

Atkinson Centre

for Society and Child Development

Early childhood development as economic development

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Early childhood development is economic development with a very high return. A decade ago this statement would have been dismissed. Spending on programs for young children was conceived as consumption, an immediate cost to the economy. An expanding research base refutes this claim and has swelled the audience for early childhood concerns engaging economists, scientists, health providers, and even financiers.

The economic rationale for investing in early childhood programming is gathered from four types of analyses: random control studies, longitudinal tracking of children; economic modelling of labour market effects; and studies examining the early childhood sector itself and its multiplier effects on economies.

Validation of the human capital approach is heavily influenced by U.S. longitudinal studies showing sustained benefits from early interventions for children in disadvantaged circumstances. Based on these findings, respected economists, such as Nobel Prize winner James Heckman, conclude that scarce public resources would best be used for at-risk communities¹. Population health promoters counter with data showing that developmental vulnerabilities are not exclusive to children from low-income homes—children with vulnerabilities exist across the economic spectrum. Targeting resources, they demonstrate, would exclude the majority of children with vulnerabilities -- those belonging to middle class and affluent families.²

More recently, economists are questioning whether “scarce resources” are a consideration. Quebec’s early childhood program has been criticized for its costs. However, analyses have found the province recoups its entire outlay from the additional tax revenue generated by the increased numbers of mothers entering the workforce.

U.S. longitudinal studies

Researchers have followed three U.S. longitudinal studies on the impact of preschool education on children from disadvantaged backgrounds. The participants were largely African-American children deemed to be at-risk because of low family income, and the mothers’ age, educational attainment and lone-parent status. The families typically lived in neighbourhoods with persistent poverty.

Ypsilanti’s Perry Preschool the Abecedarian study in North Carolina and the Chicago Child-Parent Centers have tracked their original cohorts for up to four decades. Each study was unique, but all provided a group program emphasizing parent involvement and the development of children’s literacy skills. Child-to-staff ratios were low and educators had university level training in early childhood education.

Assessed over time, the preschool groups showed greater on-time secondary school graduation, higher college attendance, increased earnings and more pro-social conduct as adults, compared to the control groups. For children born to mothers who never finished high school, the high school completion rates were roughly 10 percent higher and rates of substance abuse and felony charges were roughly 10 percent lower than for children in the no-preschool control group. The outcomes were particularly pronounced for male

participants.³ No long-term effect was found on the IQ of the participants, but preschool did help children develop better cognitive habits and improved impulse control.⁴

The Chicago and Abecedarian studies included samples of children who attended both preschool and enriched elementary school programming. Others participated only in preschool, or only in enriched schooling. The most consistent and enduring outcomes were from preschool participation. School-aged programming provided added academic and earning advantages, but social behaviours were not appreciably different from the preschool-only groups.

The benefits of preschool were quantified by comparing the original costs of the program per child to their adult behaviours, including employment earnings, taxes paid, social welfare used and criminal justice costs incurred. Preschool's influence on health costs was not considered in the overall tally, but positive results were found in a separate study of Perry Preschool participants at 40 years of age.⁵

Only the financial returns for participants as they entered youth and adulthood were considered by the studies, not modifications in their parents' behaviour. In the Abecedarian study, for example, all-day preschool made it possible for parents to work or upgrade their skills. Parental benefits from lowered welfare use and increased tax revenues paid were not factored into the results, nor were more immediate benefits accruing to the child, such as reduced demand for health care or special education.

As dramatic as the findings from these studies are, the initial outlay was substantial and public investments that take a generation to realize provide little incentive for policy makers whose actions are often determined by election cycles.

Cost-benefit findings from three major longitudinal studies involving disadvantaged children attending preschool in U.S. urban areas

	Abecedarian	Chicago Child-Parent Centres	Perry Pre-school
Year Began	1972	1983	1962
Location	Chapel Hill, NC	Chicago, Il	Ypsilanti, MI
Sample Size	111	1539	123
Design	Random Control	Compared children who only received kindergarten	Random Control
Participants' ages	6 weeks – age 5 & 6-8 years	Age 3 and 4-8 years	Ages 3-4
Program Schedule	Full day/year round	Half day/school year	Half day/school year
Average time in program per child	5 years	18 months	2 years
Additions to preschool	Enriched programming in elementary grades. Health and family supports.	Full-day kindergarten, health and family supports, and enriched programming in early elementary grades.	Health supports and 1.5 hour home visit once a week.

