Strengthening Montana Businesses through Investments in Early Care and Education

How Investments in Early Learning Increase Sales from Local Businesses, Create Jobs and Grow the Economy

A report by: AMERICA'S EDGE
Strengthening Businesses Through Proven Investments in Kids

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Who We Are

The business leaders of America's Edge take a critical look at the knowledge, skills and abilities businesses need their employees to have in the 21st century, including the ability to be communicators, collaborators and critical thinkers. Using that analysis, we educate policy-makers and the public about high-quality, proven investments that strengthen businesses, establish a foundation for sustained economic growth, and protect America's competitive edge in a global marketplace, while helping our nation's children get on the right track.

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Executive Summary

How Early Learning Investments Can Help Expand Montana's Economy

Montana business leaders recognize that the key to jump-starting the state's economy and keeping struggling companies in business is to generate additional sales of local goods and services, while also creating new jobs. That is why, after taking a hard look at the research and calculating proven returns on investment, Montana business leaders are calling on state and federal policy-makers to invest in early care and education. This report documents that investments in early learning provide a significant, immediate economic boost for local businesses and help build stronger communities over the long term.

Fully investing in early care and education would generate millions of dollars in sales of goods and services for Montana businesses and create thousands of jobs in the state. In fact, investments in quality early learning generate more new spending for local businesses than investments in eight other major economic sectors. For every $1 invested in early care and education in Montana, an additional 61 cents are generated for a total of $1.61 in new spending in the state. This strong economic boost for local businesses is higher than investments in other major sectors such as transportation, construction, mining and utilities.

Early care and education should be a critical component of Montana's economic recovery and growth. If all Montana children under five were given access to quality early care and education at a cost of an additional $197 million, that investment would generate $317 million in total new spending in Montana businesses. And nearly all of these dollars generated in Montana would stay in Montana – helping local businesses prosper while also creating up to 7,900 new jobs, including 1,300 jobs outside the early learning sector.

Such an investment will also save Montana businesses money every day through reduced absenteeism and turnover. The average working parent in America misses five to nine days of work per year because of child care problems. This costs U.S. businesses $3 billion a year. Research confirms that if parents have quality early care and education available in their communities, not only will absenteeism and turnover go down, but productivity will also go up – immediately improving businesses' bottom lines.

Yet another strategic reason for this investment is that access to quality early care and education will increase the ability of Montana businesses to attract skilled employees. Quality programs for our youngest children are needed for the same reasons communities strive to have a strong K-12 education system to attract skilled workers and new businesses. Sixty percent of new jobs early in the 21ST century will require skills possessed by only 20 percent of the current workforce. As our economy begins to turn around, Montana businesses need the right resources to attract and retain the best workers. One resource that can help communities attract the best employees is the availability of quality early learning for their children.

Finally, such an investment will establish a foundation for sustained economic growth because quality early learning is key to ensuring that future employees have the 21st century skills Montana businesses need. To remain competitive in a global marketplace, businesses need communicators, collaborators and critical thinkers. Research confirms that quality early learning is the crucial first step in the development of those skills. And research shows that the return on investment is impressive: Studies of high-quality early education programs for at-risk children have shown that quality programs can save as much as $16 for every dollar invested.

The bottom line: With limited funds available to help businesses and our economy get back and stay on track, few investments make as much sense for Montana businesses' balance sheets as do investments in high-quality early care and education.

Strengthening Montana Businesses through Investments in Early Care and Education

Immediate Short-Term Economic Gains

Critical Issues for Montana Businesses

Even in today's tough economy, many businesses are experiencing a short supply of employees with 21st century skills in large part because high school and college graduates lack the knowledge and abilities businesses need.[1] Consider these facts. In Montana:

- 25 percent of high school students do not graduate on time;[2]
- 57 percent of eighth graders are below grade level in math;[3] and
- 65 percent of fourth graders read below grade level.[4]

Nationally, 60 percent of three- to five-year-olds do not have the basic skills needed to enter kindergarten, such as counting to ten and recognizing letters in the alphabet.[5]

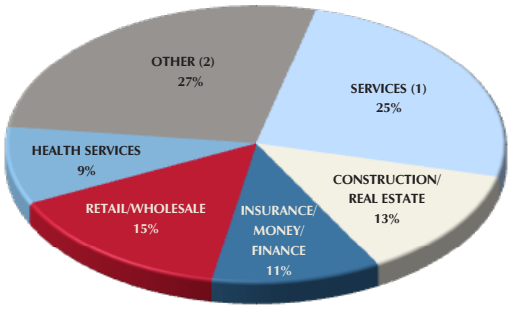
Each year, dropping out costs the United States dearly in lost productivity. In fact, high school dropouts are so much less productive than high school graduates that each class of dropouts nationwide will make $335 billion less over their lifetime than they would have as graduates.[6] That loss of earnings translates into less spending power, lower contribution to the tax base and decreased productivity.

