Strengthening Missouri 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 market place, while helping our nation's children get on the right track.

Our Support

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Executive Summary

How Early Learning Investments Can Help Expand Missouri's Economy

Missouri business leaders recognize that the key to boosting 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, Missouri 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 hundreds of millions of dollars in sales of goods and services for Missouri 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 Missouri, an additional 87 cents are generated for a total of $1.87 in new spending in the state. This strong economic boost for local businesses is higher than investments in other sectors such as retail trade, transportation, construction and manufacturing. Inversely, cuts to early learning programs would hurt local businesses in Missouri by eliminating $0.87 in additional new spending for every $1 cut.

Early care and education should be a critical component of Missouri's economic recovery and growth. If all Missouri children age 5 or under were given access to quality early care and education at a cost of an additional $1.9 billion, that investment would generate $3.5 billion in total new spending in Missouri businesses. And nearly all of these dollars generated in Missouri would stay in Missouri – helping local businesses prosper while also creating up to 65,000 new jobs, including 13,000 jobs outside the early learning sector.

Such an investment will also save Missouri 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 Missouri 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. As our economy begins to turn around, Missouri 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 skills Missouri 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 Missouri businesses' balance sheets as do investments in high-quality early care and education.

Strengthening Missouri Businesses

through Investments in Early Care and Education

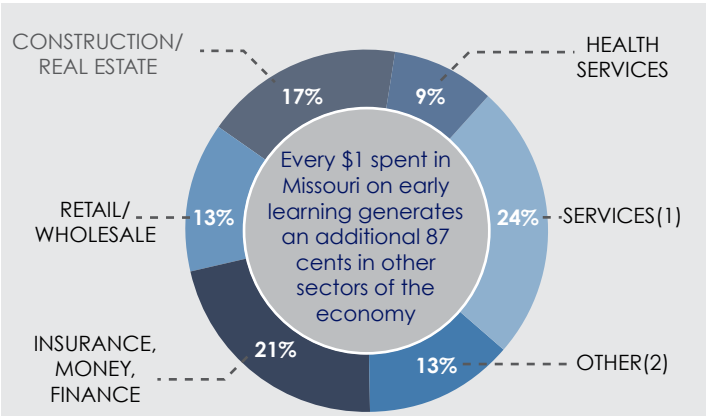
Immediate Short-Term Economic Gains

Critical Issues for Missouri Businesses

Even as our economy recovers, many businesses are experiencing a shortage 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 Missouri:

- 19 percent of high school students do not graduate on time;[2]
- 68 percent of eighth graders are below grade level in math;[3] and
- 66 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]



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

Source: IMPLAN, 2012

Each year, students dropping out of high school costs the United States dearly. High school dropouts are so much less productive than high school graduates that each class of dropouts nationwide will earn $154 billion less over their lifetimes than their high school graduate peers.[6] That loss of earnings translates into less spending power, decreased productivity and lower contribution to the tax base.

Increasing Sales of Local Goods and Services

New research by America's Edge found that 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 system is the most effective way to determine early education's impact in Missouri? This report used IMPLAN, a system first developed 20 years ago that is widely used for conducting a variety of economic impact and related analyses. This study employed the most recent available (2011) 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).

This economic impact modeling system found that, for every additional $1 invested in early care and education in Missouri, $1.87 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 retail trade ($1.74), transportation ($1.78), construction ($1.75) and manufacturing ($1.56).[8] Research shows that among Missouri'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 Missouri children under age 6 have access to quality early care and education would require an investment of an additional $1.9 billion. That investment would yield $1.6 billion in additional sales in Missouri's economy outside of early care and education, for a total of $3.5 billion of new money infused into the state (see Appendix B).[9] And most of these dollars generated in Missouri would stay in Missouri – helping local businesses

The Early Learning sector in Missouri generates more additional spending in the economy than other major economic sectors

Economic Sectors	Ouput Multipliers
Early Care and Education[1]	**$1.87**
Services	1.80
Transportation	1.77
Construction	1.75
Retail Trade	1.74
Wholesale Trade	1.68
Farming, Forest, Fishing, Hunting	1.64
Mining, Oil, Gas	1.62
Manufacturing	1.44

Every $1 invested in the early learning sector generates an additional 87 cents in the local economy.

