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# CHINA

## What could cognitive capital mean for China's children?

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### EDITORIAL INSIGHT

**An original and ground-breaking report, with high potential for impact and uptake by UNICEF and others globally, facilitated by its good use of evidence-based linkages to the Sustainable Development Goals. The external panel noted that "the proposed early childhood development package around nurturing care is well founded and returns on investments in cognitive capital formation can be a game-changer in China and emerging middle-income countries", by offering a framework to synthesize multi-sectoral efforts into an integrated approach to policy and programming in China and abroad. The internal panel also highlighted the article's strong conceptualization and clear presentation.**

## What dividends could investment in children's early years deliver for China?

Between birth and the age of 5, children's brains grow rapidly. At this stage, they begin to develop the foundation on which they will build intellectual skills to acquire and understand knowledge, form beliefs and attitudes, and make decisions. From this perspective, early childhood interventions in nutrition, health, education, child protection and social welfare systems – all of which help optimize brain development – represent investments in human potential that will pay off in decades to come. A UNICEF review of global research into childhood development provides a compelling argument for China to build 'cognitive capital', which could also deliver economic dividends in the future by investing in children's early years.

The review was triggered by the Chinese Government's need to address the challenges it faces as it moves from a middle- to a high-income country, including inequity, economic slowdown and an ageing population. UNICEF researchers reviewed evidence on the benefits of early childhood interventions and the emerging concept of cognitive capital to suggest ways in which the government could boost the contribution that every person makes to the economy and the well-being of the country. The findings, and the proposals made for the way forward, have influenced the government's evolving approach to children's development and how this links to the country's mid-term vision for social and economic development.

## WHY WAS THE RESEARCH DONE? PLANNING FOR THE FUTURE

China has seen unprecedented growth in recent decades and today boasts the world's second-largest economy. Nevertheless, like many other countries it now faces the challenge to maintain growth targets and resolve entrenched inequalities, with children significantly affected, along with growing numbers of elderly dependants. UNICEF wanted to make the case that prioritizing investment in children was an essential policy priority for China to meet growth targets based on an increasingly productive workforce, in the context of high levels of labour dependency. Key to this is the cognitive capital accumulated by investing in human brain development. By nurturing children in their early years, governments can bank a range of cognitive assets (such as skills in systematically applied thought processes), which society can draw on and benefit from once these individuals grow up. Or to put it another way, well-fed and well-cared-for children grow up to be smarter and more productive members of society. Investing in brain development upholds child rights, and builds cognitive capital which could contribute to nation-building and future economic growth.

## A NARROW WINDOW OF OPPORTUNITY

The idea that cognitive capital can most efficiently be developed in early childhood is related to the amazing spurt of development that a child's brain undergoes in the early years of life, when nerve cells (neurons) in the brain develop very rapidly. Moreover, the brain's development is so rapid in young children that it reaches 90 per cent of its final weight between the ages of 3 and 6 years.

*“Today, cognitive capital cements  
the foundations of the wealth  
of nations.”*

M. Samson, 'Cognitive capital: Investing in children to generate sustainable growth', 2016

## HARNESSING THE FULL POTENTIAL OF CHILDREN IN CHINA MEANS TACKLING INEQUITIES

- 7.1 per cent of rural children are poor
- In 2014, rural children under 5 were more than twice as likely to die as urban children under 5
- In 2013, children's enrolment in three-year pre-primary schools stood at nearly 50 per cent in some provinces, despite rising to 67.5 per cent nationally

This means that the window of opportunity for optimizing brain development is fairly narrow and that children's early years have a profound impact on their future health and well-being, and in turn on a country's socio-economic development. Rapid early neural development also means that the right interventions at the right time can offset certain deprivations, such as those associated with poverty. Continued investment throughout childhood and adolescence can consolidate gains in the early years and may mitigate, or even rectify, the impact from earlier negative exposures.

## GATHERING EVIDENCE

One reason UNICEF undertook this review was that the concept of cognitive capital had not yet been defined in a way that was useful in China. The UNICEF team therefore wanted to relate the concept to policies directing support and services for children in China. UNICEF focused on early childhood because as growth slows, and after decades of investment, the Government of China is increasingly interested in knowing where the biggest returns on public investment come from.

Another aim of the review was to bring together wide-ranging scientific evidence to support the benefits of such early positive interventions. Now that evidence has been gathered, the UNICEF approach is allowing teams to go beyond the concept and describe how early childhood interventions can ensure all children are reaching their developmental milestones, which is a foundation for healthier economies.

## HOW WAS THE RESEARCH DONE? LITERATURE REVIEW

The team reviewed research on childhood development spanning several decades. The aim was to explore the evidence base to support the hypothesis that brain development and individual performance could be optimized through a multidimensional approach that provides very young children with decent nutrition, health, education, child protection and social welfare. To ensure objectivity and scientific rigour, as well as to communicate the findings widely, the research was published in the peer-reviewed journal *PsyCh* – the journal of the Institute of Psychology, Chinese Academy of Sciences.

## DEFINING COGNITIVE CAPITAL FOR THE CHINESE CONTEXT

Once they had reviewed the research, the UNICEF team redefined cognitive capital in a way that could be usefully applied in China – describing it as “the equitable investment of resources in interventions that maximize optimal brain development in children, realize children's rights and contribute to future economic growth”. This aligns with the country's approach to social and economic development. It also reiterates a point that UNICEF underscores: investment in children's early development must take a multidimensional approach, to provide an ‘integrated framework’ of adequate nutrition, health, education, child protection and social protection.