Increasing Sales of Local Goods and Services

New research by America's Edge found that increasing attracting skilled employees, strengthening local and state economies now, and improving businesses' bottom lines can be achieved through cost effective and proven investments in quality early childhood care and education programs.[7]

What economic modeling is the most effective way to determine early education's economic impact in Montana? This report used IMPLAN, an economic modeling system first developed 18 years ago that is widely used for conducting a variety of economic impact and related analyses, to find the impact. This study employed the most recent available (2009) data sets and IMPLAN models and adheres fully to standard input-output and IMPLAN conventions (see Appendix A for a complete explanation of IMPLAN and the report's methodology).

Every $1 spent in Montana on early learning generates an additional 61 cents in other sectors of the economy:



Source: IMPLAN, 2009

1. Professional, business, information, entertainment, rental, and utility services.
2. Farming, logging, fishing, and hunting: mining, oil, and gas; manufacturing; and transportation.

This economic impact modeling system found that, for every additional $1 invested in early care and education in Montana, $1.61 is generated in total spending within the state. This strong economic boost for local businesses is higher than investments in other major sectors such as transportation ($1.52), construction ($1.49), mining ($1.37), and utilities ($1.32).[8] Research shows that among Montana's major economic sectors that will spur economic growth, early care and education offers one of the smartest ways to create additional buying power for consumers and help local companies stay in business.

To ensure all Montana children under age five have access to quality early care and education would require an investment of an additional $197 million. That investment would yield $120 million in additional sales in Montana's economy outside of early care and

The early learning sector in Montana generates more additional spending in the economy than other major economic sectors:	
Economic Sectors	**Output Multipliers**
Early Care and Education[1]	$1.61
Other Major Sectors	
Transportation	$1.52
Construction	$1.49
Farming, Forest, Fishing, Hunting	$1.49
Wholesale Trade	$1.49
Other	$1.48
Retail Trade	$1.42
Manufacturing	$1.39
Mining, Oil, Gas	$1.37
Utilities	$1.32
1. The early care and education sector is part of the larger services sector, which on average generates a multiplier of $1.51 for every $1 invested.	
Source: IMPLAN, 2009 analysis of Type SAM Output Multipliers for Montana	

Every $1 invested in the early learning sector generates an additional 61 cents in the local economy.

education, for a total of $317 million of new money infused into the state (see Appendix B).[9] And most of these dollars generated in Montana would stay in Montana – helping local businesses improve sales in almost every sector. Here are some examples of the economic impact that investing in early learning would have on the major economic sectors in Montana:

- **Over $29 million in new sales in the state's services sector**, which employs the majority of workers in Montana. The additional dollars would benefit many small businesses including dry cleaners, mobile phone and cable companies, and numerous professional firms such as accounting, law and tax offices.[10]
- **Over $15 million in new sales in real estate and construction** – providing a boost to the slumping real estate market and helping many low- and middle-income families keep up with their mortgage or rental payments.[11]
- **Over $13 million in new dollars to Montana's insurance and finance sectors**, including local banks and insurance companies.[12]
- **Over $17 million in new sales in Montana's retail and wholesale trade sectors,** including grocery stores, department stores and auto dealers.[13]

The $120 million in additional spending outside of early care and education will be generated in over 400 economic categories. Of those 400-plus categories, here are just a few concrete examples of increased sales for Montana businesses:

- Over $8.5 million in sales at local restaurants, the cost for over 2,400 households of four to eat out for one year;[14]
- Over $4.1 million in sales from local electric companies, the cost of monthly electric bills for over 2,400 families of four for one year;[15]
- $1.3 million in sales from local supermarkets, the cost of a year of groceries for 260 families of four;[16]
- Over $3.3 million in sales from telecommunications, equal to the annual cost of telephone services for over 2,200 families of four;[17]

The key point is that investments in the early learning sector are very competitive with investments in other major sectors, and these investments create an immediate infusion of dollars throughout Montana's local businesses.