Age last assessed	Age 21	Age 28	Age 40
Costs per child	\$13,900/yr	\$7,428 per child	\$15,166/yr
Benefits calculated	\$143,674	\$83,511	\$258,888
Return on each \$1 spent	\$4:1	\$10:1	\$17:1

Barnett, W. S., & Masse, L. N. (2007); Belfield et al (2006). Temple & Reynolds (2007); Reynolds et al (2011)

Canadian cost-benefit analyses

Canada does not have comparable random control studies. Canadian studies have also differed from the American big three by including the immediate reimbursements produced from the increased workforce participation of mothers and the mid-term repayments from early childhood programs that can be predicted for children, such as reduced need for special education.

In 1998, University of Toronto researchers calculated the impact of providing publicly funded educational child care for all children aged 2–5 years.⁶ The net cost of \$5.2 billion annually (1998 CDN dollars) was premised on an overall parental contribution of 20 percent, with individual fees scaled to income. The new system would create 170,000 new jobs, but these would replace 250,000 unregulated child minders, for a net employment loss. New educator jobs were assessed at an average wage and benefit level of \$36,000 annually, a significant improvement on remuneration levels at that time.

The authors determined the benefits at \$10.6 billion. About \$4.3 billion was foreseen for children in improved school readiness, graduation levels and future earnings. The majority, and the most immediate, dividends (\$6.24 billion) came from mothers. Affordable, available child care would allow women to work, to shorten their stay out of the labour market following the birth of their children and would permit them to move from part-time to full-time work. This would afford women more financial independence, increasing their lifetime earnings and decreasing their chances of poverty at the time of divorce or widowhood.

Developing community capacity to support children

Canada's largest study on the influence of programs on children is Better Beginnings, Better Futures (BBBF). BBBF is a bit of an outlier in terms of studies looking at outcomes for children that can be attributed to preschool attendance. It is more of a study of community social cohesion; an examination of what happens when local service providers come together with families in the interest of children.

It does reveal something about the “dose effect”— how much is enough to change developmental trajectories for children. BBBF looked at eight communities, five focused on children from birth to 4 years of age (the younger child sites), and the other three on kindergarten-aged children to 8 years of age (the older child sites). Each site received a grant averaging \$580,000 each year over five years (1993–97) to enrich programming for children. The sites selected their own interventions, which varied over the course of the study. Program examples included: enriched in-school activities, homework support, after-school recreation, parenting classes, home visits, field trips, toy libraries, family vacation camps, child care referral and/or community kitchens and gardens.

A sample of children from each site was selected to assess the impact of the interventions and compared to a sample from similar communities that did not receive enriched interventions.

Long-term positive effects were found for the children who lived in communities with enriched programming for 4- to 8-year-olds, but not for those in the younger child site communities. The positive outcomes actually strengthened over time in the older child sites, as seen in measures collected when children were in grades 3, 6, 9 and 12. Children in the BBBF communities used health, special education, social services, child welfare and criminal justice services less than those in the control neighbourhoods. The reduction in the use of special education services alone saved more than \$5,000 per child by grade 12. Overall, government funders realized a cost-benefit of more than \$2 for each \$1 invested in the project.⁷

Why did younger children receive no lasting benefits from the interventions, while older children did? One explanation is that the modest project investment per child did not provide enough intensity for younger children.⁸ Program spending in the older children's sites was on top of investments already made in every child via the school system. Schools offered a universal platform so that enriched supports reached all children, while no equivalent service is available for children during their preschool years.

Child care as regional economic development

Building on U.S. models of economic impacts, a 2004 study of Winnipeg's child care sector demonstrated its multifaceted role in a regional economy: as an economic sector in its own right with facilities, employees and consumption from other sectors; as labour force support to working parents; and for the long-term economic impact it has on the next generation of workers.⁹

Winnipeg's 620 child care facilities provide care to about 17 percent of the city's children. Gross revenues are over \$101 million a year; 3,200 people are employed with total earnings of \$80 million annually. Prentice found more jobs in child care than in the entire Manitoba film industry, and about as many as in the better-known bio-tech and health research or the energy and environment sectors, which are priority areas for development in the city.

Child care is also a job creator. For every child care job, 2.15 others were created or sustained. Child care also allows mothers and fathers to work. Parents with children in child care earn an estimated \$715 million per year. Overall, every \$1 invested in child care provided an immediate return of \$1.38 to the Winnipeg economy, and \$1.45 to Canada's economy.

In 2007, a rural, northern and Francophone region of Manitoba were analyzed. Those studies identified higher returns, with every \$1 of spending producing \$1.58 of economic effects.¹⁰

Preschool as economic stimulus

Previous studies did not focus on the state as a beneficiary of child care investments. This study released on the heels of the 2008 collapse of the financial markets when governments

were looking for stimulus projects, showed how investing in educational child care was a highly effective practice:

Biggest job creator: Investing \$1 million in child care would create at least 40 jobs, 43 percent more jobs than the next highest industry and four times the number of jobs generated by \$1 million in construction spending.

