

Economic calculation models for interventions within the welfare areas



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Preface

Various economic calculation models for interventions within the welfare areas have been developed in recent years. This model development has taken place in different parts of the world and within diverse academic environments and political contexts.

Based on a literature and internet search, this report provides an overview of the existing models, including their content, structure, and areas of application. In this way, the report can serve as inspiration for future model development in countries where such work has not yet been undertaken.

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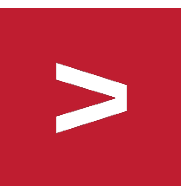


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Key Findings

This report describes a range of economic calculation models for initiatives within the welfare sector. The identification of these models is based on extensive searches for such models—both in academic and non-academic literature—and conducted in several major languages.

The models share several common features. First and foremost, they take a long-term perspective when assessing the economic impact of initiatives, which are typically aimed at vulnerable citizens. These initiatives can vary widely, from those targeting juvenile offenders to keep them out of prison to those supporting individuals with physical disabilities. The models typically include both the cost of the initiative itself and a range of subsequent economic consequences, such as effects on education, the labor market, and healthcare, ultimately calculating a total discounted value.

However, when examining the data foundation, the identified models fall into two groups:

Nordic Models Use Register Data

Two Nordic models—the Danish social investment model *SØM* and the Norwegian model *Utenfor-regnskapet*—use individual-level register data to identify target groups for welfare initiatives and to determine the economic variables which the models can calculate. In the Nordic context, the focus is primarily on publicly funded benefits within the social and healthcare sectors. In both models, users must manually input effect sizes for the initiative being analyzed.

Other Models Use Literature and Hypothetical Scenarios

Several models developed in Anglo-Saxon countries (USA, UK, Australia, and New Zealand) do not rely on individual-level data, as such data is typically less accessible than in Nordic countries. Instead, they use hypothetical scenarios—such as projected educational attainment or labor market participation and the resulting income streams—which are then incorporated into the economic assessment of an initiative. The estimated effects are usually based on a combination of user-inputted values and values derived from existing literature.

The largest and most well-known of these models is the WSIPP model from Washington State, USA. This model relies on detailed literature reviews and, when possible, meta-analyses to identify the best possible effect size estimates for its calculations. Additionally, uncertainty is assessed using Monte Carlo simulations of the

effects. This approach makes the calculations highly reliable and thorough but also resource-intensive.

Several other models apply similar principles to a lesser or greater extent but with less detail than the WSIPP model. These include the Dartington model (a British adaption of the WSIPP model), the Manning Cost-Benefit Tool (Australia), the Rapid CBA Tool (Australia), and the Treasury's CBAX Tool (New Zealand).

In several countries where searches were conducted, no models similar to those described above were found. This applies to Germany, France, Austria, Switzerland, and the Netherlands. In these countries, there has been increasing awareness of the topic of investing in people and how to quantify such investments, but no significant model development has taken place.

All models found are described in detail in the report for inspiration for future model developers.

Facts about the Report

The report is based on extensive searches in different languages.

The aim has been to find as many models around the world as possible.

We have limited the searches to areas typically covered by public sectors in Nordic type welfare states such as social interventions and those similar to these.



Report

1 Introduction

When social workers initiate an intervention with the aim of helping individuals who are socially disadvantaged, they do so to help these individuals fare better, e.g., by improving their quality of life, getting homeless people a home or similar.

However, a successful social intervention will, in most cases, have significant economic consequences—not only for the affected individuals but also for society as a whole—because the living conditions of socially vulnerable citizens change. For example, they may require fewer publicly funded services, or they may even develop a stronger attachment to the labor market, leading to increased tax revenue and reduced reliance on income-replacing benefits.

Socially vulnerable citizens often face multiple challenges, which, in economic terms, means that substantial amounts are typically spent on assisting and supporting these individuals. However, this also implies that there is considerable economic potential in helping these citizens, and that the success rate of social interventions does not necessarily need to be very high for the intervention to achieve financial break-even.

To estimate the economic consequences of social interventions, agencies in several countries have developed economic calculation models. A model has the advantage of providing a fixed calculation framework where predefined boundaries and assumptions determine what can—and cannot—be calculated. Additionally, having a model ideally makes it possible to compare calculations for multiple interventions, which can be important in a political decision-making process.

On the other hand, the fixed structure of a model can also limit flexibility regarding which target groups, types of interventions, and measurement variables can be included in a calculation. For example, a fixed model may contain predefined target groups that cannot be adjusted, or it may have a structure that imposes a fixed timeframe for calculations.

The purpose of this report is to identify the existing economic calculation models of this type and describe them in terms of their data foundation, calculation methods, and applications. The report thus serves as an inspiration for countries and regions where such models have not yet been developed, as well as for existing model environments looking to further develop their methodologies.

In our mapping of economic calculation models, we primarily relied on web searches. Since models of this type are most often developed and used by local authorities and think tanks, there is not a large body of academic literature on the subject. Therefore, our web searches were conducted in several languages, including English, German, French, Spanish, and Dutch. Additionally, we had prior knowledge of some of the models. Finally, we reached out via email to international networks to inquire whether anyone was aware of calculation models we had not yet identified.

The report is structured as follows: Chapter 2 provides a description of two Scandinavian models from Denmark and Norway. Chapter 3 describes a number of models from mainly Anglo-Saxon countries with a thorough presentation of the model from the Washington State Institute of Public Policy. Chapter 4 contains the report's conclusions and discussion and presents an overview of the other identified models. Finally, Chapter 5 presents the methods of the report.

2 Scandinavian Tools

This chapter presents the contents and structures of two Scandinavian calculation models from Denmark and Norway.

2.1 Denmark: The Social Investment Model

SØM – The Social Investment Model

SØM was commissioned by the Danish Authority of Social Services in 2016, and the first model version was made publicly available in 2018. Since then, the model has been expanded several times, and since May 2025, version 3.3 has been downloadable.¹

SØM is an Excel-based calculation tool that allows users to estimate the economic consequences of social interventions. The model predefined target groups, and for each of the target groups the average use of a number of public transfers and services has been calculated. Comparing the use of services for successful individuals to that of less successful individuals (as defined by register-based success criteria) gives a measure for the economic potential in moving an individual from the 'non-success group' to the 'success group' as a result of a successful social intervention.