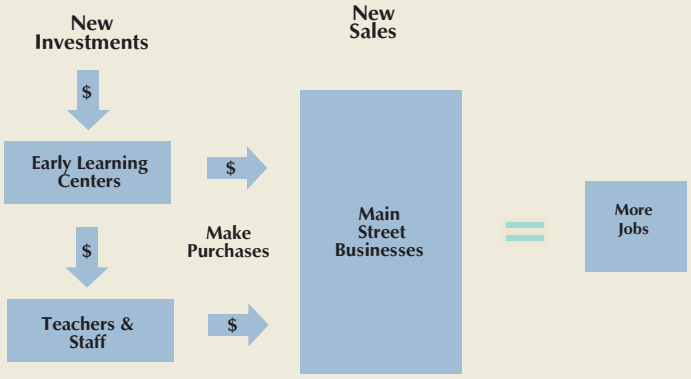
Early Learning Spending Stays in Montana

Here's how it works:

The dollars initially invested in an early learning program re-circulate through the local economy. The first dollar of spending goes directly to early care and education programs, and the additional spending is generated in two ways: (1) when early learning centers purchase local goods and services to operate their programs; and (2) when early learning teachers and staff spend their wages on local goods and services. All this additional spending is generated through what is known as the "multiplier effect."

Although every industry generates some additional spending in these two ways (see table on page 2 for a comparison of economic output multipliers for different sectors), the early child care and education sector has one of the highest output multipliers because a high proportion of the spending by early learning programs and staff is spent locally. Much of the investment in early education goes to teacher wages, and the person-to-person nature of this service means that it must be provided and delivered locally. This is different from many industries that are based on products that could be manufactured outside of Montana or on services that can be provided remotely (e.g., customer service representatives via phone lines from other states or even internationally).

How Early Learning Investments Help Montana Businesses



In turn, since early education teachers and staff are low- and moderate-wage workers (child care workers have median annual incomes of $17,440)[18], they typically spend rather than save their wages, purchasing local goods and services, including housing and retail products.

Here's what this means in actual dollars and cents: Every dollar spent on early care and education in Montana yields a total of $1.61 in the state economy.[19]

7,900 New Jobs in Montana

Fully investing in early care and education would also create thousands of new jobs. For every five jobs created in the early care and education sector, one job is created outside that sector in Montana's economy.[20]

An analysis of the IMPLAN economic data for Montana shows that a $197 million investment to offer quality early care and education to all Montana's children under five would create 7,900 new jobs, including 1,300 new jobs in other economic sectors.[21] These additional jobs are created when expanded early learning programs and their employees purchase additional local goods and services. As demand for goods increases, so does the need to supply those goods, which creates jobs.

Thus, investment in early learning, with the increased spending power from newly-employed individuals, would help Montana reduce its unemployment rate and immediately strengthen local businesses.

Cost Savings and Increased Productivity for Businesses

Quality early learning saves businesses money through reduced absenteeism and turnover. The average working parent in America misses five to nine days of work, or one to two weeks per year, because of child care problems. In fact, according to a study published by Cornell University, this problem costs U.S. businesses $3 billion every year.[22] Research confirms that if parents have quality early care and education available in their communities, not only will absenteeism and turnover go down, but retention and productivity will also go up.[23] Reduced absenteeism and turnover and increased retention and productivity translate into immediate savings and increased profits for businesses—good news to Montana businesses on both sides of their balance sheets.

Attracting Skilled Employees

Even in tough economic times, businesses often struggle to attract qualified applicants to fill skilled positions. Having access

to quality early care and education services currently helps tens of thousands of parents stay in the workforce in Montana.[24] However, approximately 38,000 children under five in Montana do not participate in regulated early learning programs, and a significant number would likely participate if high-quality, affordable programs were available in their neighborhoods.[25] Like strong K-12 education systems, quality early education for our youngest children can help attract skilled workers and new businesses. Montana businesses must be poised to compete for the most skilled workers as the economy begins to recover.

