social programs. One dollar invested in early childhood, in other words, generates a healthy return for the state. Economic research has consistently found that high school graduates make more than dropouts, and that college graduates make even more still.

The choice before us is rather simple: we can pay now to help children succeed, or we can pay more later. The costs of welfare, social services, increased police protection, and incarceration, which too often tragically follow unsuccessful students, are costs borne by the state. A study by Teachers College, Columbia University, for example, found that preventing students from dropping out of school can reduce car thefts, burglary, arson, and assaults by significant amounts—all activities that have obvious negative social and economic costs. In contrast, successful graduates overwhelmingly go on to earn higher incomes and contribute to society. When both sides of this equation are examined—the social costs of educational failure and the economic gains of its success—it can be determined that in the most basic terms, education produces a return for the state. Education is an investment that reaps ample economic rewards.

A good example of this positive return on education is the GI Bill that assisted WW II vets with their college educations. Studying the program, the U.S. Departments of Labor and Commerce found that education investments for GIs led directly to increased earnings for those individuals. Higher earnings, in turn, brought in more tax dollars so that in less than 20 years the government generated an additional \$14 billion in revenue, exceeding the amount it originally invested. The government, of course, also experienced savings by helping to keep these individuals out of poverty. Specific to K-12 education, a study by Rand Inc., a renowned think tank out of California, had similar findings. Rand reported that states generally recoup educational investments after 10 short years due to the twin effects of social savings on the one hand and more productive citizens on the other.

Intelligent investment, then, can lead to long-term gains for the state, the economy, and individuals. The decisions that we make today truly will shape our future. Beyond contributing to the direct economic success of individuals, education benefits the economy in other ways, including business attraction.

Business attraction

Business relocation experts have consistently found that a community's "quality of life" is one of the most important factors that businesses consider when looking to relocate or expand. And while quality of life includes many things like parks, good roads, and safe communities, education is invariably one of the most important factors.

Ernst and Young, for example, found that a well-educated workforce was the second most important factor in business relocation decisions, only behind lease rates; and the Brookings Institute similarly found that 72 percent of business leaders reported workforce quality as the most significant factor when deciding where to locate. *Expansion Management* magazine, which caters to business relocation, states that "education is more than just a local issue . . . it is above all else, the source of [a business's] future workforce." Both *Expansion Management* and *Inc. Magazine*, which also examines issues related to business climate, rated Wisconsin's K-12 system tops nationally in creating a well-educated workforce.

In short, *education is a permanent asset for the state*. Businesses may come and go, responding to a multiplicity of economic factors, but a sound system of public education is ours for keeps. Great systems of education can serve as a magnet, attracting new businesses through time. In this light, economic strategies that disinvest in the public infrastructure appear not only to be shortsighted, but to actually harm the long-term economic interests of the state.

Home Values

In addition to helping individuals succeed economically and attracting new businesses, quality schools also increase the value of housing. Conclusively, research has found a positive relationship between high-quality schooling and the value of homes, generally a family's largest and most important asset. Just ask the Wisconsin Realtors Association, which stated that "selling homes, in large part, means selling good schools." In general, homes selling in high-performing school districts sell for higher prices than those in low-performing districts.

The *Journal of Real Estate Research* reported that class size, per pupil expenditures, and average teacher salaries, for example, had a greater correlation with home buying decisions than did other non-educational factors. In another study, Cecilia Rouse of Princeton and Lisa Barrow of the Federal Reserve Bank of Chicago found that "on net, additional school spending leads to increased property values." Rouse and Barrow determined that additional state aid for education increased aggregate housing values. A 1997 study by the *National Tax Journal* also found a relationship between levels of taxation and home values. It concluded that otherwise similar homes "in school districts with higher taxes are in fact worth more"—additional annual taxes of \$350 to \$900 yielded an increase in home values of between \$5,000 and \$12,000, the *Journal* reported.

These findings suggest that, when appropriately applied to education, tax investments can work to the economic advantage of homeowners. Few people enjoy paying taxes, but such findings suggest that political discussion today is too narrowly focused on the negative aspects of taxation. A more balanced approach would acknowledge what every realtor and parent already knows: that good schools bring increased value to homes and neighborhoods.