1. The early care and education sector is part of the larger services sector, which on average generates a multiplier of $1.80 for every $1 invested.

Source: IMPLAN, 2011 analysis of Type SAM Output Multipliers for Missouri

improve sales in almost every sector. Here are some examples of the impact that investing in early learning would have on the major economic sectors in Missouri:

- **Over $380 million in new sales in the state's services sector**, which employs the largest proportion of workers in Missouri. 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 $340 million in new dollars to Missouri's insurance and finance sectors**, including local banks and insurance companies.[11]
- **Over $280 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.[12]
- **Over $210 million in new sales in Missouri's retail and wholesale trade sectors,** including grocery stores, department stores and auto dealers.[13]
- **Over $145 million in new sales in Missouri's health services sectors,** including hospitals and doctors' offices.[14]

The $1.6 billion 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 Missouri businesses:

- Over $80 million in sales from local restaurants, the cost for over 23,000 families of four to eat out for one year;[15]
- Over $50 million in sales from telecommunications companies, equal to the annual cost of telephone services for over 33,000 families of four;[16]
- Over $35 million in sales from local electric companies, the cost of monthly electric bills for over 19,000 families of four for one year;[17]
- Over $13 million in sales from local supermarkets, the cost of a year of groceries for 2,400 families of four;[18]

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 Missouri's local businesses.

65,000 New Jobs in Missouri

Fully investing in early care and education would also create thousands of new jobs. For every four jobs created in the early care and education sector, one job is created outside that sector in Missouri's economy.[21]

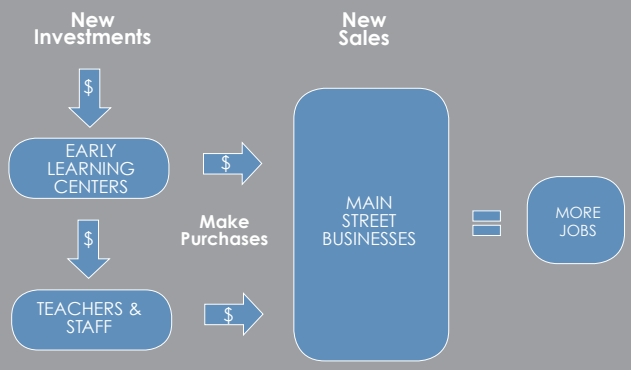
Early Learning Spending Stays in Missouri

Here's how it works:

The dollars initially invested in an early learning program recirculate 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), 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 Missouri or on services that can be provided remotely (e.g., customer service representatives via phone lines from other states or even internationally).

Early Learning Investments Help Missouri Businesses



In turn, since early education teachers and staff are low- and moderate-wage workers (child care workers in Missouri have average annual incomes of $19,890)[19], 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 Missouri yields a total of $1.87 in the state economy.[20]

An analysis of the IMPLAN economic data for Missouri shows that a $1.9 billion investment to offer quality early care and education to all Missouri children age five and under would create 65,000 new jobs, including 13,000 new jobs in other economic sectors.[22] 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 Missouri 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 annually.[23] 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 go up.[24] Reduced absenteeism and turnover and increased retention and productivity translate into immediate savings and increased profits for businesses — good news to Missouri 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 helps over 100,000 parents stay in the workforce in Missouri.[25] However, approximately 330,000 children under age 6 in Missouri 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.[26] Like strong K-12 education systems, quality early education for our youngest children can help attract skilled workers and new businesses. And Missouri businesses must be poised to compete for the most skilled workers as the economy continues to recover.