Long-Term Benefits for Economic Security

In addition to jump-starting Montana's economy and creating thousands of new jobs, major investments in quality early learning programs would also have important long-term benefits that would establish a foundation for sustained economic growth.

To remain competitive in the global marketplace, businesses need employees with hard skills (math, reading, writing) and soft skills (communication, collaboration and critical thinking). But employers are experiencing a significant shortage of workers with the skills they need.

According to a 2006 survey, less than a quarter of employers (only 23.9 percent) report that new entrants with four-year college degrees have "excellent" basic knowledge and applied skills, and significant deficiencies exist among entrants at every level.[26] The deficiencies are greatest with high school graduates: 42.4 percent of employers report the overall preparation of high school graduates as deficient; 80.9 percent report deficiencies in written communications; 70.3 percent report deficiencies in professionalism; and 69.6 percent report deficiencies in critical thinking.[27] Although preparedness increases with education level, employers note significant deficiencies remaining among graduates of the four-year colleges in written communications (27.8 percent), leadership (23.8 percent), and professionalism (18.6 percent).[28]

High-quality early care and education is a critical step to support the development of the 21st century skills that businesses require in their workforce. Research studies demonstrate that children who participate in high-quality early learning can do better on a range of outcomes. Here are examples of what outcomes are impacted and what is possible:

- **Better preparation to succeed in elementary school** – for example, children exposed to one year of Oklahoma's universal pre-kindergarten program experienced a 16 percent increase in their overall test score;[29]
- **Less special education** – children who attended the Chicago Child-Parent Centers (CPC) program were 40 percent less likely to need special education;[30]
- **Lower rates of retention in school** – children participating in the Abecedarian early education program were 43 percent less likely to be held back in school;[31]
- **Higher rates of high school graduation** – children attending the Perry program were 44 percent more likely to graduate from high school;[32]
- **Less crime** – children not offered the Perry program were five times more likely to become chronic offenders by age 27;[33] and
- **Higher rates of employment** – children in Perry were 22% more likely to be employed at age 40.[34]

Studies of high-quality early education programs for at-risk children have shown that these programs can save as much as $16 for every dollar invested.[35] These long-term benefits are realized when the children who receive high-quality early learning grow up and become better educated and more productive workers, with far less remedial education or criminal costs to society. That is a return on investment that cannot be matched by almost any other public investment.

The Perry Preschool Program

One of the best studies of early care and education for 3- and 4-year-olds, the High/Scope Perry Preschool Program in Ypsilanti, Michigan, followed the children who attended the preschool until they were age 40. From 1962 through 1967, preschool teachers worked intensively with low-income children ages 3 and 4. The children attended preschool during the week and teachers came to their homes once a week to coach their parents. When the children were age 40, researchers compared their life stories with those who did not participate in the early education program. The payoff was impressive. Children who participated in the preschool program had significantly higher reading achievement and arithmetic achievement scores at age 14 compared to the children not participating in the program; 44 percent more of the children in the Perry program graduated from high school; and 60 percent of participants were earning upward of $20,000 a year in their forties, versus 40 percent of those in the control group.[36]

Early Care and Education in Montana: An economic snapshot

Early care and education programs serve young children from birth through age 5. These programs take several forms, including child care centers and family child care homes, private preschool programs, and publicly-funded and regulated early education programs including public pre-kindergarten, Head Start and early childhood special education programs provided by the public schools. In Montana, approximately 38,000 young children under age 5 are not served by regulated early care and education settings.[37]

Early care and education is an important economic sector in Montana, making significant contributions to the local economy:

- Early care and education programs represent a sizable small business sector in the state. The sector employs nearly 3,200 early care and education administrators, preschool teachers and child care workers.[38]
- There are an estimated 317 child care centers and 925 family child care homes in Montana. Forty-six of Montana's child care centers, or 14.5 percent, are nationally accredited, meeting some standards for quality beyond state licensing standards. Thirty-four of Montana's family child care homes, or 3.7 percent, are nationally accredited, meeting some standards for quality beyond state licensing standards.[39]
- 64 percent of children under the age of 6 in Montana have both or their only parent in the workforce.[40]

Conclusion

Research is clear that investments in high-quality early care and education will help jump-start our economy through an immediate increase in sales for Montana businesses and the creation of many new jobs. At the same time, we will be building the skills of our future workforce. Policy-makers must make difficult decisions about where to invest limited funds as revenues have decreased during the recession. Funding for early care and education should be a priority since it is one of the best ways we can immediately strengthen our economy while creating lasting economic security.

