The value of British Sign Language

An economic analysis

Executive summary of the RAND Europe report

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BSL Video

Introduction

Around the world, over 430 million people are deaf or hard of hearing. Of these, 34 million are children. They all face ongoing barriers to education, employment, and social participation. These barriers are associated with lower qualifications and higher risks of economic marginalisation.

In the UK, each year 1 or 2 children out of every 1,000 are born deaf. The majority have hearing parents with little or no previous experience of deafness. Early screening means that most are identified within weeks of birth. Families are offered some support – access to hearing aids or cochlear implants, speech and language therapy, sign language.

Between birth and five years old, consistent access to a language, whether spoken or signed, is vital for early childhood development. For children with little or no hearing, society believes it is a sensible use of money to provide cochlear implants or hearing aids, aiming to give them access to spoken language. But there are challenges associated with these technologies. Sometimes they don't work properly. Some children don't like to use them. Speech therapy provision may be poor. Family support isn't always good. So, while technology may allow children to hear some spoken language, it doesn't guarantee successful language development. Children are therefore at risk of early language deprivation. This can have long-term adverse cognitive, social, and emotional impacts.

There is another way. Deaf children can acquire British Sign Language (BSL) at an early age.

The UK passed the British Sign Language Act in 2022. It formally recognised BSL as a language of the UK. So BSL has legal recognition. And it can provide full language development for deaf children from early years onwards. But parents are often encouraged to prioritise spoken language over sign language. They often don't get information or guidance on the full range of options available to support their child's development. So what happens? Only about 9 per cent of severely to profoundly deaf children in the UK are able to use BSL in education, according to reports

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In economic terms, early sign language acquisition can be viewed as an investment in human capital. For example, an economic analysis of the benefits of Auslan (Australian Sign Language) suggests that sign language can generate measurable economic returns. If deaf children access signing, they can achieve better educational attainment, increased labour-market participation, and health and wellbeing improvements.

That evidence shows that early BSL provision is able to give deaf children early access to a first language. This can be done instead of or alongside implants or hearing aids. The risk of children experiencing problems in their development is reduced.

Objectives

This study weighs up the potential *costs* and *benefits* of providing early access to BSL for deaf children. The analysis focuses on early childhood. The period from birth to age 5 is vital for language acquisition. This report measures whether early BSL provision leads to improved health, employment, and quality of life. It calculates the outcomes across the whole of a person's lifetime.

How? The study combines a *review* of appropriate research that has previously been published with new economic modelling.

The *review* covers the role of sign language in the development of human capital. It looks at domains such as early childhood development, education, employment, and health. Lessons from the review underpin the economic model.

A computer *model* then imagines and predicts a group of deaf children over their lifetime. The model calculates the long-term costs and benefits of early BSL access. **The benefits explored in this report are**

1. **improvements in quality of life** (what it means to live well for longer);
2. **improved employment outcomes** (higher probability of being in employment; more productive working life);
3. **reduced healthcare expenditures for long-term health conditions** (diabetes, cardiovascular disease, depression and anxiety).

These three kinds of *benefits* are then compared against two kinds of *costs*. Firstly, the cost of providing BSL in a family environment in the early years, and secondly, the cost of providing support to deaf people when they secure better employment.

In this way, the report assesses the economic value of BSL by comparing its costs and benefits over a whole lifetime.

Approach

The report proceeds by analysing two distinct scenarios.

- **Scenario 1** compares a child who has acquired BSL at an early age to a child who has no access to either BSL or hearing technologies. This scenario asks 'what is the economic return on the young child learning to sign (ie the benefit to the public of the taxes spent to support families)?' The focus here is on cases where BSL is the only support the family receives, with no other help towards communication.
- **Scenario 2** looks at early BSL acquisition delivered alongside hearing technologies. This scenario recognises that some children who use cochlear implants or hearing aids remain at risk of insufficient early language exposure. For them, the report calculates that early BSL acquisition reduces the overall risk of language deprivation.

For each scenario, the model calculates the *benefits* over a whole lifetime of early BSL acquisition and compares these with the associated *costs*. Results are presented for two different time periods (80 years and 50 years). The main result is what economists call the *Benefit–Cost Ratio* (BCR), which represents the economic return per £1 invested in early years BSL acquisition. To offer a fair analysis, three levels of results are presented: (a) a base case using medium numerical estimates; (b) a pessimistic case assuming higher costs and lower benefits; and (c) an optimistic case assuming lower costs and higher benefits.

Strengths and limitations

This study provides new estimates of the potential economic benefits of deaf children learning BSL. Doing good research always means looking carefully for any weakness in the analysis. Five issues are important to keep in mind.