Long-Term Benefits for Economic Security

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

Although businesses have always needed workers proficient in the "3 Rs" – reading, writing and arithmetic – today's fast-paced, international and technology-driven marketplace requires even higher proficiency levels in these hard skills. But these skills are too often lacking, especially in young workers entering the U.S. workforce. According to the Nation's Report Card, only 26 percent of 12th grade students are proficient in math and 38 percent are proficient in reading.[27]

Just as important as the hard skills are the critical "soft skills" – communication, collaboration and critical thinking – which American businesses also often find lacking in the workforce. In a 2010 survey of 2,000 executives conducted by the American Management Association, nine in ten executives said these soft skills are important to support business expansion, but less than half of those executives rated their employees as above average in those skills.[28] Three out of four executives believe the soft skills will become even more important in the next three to five years because of global competition and the pace of change in the business environment.[29]

Cuts to Early Learning Hurt Businesses

In the same way that investments in early learning generate additional spending in Missouri due to the multiplier effect, the reverse is also true: funding cuts to early learning programs also reduce sales from Missouri businesses.

Thus, for every $1 cut from early learning programs, an additional 87 cents will be lost in sales of local goods and services.[38] Missouri cannot afford cuts to early learning that will directly hurt the bottom lines of Missouri businesses.

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 a group of children who attended the preschool and a group that did not until they were age 40. From 1962 through 1967, preschool teachers worked intensively with these low-income, 3- and 4-year-old children. 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 the life stories of subjects in the two groups. 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.[39]

High-quality early care and education is a critical step to support the development of the 21st century skills that businesses now 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 who attended Tennessee's pre-kindergarten program had overall gains in literacy that were 50 percent greater than for children who did not attend.[30]
- **Less special education** – children who attended the Chicago Child-Parent Centers program were 40 percent less likely to need special education;[31]
- **Lower rates of retention in school** – children participating in the Abecedarian early education program in North Carolina were 43 percent less likely to be held back in school;[32]
- **Higher rates of high school graduation** – children attending the High/Scope Perry Preschool Program in

Early Care and Education in Missouri: 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, 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 Missouri, approximately 330,000 young children under age 6 are not served by regulated early care and education settings.[40]

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

- Early care and education programs represent a sizable small business sector in the state. The sector provides nearly 23,000 jobs, including child care and preschool teachers, staff, and administrators.[41]
- 69 percent of children under the age of 6 in Missouri, 310,000 children, have both or their only parent in the work force.[42]
- A 2005 analysis of the economic impact of Missouri's child care industry found that the early care and education sector generates $635 million dollars annually in gross receipts (including both public investments and parent fees).[43]
- Currently, Missouri invests $305 million on state-funded early care and education programs, which in turn are generating an additional $265 million in economic activity, for a total of $570 million in economic activity for the state.[44]

Michigan were 44 percent more likely to graduate from high school;[33]

- **Higher rates of college graduation** – By age 30, Abecedarian project participants were four times more likely to have earned a 4-year college degree than those not in the program.[34]
- **Less crime** – children not offered the Perry program were five times more likely to become chronic offenders by age 27;[35] and
- **Higher rates of employment** – children in Perry were 22 percent more likely to be employed at age 40.[36]

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.[37] 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.

Conclusion

Research is clear that investments in high-quality early care and education will help boost our economy through an immediate increase in sales for Missouri 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

Economic Multipliers Analysis

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 Missouri's economy. Every new dollar spent on early learning yields a total of $1.87 in the state economy.

America's Edge commissioned an analysis of the most recent available data for Missouri 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 (2011) data sets and IMPLAN models. One model was created for Missouri. 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 1.9 billion in new early learning investments are needed in Missouri to serve an additional 213,000 young children from birth through age 5 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 5 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 $3.5 billion estimate of the total new spending generated in Missouri's economy from $1.9 billion in new early care and education spending was calculated by taking the Type SAM output multiplier for Missouri, 1.87, and multiplying it by the $1.9 billion ($1.854 billion, rounded to 1.9 billion), which yields $3.5 million in new spending. This new spending includes the $1.9 billion new direct spending in the early care and education sector, plus the new indirect and induced spending (with a subtotal of $1.6 billion) which ripple out to other sectors of Missouri' economy, yielding $3.5 billion in new total spending.