Appendix A

Economists have documented the contributions that the early care and education sector makes to the economy in the short term through economic multiplier effects.

The short-term economic development benefits of the early child care and education sector are based on estimates calculated from what are called input-output economic models. These models show the linkages between all sectors in the economy, creating a matrix detailing how spending in each sector ripples through other economic sectors via the purchases of goods and services from other sectors.

There are three types of economic linkage effects that this input-output analysis captures. Direct effects of new spending in the child care sector are seen within the sector itself, through new money spent on child care programs. Indirect effects reflect the inter-industry expenditures generated when child care businesses purchase goods and services from other sectors. These businesses, in turn, are stimulated to increase their input purchases, and so on in widening ripple effects throughout the economy. Induced effects reflect similar economy-wide impacts due to the increased spending on goods and services of early education workers as first their wages increase, and then the wages of workers in other affected industries increase. The combined linkage effect of indirect (inter-industry spending) and induced (household spending) is called a Type SAM multiplier.

Early learning investments generate new dollars and jobs throughout Montana's economy. Every new dollar spent on early learning yields a total of $1.61 in the state economy.

America's Edge commissioned an analysis of the most recent available data for Montana on the economic impact of the early care and education sector on other sectors.

All input-output modeling results were generated using the Minnesota IMPLAN Group, Inc (MIG, Inc) IMPLAN® economic impact modeling system. First developed in 1993, the system now is in widespread use for conducting a wide variety of economic impact and related analyses.

This study employed the most recently available (2009) data sets and IMPLAN models. One model was created for Montana. Our modeling approach and analyses adhere fully to standard input-output and IMPLAN conventions.

Multipliers were generated for the model using two separate sets of assumptions about regional purchase coefficients (RPC), or the proportion of purchases in each sector that occur regionally (locally). First, the multipliers were generated based on estimates from MIG, Inc.'s recently-completed National Trade Flow Model. Second, in order to facilitate comparison with earlier IMPLAN modeling work, multipliers were also generated based on the previous IMPLAN standard for RPC estimates, namely an econometric model.

The reported results are based on fully disaggregated models (i.e. 440 distinct sectors). The disaggregated sectors are defined by MIG, inc. but are based upon and cross-walked with the North American Industrial Classification System (NAICS), which several years ago replaced the Standard Industrial Classification (SIC) code system. Additional analysis was also conducted using models we aggregated into a small number of very broad sectors (e.g. Agriculture, Manufacturing, Services, etc.).

To illustrate the impact of increased spending on early learning, we used the models created to estimate the indirect and induced effects on each sector of the economy of exogenous increases (e.g. of a $1,000,000 base investment) in the demand for child care services. Because government spending is determined as much by policy decisions as by the regional dynamics of economic forces, government spending is conventionally treated as a source of exogenous demand. We focus on this source.

For additional information and background on input-output analyses of the early care and education sector, see the following resources:

Zhilin, L., Ribeiro, R., & Warner, M. (2004). Child care multipliers: Analysis from fifty states. Linking Economic Development and Child Care Research Project. Ithaca, NY: Cornell University, Cornell Cooperative Extension. Retrieved from http://government.cce.cornell.edu/doc/pdf/50StatesBrochure.pdf

Zhilin, L., Ribeiro, R., & Warner, M. (2004). Comparing child care multipliers in the regional economy: Analysis from 50 states. Linking Economic Development and Child Care Research Project. Ithaca, NY: Cornell University, Cornell Cooperative Extension. Retrieved from http://government.cce.cornell.edu/doc/pdf/50States.pdf

Appendix B

America's Edge estimates that $197 million in new early care and education investments are needed in Montana to serve an additional 22,600 young children from birth through age 4 currently unserved by these programs, such that these new investments plus current investments together reach a full 75 percent of all young children from birth through age 4 in the state.

Serving 75 percent of all young children is a conservative estimate for providing early care and education services to all young children who are likely to participate. These percentages are common upper-bound estimates of the full "take-up rate" for early care and education services, that is, the maximum proportion of families likely to participate in programs, given that some families use parental care exclusively or otherwise do not enroll in formal early care and education services.