Strong economic stimulus: Every dollar invested in child care increases the economy's output (GDP) by \$2.30. This is one of the highest GDP multipliers of all major sectors.

Tax generator: Earnings from increased employment would send back 90 cents in tax revenues to federal and provincial governments for every dollar invested, meaning investment in child care virtually pays for itself.

The study also quantified the immediate costs of the sector's poor employment environment, which results in annual shortages of about 50,000 educators. The net cost to the Canadian economy was estimated at over \$140-million for the period 2001 to 2007. The shortage of educators also held parents back from entering the workforce. In total, it meant a loss of almost 50,000 person years of employment.

In addition, it assessed that attendance at preschool would still result in reduced grade failures, less reliance on special education and lower rates of smoking and early high school leaving among children from middle class homes. The study concludes that investments in early childhood programming pay for themselves, at the rate of 2.4 over the immediate and longer-term.¹¹

Five Canadian cost-benefit analyses of early childhood programming				
Study	Year	Description	Benefits	Ratio
Economic Consequences of Quebec's Educational Child Care Policy <i>Fortin, Godbout, St-Cherny</i>	2011	Examined benefit of enhanced maternal employment due to low cost child care	<ul style="list-style-type: none"> Quebec gains \$1.5B in increased tax revenue Pays \$340M less in social benefits Increased GDP by +1.7% 	1:1.05 for Quebec government 1:0.44 for Canadian government
Better Beginnings, Better Futures <i>Ray D. Peters, et al</i>	2010	<ul style="list-style-type: none"> \$580,000 per site for 5-years to enrich programming 3 sites focused on children 4-8 years 5 focused on children 0-4 years Matched similar neighbourhoods Children followed to grade 12 	<ul style="list-style-type: none"> No difference for sites focused on 0-4 Reduced use of health, social benefits, special education, child welfare and criminal justice in sites focused on children 4-8 years compared to control neighbourhoods 	1:2
Workforce Shortages Socio-Economic Effects <i>Robert Fairholm</i>	2009	<ul style="list-style-type: none"> Analysis of potential benefits of public spending on child care 	<ul style="list-style-type: none"> Every \$1 spent on operations creates \$2.02 benefit Every \$1 spent on capital produces \$1.47 \$1M on operations creates 40 jobs \$1M on capital creates 29 jobs 	1:2.42
Child Care as Economic and Social Development <i>Susan Prentice</i>	2007	<ul style="list-style-type: none"> Examined economic multipliers from existing ECE services in 4 communities 	<ul style="list-style-type: none"> Sector revenue \$101M/year Employs 3,200, annual earning \$80M Every child care job spins off 2.1 jobs 	1:1.38 local economy 1:1.4 Canadian economy
The Benefits and Costs of Good Child Care <i>Cleveland & Krashinsky</i>	1998	<ul style="list-style-type: none"> Estimated costs of universal ECE program for children 2-5 years Assumed fair remuneration for ECEs and 20% parent contribution 	<ul style="list-style-type: none"> 170,000 jobs created Increased maternal labour force participation Lower social costs 	1:2 <ul style="list-style-type: none"> \$0.75 in social savings \$1.25 in increased tax revenues

Early childhood programming: A no cost solution

Initiated in 1997, Quebec's early childhood services are popular. They reimburse both users and the larger society, not only in improved child outcomes, but also with unpredicted bonuses such as higher birth rates and reduced poverty levels.

Economist Pierre Fortin's¹² analysis of Quebec's child care system does not deal with these extras, or with the personal medium- or long-term benefits to the child attendees of children's programs. Rather, he focuses on changes in the mothers' labour force behaviour, setting out to answer three questions:

1. Who is working because low cost child care is available?
2. How much tax revenue are they bringing in?
3. How much less are they drawing on income-tested family benefits?

Publicly funded child care is not a requirement for women to work. Women's tenacity in piecing together underground arrangements takes the pressure off the state to find formal solutions. For some mothers, however, the absence of reliable, affordable child care is an impenetrable barrier. They stay out of the labour force altogether, delay returning to work until their children start school or they work part-time. In 1997, Quebec women were less likely than other Canadian women to work outside the home; today, they are the most likely. The study identified those women whose presence in the workforce could be attributed to available, affordable child care.

As of 2008, more than 60 percent of Quebec children ages 1–4 years had access to \$7-a-day, state-subsidized child care. By comparison, in other provinces, only 18 percent of children in this age group were in a licensed care. Quebec's program expansion has been rapid since its inception, reaching 220,000 spaces. Demand still outstrips supply, with full coverage predicted for 2014.