Spending benefits local communities

Another aspect of educational spending too often ignored is the positive ripple effect that it has on local communities. Schools, after all, purchase services and supplies from local communities, and often subcontract with local vendors and tradesmen. All of these expenditures benefit the community. In addition, support staff, teachers and administrators are economic agents that contribute to local commerce. When education employees purchase a car from a local dealership, buy a home in the community, shop at local stores and markets, and dine in mom and pop eateries, they are improving the economic health of the community.

This dynamic is perhaps best envisioned in smaller rural communities, where education provides a stable form of enduring local employment that well serves local economies. Positive job effects, however, hold true statewide. One study by a former economist for the National Governors' Association found that a 2 percent increase in educational spending resulted in both short-term and long-term net job gains. The number of jobs created by increasing educational spending, in other words, is larger than the number of jobs lost due to increased taxes used to support that spending—a positive job effect found to hold true for the full 10 years examined by the study.

A study of Wisconsin's vocation technical colleges system by the Wisconsin Taxpayers Alliance found very similar dynamics at play for educational spending here. To quote:

Wisconsin's technical colleges have an extremely significant impact on the state economy. The report – *Growing Wisconsin's Economy: The Economic Impact of Wisconsin's Technical Colleges* – indicates the 16 technical colleges collectively generated \$6.9 billion in economic activity in 2005-06. The figure represents approximately 3.2% of the state's total economic output.

The college's economic impact is generated through both institutional spending and through economic benefits that accrue to technical college graduates. In 2005-06, the technical colleges spent roughly \$1.0 billion on in-state products and services. This direct spending yields additional economic activity. For example, employees of the colleges spent their wages,

creating jobs for other state residents. Similarly, the purchase of goods and services by the college help produce income and create jobs. As this spending filters through the economy, it generates even more economic activity.

In sum, WISTAX estimates this so-called “multiplier effect” is responsible for \$1.8 billion in additional economic activity, bringing to \$2.8 million the total output generated by the colleges’ direct spending.

Educational spending, then, has both primary economic effects—where individuals are hired and supplies are purchased, and secondary effects, where positive economic activity ripples throughout the economy. These findings stand in stark contrast to those who view government spending as detrimental to economic growth.

Economic Productivity

It is also important to note that a skilled and educated workforce increases overall economic productivity. In an analysis of economic growth during the past several decades, the Federal Reserve Bank of Chicago reported that “improvement in education attainment in the 1970s and 1980s . . . was the sole positive contributor to labor quality, adding .54% per year [of economic growth] between 1965 and 1985.” Based on this finding, the Federal Reserve concluded that “Improvements in the quality of workers due to changes in the distribution of education and work experience are among the key determinants of the economy’s potential rate of growth.”

In the new knowledge economy, the Progressive Policy Institute suggests that “prosperity is principally driven by creativity, inspiration, and learning.” “Public investments,” it continues, “to boost science, technology, education and skills are central to fueling a high-powered knowledge economy.” The nation’s “new economy” demands workers who are skilled, flexible, and capable of creative and independent thought. In today’s economy of fast-paced change, top-down models of management are being replaced with business models that instead rely on flexibility, innovation and

adaptation to rapidly changing markets. Such models depend on a well-educated and skilled workforce to be part of the decision making process that contributes to business success.

The miracle that transformed Ireland last decade from a middling economy into a world leader in information technology, for example, was based primarily on educational reforms and increased opportunities for children to attain higher education and technological training. A highly skilled and knowledgeable workforce, then, can be shown to have improved economic productivity in the past, and will likely be a key ingredient to the state's future success as it struggles to adapt to the new knowledge and information based economy.

Tax cuts are not an economic development strategy

All this suggests that for far too long, pundits have *incorrectly* viewed tax cuts as the primary ingredient of economic development. The end game of this logic would have the state's infrastructure erode to such an extent that any clear thinking individual would be able to see the harm.