Below we shall go through the contents in the SØM model in more detail. The current version of the model is downloadable and has been documented by the Danish Authority of Social Services and Housing (2024).

Target Groups

The SØM model includes 103 target groups, divided into four main categories (numbers in parentheses show the number of target groups within each category):

- Socially vulnerable adults (34)
- Adults with disabilities (31)
- Socially vulnerable children and youth (26)
- Relatives of vulnerable citizens or citizens with disabilities (12)

¹ The model can be downloaded here: <https://www.social.dk/tvaergaende/soem/om-soem/hent-soem> (in Danish).

All target groups in the model are based on individual-level data. Danish individual data, made available by Statistics Denmark for researchers and analysts, is of high quality and provides a high level of detail. This makes it possible to use this data source to identify individuals in the model's target groups.

Currently, the model only includes target groups for people up to the age of 64, distinguishing between target groups for children and youth (up to 18 years old) and target groups for adults, as outlined above.

An example of a target group is "Adults experiencing homelessness." This group is defined as individuals who, in a given year, are registered as having spent at least one night in a shelter or a crisis center. The definition is based on the criterion that a single overnight stay within a calendar year qualifies an individual for inclusion in the target group. The "Adults experiencing homelessness"-group is further divided into three subgroups: 18-25 years, 18-30 years, and 18-64 years. However, most other adult target groups are not divided by age and cover all adults between 18 and 64 years.

For children and youth, the model's target groups are all divided into age groups. Generally, there is one group for 6-13-year-olds and another for 14-17-year-olds, though other classifications also exist. For children under six years old, the model includes only one target group.

An example of a target group for children and youth is "At-risk children and youth (12-17 years)." This group consists of 12-17-year-olds who have been registered as suspects or have been charged with an offense that is not traffic-related. The idea behind this target group is to include children and young people at risk of engaging in criminal behavior.

Success Criteria and Measuring Economic Consequences

The idea behind the SØM model is that the economic consequences of a successful social intervention can be approximated by analyzing how individuals who have faced similar challenges have fared. The economic consequences are estimated by comparing the consumption of public benefits and services between individuals in the target group who have done well and those who have not.

A citizen is considered to have "done well" based on predefined success criteria in the data. In the current version of the model, most target groups have only one possible success criterion, though some groups have multiple options.

Returning to the examples from the previous section, the success criterion for the target group "Adults experiencing homelessness" is that individuals are not registered as

having used a shelter or crisis center in the following year. This serves as a data-based approximation that the individual has exited homelessness. It is important to recognize that this is only an approximation, as individuals who are not registered as using a shelter or crisis center may still be homeless—such as those sleeping on the street or staying with friends or acquaintances. However, as an approximation, it provides a reasonable assumption that they have exited homelessness.

For the target group "At-risk youth (12-17 years)," as discussed earlier, the model's success criterion is that individuals in this group are not registered with a charge or suspicion in the following year. This serves as an approximation that the potential criminal trajectory of the youth has been successfully interrupted.

The economic consequences in the model are categorized into several areas (the numbers in parentheses indicate the number of subcategories within each area):

- Income transfers (4)
- Employment interventions (5)
- Income tax (2)
- Education (5)
- Healthcare services (13)
- Social interventions and benefits (26)
- Primary and secondary education (5)
- Police, judiciary, and corrections (4)

As mentioned above, the economic consequences are estimated by calculating the difference between individuals who have met the success criterion and those who have not. This difference is adjusted for systematic socio-demographic differences between the groups, and spending in the year before individuals entered the target group is accounted for. Only statistically significant differences are included.²

All economic consequences in the model are initially estimated in non-monetary terms—for example, the number of weeks receiving disability benefits, the number of hospital admission days, or the number of days spent in prison. These estimates are then converted into monetary values by multiplying them with unit costs.

² Bonferroni-adjusted significance levels are applied to account for the multiple simultaneously estimated effects. Additionally, insignificant effects are included if they appear between two significantly estimated effect estimates in the time line.

Carrying out a Calculation

A calculation in the SØM model is carried out in several steps, always starting with the premise that a calculation needs to be conducted for a specific intervention.

The first step is selecting a target group. The user can choose from any of the model's predefined target groups or define their own. However, if the user selects their own target group, they cannot use the model's existing economic consequence estimates and must instead provide their own.

Next, the user must select which stakeholders the calculation should be conducted for. The model can only calculate economic consequences for public stakeholders, primarily municipalities, regions, and the state. However, users can specify other stakeholders if desired.

The following step involves defining how the intervention will be implemented, including the number of participants, its duration, and the associated costs.

After that, the user must input the expected effect of the intervention, measured as a percentage. At this stage, it is crucial for the user to assess whether the expected effect of the intervention aligns with the success criteria used to estimate the economic consequences. If this is not the case, the estimated consequences should not be used, or at the very least, they should be adjusted. For example, if the target group "Adults experiencing homelessness" is used, the intervention's effect measure should correspond to successfully moving individuals out of homelessness.

In the final steps, the user must select and review the economic consequence areas to be included in the calculation, as well as the prices used to convert estimates into monetary values.

The calculation can be projected over a time horizon of up to 20 years. However, estimated consequences are only available for up to 13 years, with the remaining years using a linear tapering of effects that were statistically significant up to year 13.

The results of the calculation are presented to the user in various formats, including Net Present Value (NPV) and cash flow time profiles. The model also allows users to conduct different sensitivity analyses.

Model Use

In addition to SØM giving municipalities and other interested parties a hands-on tool for calculating the economic benefits of social investments, initiatives accompanying SØM have included training for municipalities in how to use SØM and creation of networks among users of the model—all of which have pushed forward the

idea of social investment. In practice, the model is used for one or both of the following purposes: First, the model can be used for highlighting the general business case behind a suggested social investment project to give an indication of the economic potential of the project. Second, if not all individual data for project participants are available after the project, individual data can be supplemented with data from the model to give a broader picture of the project's economic consequences. The model has been used by various Danish municipalities for calculating the economic consequences of local interventions, and the Danish Authority of Social Services and Housing has also published such calculations for interventions which have been supported by the authority.