Estimates of current capacity in early care and education programs

In Missouri, there are an estimated 476,000 children (475,665) under age 6.

U.S. Census Bureau 2011 population estimates, child population by age group, 0-4, plus age 5 of the 5-11 age-based estimates. Annie E. Casey Foundation. (2012). KIDS COUNT data center. Baltimore, MD: Author. Retrieved on January 23, 2013 from http://datacenter.kidscount.org/

To estimate the number of children under age 6 in regulated early care and education programs, America's Edge obtained the most recently available figures documenting enrollment in such programs. 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 Missouri.

Head Start: 22,205 children were enrolled in Head Start programs in Missouri, based on 2011 – 2012 total enrollment data.

Personal communication with Mary Grasse, Director of Data Quality and Contracts Specialist, Child Care Aware of Missouri, on November 14, 2012. Data obtained from Missouri Head Start Collaboration Office.

Missouri Preschool Program: 4,103 children were enrolled in the Missouri Preschool Program, based on 2011-2012 funded enrollment data.

Personal communication with Mary Grasse, Director of Data Quality and Contracts Specialist, Child Care Aware of Missouri, on November 14, 2012.

Child Care and Early Learning Programs: the total number of young children in regulated child care programs (which included child care centers, family child care homes, and private preschools) was 128,372. This total number of young children up to age 5 in regulated programs is based on September 2012 licensed child care capacity.

Personal communication with Mary Grasse, Director of Data Quality and Contracts Specialist, Child Care Aware of Missouri, on November 14, 2012.

Total children served and unserved

America's Edge estimates that the total number of young children served by early care and education programs in Missouri is 144,000 (143,578) children. Subtracting this estimate of the number of children being served (143,578 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 5 (475,665 children) yields 213,171 children, or approximately 210,000 children under age 6 not being served who would need to be served to reach this goal.

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

The National Institute of Early Education Research (NIEER) estimates that the per-child annual cost to provide high-quality pre-kindergarten that meets all 10 of NIEER's benchmarks for program quality 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 210,000 children (213,171 children, rounded to 210,000), yields an estimated $1.9 billion 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 February 1, 2013 from http://www.pewtrusts.org/news_room_detail.aspx?id=19562

New spending generated by early care and education investments

Selected major cities and regions of Missouri

Location	Percent of children under 5 relative to state	Total new early care and education investments to serve unmet need from birth to 5	Total new spending generated in the economy	Total new spending generated outside the early care and education sector	Spending by Major Sector			
					Services 24	Real Estate and Construction 17%	Insurance and Finance 21%	Retail and Wholesale Trade 13%
Missouri	**100%**	**$1,900,000,000**	**3,500,000,000**	**1,600,000,000**	**380,000,000**	**280,000,000**	**340,000,000**	**210,000,000**
Metro Kansas City, MO	18%	$342,000,000	630,000,000	288,000,000	68,400,000	50,400,000	61,200,000	37,800,000
Metro St. Louis	15%	$285,000,000	525,000,000	240,000,000	57,000,000	42,000,000	51,000,000	31,500,000
St. Louis City	6%	$114,000,000	210,000,000	96,000,000	22,800,000	16,800,000	20,400,000	12,600,000
Springfield	4%	$76,000,000	140,000,000	64,000,000	15,200,000	11,200,000	13,600,000	8,400,000
Columbia	3%	$57,000,000	105,000,000	48,000,000	11,400,000	8,400,000	10,200,000	6,300,000
Jefferson City	1%	$19,000,000	35,000,000	16,000,000	3,800,000	2,800,000	3,400,000	2,100,000

Source: IMPLAN, 2012, using 2011 Missouri data and statewide IMPLAN ; US Census Bureau. (2013). 2011 American Community Survey 1-year estimates - B01001: sex by age. Washington, DC: Author. Notes: For Missouri, input-output modeling analyses were conducted to identify economic impacts. Missouri's Type SAM output multiplier was 1.87. For metro areas, the figures above represent a proportional estimate of the statewide economic impact, estimated based on the proportion of children under 5 in those locations. Metro Kansas City, MO area consists of Jackson, Platte and Clay counties; Metro St. Louis consists of St. Lousi County; St. Louis City is a self-contained US Census tract; Springfield consists of Greene County; Columbia consists of Boone County; Jefferson city consists of Cole county. Values may not be precisely equivalent to percentages due to rounding.