The belief, moreover, that tax cuts alone spur economic growth is based more on ideology than economic fact. Two economists from New York University and Northwestern University, for example, reviewed hundreds of studies on the topic and concluded that "the evidence that tax rates matter for growth is disturbingly fragile." Joel Slemrod, an economist from the University of Michigan and one of the nation's leading tax experts, looked at tax rates since 1950 and found that a rising tax burden in the United States and other developed countries, in fact, went hand in hand with rising prosperity. Slemrod found that periods of strong economic growth actually occurred when the top tax rates were the highest—the opposite of today's conventional political wisdom.

Art Rolnick, senior vice president of the Federal Reserve Bank of Minneapolis, addresses this difference between economic findings and conventional wisdom when he states that “politicians are selling you economic snake oil . . . luring a business from a neighbor’s economy [with low taxes] is not economic development. Investing in human capital is economic development—and you get the most pay off the earlier you invest.” One proven effect of tax cuts, however, has been a massive shift in the nation’s wealth from the middle class to the wealthy. This history suggests that more tax cuts will only further the divide between the nation’s haves and have nots, placing more pressure on the dwindling middle class.

Doubly damaging is the fact that reduced tax revenues erode vital institutions like public education that have long been a source of upward mobility for average Americans. Not only is wealth being transferred to the privileged few, but institutions that sustain and promote the middle class also are under attack in today’s political environment. In short, the democratic promise of our great nation is threatened as tax cuts further concentrate national riches and as opportunities for average families are diminishing. At the heart of our nation’s democratic promise is education; and equal opportunity for education is at the heart of the American Dream. The ability of every man and woman to get ahead through hard work is one of the nation’s founding ideals. Should the opportunity for a sound education further diminish, America’s playing field will tilt evermore toward the rich.

Conclusion

Education, clearly and overwhelmingly, has a positive effect on the economy. From individual earnings, to social savings, to home values and economic productivity, many studies—

and much common sense—suggest that educational investments reap a return for the state and help the economy to grow.

The future health of our economy and society is integrally linked to great schools and a high quality system of public education. It is this quintessentially democratic institution that will allow our state to grow and prosper by helping each individual rise to his or her fullest potential. The democratic promise of public education is perhaps the greatest economic engine of all because it taps the hopes and dreams of our people. The political debate before us today is clear: shall we as a state find fair and effective ways to further invest in education, or shall we continue to blunder along embracing unproven strategies for economic growth simply because of the fervor with which the ideology is delivered?

Thank you.



Educational Revolution

Dr. David Nixon, Dean
UW-Washington County
*Presentation to Senate Committee on Economic Development
Madison, WI
November 13, 2007*

Traditional Heckscher-Ohlin

- **U.S. Factors Compliment Developing Country Factors**
 - Rate of value adding offsets losses
 - Increased efficiency gains offset economic losses

Similar Factor Proportions

- Competitive Sectors
 - Creates Competitive Zero – Sum Environment
 - Leads to a Loss of Capital Monopoly Rent
- Example: EU/US Competition in BioTech & Pharmaceuticals

Changing U.S. Position

- **5% of world's population in US, but**
 - 1/3 of all S & E workers globally
 - 40% of R & D spending globally
 - Publishes 35% of S & E articles globally
 - 17 of top 20 World Universities are located in U.S.

Effects

- U.S. exports drawn disproportionately from Hi-tech sectors.
- Higher Productivity growth from last economic recovery was from application of new information technologies to production (S & E driven).

Science & Engineering Shares

- Moving offshore

U.S. Workforce Decline

- **1970**
 - 30% of all graduate students attend US institutions
 - 50% of all S & E PhD students graduated from US institutions
- **2001**
 - 14% of all graduate students attend US institutions
 - EU Institutions Graduated 40% more S & E degrees than US
 - Share of S & E Undergraduate Students:
 - U.S. = 17% of all BA degrees in S & E
 - World = 27% of all BA degrees in S & E
 - China = 52% of all BA degrees in S & E

China Taking Lead



- **1995**
 - 8,134 PhD graduates in S & E
- **2003**
 - 48,740 PhD graduates in S & E
- **2010**
 - Projected date that China will exceed US in PhD graduates in S & E