2.2 Norway: The Price of Being Outside (*Utenfor-regnskapet*)

The Excel-based calculator model *Utenfor-regnskapet* was launched in 2019 by the Norwegian Association of Local and Regional Authorities.³ The calculator is inspired by other calculators and provides the user with the opportunity to calculate the economic consequences of social interventions aimed at children or adolescents from one or more of seven prespecified target groups. The data for the model cover the actual use of publicly provided transfers and services and include different areas such as income replacement transfers, education costs, and correction facilities.

Below the model will be presented in more detail. The model has been documented by Norwegian Association of Local and Regional Authorities (2019).

Target Groups

The *Utenfor-regnskapet* model includes seven target groups, all of which focus on children and youth:

- Children in low-income families where the child is Norwegian-born with immigrant parents
- Children in low-income families where one or both parents receive disability benefits or social assistance
- Youth at risk of not completing upper secondary education within the standard time +2 years
- Children receiving child welfare services

³ See more at <https://www.ks.no/utenforregnskapet> (in Norwegian).

- Children with parents diagnosed with mental illness or substance abuse problems
- Children diagnosed with depression or anxiety
- Children diagnosed with behavioral disorders

The model's primary focus is to assess preventive measures targeting younger age groups. The target groups are based on high-quality Norwegian individual-level data, ensuring a comprehensive population coverage. For example, low-income families are defined as those with an income of at most 60% of the consumption-weighted median income.

For each of the seven target groups, users can select from six different age categories (0-2 years, 3-5 years, 6-9 years, 10-12 years, 13-15 years, and 16-19 years). However, users may choose a maximum of two adjacent age categories simultaneously.

Effect and Economic Consequences

In *Utenfor-regnskapet*, the intervention effect is measured as the proportion of the target group that achieves an outcome similar to the national population average. The model calculates the extent to which individuals in each target group use public services across several areas and then compares this usage to the general population average.

The model estimates economic consequences in the following areas:

- Income transfers
- Tax revenue
- Healthcare services
- Education
- Correctional services
- Child and youth interventions

The costs for both target groups and the general population are based on actual public expenditures. For example, municipal healthcare costs are calculated by multiplying the number of patients by the average expenditure per patient, while prison costs are calculated based on the average number of days a target group member is incarcerated, multiplied by the average cost per day.

How is a Calculation Conducted?

The *Utenfor-regnskapet* model is user-friendly, allowing users to input their own data while leveraging the model's underlying data on different groups' public service usage.

The first step in conducting a calculation is selecting one of the seven predefined target groups. The user must also choose one or two adjacent age categories from the six available options.

Next, the user specifies the proportion of the target group expected to reach the population average outcome, both with and without the intervention. For example, without the intervention, 20% may be expected to reach the average outcome, while with the intervention, this figure may increase to 45%. The difference of 25 percentage points represents the intervention's effect.

Finally, the user inputs details about the intervention, including its duration, the number of participants, and the associated costs. Costs can be specified for the municipality, region, and state.

Once the user selects a time horizon (ranging from 4 to 40 years), the model presents the results both as total figures and per participant. The results also break down the impact across different public expenditure and revenue areas.

Experiences

Experience shows that several municipalities in Norway have used the model to estimate the economic consequences of social policies aimed at children and their parents. Furthermore, learning networks have been established for municipalities to learn from each other's experiences with *Utenfor-regnskapet*. Finally, the model has contributed to developing the idea of social investment in Norway by highlighting the potential economic consequences of early interventions aimed at children and adolescents.

3 Models from Mostly Anglo-Saxon Countries

This chapter presents economic calculation models from a number of Anglo-Saxon countries, including the United States. We have chosen to group together the models from these countries, because they share a number of common features not always present in the models presented in Chapter 2.

3.1 The WSIPP Model

Benefit-cost analyses (BCAs) of social programs elevate discussions from mere efficacy to a crucial inquiry: Do the benefits justify the costs? In this pursuit, Washington State has been a pioneer, supporting the independent Washington State Institute for Public Policy (WSIPP) since 1983.

WSIPP's primary objective is to provide the Washington State Legislature with actionable insights into "What Works?" by evaluating policies and ranking them based on their return on investment.

The scope of the WSIPP model is broad. As of December 2023, it encompasses the following public policy domains: Criminal and juvenile justice, K–12 and early education, Child welfare, Substance abuse, Mental health, Public health, Public assistance, Employment and workforce development, Health care, General prevention, and Higher education. Over the years, WSIPP has developed a solid BCA model and a software tool to facilitate its analyses.

From 2010 to 2023, the Results First initiative, funded by the Pew Charitable Trusts and the MacArthur Foundation, collaborated with numerous states to adapt the WSIPP model and software to suit their unique contexts. The WSIPP model has also been translated for use in England and Wales (Dartington model). Australia has also expressed interest in adopting the WSIPP model.

3.1.1 The Model

The analytical approach comprises four distinct phases employing a variety of methods:

1. What works? Meta-analysis to estimate effect sizes

- 2. Estimate monetary benefits of outcomes and program costs**
- 3. Portfolio analysis**
- 4. Estimate uncertainty**

Firstly, within each specific policy domain, such as youth justice or children's mental health, WSIPP employs a rigorous process to determine the effectiveness of programs or policies, aiming to find out "what works" in improving outcomes:

- **Comprehensive Literature Review:** WSIPP conducts a thorough search, encompassing both published and unpublished papers, to gather all available research relevant to the policy area under examination.
- **Meta-analysis Selection Criteria:** Only studies meeting predefined entry criteria are utilized in a meta-analysis. This meta-analysis generates standardized effect sizes, indicating the impact of an intervention on various outcomes.
- **Adjustments for Quality and Context:** WSIPP applies a series of adjustments to these effect sizes. Factors considered include the methodological quality of the study, the relevance and quality of the outcomes measured, whether the study took place in a "real-world" setting, the type of comparison group utilized, and potential bias due to involvement of program developers in the evaluation process (WSIPP, 2023; Lee et al., 2012). The resulting "discounted effect size" for each outcome resulting from interventions in the chosen policy area is then used in subsequent phases of the model.
- **Projection of Long-term Outcomes:** In cases where program evaluation research does not cover certain outcomes, WSIPP utilizes research exploring causal linkages between different outcomes. Through meta-analysis, WSIPP empirically estimates the causal links between outcomes, projecting the long-term effects of programs beyond those directly measured in program evaluations. For instance, if a child welfare program's direct short-term effects on child abuse are measured but not its longer-term impacts such as high school graduation, WSIPP examines research on the causal effects of abuse on education. This approach enables WSIPP to derive the longer-term effects of the program beyond those measured directly in program evaluations.