First, the data fed into economic models may come from 'snapshot' studies or from looking back into the past. It may rely on people's memories which may not be entirely accurate. Research cannot always prove that one thing directly causes another (eg using BSL well may not by itself change every individual's job prospects). There simply is no data that has tracked the same people over many years, starting from childhood, to see how early sign language skills affect their lives and careers. The conclusions in this report therefore have to be carefully considered.

Second, there is not much data from the UK. Some information was therefore taken from American studies. Differences in healthcare access, education systems, the job market, and disability legislation between the two countries may affect the results. The researchers did extra testing to see how much the results would change if the American numbers were different. That helps to interpret the results with confidence, but we must still be cautious. This issue can be fixed in future if UK data can be gathered.

Third, the study uses a model which imagines certain types of children. But individuals in the real world vary greatly – for example, in their transition from working into retirement. This model simplifies the messy, unpredictable flow of real life. People's decisions – about careers, education, or family – are constantly changing and influenced by different factors.

Fourth, the economic model tracks benefits and costs over the long-term but it has to assume that other factors remain the same. The model assumes that technological change or policy changes will not impact the data in any significant way.

Fifthly, the economic analysis leaves out several potential benefits that could not be calculated with confidence. These include possible future improvements in healthcare access, educational attainment, parental well-being, and social participation, among others. IF improvements like these were included, total benefits arising from early acquisition of BSL would probably be greater.

Key findings

From this study, it appears that early acquisition of a sign language, such as BSL, can be thought of as an investment in human capital that can lead to positive economic returns.

For scenario 1, the middle-ground analysis estimates a BCR of 2.34. This means early years BSL acquisition produces approximately £2.34 in benefits for every £1 invested over an 80-year time horizon. When the time horizon is shortened to 50 years, the corresponding BCR is slightly lower at 2.04.

Even from the most negative perspective, the BCRs are 0.51 (80 years) and 0.44 (50 years). In other words, in the worst possible case, a significant proportion of the money spent on BSL learning would not be lost. Roughly half of it would be recouped during a person's lifetime.

On the other hand, if the analysis takes a positive stance, the estimated BCRs increase to 16.5 (80 years) and 14.84 (50 years). That would mean society earning over £14 for every £1 spent on BSL acquisition.

This wide range reminds us of the inherent uncertainty resulting from the base data used in the economic analysis. The midpoint between these pessimistic and optimistic ranges is approximately 8 for the 80-year horizon and 7.2 for the 50-year horizon. So overall, a potential return of £7–£8 may be generated per £1 invested.

These values exceed what might be called the 'base-case' estimates. Where BSL acquisition can be delivered more cost-effectively or where its benefits are more fully achieved, it is reasonable to think that the true economic return may well be more than £8 per £1 spent.

In scenario 2, early acquisition of BSL among all deaf children is modelled alongside the use of technologies. Here, the predicted economic return depends on how many children do not receive enough auditory access to support their language development. Existing evidence suggests that this group could comprise up to approximately 30 per cent of deaf children.

The estimated BCR for scenario 2 ranges from 0.17 (under the most pessimistic 50-year horizon) to 7.05 (with the most optimistic assumptions and an 80-year perspective). The overall results suggest that early acquisition of BSL for all deaf children, alongside the use of hearing technologies, could yield positive economic returns of up to £7 per £1 invested.

Considerations

Based on these findings, the study offers the following three recommendations for policy and future research.

1. **Ensure early access to BSL for deaf children**. Hearing parents of deaf children are often guided towards oral and technology-based approaches without receiving complete information about sign language options. Ensuring that all involved can make informed decisions is essential. Normalising access to BSL from infancy could help prevent language delays. It can also reduce the risk of language deprivation when hearing technologies are insufficient or inconsistently used.

   The findings from this economic analysis indicate that such early access to BSL is likely to represent value for money.

2. **Invest in research on BSL outcomes.** There are gaps in the evidence concerning the long-term effects of early BSL exposure. Specific funding is needed to complete this picture. Many of the benefits identified in this study (improved educational attainment; enhanced well-being; better employment outcomes) are based on limited data. The UK currently lacks long-term data and studies that can isolate the specific effects of learning BSL from other factors.

   Strengthening this evidence base would enable more confident assessment of the returns on BSL investment and support more efficient policy design.

3. **Integrate BSL fully into data collection efforts.** At present, few UK data sources consistently record BSL use. (The Census is one of the few to do so. But Census data is collected only once a decade. It cannot capture pathways through life or the barriers faced by BSL users.) Major surveys and administrative datasets, such as Understanding Society and the Labour Force Survey, should improve the inclusion and identification of BSL users to allow longitudinal tracking and analysis.

   Improving data availability would facilitate better research and policy monitoring.

Further information about why 'Early BSL Matters' can be found here

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