US Engineering Degrees Decline

- **1991**
 - 12% U.S. share of global BA Engineering degrees
- **2001**
 - 6% U.S. share of global BA Engineering degrees

Imported Workers

- **60% of Growth is High-tech Related**
 - 17% of B.A. Degrees
 - 29% of Masters Degrees
 - 38% of Ph.D. Degrees
- 50% of all current Post Doctoral fellows in US have non-U.S. PhDs

Moving R&D Offshore: Causes

- Personnel Costs
- Local R & D Expertise
- Cost of R & D Labor
- Availability of Workforce Skills

Human Resource Leapfrogging

Three factors must exist*:

1. Large enough population that S & E workers are numerous.
2. S & E (R&D) workers affect price of R & D output.
3. Infrastructure costs do not offset labor savings.

*Richard Freeman, NBER

Irish Example

- One Decade from Frank McCord to Global Economic Power
 - Existing Concentration of Firms
 - Distinctive Quality of Life
 - Higher Education Contribution to Suitable Firm Recruitment
 - Support for Innovation – Formal & Informal
 - Retention of Spin-off Technology Firms

Forfás/Organizational Structure

- Ireland's National Policy and Advisory Board for Enterprise, Trade, Science, Technology and Innovation. Established in 1994.
- Includes Development and Coordination of the Enterprise Development Agencies, IDA Ireland, Enterprise Ireland, & Science Foundation Ireland.
- Operates under Auspices of Department of Enterprise, Trade and Employment.



Enterprise Ireland

• By 1999

- \$14 Billion Euros Invested in Employee & HR Development
- \$2.56 Billion in R&D program support
- \$95 Million Euros in Brick & Mortar
- Space for 5,400 new Undergrads
- \$8.0 Million Euros for 1,500 Post Grads in Skills Conversion Programs

Enterprise Ireland

• By 2003

- Gap identified in 1998 was closed
- Shift in structure of national employment
- Increase in IT degrees from 13% to 20%
- Technician levels stable from 25% to 22%
- \$1.9 million/year allocated to offset grants in aid and student attrition studies
- New emphasis on re-skilling non-trads as number of 18-21 year olds declining

Enterprise Ireland



Report of 2006 Factors Shaping Location & Growth

- Existing Concentration of Firms
- Distinctive Quality of Life
- Higher Ed's Ability to Sustain Graduates Suitable for Recruitment & Ability to Participate in Innovation (Formal & Informal)

Ireland's Workforce

Shift in Workforce Composition 1996-2004

- Total workforce increased 44%
- Total workforce without BA degree increased 28%
- Total workforce with BA degree increased 108%

Ireland - Strategies

To Offset Degree Deficit

- Conversion Courses (credit for skills)
- Increase Evening & Part-time Students
- Increase Regular Admission Numbers
- Increase Retention Rates

Program began in 1996. Met or exceeded all targets by 2003. (2006 Enterprise Ireland)

Ireland - Funding

- Company Based Funding for Employee Upgrades
- Fiscal Incentives to Firms with Programs
- State Funding

Future Funding Priorities

- Fund programs to increase PhD graduation rates by 1,000 per year
- 315 additional PhD in Humanities & Social Sciences
- Proposed funding level = £3.8 billion pounds sterling over 7 years

Taxation

- 1985 Tax burden on wages 37%
- 2001 Tax burden on wages 19.3%
- 1985 Tax burden on profits 50%
- 2001 Tax burden on profits 16%
- Lowest in Europe, below OECD average
- 1997 max corporate rate 12.5%

www.enterprise-ireland.com

Growth

- 7.7% annual GDP Increase (1995-2005)
- #1 in OECD
- Debt: GNP Ratio 1989 = 107%, 2007 = 25%
- Industrial Production is largest sector with 36% growth in 2005
- Software Engineering had 300% increase in 2005

National Development Plan 2007-2013

- £184 billion euro
- £20 billion euro Enterprise, Science & Innovation
- £25 billion euro Education & Skills Development
- £33.6 billion euro Social Infrastructure
- £50 billion euro in Social inclusion
- North-South Co-operation

www.enterprise-ireland.com

Questions?