Secondly, the costs and benefits of each intervention are calculated.

- The analytic approach predominantly follows the framework outlined by Heckman and colleagues (2010) in their estimation of return on investment from the Perry Preschool intervention.⁴
- The WSIPP model extends its projections 50 years into the future to calculate the anticipated life-cycle costs and benefits of various programs.⁵
- Calculation of program costs:
 - Most program evaluations lack detailed information on implementation costs. However, for benefit-cost analysis, accurate program cost data are essential. WSIPP employs several methodologies and principles to construct program cost estimates. For instance, for existing programs, cost information may be obtained from the pertinent operating agency and then converted into an average cost per participant. Alternatively, if an evaluation provides data on the quantity of "physical resource units," such as 20 one-to-one teacher-student sessions lasting 2 hours each, the hourly cost of a teacher can be used to estimate the average cost of the tutoring program.
 - Program cost estimates are computed for both the treatment and comparison groups. The difference between these estimates represents the "net program costs," delineating the expenses to the government compared to the services typically provided by the government.
- Calculation of benefits/avoided costs
 - The WSIPP model incorporates a wide range of benefits and avoided costs. For instance, within the area of substance use, the model considers earnings related to morbidity and mortality, medical care expenses, costs associated with crime, traffic collision costs, treatment expenses, and gains in the labor market (WSIPP, 2019, 2023).
 - Both tangible and intangible benefits are incorporated into the WSIPP model:
 - Tangible benefits are for example the actual costs saved due to reduced health care or the actual benefits that follow from prolonged life expectancy, increased earnings and a greater contribution to the tax base.

⁴ For further details on the sources, assumptions, and computational methods used in WSIPP's cost-benefit model, see a technical report by Lee et al. (2012).

⁵ Several early American interventions, despite exhibiting very high long-term rates of return, only reach a point of breaking even after two decades. The model indicates that it is when children transition into independent adults that their development truly becomes of great socioeconomic significance.

- Intangible benefits encompass aspects such as the improved quality of life experienced by non-smokers compared to smokers, or the valuation of the pain and suffering endured by victims of crime, child abuse, and neglect. These intangible benefits are quantified, in part, through assessments of jury awards for pain, suffering, and diminished quality of life.
- In computing net present values, the model employs discount rates ranging from low (2%) to modal (3.5%) to high (5%).

Thirdly, where feasible, WSIPP conducts a 'portfolio' analysis, enabling users to combine individual policy options into a portfolio. This tool allows the user to select and combine various policy options, projecting the collective impact of these options on statewide costs, benefits, and outcomes. The tool is a crime-reduction portfolio that has been expanded to other policy domains, including education and child welfare.

Fourthly, WSIPP employs Monte-Carlo simulation to estimate risk associated with benefit-cost results. This entails running numerous iterations of the model, where key parameters are varied and different estimates of Program Effect Sizes, Linked Effect Sizes, and Discount Rates are applied. This method, similar to the approach commonly utilized in investment decision-making within businesses, allows for an assessment of the likelihood of program costs and benefits reaching at least a break-even point. Through this iterative process, WSIPP gains insights into how conclusions may shift with altered assumptions and considered variances.

3.1.2 Other Central Features of the WSIPP's Benefit-Cost Model

- **State level:** The WSIPP model is specifically designed for utilization by the central administration in Washington State. Consequently, it is customized for conducting calculations at the state level to support the decision-making process in the central administration.
- **Internal consistency:** WSIPP's model is employed to assess the benefits and costs of a wide range of public policies that affect many different outcomes. Therefore, ensuring a consistent approach across evaluations to allow like-with-like comparisons is a key modeling goal and a cornerstone of the WSIPP methodology. As a result, within each thematic domain, the WSIPP bottom-line estimates are developed to facilitate direct comparisons of net present values between different programs—a departure from the conventional practice observed in most individual benefit-cost analyses.

- **Software tool:** The WSIPP model is a sophisticated software tool comprising integrated estimates and computational routines engineered to generate internally consistent benefit-to-cost ratios. It operates using Microsoft Excel and Microsoft Visual Basic for Applications.
- **Avoiding Double-Counting Benefits:** Many evaluations of programs and policies assess multiple outcomes, which can pose the risk of double-counting when those outcomes reflect the same underlying effect. For instance, a typical evaluation might measure both high school graduation rates and standardized test scores. However, these outcomes often represent overlapping aspects of a person's human capital development, both contributing to enhanced earnings in the labor market. To avoid double-counting benefits from such outcomes, WSIPP researchers have developed a set of decision rules (Aos et al., 2004). Additionally, it provides guidance for situations where both direct and indirect pathways lead to the same future outcome.
- **Distribution of profits: different perspectives on benefits and costs:** The authority making the investment may not always directly reap the profits. The WSIPP model addresses this complexity by distributing the 'profits' among various stakeholders who share in the surplus. Costs and benefits are calculated from four distinct perspectives: taxpayer, participant, others, and indirect benefits.
 - "Taxpayers" encompass expected savings to government such as reduced expenditures in criminal justice, child welfare, or other systems, along with expected increases in tax revenue.
 - "Program participants" encompass expected increases in earnings and for expenditures, including those for items such as healthcare and college tuition.
 - "Others" encompass benefits accruing to individuals beyond taxpayers and participants, often referred to as "human capital outcomes." Depending on the program, this category may include reductions in crime victimization, economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.
 - "Indirect benefits" encompass estimates of changes in the value of a statistical life and changes in the deadweight costs of taxation.⁶
- **The Model's Expandability:** The WSIPP model is designed to be updated regularly as new and better information becomes available, facilitating the expansion of the model to integrate future evidence regarding the relative effectiveness of programs. Furthermore, the model is designed in a modular fashion,

⁶ Deadweight loss of taxation refers to the economic inefficiency resulting from taxes that distort market transactions, leading to a reduction in overall economic welfare.

enabling the integration of new topic areas into the analysis while maintaining consistency with the previously analyzed topics.