Economic multipliers calculations for new investments needed

The $317 million estimate of the total new spending generated in Montana's economy from $197 million in new early care and education spending was calculated by taking the Type SAM Output multiplier for Montana, $1.61, and multiplying it by the $197 million, which yields $317 million in new spending. This new spending includes the $197 million new direct spending in the ECE sector, plus the new indirect and induced spending (with a subtotal of $120 million) which ripple out to other sectors of Montana's economy, yielding $317 million in new total spending.

Estimates of current capacity in early care and education programs

In Montana, there are an estimated 61,000 children (60,924) under age five living in families. To estimate the number of children under age 5 in regulated early care and education programs, America's Edge obtained the most recently available figures documenting enrollment in the various early care and education programs.

US Census Bureau. (2009). B01001. SEX BY AGE – Universe: Total population. American Community Survey. Washington, DC: Author.

America's Edge was able to obtain estimates of program capacity or enrollment for each major type of early care and education program available to children and families in Montana.

Head Start: 4,600 children were enrolled in Head Start programs in Montana, based on 2010 enrollment data. Personal communication on December 6, 2010, with Mary Jane Standaert, Montana Head Start/State Collaboration Office, Helena, MT.

Child care centers and family child care homes: the total number of young children in licensed child care programs (which included child care centers or family child care homes) was estimated to be 20,722 children. The total number of children in licensed child care programs based FY 2010 licensed child care capacity was 25,998 children (including school-aged children). To adjust for the presence of school-aged children (ages 5 through 12) that were also counted in this initial child care capacity figure, America's Edge subtracted an estimated 5,276 school-aged children in family child care homes in the state. This figure was calculated based on national estimates of the proportion of school-age children in home-based child care, from which America's Edge extrapolated that approximately 42 percent of home-based child care is used by school-age children. Subtracting the school-age estimate yielded the adjusted estimate of child care capacity of 20,722 children from birth through age 4. Personal communication on December 7, 2010, with Stephanie Goetz, Program Manager, Child Care Licensing, Montana Department of Public Health and Human Services.; National Association of Child Care Resource and Referral Agencies. (2010, March). 2010 child care in the state of Montana. Washington, DC: Author.; Capizzano, J., Tout, K., & Adams, G. (2002). Child care patterns of school-age children with employed mothers. (Occasional Paper Number 41.) Washington, DC: The Urban Institute.

Total children served and unserved

America's Edge estimates that the total number of young children served by early care and education programs in Montana is 23,000 (23,022) children. This estimate totals the number of children served by the early care and education programs detailed above, and adjusts for the potential for duplicated counts for individual children enrolled in more than one early care and education setting (pre-K and child care, for example) by adjusting the half-day programs estimates (for pre-K, Head Start, and private preschool) downward by 50 percent, which assumes that 50 percent of these children were also enrolled in another early care and education program. Subtracting this estimate of the number of children being served (23,022 children) from the proposed number of children to be served to reach the goal of serving 75 percent of all children from birth through age 4 (45,693 children) yields 22,671 children, or approximately 23,000 children under age 5 not being served who would need to be served to reach this goal. Program data documenting the number of children enrolled in multiple early learning programs were not available; improved early learning data systems that track individual children's participation in multiple programs would provide useful data to develop more precise estimates across the whole early learning sector.

Calculations for per-child and total costs for early care and education investments

The National Institute of Early Education Research (NIEER) estimates that the average per-child annual cost for high-quality pre-k is $8,700. Multiplying this per-child cost ($8,700) by the total number of new children to be served to reach 75 percent of all children age 4 and under, which is an additional 23,000 children (22,671 children, rounded to 23,000), yields an estimated $197 million in new early care and education spending needed.

National Institute for Early Education Research. (2011). Cost of providing quality preschool education to America's 3- and 4-year olds. New Brunswick, NJ: Author. Retrieved on March 17, 2011 from http://nieer.org/resources/facts/index.php?FastFactID=5

Endnotes

1 Deloitte Consulting LLP, Oracle Corporation, and The Manufacturing Institute. (2009). *People and profitability: A time for change. A 2009 people management practices survey of the manufacturing industry*. Retrieved October 26, 2010 from http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_pip_peoplemanagementreport_100509.pdf
Carnevale, A.P., Smith, N. & Strohl, J. (June 2010). *Help wanted: Projections of jobs and education requirements through 2018.* Georgetown University Center on Education and the Workforce. Washington, DC: Author. Retrieved October 22, 2010 from http://cew.georgetown.edu/jobs2018/

2 Editorial Projects in Education. (2009). *EdWeek maps.* Bethesda, MD: Education Week. Retrieved on January 6, 2011 from http://www.edweek.org/ew/toc/2009/06/11/index.html

3 National Center for Education Statistics. (2009). *The nation's report card: Mathematics 2009.* (NCES 2010-451). Washington, DC: U.S. Department of Education.