The Financial Return to Investments in Education: The Student and the State of Wisconsin

Robert Haveman
John Bascom Emeritus Professor of Economics and Public Affairs
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La Follette School of Public Affairs
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Testimony prepared for Senate Committee on Economic Development,
Job Creation, Family Prosperity and Housing
State of Wisconsin Legislature
Chair: Senator Julie Lassa

November 13, 2007

Thank you for the opportunity of appearing before this committee. As the title indicates, I'd like to share the results of a large body of literature that seeks to understand the productivity of investing in education. I will concentrate on the returns from investing in higher education from the perspectives of both individuals engaging in schooling, and the state and its citizens.

Providing educational services to its citizens is one of the primary functions of government. Without public intervention, private choices by schools and students would lead to less spending than is economically efficient, and students, the state and the broader society would be forgoing gains that meet a benefit-cost test. These conclusions are accepted by nearly everyone.

As a result, it makes sense to think of investing in human capital—in the schooling of young people, for example—in the same way that businesspeople think of investing in their plants and equipment.

Private sector financial analysts tell us that the right rule for deciding on private capital investment is the 'positive net benefits rule.' That rule states that one should invest in a project if the gains from the investment (e.g., additional sales revenue) exceed the costs, after taking account of the required rate of return (or interest rate).

Let's take that rule and apply it to investments in schooling. First, let's look at the return to an individual student, and then the return to the state. Finally, I'll discuss some of the returns beyond these that accrue to the society as a whole.

The Financial Payback to Students from Additional Schooling

Using data from the U. S. Census, the following table shows the differences in working and earning for people with different levels of schooling, and different races and genders.

The results are striking. A white woman who has only a high school degree has a 65 percent chance of being employed; her annual earnings are about \$16,500. If she secures a college degree, her earnings rise to about \$36,000, and she has a 78 percent chance of being employed.

Of course, these work and earnings paybacks are only one element of the overall returns to a youth from getting more education. One also has to take account of the tuition and fees that the student must pay in securing this education as well as the lost earnings during the years that he/she is in school. And, there is also the expected financial aid that may be received to support this schooling. Finally, because these gains and costs occur in different years, a single number that gives the total value of these future yearly amounts, taking account of the right interest rate, must be calculated.

| | <i>High school dropout</i> | <i>High school graduate</i> | <i>Some college</i> | <i>BA degree or more</i> |
|--|----------------------------|-----------------------------|---------------------|--------------------------|
| <i>Employment (%):</i> | | | | |
| Male: white | 71 | 79 | 81 | 89 |
| Male: black | 49 | 66 | 70 | 83 |
| Male: Hispanic | 70 | 78 | 69 | 85 |
| Male: other | 71 | 79 | 77 | 88 |
| Female: white | 46 | 65 | 72 | 78 |
| Female: black | 46 | 63 | 70 | 84 |
| Female: Hispanic | 51 | 57 | 64 | 65 |
| Female: other | 48 | 62 | 69 | 73 |
| <i>Average annual earnings:</i> | | | | |
| Male: white | \$22,800 | \$33,900 | \$40,300 | \$79,100 |
| Male: black | \$13,500 | \$21,800 | \$29,600 | \$53,800 |
| Male: Hispanic | \$21,400 | \$24,000 | \$26,000 | \$54,200 |
| Male: other | \$22,300 | \$30,100 | \$34,900 | \$69,700 |
| Female: white | \$7,800 | \$16,500 | \$20,400 | \$35,600 |
| Female: black | \$10,000 | \$14,200 | \$19,500 | \$40,600 |
| Female: Hispanic | \$9,900 | \$14,500 | \$17,300 | \$39,000 |
| Female: other | \$8,600 | \$15,700 | \$19,200 | \$36,900 |
| SOURCE: Current Population Survey (March 2003 and 2004). | | | | |
| NOTES: Employment rates are based on populations, not labor force size. Annual earnings include those with zero earnings. No adjustment is made for incarceration rates. | | | | |

[From: H. Levin, C. Belfield, P. Muennig, and C. Rouse, 2007, "The Costs and Benefits of an Excellent Education for all of America's Children." New York, NY: Columbia University Teachers College.]