3.2 Results First

The WSIPP model, originally developed in Washington State, has inspired many other US states to create their own customized versions. With support from the Pew-MacArthur Results First Initiative, over 25 states adopted WSIPP's benefit-cost analysis framework. This initiative, which operated from 2010 to March 2023, was a collaboration between The Pew Charitable Trusts and the John D. and Catherine T. MacArthur Foundation. It partnered with 27 states and 10 counties across the U.S., equipping them with tools and resources to integrate evidence-based practices into their budgets and policies.

One of the initiative's key tools was the Results First Clearinghouse Database—a comprehensive online resource that consolidated information from multiple national sources about the effectiveness of various programs. Another important resource was the Evidence-Based Policymaking Resource Center, which provided research and case studies to help leaders explore innovative ideas and adopt best practices. Additionally, Results First offered customized training and technical assistance to help governments develop the skills needed for evidence-based decision-making.

Some key states to adopt Results First were Alabama, California, Colorado, Minnesota, New Mexico, and North Carolina. In California, for instance, the initiative collaborated with several counties to address challenges in the criminal justice system. Participating counties included Fresno, Kern, Santa Barbara, Santa Cruz, Santa Clara, and Ventura. This collaboration helped local governments create detailed program inventories, assess their effectiveness, conduct cost-benefit analyses, and use evidence to guide budget and policy decisions.

Although the Pew-MacArthur partnership on the Results First Initiative ended in March 2023, the tools and methods it developed continue to support governments across the U.S. Key resources from the initiative are now managed by national organizations to ensure their ongoing use and impact.⁷ The National Conference of State Legislatures (NCSL), along with the Council of State Governments and the Policy Lab at Brown University, now oversees the Peer Learning Community, a network of state leaders dedicated to advancing data-driven decision-making in government. Pennsylvania State University's (PSU) Evidence-to-Impact Collaborative

⁷ For more information, see the archived project page on The Pew Charitable Trusts' website: <https://www.pewtrusts.org/en/projects/archived-projects/results-first-initiative>.

manages several critical tools, including the Results First Clearinghouse Database; the Cost-Benefit Model; and the Evidence-Based Policymaking Resource Center.⁸

3.3 UK

In the UK, we have identified three social cost-benefit tools.

3.3.1 Dartington Model

The Dartington Social Research Unit, an independent charity, adapted the economic model developed by the WSIPP in the US to the UK (primarily England and Wales), focusing on the costs and benefits of competing investment options in children's services. This adaptation was aimed at providing a consistent approach to cost-benefit analysis (CBA) across various policy areas, ensuring cautious estimates and relevance to real-world public and private sector investments in child health and development. In 2017, the Dartington Social Research Unit was restructured into the Dartington Service Design Lab. After this transition, it appears that the CBA model has not been carried forward.⁹

3.3.2 Manning Cost-Benefit Tool

Developed under a Commissioned Partnership Programme (jointly funded by the College of Policing¹⁰ and the Economic and Social Research Council¹¹) for the What Works Centre for Crime Reduction, the Manning Cost-Benefit Tool (MCBT) is a resource designed to help users evaluate the costs and benefits of interventions or programs. The MCBT builds on methodologies from tools like the Washington State Institute for Public Policy's cost-benefit model. Operating in Microsoft Excel, the tool consists of two main parts. The first enables users to calculate total expenditure for one or more interventions and compare average annual expenditures before and after implementing an intervention. The second focuses on estimating the cost of implementing an intervention in different contexts, offering flexibility for various applications. The MCBT provides outputs such as cost savings, cost-effectiveness, cost feasibility, cost-benefit ratios, and net returns on investment. A notable feature is its

⁸ <https://evidence2impact.psu.edu/results-first-resources/>

⁹ For more information, see <https://www.investinginchildren.org.uk/cost-benefit/>, <https://archive.dartington.org.uk/about/>, The Social Research Unit (2012), and Little & Edovald (2012).

¹⁰ The College of Policing is a professional body for everyone working across policing. It is an operationally independent non-departmental public body.

¹¹ The Economic and Social Research Council (ESRC) is part of UK Research and Innovation, a non-departmental public body funded by a grant-in-aid from the UK government.

ability to disaggregate results by stakeholder, offering detailed insights into how costs and benefits are distributed (Manning et al., 2018).

However, it is not a fully comprehensive cost-benefit tool, as it lacks a critical feature: the monetization of outcomes. It does not seem that the MCBT is currently operational or has ever been actively used.

3.3.3 Greater Manchester Model

The Greater Manchester Combined Authority (GMCA) Research Team (formerly *New Economy*) has developed a cost-benefit analysis (CBA) method. Initially created in 2011, the model can be used to estimate the fiscal, economic, and social value of project outcomes, and to specify which public agency sees this benefit. The methodology was officially adopted as supplementary guidance to HM Treasury's Green Book in 2014. Representatives from central government departments have supported its ongoing improvement.

The CBA model is used for assessing the value for money of new programs in Greater Manchester. It considers broader economic and social benefits, such as improved health and well-being. Results include the estimated return on investment (ROI) and the payback period—how quickly benefits outweigh costs. The CBA model is available as an Excel workbook with guidance. A Unit Cost Database accompanies the CBA model, offering cost estimates for areas like crime, health, housing, and education. GMCA also offers training on using the CBA tool, suitable for participants from various sectors and experience levels. Training includes practical examples to help attendees understand how to gather data, make assumptions, and complete analyses.¹²

In 2022, the model was updated to include carbon valuation and align with recent Green Book changes. Additionally, a new tool—the Low Carbon and Energy Projects Benefits Roadmap—helps assessing the benefits of green initiatives. The model is continually developed and the database updated.