Quebec parents like their options. A 2009 survey found that 92 percent of children's centre users said the centre was their first preference for child care.¹³ In addition, 66 percent of parents with other child care arrangements said they would prefer using a children's centre.¹⁴

Fortin's analysis found that in 2008, 70,000 more Quebec women were at work and their presence could be attributed to low cost child care. The majority of new labour entrants did not have post-secondary credentials therefore their earnings were modest. The availability and the low cost of care removed a prime barrier to their working.

This represented a 3.8 percent boost in women's employment, and a 1.8 percent increase in total provincial employment. Adjusting for hours of work and the productivity of the new entrants, it was calculated that their labour added 1.7 percent to Quebec's GDP. Increased family incomes generate more tax revenues and lower demand for government transfers and credits, with both the federal and Quebec governments benefitting. Parents with children in a \$7-a-day children's centre or after-school program do not qualify for Quebec's refundable tax credit, reducing the net cost of the credit to the province.

The federal government takes its share of tax paid by Quebec's working mothers, while its

outlay for income-tested benefits is reduced. A further savings for the federal government is found in the Child Care Expense Deduction. Quebec parents enjoying reduced fee child care do not pay enough to claim the full CCED deduction.

Researchers estimated that for every public dollar spent on the early childhood program, the Quebec government collects \$1.05 in increased taxes and reduced family payments, while the federal government gets 44 cents. The study expects government revenues will increase over time as mothers in the 50-plus age group (those now least likely to work) are replaced by women with a stronger work history.

Fortin's analysis also challenges claims that Quebec's early years investments would be better targeted to low-income families. While not discounting that better efforts could be made to facilitate the inclusion of children from disadvantaged circumstances, Quebec has a greater percentage of children from low-income homes attending preschool than any other province, including provinces where public funding is solely targeted to the poor. Restricting the access of moderate- and middle-income families to affordable care would limit their abilities to earn income, reduce their tax contributions and add to their benefit claims, removing an important source of government income for social spending.

Wisely investing in early childhood

These studies demonstrate the cost effectiveness of organizing early childhood programs so they stimulate children's early development as they allow parents to work. When expanding access to early childhood programming, most Anglo-American jurisdictions persist in maintaining the historic legislative and funding schism between public education programs, and child care. Leaving families to bridge the divide is not only frustrating for parents and children; it also denies taxpayers the full benefit of their investment.

Following the money confirms that effective early childhood programs are:

Universal: Reaching out to offer early childhood education to all children catches the substantial numbers of children across the socioeconomic spectrum displaying behavioural and learning vulnerabilities at school entry. Research shows difficulties become biologically embedded if supports are not timely and consistent. Later interventions are costly to both the child and the taxpayer.

Available and affordable: When early education and care is available and parent fees do not create a barrier to participation, public program costs are recouped through the enhanced labour force participation of parents.

High-quality: Quality in early childhood programming is non-negotiable if the mid- and long-term benefits to children and society are to be realized. Educators well trained in early childhood development and adequately resourced to respond to the individual needs of the children are the prime determinants of quality.

Systems funding and management: Integrating early education and care, both on-the-ground and at the systems level, avoids the added and wasteful expense of service duplications and gaps. Stable funding allows the planning for and building in of quality assurances. Effective management ensures equity of access by locating programs in low-income neighbourhoods, facilitating flexible enrollment and instituting fee schedules that acknowledge the financial constraints of some families. These measures help to remove

work barriers for the most vulnerable families, and help ensure all children reach their full potential.

To receive maximum financial efficiencies and social benefits, states are advised to organize and fund programs to meet these goals.

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³ Arthur J. Reynolds, Judy A. Temple Suh-Ruu Ou, Irma A. Arteaga, Barry A. B. White (2011). School-Based Early Childhood Education and Age-28 Well-Being: Effects by Timing, Dosage, and Subgroups. *Science*, Published online 9 June 2011.

⁴ Barnett, W. S. (2011). Effectiveness of early educational intervention. *Science*, 333, 975-978.

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¹¹ Fairholm, R. (2009). Understanding and addressing workforce shortages in the ECEC sector project. Ottawa, ON: Child Care Human Resources Sector Council. Retrieved from <http://www.ccsccssge.ca/english/aboutus/completed.cfm#p5>

¹² Fortin, P., Godbout, L., St-Cerny, S. (2011). Impact of Quebec's universal low fee childcare program on female labour force participation, domestic income, and government budgets.

¹³ ISQ, *Enquête sur l'utilisation 2009*, Table 6.8.

¹⁴ *Ibidem*, Tables 4.2 and 9.1