The Financial Return to Investments in Education: The Student and the State of Wisconsin

Robert Haveman
 Department of Economics
 La Follette School of Public Affairs
 University of Wisconsin-Madison

The Government and Education

- o Providing educational services to its citizens is one of the primary functions of government.
- o Without public intervention, private choices by schools and students would lead to inefficient choices.
- o Without public intervention, students, the state and the broader society would be forgoing gains that meet a benefit-cost test.

Investing in Education

- o As a result, it makes sense to think of *investing* in the schooling of young people in the same way that businesspeople think of investing in their plants and equipment.
- o Private sector financial analysts tell us that the right rule for deciding on private capital investment is the 'positive net benefits rule.'
- o Rule: Invest in a project if the gains from the investment exceed the costs, after taking account of the required rate of return (or interest rate).

The Financial Payback to Students from Additional Schooling

| | High school dropout | High school graduate | Some college | BA degree or more |
|---------------------------------|---------------------|----------------------|--------------|-------------------|
| <i>Employment (%)</i> | | | | |
| Male: white | 71 | 79 | 81 | 89 |
| Male: black | 49 | 66 | 70 | 83 |
| Male: Hispanic | 70 | 78 | 69 | 85 |
| Male: other | 71 | 79 | 77 | 88 |
| Female: white | 46 | 65 | 72 | 78 |
| Female: black | 46 | 63 | 70 | 84 |
| Female: Hispanic | 51 | 57 | 64 | 65 |
| Female: other | 48 | 62 | 69 | 73 |
| <i>Average annual earnings:</i> | | | | |
| Male: white | \$22,800 | \$33,900 | \$40,300 | \$79,100 |
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| Male: Hispanic | \$21,400 | \$24,000 | \$26,000 | \$54,200 |
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| Female: white | \$7,800 | \$16,500 | \$20,400 | \$35,600 |
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| Female: Hispanic | \$9,900 | \$14,500 | \$17,300 | \$39,900 |
| Female: other | \$8,600 | \$15,700 | \$19,200 | \$36,900 |

SOURCE: Current Population Survey, March 2003 and 2004.
 NOTES: Employment rates are based on populations, not labor force size. Annual earnings include those with zero earnings. No adjustment is made for incarceration rates.

The UW-Madison Payback Site

- o Determining the financial payback to a student of getting a college degree needs to take account of these earnings gains, but also of the tuition/fees costs and the expected financial aid.
- o At the La Follette School, we have developed a program and website that allows students to understand this payback.
- o It is tailored to their own characteristics, such as gender, race, family income, likely college major, high school grades, SAT/ACT scores.

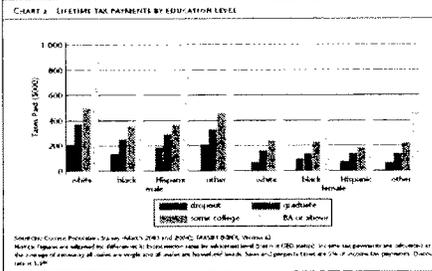
<http://payback.wisc.edu>

Some Results: The Lifetime Payback from a UW-Madison Degree

- o A white male from a high income Wisconsin family with a high GPA in high school, high test scores and a business degree—**\$549,044.**
- o A black woman from a low income Wisconsin family, with modest high school grades and test scores with an education degree—**\$242,007.**
- o A Hispanic male from a modest income Wisconsin family, with very good high school grades and test scores and a degree in a health-related field—**\$616,389.**

These 'dollar paybacks' are large numbers; higher education has a large payoff for those who engage in it.

The Financial Payback to Government from Schooling Investments



The white male is expected to pay about \$400,000 more in taxes over his lifetime with a college degree as compared to only a high school degree (using an appropriate interest rate). The number for a black woman is about \$300,000.