3.4 Australia

The Rapid CBA Tool, developed by New South Wales Treasury, is an Excel-based calculator designed to assist analysts in preparing straightforward cost-benefit analyses. It automates various CBA calculations, including discounting, Net Present

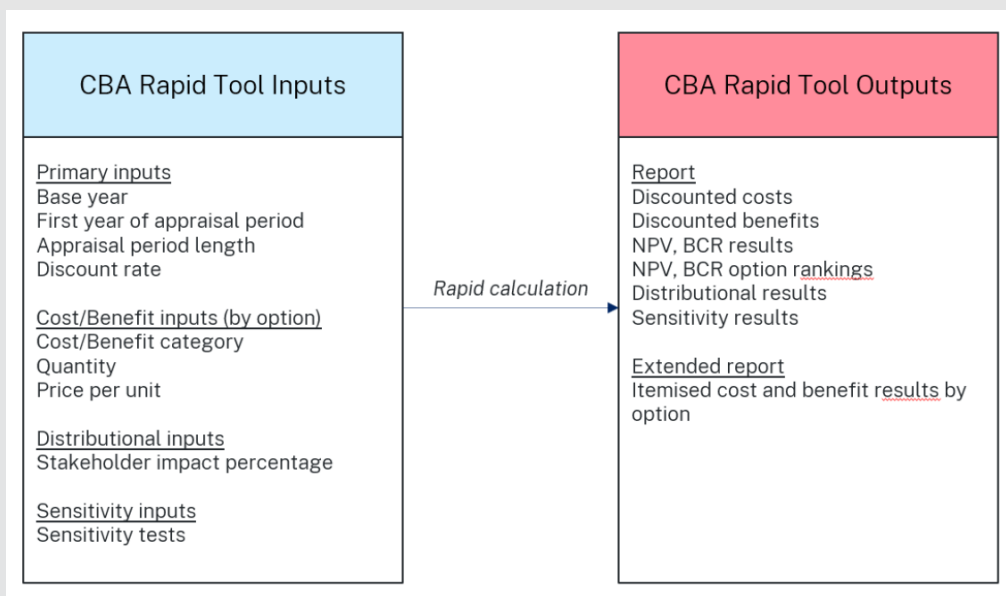
¹² For more details, see <https://www.greatermanchester-ca.gov.uk/what-we-do/research/research-cost-benefit-analysis/>.

Value (NPV), Benefit-Cost Ratios (BCR), sensitivity analysis, and distributional analysis. The tool provides a standardized framework that is suitable for a wide range of programs and sectors. The Rapid CBA Tool is designed for simpler analyses and does not include advanced techniques such as Monte Carlo simulation, scenario planning, or real options analysis.

In addition to the Rapid CBA Tool, the Outcome Values Database (OVD) is a resource provided by the NSW Treasury to support the preparation of CBAs. The OVD is a repository of quality-assured outcome values and parameters, enabling analysts to estimate economic and social outcomes consistently across different projects. The values in the database are derived from methodologies such as market value, revealed preferences (e.g., willingness to pay or accept), and approaches like the Value of a Statistical Life Year and Quality-Adjusted Life Years (QALYs). Values based on wellbeing valuation methods are not included.

The functionality of the tool is illustrated in Figure 3.1. Users are required to input data on the left-hand side, which the tool processes to generate the outputs displayed on the right-hand side of the figure. More information on the tool is provided in NSW Treasury (2024).

Figure 3.1 *Tool inputs and outputs map*



Source: NSW Treasury (2024).

3.5 New Zealand

The New Zealand Treasury's CBAX tool is a cost-benefit analysis framework designed to assess societal impacts across a wide array of policy options. Launched in 2015, CBAX is a structured, spreadsheet-based model coupled with a comprehensive database of monetized values. By standardizing assumptions and methodologies, the tool ensures a consistent approach to CBA, while promoting long-term perspectives essential for evaluating sustainability and climate-related outcomes.

Central to CBAX is its publicly accessible database, which includes New Zealand-specific values such as medical visit costs, welfare benefits, and income increases. Additionally, it incorporates environmental impact values developed with the Ministry for the Environment. For impacts lacking market values, CBAX employs advanced methodologies like revealed preferences, contingent valuation, and subjective wellbeing metrics. Agencies can further customize the tool by adding their own impact values, enhancing its versatility for various scenarios.

The tool prioritizes consistency in valuing impacts by standardizing discount rates and facilitating sensitivity analyses. This functionality helps decision-makers evaluate the effects of different assumptions. A standout feature of CBAX is its integration of climate change impact values, which estimate emissions reduction costs through annually updated shadow emission values.

Although initially tailored for social sector agencies, CBAX is highly adaptable to broader applications. Regular updates ensure it remains relevant to evolving policy needs. Beyond its technical utility, CBAX has fostered a collaborative community of practice, promoting knowledge-sharing and capacity-building across government.¹³

3.6 Other Countries and Areas

The use of cost-benefit analysis as a basis for evidence-based policymaking has gained increasing attention also in other countries. Although specific CBA models or tools may not yet be established in these countries, there is – or has been – interest in such approaches. Below, we provide examples of these efforts, though the list is not exhaustive.

In **Canada**, awareness of cost-effectiveness and evidence-based approaches grew significantly during the 2010s. For example, the Canada National Crime Prevention

¹³ For additional information, see Jensen & Thompson (2020) or visit <https://www.treasury.govt.nz/information-and-services/public-sector-leadership/investment-management/investment-planning/treasurys-cbax-tool>.

Centre (NCPC) actively promoted systematic evaluations of crime prevention programs.¹⁴ As part of this initiative, the NCPC published a report titled "*The Why, How, and So What of Economic Analysis in Crime Prevention*" (McIntosh & Li, 2012). The Centre also published a report estimating the costs of criminal offending in Ontario over a 15-year period (ages 12–26), including victim costs, correctional costs, justice system expenses, and costs of undetected crimes (Day et al., 2015).

Additionally, the NCPC developed a practitioner-oriented handbook (Savignac & Dunbar, 2015), providing practical guidance on program evaluation and using evidence to improve program outcomes. Despite these initiatives, interest in this area seems to have dwindled in recent years. There is little activity in this field in Canada, the handbook and related resources have not been updated, and no systematic models or tools appear to have been developed in the country since then.

In **Germany**, while there do not seem to be specific cost-benefit analysis models or tools, there has been some attention to these approaches. For instance, a report presented at the German Congress on Crime Prevention¹⁵ in 2015 discussed the WSIPP tool, highlighting Germany's lack of such models (Thomsen, 2015). Also in this field, Entorf and Schulan (2018) provide an introduction to cost-benefit analysis in crime prevention. Yet, little progress appears to have been made in this area since then.