## IDENTIFYING GAPS IN INFORMATION

Existing data on education and health financing in China show wide geographical variation and inequity, but there is a lack of research on the access, costs and impacts of good quality services in childhood, which are necessary for future economic growth. In other sectors, such as child protection, data are missing. The review team highlighted some of these gaps for future attention.

## WHAT ARE THE FINDINGS AND WHAT DO THEY MEAN? BENEFITS OF EARLY CHILDHOOD DEVELOPMENT INTERVENTIONS





The review team focused on economic analyses undertaken by other research groups between 2007 and 2016. This provided evidence that the returns are highest in human capital (ranging from 7 per cent to 10 per cent) during the first three years of a child's life, when brain development is maximal.

Research has also shown that when disadvantaged children are supported by high-quality programmes between birth and age 5, the return on investment can be as high as 13 per cent. Researchers also noted that adults who benefited from comprehensive public nutrition initiatives when they were children earned around 11.3 per cent more than those who did not receive such interventions.

## THE ROLE OF SOCIAL PROTECTION PROGRAMMES

Research into social protection programmes was also reviewed. The evidence gathered showed that such approaches lessen vulnerability in households, resulting in parents and caregivers being better able to nurture cognitive capital by, for example, educating children and keeping them healthy and well nourished (see Figure 1). This is particularly relevant to rural Chinese children (whose poor health and malnourishment can delay their cognitive and intellectual development) and to children left behind when their parents seek work away from home.



FIGURE 1: EXAMPLES OF RETURN ON INVESTMENTS		
Sector	Intervention	Return on investment
 Health	Promoting immunization	For every US\$1 invested in promoting immunization, returns are up to \$60
	Breastfeeding	Investments in breastfeeding may increase world gross national income by at least 0.49%, or \$302 billion a year
 Nutrition	Comprehensive public nutrition	Adults who benefited in childhood from comprehensive public nutrition earn about 11.3% more than those who did not
	Reducing malnutrition	For every \$1 invested in reducing malnutrition, returns are up to \$45
 Child protection	Preventing and responding to violence against children	Exposure to violence diminishing children's ability to reason, plan, think and communicate can lead to productivity losses that may cost China 1.7% of its gross domestic product
 Education	High-quality early childhood education for disadvantaged children	Every dollar invested in high-quality early childhood education for disadvantaged children can deliver a return of 7–13%

Source: Page 157 of full report

## NEGATIVE FACTORS FOR COGNITIVE DEVELOPMENT

The researchers also looked at several shortfalls that can limit children's development. One piece of research reviewed, for example, showed that failing to protect children against violence may cost China up to 1.7 per cent of its gross domestic product. And although research has established that breastfeeding is associated with enhanced brain development, and investment in breastfeeding may increase world gross national income by 0.49 per cent or US\$302 billion per year, the necessary investments in health, education and advocacy have not been sufficient. Addressing these factors could make a real contribution to cognitive capital.

## EMERGING IMPACTS

This widely disseminated paper has spurred interest at a high level in the Chinese Government about the benefits of investing more in policies for child development, with the cognitive capital concept linking to sustainable economic growth and children's rights. For example, the UNICEF paper was included in a

review of research on social mobility which informed the Nineteenth Communist Party Congress – the most important event in the country's political calendar. As a result, UNICEF China was asked to support the National Development and Reform Commission, China's macroeconomic management agency with responsibility for formulating social and economic policy, to develop a comprehensive set of policies to promote early child development, as a way to promote the quality of the labour force in the next generation.

Based on these foundations, UNICEF is continuing to engage strongly with the government and other agencies to call for including investments in services aimed at improvement in early childhood development and well-being in the government's economic planning.

In Beijing in May 2017, over 100 people from Chinese ministries, universities and national and international agencies held a high-level meeting to discuss the main areas to improve cognitive capital for children in China.



*“Cognitive capital cannot be mined or traded but rather must be carefully cultivated by the most forward-looking of policies. Investments in children, particularly in the earliest years, yield dividends that not only realize human rights but also slay today's giants of inequality, deprivation and economic stagnation. These investments help pave the way to an economic prosperity characterized by the achievement of human potential.”*

M. Samson, 'Cognitive capital: Investing in children to generate sustainable growth', 2016

This UNICEF research, together with the research of other groups that it builds on, provides evidence of the value of development programmes targeting very young children. Beyond China, the research has potential for global uptake and further work within UNICEF and other organizations. In this way, children's cognitive development and countries' sustainable growth will come to be viewed as one and the same

issue. Governments need to invest more and find policies that close the gaps for children's developmental outcomes at every stage of child development – this paper has contributed to the conversation on practical strategies to promote and uphold child rights in the context of well-recognized national demographic, social and economic challenges. Expanding child development initiatives now (and so investing in cognitive capital) will ensure that children benefit today, and nations benefit in the future.

## NEXT STEPS

There is still a lack of contextualized research in China on interventions in childhood and economic growth, including a lack of impact and cost-benefit studies. A China-specific review of interventions that offer the highest return on investment and that have a rights orientation could help drive the research and policy agenda in this area. Further research on how the brain develops in childhood will expand on the potential of early childhood development as an investment for the future, coupled with a need to also explore the potential of investments in the 'second decade' of adolescence.

**For full details of research methods and findings, link to the full report**

[www.unicef.cn/en/uploadfile/2017/1207/20171207114939473.pdf](http://www.unicef.cn/en/uploadfile/2017/1207/20171207114939473.pdf)