The Financial Payback to Wisconsin from Schooling Investments

- Because state tax collections are about 40 percent of total taxes paid, it follows that the white male who has chosen to get a college degree (rather than stopping after high school) will pay about **\$160,000 in Wisconsin state and local taxes** over his lifetime (using an appropriate interest rate). The number is about **\$120,000** for the black woman.
- A similar tax calculation has been made for students who graduate from **high school** as compared to dropping out.
- If the state's share is again about 40 percent, it amounts to about **\$56,000** for every high school dropout that stays on and obtains a high school degree.

The Bottom Line

- On a lifetime basis, using an appropriate interest rate, it would be financially worthwhile for the state's residents to invest up to **\$160,000** in getting one more college graduate (from those who stop their schooling after a high school degree) and up to **\$56,000** to secure one more high school graduate (from those who would otherwise drop out of high school).
- From the state's perspective, investing in education also pays off.

Some NonFinancial Benefits of Investments in Education

- Those with more education will likely make **more charitable contributions** in both time and money.
- Those with more education will likely have **greater savings**.
- Those with more education will be more open to and better able to **adjust to technological changes** and other developments.
- Those with more education will be more **likely to vote** and to participate in the community.
- Those with more education will be less **likely to be dependent on support** from government programs.
- Those with more education will be **less likely to engage in illegal and criminal activities**.



**COMMITTEE ON ECONOMIC DEVELOPMENT, JOB CREATION, FAMILY
PROSPERITY AND HOUSING**

**BUILDING WISCONSIN'S WORKFORCE:
THE LINK BETWEEN EDUCATION AND ECONOMIC DEVELOPMENT**

**PERSPECTIVES ON THE WISCONSIN TECHNICAL COLLEGE SYSTEM
PROVIDED BY:**

**Dr. John Clark, President
Mid-State Technical College
Wisconsin Rapids, Wisconsin**

Greetings,

My name is John Clark. I am President of Mid-State Technical College located in Wisconsin Rapids. I'm honored to be in your presence today and delighted to share some thoughts about the Wisconsin Technical College System (WTCS) with you.

I will begin by sharing some general information about the System and then will focus on several special initiatives that directly tie the WTCS to important economic developments in Wisconsin.

- The Wisconsin Technical College System has 16 technical college districts throughout the state, which offer more than 300 programs awarding two-year associate degrees, one and two-year technical diplomas and short-term technical diplomas. In addition, the System is a major provider of customized training and technical assistance to Wisconsin's business and industry community.
- The WTCS serves one in nine Wisconsin adults, or roughly 460,000 individuals each year. The average age of our student is 28, which indicates how adults turn to the technical colleges throughout life; while more than 20 percent of high school graduates attend technical colleges immediately after high school. Technical college training is primarily hands-on, with students applying knowledge for a specific occupation or process.
- WTCS colleges are the only institution of higher learning whose doors are open to everyone, regardless of past educational success, economic status or employment history.
- Nearly all (92 percent) technical college graduates have jobs within six months of graduation, most of who stay in Wisconsin, creating a "brain gain" for the state.
- Advisory committees, represented by "real world" professionals, advise colleges on relevant and necessary education and skills for graduates of various career programs.

- WTCS colleges produce double the number of occupational associate degree graduates than the national average and their graduates earn more than the national average. In terms of dollars and cents, the median wages for Wisconsin's worker was \$16.34 per hour compared to \$15.17 nationally.

What do Wisconsin residents, employers, and recent graduates say about the Wisconsin Technical College System?

- According to a recent study by the Building the New Wisconsin Economy organization, 89 percent of state residents said Wisconsin's Technical Colleges positively affect the state's economy – more than any other state institution, agency or educational system.
- A recent survey of more than 3,300 employers statewide revealed they were pleased with technical college graduates. 95 percent of responding employers said they would hire technical college graduates again, proving that technical colleges are effectively addressing employers' needs.
- A statewide survey of recent technical college graduates revealed 95 percent were satisfied or very satisfied with their educational experience.
- A recent study by the Wisconsin Taxpayers Alliance shows that the state's investment in technical colleges generates an economic impact of nearly \$7 billion dollars each year. And the importance of technical colleges will only increase as the demand for skilled workers continues to grow.