Endnotes

1 Morrison, T., Maciejewski, B., Giffi, C., Stover DeRocco, E., McNelly, J., & Carrick, G. (2011). *Boiling point? The skills gap in U.S. manufacturing*. Deloitte Consulting & The Manufacturing Institute. Retrieved January 31, 2012 from http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/AD/us_PIP_2011SkillsGapReport_01142011.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 February 14, 2012 from http://cew.georgetown.edu/jobs2018/

2 In the past, America's Edge used the graduation rates reported in Editorial Projects in Education's Diplomas Count report. Since the U.S. Department of Education has released four-year adjusted cohort graduation rates, a common measure being used by all states for the first time, America's Edge is using this new data source. U. S. Department of Education. (2012). Provisional data file: SY2010-11 four-year regulatory adjusted cohort graduation rates. Retrieved on November 30, 2012 from http://www2.ed.gov/documents/press-releases/state-2010-11-graduation-rate-data.pdf

3 National Center for Education Statistics. (2011). *The nation's report card: Mathematics 2011*. (NCES 2012-458). Washington, DC: U.S. Department of Education.

4 National Center for Education Statistics. (2011). *The nation's report card: Reading 2011*. (NCES 2012-457). 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 February 14, 2012 from http://nces.ed.gov/pubs2000/2000026.pdf

6 Alliance for Excellent Education. (2011, August). *The high cost of high school dropouts: What the nation pays for inadequate high schools*. Washington, DC: Author. Retrieved January 30, 2013 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; National Research Council and Institute of Medicine, Jack P. Shonkoff & Deborah A. Phillips, eds. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: Committee on Integrating the Science of Early Childhood Development, Board on Children, Youth, and Families, Commission on Behavioral Sciences, National Academy Press; Katz, L. (1999). *Curriculum disputes in early childhood education*. Champaign, IL: Clearinghouse on Early Education and Parenting. Retrieved on February 14, 2012 from http://ceep.crc.uiuc.edu/eecearchive/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 Preschool and Syracuse University Family Development programs and the intensive parent coaching in Chicago Child-Parent Centers. For Perry Preschool see: Schweinhart, L. J., Barnes, H. V., & Weikart, D. P. (1993). *Significant benefits: The High/Scope Perry Preschool 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 March 29, 2011 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 2011 data, the most recently available data set for Missouri. The early care and education sector's Type SAM output multiplier for Missouri was $1.87. 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 $1.9 billion in new early care and education investments are needed in Missouri to serve an additional 210,000 young children from birth through age 5 currently unserved by these programs. See appendix B for calculations of new early care and education investments in Missouri.

10 The services sector includes professional, business, information, entertainment, rental, and utility services. It represented 24 percent of the new spending generated outside the early care and education sector. The $380 million figure was calculated by taking 24 percent of $1.6 billion which is the amount of the total $3.5 billion in new spending that is generated outside the early care and education sector (the first $1.9 billion dollars invested is spent directly, in the early care and education sector).

11 The insurance and finance sectors represented 21 percent of the new spending generated outside the early care and education sector. The $340 million figure was calculated by taking 21 percent of $1.6 billion which is the amount of the total $3.5 billion in new spending that is generated outside the early care and education sector.

12 The real estate and construction sectors represented 17 percent of the new spending generated outside the early care and education sector. The $280 million figure was calculated by taking 17 percent of $1.6 billion which is the amount of the total $3.5 billion in new spending that is generated outside the early care and education sector.