4 National Center for Education Statistics. (2009). *The nation's report card: Reading 2009.* (NCES 2010-458). Washington, DC: U.S. Department of Education.

5 Nord, C.W., Lennon, J., Baiming, L., & Chandler, K. (1999). *Home literacy activities and signs of children's emerging literacy, 1993 and 1999*. Washington, DC: U.S. Department of Education. Retrieved on April 6, 2010 from http://nces.ed.gov/pubs2000/2000026.pdf

6 Alliance for Excellent Education. (August 2009). *The high cost of high school dropouts: What the nation pays for inadequate high schools.* Washington, DC: Author. Retrieved on October 12, 2010 from http://www.all4ed.org/files/HighCost.pdf

7 High-quality early care and education programs include the following essential features: Highly-qualified teachers with appropriate compensation, comprehensive and age-appropriate curricula, strong family involvement, small staff-to-child ratios to ensure that each child gets sufficient attention, small, age-appropriate class sizes, and screening and referral services for developmental, health, or behavior problems. Whitebook, M. (2003). *Early education quality: Higher teacher qualifications for better learning environments—A review of the literature*. Berkeley, CA: Institute of Industrial Relations. Retrieved on February 25, 2010 from http://iir.berkeley.edu/cscce/pdf/teacher.pdf; Katz, L. (1999). *Curriculum disputes in early childhood education*. Champaign, IL: Clearinghouse on Early Education and Parenting. Retrieved on February 25, 2010 from http://ceep.crc.uiuc.edu/eearly care and educationarchive/digests/1999/katz99b.html; Goffin, S. G., & Wilson, C. (2001). *Curriculum models and early childhood education: Appraising the relationship* (2nd ed.). Upper Saddle River, NJ: Merrill/Prentice Hall; Some examples of a strong parent-involvement component include the home visits in the High/Scope Perry Pre-kindergarten and Syracuse University Family Development programs, the intensive parent coaching in Chicago Child-Parent Centers, and the parent volunteers in Head Start. For Perry Pre-kindergarten see: Schweinhart, L. J., Barnes, H. V., & Weikart, D. P. (1993). *Significant benefits: The High/Scope Perry Pre-kindergarten study through age 27*. Ypsilanti, MI: High/Scope Press. See also D. R. Powell (Ed.). (1988). *Parent education as early childhood intervention: Emerging directions in theory, research, and practice* (pp. 79-104). Norwood, NJ: Ablex Publishing. For preschool classrooms, the staff-to-child ratio should be not more than 10 children per teacher. In early learning settings for infants, the child-staff ratio should be not more than three children per teacher, and for toddlers, not more than four children per teacher. American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education (2002). *Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs, 2nd edition*. Elk Grove Village, IL: American Academy of Pediatrics and Washington, DC: American Public Health Association; Barnett, W.S., Epstein, D.J., Friedman, A.H., Sansanelli, R.A. & Hustedt, J.T. (2009). *The state of preschool 2009: State preschool yearbook*. New Brunswick, NJ: National Institute of Early Education Research; Dunkle, M., & Vismara, L. (2004). *Developmental checkups: They're good, they're cheap and they're almost never done. What's wrong with this picture?* Retrieved on February 25, 2010 from http://www.child-autism-parent-cafe.com/child-development.html

8 America's Edge's commissioned an analysis of the linkage effects of early care and education. Analyses were conducted using fully disaggregated models and using models aggregated into nine very broad sectors. This analysis calculated the Type SAM (Social Accounting Matrix) Output multipliers for all nine major aggregated economic sectors in the state using IMPLAN models. The analysis was conducted on 2009 data, the most recently available data set for Montana. The early care and education sector's Type SAM output multiplier for Illinois was $1.61. See Table for Type SAM output multipliers of each sector analyzed. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods.