There are, however, examples of growing awareness around economic evaluation. A 2014 study on evidence-based economic policy in Germany concluded that modern evaluation methods—such as econometric models and randomized field experiments—are not commonly used. Despite numerous studies, these methods are not routinely employed by German authorities, and systematic cost-benefit analysis remains rare. Where quantitative evaluations do occur, they are often not integrated into political decision-making (Boockmann et al., 2014). An exception has been the increasing importance that evaluation has gained in Germany's Federal Ministry for Economic Affairs and Climate Action since the 2010s, with a growing demand for scientifically grounded, independent assessments of policy effectiveness and efficiency (Wissenschaftlicher Beirat des BMWi, 2013). Evaluations are now considered essential for policy planning, and their role in economic policy is expected to continue expanding. Nevertheless, there is still a call for more standardized, systematic evaluations across government agencies (Bundesministerium für Wirtschaft und Klimaschutz, 2018).

Another example of awareness is an article on a systematic review of cost estimates related to intimate partner violence against women, with a particular focus on costs

¹⁴ The National Crime Prevention Centre (NCPC) is part of Public Safety Canada, a federal department responsible for ensuring the safety and security.

¹⁵ The German Congress on Crime Prevention is an annual international conference for the field of crime prevention.

to healthcare services, social care, the legal system, and the resulting loss in economic productivity (Niebuhr et al., 2012).

Furthermore, awareness has been demonstrated by the visit by the Lower Saxony Justice Minister to the Washington State Institute for Public Policy (WSIPP) during a U.S. trip in 2017, where discussions focused on cost-benefit analysis for crime prevention. She acknowledged that while such analyses might seem unusual for evaluating prevention programs, they are useful for comparing alternatives.¹⁶

Finally, before the Nationales Zentrum für Kriminalprävention (NZK) was established in 2016, there were hopes it could serve as a German counterpart to the WSIPP. However, the NZK, which focused primarily on extremism prevention, was dissolved in 2021 after 6 years of operation, and the idea of developing it into a permanent scientific institution was not pursued.

In **Switzerland**, we have also found some incidences of increased awareness of cost-benefit analysis approaches and a few studies and articles on systematic CBAs. For instance, an article discussing the potential of quantifying societal impacts using the example of an impact model in open child and youth work (Feller-Länzlinger, 2015) or health-related prevention measures (Szucs, 2010).

Other examples are an academic report commissioned by the Federal Office of Public Health on the costs and benefits of tobacco and excessive alcohol consumption (Fueglistner-Dousse et al., 2009) and a white paper assessing the comprehensive costs and benefits of early childhood interventions (Stern et al., 2016). This white paper adopts a broad definition of early childhood policy, encompassing daycare centers, playgroups, and even aspects of the working world. Drawing on available data for Switzerland and an analysis of both domestic and international research literature, the white paper provides cost estimates for various measures in three areas (care and development programs for all preschool-aged children, support measures for specific groups (e.g., at-risk families, families with a migration background), and family-friendly working conditions).

Furthermore, an academic report by Kessler et al. (2020) develops a cost-benefit model for social-pedagogical family support (SPF) in critical and often severe family situations. This model evaluates the extensive benefits of a specific type of interventions, considering both tangible (material) and intangible (non-material) costs and benefits.

For **Austria**, only one relevant study was identified. An academic report commissioned by the Federal Health Agency compares the costs and benefits of early

¹⁶ <https://www.mj.niedersachsen.de/startseite/aktuelles/presseinformationen/justizministerin-beendet-usa-reise-mit-vielen-neuen-eindruecken-zur-kriminalpraevention-151307.html>.

interventions across various case types (Juraszovich et al., 2017). It evaluates their effects over two timeframes: up to ages 18/20 and up to age 65. The findings suggest that the benefits of childhood interventions are most significant in the long term. Although the study acknowledges intangible costs and benefits, it does not assign them a monetary value.

In the **Netherlands**, the CPB Netherlands Bureau for Economic Policy Analysis¹⁷ and PBL Netherlands Environmental Assessment Agency¹⁸ issued General Guidance for Social Cost-Benefit Analysis in 2013 (Romijn & Renes, 2013). For specific policy areas, supplementary handbooks are required to tailor these guidelines, such as one addressing healthcare, education, labor markets, and social investments in housing (Koopmans et al., 2016).

In **France**, we identified an initiative by France Stratégie, an independent institution under the Prime Minister's Office. France Stratégie supports public policy through analysis and recommendations, producing policy evaluations at the government's request. In 2017, it published the *Guide to Socioeconomic Evaluation of Public Investments in France* (France Stratégie, 2017, 2023) and 2 years later a more practical guide on how to implement cost-benefit analyses for employment, health, and education policies (Fougère & Heim, 2019). The institution has conducted several socioeconomic evaluations, including a 2022 project that developed a methodology to estimate specifically the tangible and intangible *health*-related costs of public investments (without including impacts in other areas). This methodology was applied to various challenges, focusing on the psychological impact of floods, health benefits of energy-efficient housing renovations, noise pollution from construction, and health benefits of physical activity in public spaces (France Stratégie, 2022).

¹⁷ CPB is a part of the Ministry of Economic Affairs and Climate Policy, yet is fully independent as far as the contents of its work are concerned.

¹⁸ PBL Netherlands Environmental Assessment Agency is the national institute for strategic policy analysis in the fields of the environment, nature and spatial planning. PBL is an autonomous research institute under the Dutch Government organisation (the Ministry of Infrastructure and Water Management).

4 Conclusion and Discussion

For this report, we have conducted extensive searches to discover the economic calculation models we are looking for. These searches have been carried out in multiple languages and aimed at locating models not only from the academic world, where English is predominantly used, but also from think tanks, public authorities, and similar institutions, where the language is often the local one.

The report presents a number of identified economic models, all of which can be used for calculating the effects of interventions in the social sector—or in adjacent areas. A common feature of these models is that they apply a social investment approach to determine the economic "outcome" of interventions: The costs of a social intervention can be seen as an investment in the individuals it aims to benefit, and over the following years, there may be economic consequences that may or may not result in the investment yielding a long-term surplus. In any case, the key perspective is that the total economic footprint is relevant for assessing the financial impact of an intervention.

From an economic perspective, this approach is very familiar. It is also used in investments in public infrastructure, which have a similar financial profile—requiring a significant initial investment but with the potential for future returns. Therefore, it is somewhat surprising that, despite thorough searches, we have found relatively few examples of economic calculation models that estimate the financial impact of investments in social interventions or other similar welfare interventions.