13 The retail and wholesale trade sectors represented 13 percent of the new spending generated outside the early care and education sector. The $210 million figure was calculated by taking 13 percent of $1.6 billion which is the amount of the total $3.5 billion in new spending that is generated outside the early care and education sector.

14 The health services sector represented 9 percent of the new spending generated outside the early care and education sector. The $145 million figure was calculated by taking 9 percent of $1.6 billion which is the amount of the total $3.5 billion in new spending that is generated outside the early care and education sector.

15 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2011 Missouri model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2012). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on February 6, 2013 from http://www.bls.gov/cex/. Based on the national figure for yearly out-of-home food for a household of four people, adjusted for cost of average expenditures in the Midwest.

16 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2011 Missouri model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2012). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on February 6, 2013 from http://www.bls.gov/cex/. Based on the national figure for yearly spending on telephone services for a household of four people, adjusted for cost of average expenditures in the Midwest.

17 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2011 Missouri model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2012). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on February 6, 2013 from http://www.bls.gov/cex/. Based on the national figure for yearly spending on electricity for a household of four people, adjusted for cost of average expenditures in the Midwest.

18 Based on input-output analysis using fully disaggregated IMPLAN models with 440 distinct economic sectors in the 2010 North Carolina model. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods. Bureau of Labor Statistics. (2012). *Consumer Expenditure Survey*. Washington, DC: U.S. Department of Labor. Retrieved on February 6, 2013 from http://www.bls.gov/cex/. Based on the national figure for yearly spending on food at home for a household of four people, adjusted for cost of average expenditures in the Midwest.

19 Bureau of Labor Statistics. (2012, March 27). *Occupational employment statistics – May 2011 state occupational and wage estimates- Missouri*. Washington, DC: US Department of Labor. Retrieved on January 30, 2013 from http://www.bls.gov/oes/current/oes_mo.htm

20 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 2011 data, the most recently available data set for Missouri. The early care and education sector's Type SAM output multiplier for Missouri was $1.87. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods.

21 The linkage effects of the early care and education sector were analyzed using IMPLAN models for Missouri using 2011 data, the most recently available for the state. The Type SAM employment multiplier for early care and education for Missouri was 1.26. This means that for every one new job in the ECE sector, an additional 0.25 jobs are created outside that sector in other parts of the state economy. Multiplying both numbers by four yields this reformulation of the same finding: for every four jobs created in the ECE sector, one job is created outside the sector.

22 The $1.9 billion investment in early care and education programs was applied to the 2011 Missouri employment multiplier findings for the ECE sector (with a Type SAM employment multiplier of 1.26 using IMPLAN), and yielded 64,980 total jobs, or approximately 65,000 jobs), with 13,300 of these jobs (or approximately 13,000 jobs) being in other economic sectors outside early care and education. See Appendix A, Economic Multipliers Analysis, for more details on analysis and methods.

23 Shellenback, K. (2004). *Child care and parent productivity: Making the business case. Linking Economic Development & Child Care Research Project*. Ithaca, NY: Cornell University, Cornell Cooperative Extension. Retrieved on February 26, 2010 from http://government.cce.cornell.edu/doc/pdf/ChildCareParentProductivity.pdf

24 Shellenback, K. (2004). *Child care and parent productivity: Making the business case. Linking Economic Development & Child Care Research Project*. Ithaca, NY: Cornell University, Cornell Cooperative Extension. Retrieved on February 26, 2010 from http://government.cce.cornell.edu/doc/pdf/ChildCareParentProductivity.pdf

25 Regulated child care in Missouri supports 120,000 workers in other industries, as those workers use child care. Missouri Child Care Resource and Referral Network. (2005). *Child care keeps Missouri working: The Missouri child care industry economic impact report – Executive summary*. St. Louis, MO: Author.

26 Although estimates of the number of children participating in regulated early learning programs vary (described in Appendix B), America's Edge's estimates that about 330,000 young children under age 6 in Missouri were not in regulated early learning programs. This estimate was calculated by subtracting the estimated total number of young children in early learning programs, 143,578 children, from the Census-based population estimates of the number of children under age 6 in Missouri (475,665 children), yielding 332,087, or approximately 330,000 children. (See Appendix B for a fuller explanation of the number of children served in each type of early learning program in Missouri.)