9 America's Edge estimates that $197 million in new early care and education investments are needed in Montana to serve an additional 23,000 young children from birth through age 4 currently unserved by these programs. See appendix B for calculations of new early care and education investments in Montana.

10 The services sector includes professional, business, information, entertainment, rental, and utility services. It represented 25 percent of the new spending generated outside the early care and education sector. The $29 million figure was calculated by taking 25 percent of $120 million, which is the amount of the total $317 million in new spending that is generated outside the early care and education sector (the first $197 million dollars invested is spent directly, in the early care and education sector).

11 The real estate and construction sectors represented 13 percent of the new spending generated outside the early care and education sector. The over $15 million figure was calculated by taking 13 percent of $120 million, which is the amount of the total $317 million in new spending that is generated outside the early care and education sector.

12 The insurance and finance sectors represented 11 percent of the new spending generated outside the early care and education sector. The over $13 million figure was calculated by taking 11 percent of $120 million, which is the amount of the total $317 million in new spending that is generated outside the early care and education sector.

13 The retail and wholesale trade sectors represented 15 percent of the new spending generated outside the early care and education sector. The over $17 million figure was calculated by taking 15 percent of $120 million, which is the amount of the total $317 million in new spending that is generated outside the early care and education sector.

14 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2009 Montana model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2010).

Consumer Expenditure Survey. Washington, DC: U.S. Department of Labor. Retrieved on April 26, 2011 from http://www.bls.gov/cex/. Based on the national figure for yearly out-of-home food for a household of four people.

15 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2009 Montana model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2010). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on April 26, 2011 from http://www.bls.gov/cex/. Based on the national figure for yearly spending on electricity for a household of four people.

16 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2009 Montana model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2010). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on April 26, 2011 from http://www.bls.gov/cex/. Based on the national figure for yearly spending on food at home for a household of four people.

17 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2009 Montana model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2010). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on April 26, 2011 from http://www.bls.gov/cex/. Based on the national figure for yearly spending on telephone services for a household of four people.

18 Bureau of Labor Statistics. (2008). *Child day care services. Career guide to industries.* Washington, DC: U.S. Department of Labor. Retrieved on January 6, 2011 from http://www.bls.gov/oco/cg/cgs032.htm#earnings

19 America's Edge commissioned an analysis of the linkage effects of early care and education using IMPLAN models. Analyses were conducted using fully disaggregated models and using models aggregated into nine very broad sectors. The analysis was conducted on 2009 data, the most recently available data set for Montana. The early care and education sector's Type SAM output multiplier for Montana was $1.61. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods.

20 The linkage effects of the early care and education sector were analyzed using IMPLAN models for Montana using 2009 data, the most recently available for the state. The Type SAM employment multiplier for early care and education for Montana was 1.21. This means that for every one new job in the ECE sector, an additional 0.21 jobs are created outside that sector in other parts of the state economy. Multiplying both numbers by five yields this reformulation of the same finding: for every five jobs created in the ECE sector, one (1.08) job is created outside the sector.

21 The $197 million investment in early care and education programs was applied to the 2009 Montana employment multiplier findings for the ECE sector (with a Type SAM multiplier of 1.21 using IMPLAN), and yielded 7,964 total jobs, or approximately 7,900 jobs), with 1,376 of these jobs (or approximately 1,300 jobs) being in other economic sectors outside early care and education. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods.

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24 Based on the proportion of children under six in Montana with both or their only parent in the labor force. U.S. Census Bureau. (2010). B23008. Age of own children under 18 years in families and subfamilies by living arrangements by employment status of parents. *American Community Survey*. Washington, DC: Author. Retrieved on January 12, 2011 from http://factfinder.census.gov/home/saff/main.html?_lang=en&_ts=

25 Although estimates of the number of children participating in regulated early learning programs vary, and no precise figure is available due to data limitations (described in Appendix B), America's Edge's estimates that about 38,000 young children under age 5 in Montana were not in regulated early learning programs. This estimate was calculated by subtracting the estimated total number of young children in early learning programs, 23,022 children, from the Census-based population estimates of the number of children under age 5 in Montana (60,924 children), yielding 37,902, or approximately 38,000 children. (See Appendix B for a fuller explanation of the number of children served in each type of early learning program in Montana.)

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