My comments to this point have dealt primarily with the monetary impact of technical education. Another important perspective often overlooked in similar conversations is the non-monetary value of a college degree. We all recognize the well-worn claim that college graduates can expect significantly higher wages over their lifetime than their counterparts. However, the non-monetary "value added" by a college degree is worthy of comment.

- College graduates are more engaged citizens and make healthier decisions than those who don't earn a diploma or degree.
- Rates of voluntarism rise with education level.
- College graduates are less likely to smoke and more likely to exercise.
- A more educated work force means greater tax revenue and stronger democracy.

Shifting to the special initiatives I mentioned earlier, I want to spend some time discussing the manufacturing sector of the state's economy. Most know the strength of Wisconsin's manufacturing sector is the key barometer of the state's economic health. Nearly 19 percent of the Wisconsin workforce is employed in manufacturing, compared to 11 percent nationwide. Manufacturing jobs tend to be above average pay and create indirect jobs. For recent WTCS graduates, those employed in manufacturing jobs receive an annual salary of \$44,447 compared to the average wage of \$35,115 for all Wisconsin industry employees. Manufacturing remains a top priority for the state and the WTCS.

Through workforce training, Wisconsin's Technical colleges provide the state's workers and employers with the competitive edge they need to be successful in today's global economy. Wisconsin's Workforce Advancement Training Grants promote increased investment in the development of incumbent workers and expand technical college training services to help businesses and industry meet their training needs.

Funding available through this program enables technical colleges to offer targeted job training for the current workforce. This training is designed to upgrade the skills and productivity of employees of established for-profit businesses and industries operating in Wisconsin to support regional workforce and economic development efforts.

During the first two years of operations, the Workforce Advancement Training Grant Program has provided \$2 million dollars for more than 90 employers to train nearly 12,000 incumbent workers across the state.

When asked about their experience with the program, 100 percent of the employers who participated in the program indicated that the customized training improved employee skills. On other key indicators, these employers reported:

- Employer satisfaction with the program (97%)
- Improved work environment (89%)
- Cost savings to their operations (74%)
- Reduction in employee turnover (48%) and
- Planning to return to the technical college to meet future training needs (97%).

The WTCS looks forward to continued success with this important program and we appreciate the increase for Workforce Advancement Training Grants received with Governor Doyle's recent signing of the 2007-2009 Budget Bill on October 26th.

A couple of additional examples of the value of investing in education worth mentioning before I conclude are the Regional Industry Skills Education, known as the RISE initiative, and the Wisconsin Manufacturing Skill Standards Certification program.

The RISE initiative is co-sponsored by the State of Wisconsin Department of Workforce Development and the Wisconsin Technical College System with major grant funding from the Joyce Foundation of Chicago. This activity seeks to make "career pathways" a core organizing principle for adult education and workforce development in key

Wisconsin industries. By striving to establish more effective connections between improved worker skills and higher wage jobs, RISE represents an important next step in advancing Governor Doyle's Grow Wisconsin agenda.

The Wisconsin Manufacturing Skill Standards program is to manufacturing what the Automotive Service Excellence (ASE) certification is to the automotive service industry. Certification through the Manufacturing Skill Standards Council (MSSC), established and recognized by the U.S. National Association of Manufacturers, defines the baseline skills needed by the 21st century knowledge worker.

All 16 technical colleges in partnership with the Northwest Wisconsin Manufacturing Outreach Center (NWMOC) located at the University of Wisconsin-Stout provide assessments and training for MSSC certification.

For your future reference, I have attached three documents that provide details about the topics I presented today. These documents include additional information about Regional Industry Skills Education (RISE) initiative, the Manufacturing Skill Standards Council (MSSC), and a Wisconsin Technical College System brochure, Building Wisconsin's Wealth through Workforce Development.

Thank you for the opportunity to present today. I appreciate your awareness and continued support of the Wisconsin Technical College System as we position to further improve the economic health and wealth of Wisconsin.