27 National Center for Education Statistics. (2010). *Grade 12 reading and mathematics 2009 national and pilot state results*. Retrieved May 4, 2012 from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011455

28 American Management Association. (2010). *AMA 2010 critical skills survey. Executive Summary*. Retrieved April 23, 2012 from http://www.p21.org/documents/Critical%20Skills%20Survey%20Executive%20Summary.pdf

29 American Management Association. (2010). *AMA 2010 critical skills survey. Executive Summary*. Retrieved April 23, 2012 from http://www.p21.org/documents/Critical%20Skills%20Survey%20Executive%20Summary.pdf

30 Lipsey, M.W., Farran, D.C., Bilbrey, C., Hofer, K.G., & Dong, N. (April 2011). *Initial results of the evaluation of the Tennessee Voluntary Pre-Kindergarten Program*. Nashville, TN: Peabody Research Institute, Vanderbilt University and Tennessee Department of Education.

31 Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest. *Journal of the American Medical Association, 285*(12), 2339-2380.

32 Barnett, W.S., & Masse, L.N. (2007). Comparative benefit-cost analysis of the Abecedarian program and its policy implications. *Economics of Education Review, 26*, 113 – 125

33 Schweinhart, L.J., Montie, J., Xiang, Z.,Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High Scope/Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.

34 Campbell, F.A., Pungello, E. P., Burchinal, M., Kainz, K., Pan, Y., Wasik, B., Barbarin, O. A., Sparling, J. J. & Ramey, C. T. (2012, January 16). Adult outcomes as a function of an early childhood educational program: An Abecedarian Project follow-up. *Developmental Psychology*. Advance online publication.

35 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

36 Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High Scope/Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.; 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

37 Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High/ Scope Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.

38 The additional lost spending to local businesses is calculated by applying the 1.87 Type SAM output multiplier for the early care and education sector in Missouri.

39 Schweinhart, L.J., Montie, J., Xiang, Z., Barnett, W.S., Belfield, C.R., & Nores, M. (2005). *Lifetime effects: The High/Scope Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.

40 Although estimates of the number of children participating in regulated early learning programs vary (described in Appendix B), America's Edge's estimates that about 330,000 young children under age 6 in Missouri were not in regulated early learning programs. This estimate was calculated by subtracting the estimated total number of young children in early learning programs, 143,578 children, from the Census-based population estimates of the number of children under age 6 in Missouri (475,665 children), yielding 332,087, or approximately 330,000 children. (See Appendix B for a fuller explanation of the number of children served in each type of early learning program in Missouri.)

41 Bureau of Labor Statistics. (2012, March 27). *Occupational employment statistics – May 2011 state occupational and wage estimates- Missouri*. Washington, DC: US Department of Labor. Retrieved on January 30, 2013 from http://www.bls.gov/oes/current/oes_mo.htm

42 KIDS COUNT data center. Baltimore, MD: Author. Retrieved on February 4, 2013 from http://datacenter.kidscount.org/

43 Missouri Child Care Resource and Referral Network. (2005). *Child care keeps Missouri working: The Missouri child care industry economic impact report – Executive summary*. St. Louis, MO: Author.

44 The current state investment in early learning programs based on Fiscal Year 2011 early care and education funding allocations, $305 million, was applied to the Type SAM output multiplier for Missouri of 1.87, yielding $265 million in additional economic activity, and $570 million in total economic activity generated by these early learning investments. The 2011 early learning investments, $290 million in child care assistance investments and $14.8 million in Missouri Preschool Project funds were summed, yielding $305 million in current state investments in these early care and education programs. National Conference of State Legislatures. (2012). *Early Care and Education State Budget Actions FY 2011: State Profiles*. Denver, CO: Author. Retrieved on February 1, 2013 from http://www.ncsl.org/issues-research/human-services/early-care-and-education-state-budget-actions-fy20.aspx

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