Below, we discuss the models we have identified and presented, as well as possible explanations for why this calculation method may not be more widespread.

The actual models we have found originate either from the Scandinavian countries or the Anglo-Saxon world. In addition, we have found smaller examples of cost-benefit analyses or similar calculations from other countries, such as Germany, the Netherlands, and France. At first glance, it may seem surprising that this relatively common economic approach has not been widely adopted elsewhere, but there may be good reasons for this.

In the Scandinavian countries, highly accessible individual-level data with extensive population information enable these calculations based on empirical observations covering actual expenditures and received services. This is the basis for the models from Norway and Denmark that were presented. The detailed data make it possible to identify specific population groups targeted by social welfare interventions, such as homeless individuals or children and young people placed outside their homes. Since this is possible, it also becomes relatively easy to calculate the cost of the

services and benefits these individuals receive. As a result, the economic potential of providing effective interventions for these individuals can also be estimated—provided that one is willing to make assumptions about effect sizes and effect duration.

Regarding the models from Anglo-Saxon countries, they do not rely as heavily on empirical individual-level data but instead use stylized scenarios based on aggregated data and research literature. This is the case with the models we have found in the United States and the United Kingdom. The intervention costs are often described in considerable detail. The potential economic impact of a social welfare intervention is then estimated by assessing which of the stylized scenarios socially vulnerable individuals are expected to achieve with a successful intervention. Despite the lack of high-quality individual-level data, model development has still taken place in several Anglo-Saxon countries. This is likely due to a tradition of a more business-oriented approach to many welfare areas. This also means that private actors play a larger role, both in providing services and in financing services aimed at vulnerable individuals.

In countries where we have not found established calculation models—such as the large European countries France and Germany—there is little tradition of viewing public sector practices from an investment perspective.

Regardless of the data foundation used for the calculations, the core idea remains the same. In both cases, a present value of the intervention's cash flows is typically calculated using a discount rate, which aligns with practices in infrastructure investment. This practice can contribute to better and more informed decision-making in welfare areas, although economic knowledge is, of course, only one of several factors that must be considered when interventions are decided upon.

Combination of Modeling Approaches?

From a professional perspective, there is considerable potential in combining the Scandinavian approach—based on comprehensive individual-level register data—with the Anglo-Saxon approach of cost-benefit analyses based on literature and projected outcomes. A combination of these approaches would provide a stronger overall data foundation for the calculations by using actual data from individuals within the target groups of the interventions, rather than constructed scenarios. It would also allow for better estimates to be tied to the calculations if a method involving systematic literature reviews is used, such as that employed by WSIPP.

Furthermore, individual data—which typically only cover a limited number of years if they are to remain empirically relevant—can be supplemented with constructed trajectories from the Anglo-Saxon approach to "extend" the calculation period over a

longer timeframe. This is particularly relevant for interventions targeting children and young people, where there may be significant long-term effects.

In addition to the different academic traditions across the environments that have developed the existing economic calculation models, a key reason why a model combining these two approaches has not yet been developed is that it would be quite costly to build such a model. Moreover, the most academically robust calculations also require a precise definition of the target group and a literature review for relevant effect sizes for each individual calculation, which is also very resource-intensive.

Many of the target groups considered in the economic simulation models we have reviewed are relatively small in number, which means that the overall economic potential is also of limited scale. As a result, the costs of conducting a highly ambitious calculation may not be justified by the potential gains.

The Future of Economic Calculation Models?

As presented in this report, model development has taken place in a number of different institutions around the world. The idea behind all these models has been to support decision-makers in launching specific welfare initiatives by providing an estimate of their economic consequences.

The information that this type of economic calculation model can offer is unlikely to become less relevant in the future. Firstly, the amount of data and the possibilities for computation are continuously increasing, meaning that future models will be able to provide better and faster answers—perhaps also with the inclusion of AI in the calculation process, for example in selecting the relevant data or estimating the expected effect of the initiative being analyzed. Secondly, public finances in most countries are likely to come under increasing pressure in the future as populations age and more people require welfare and healthcare services. This means that economic prioritization could become even more important when making political decisions in this area.

However, there are also trends that may work in the opposite direction when it comes to the future use of economic simulation models. Most notably, the uncertain geopolitical situation means that many governments choose to focus public funds on core tasks in order to afford increased defense spending. This can make it impossible to launch development projects of the scale that such models require. Still, the very fact that there is a need for strict prioritization of public expenditures is itself a strong argument for using economic models—though of course, this requires that good and up-to-date modeling tools are available.

➤ **Supporting Material**

5 Methods

To support the development of economic calculation models in Denmark, we have gathered insights on how research environments in other countries have developed such models. Our approach involved extensive desk research, using targeted internet searches to identify references and case studies.

We employed various search terms individually and in combination, including *cost-benefit model*, *benefit-cost analysis model*, *cost-benefit tool*, *BCA model*, *CBA model*, *policy model*, *software tool*, *computer application*, *CBA template*, and *public cost-benefit analysis*. For searches in other linguistic regions, we translated these terms into languages such as German and French. When we identified relevant literature in these languages, we extracted additional search terms and used them for further exploration.

While this study does not provide an exhaustive catalog of all BCA models, we actively searched for CBA tools across multiple countries and linguistic regions that were both relevant and accessible to us. Additionally, we documented tools and initiatives that surfaced as unexpected but valuable findings during our research.

In particular, we conducted thorough researches in a number of countries including France, Spain, Netherlands, English-speaking countries such as the US, UK, Australia and the German-speaking area (Germany, Austria, Switzerland) using keywords searches in the national languages. We also used so-called snowballing to expand our data collection by following leads and references from the material we identified in our country searches. Moreover, we contacted WSIPP, the world's leading research center on economic calculation models, to confirm that the list of calculation models we identified was comprehensive, or that we at least have not missed any prominent ones.

While our data collection method sought to identify any existing calculation models, our method does have limitations. This study did not include a thorough identification of all BCA models. We might have overlooked existing models, either due to gaps in our search or because the information is available only in languages we do not understand. Additionally, the field of economic calculation models is continually evolving. Therefore, the information we gathered should be seen as a snapshot of available knowledge up until May 2024.

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