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### Work Package 3-The Business Case: Costs, Cost-Benefit Analysis and Case Studies

#### Deliverable 3.1: Report on Costs, Cost-Benefit Analysis and Case Studies

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## Table of contents

1. Executive Summary .....	4
2. Introduction.....	6
3. Understanding the likely benefits of Eurocohort.....	7
3.1 Distinguishing types of impact and how they affect benefits .....	9
3.2 Policy cycle and benefits .....	11
3.3 Evidence appetite .....	13
3.4 Policy domains: areas where benefit might occur .....	13
3.5 Generating evidence of policy impact of other similar longitudinal surveys.....	15
3.5.1 Child poverty and long-term consequences.....	17
3.5.2 Criminal and youth justice: child protection interventions and laws.....	18
3.5.3 Education.....	19
3.5.4 Child health and healthcare provision.....	20
4. Costing of the survey .....	22
4.1 Assumptions .....	22
4.1.1 Countries .....	22
4.1.2 Research infrastructure .....	22
4.1.3 Sample size .....	25
4.1.5 Frequency of interview rounds .....	26
4.1.5 Non-response and attrition rates .....	27
4.1.6 Pilot, interviews and incentives.....	27
4.2 Results .....	30
5. Cost benefit analysis for EuroCohort.....	33
5.1 The model.....	33
5.2 Distribution of benefits.....	34





5.3 Benefits.....	35
5.3.1 Use benefits.....	35
5.3.2 Non-use benefits .....	47
5.4 Costs .....	48
5.4.1 The social opportunity cost of public funds .....	48
5.4.2 The Shadow Cost of EuroCohort .....	48
5.5 Results .....	50
5.6 Sensitivity analysis .....	52
6. Conclusions.....	55
References.....	56
APPENDIX 1 The policy impact of longitudinal research: Five case studies.....	63
APPENDIX 2 Cost benefit analysis of EuroCohort: Additional material .....	80



# 1. Executive Summary

There is a clear case for EuroCohort; for investment in a longitudinal study of the wellbeing of children and young people across Europe (O’Leary and Fox, 2018). Such investment is likely to generate a number of benefits, to a range of different stakeholder groups. And these benefits will likely be of a scale that far exceeds the costs of delivering EuroCohort. But how do we demonstrate this? How do we evidence the how, when and for whom generating indepth, longitudinal data about the wellbeing of children and young people across Europe will deliver policy, economic, and scientific impact? How do we cost such a survey, which will take twenty seven years to deliver and could be run in thirty or so European countries? It is difficult enough to demonstrate the impact of existing research structures – to do so *ex ante*, before EuroCohort is even established, let alone collected any data, is extremely challenging. But by drawing on the previous work of O’Leary and Fox (2018); by undertaking a substantive review of academic and grey literature, policy documents, impact statements and other evidence about the impact of existing international longitudinal and other surveys; by developing five case studies of the impact of existing surveys; by engaging with individuals and organisations with expertise in delivering surveys; and by using breakeven analysis to compare current spend on relevant policy areas in EU member states and estimated costs of the proposed survey, we set out here the business case for investing in EuroCohort.

## Costs

There are a number of dimensions that affect costs; how many countries participate, how the EuroCohort research structure is organised; which will be the host country; how many, and how often, cohorts are surveyed; and how many, and in what modes are individuals are surveyed. Across the European Cohort Development Project, different work packages have been working to specify many of these points, although there are still some areas where final decisions will not be made until the next stage of the development of this research infrastructure. In addition there are differences between potential participating member countries, in terms of their size (and likely sample sizes) and their cost base, which also have an impact on survey costs. This report contributes to the understanding of the level of investment required to fund EuroCohort and therefore assists governments, national research academies as well as the EU as to what is required to bring this survey to life.

Using assumptions from other work packages on research design, governance, sampling, and piloting, we estimate the financial costs (at 2018 prices) over the first six years of EuroCohort to be:



- €1.4m per annum in 2020 and 2021 to set up and run the central team, and prepare for the first round of data collection;
- for the central co-ordinating team: €5m per annum, or €20m over the first four years of full operation of the survey (2022 to 2026);
- participating countries' costs range from €418k per annum to €2m per annum, depending on the size of their populations (which affects proposed sample sizes) and their cost base (running a survey costs more in some countries than others); and
- participating countries' costs over the first four years of full operation (2022 to 2026) range from €1.7m for countries like Estonia, Lithuania and Latvia through to €8.1m for countries such as the UK, Germany and France.

Assuming costs for the central co-ordinating team and assuming that all 28 current EU members participate throughout the lifetime of EuroCohort, the financial total costs of the survey would be in the order of €1b<sup>1</sup>.

### **Benefits**

We estimate that in 2013 almost €1 trillion was spent on policies and social programmes related to children and young people. The estimated average yearly financial cost of EuroCohort is a tiny fraction of this 2013 yearly total public spending on policies and social programmes around children and young people's wellbeing.

According to our Cost-Benefit Analysis CBA, using a 4 per cent social discount rate in order to get a positive Net Present Value (NPV), EuroCohort will need to generate an average of €58m of economic benefits per year starting from year 6. This is a tiny fraction (about 1 over sixteen thousand) of the 2013 yearly total public spending on policies and social programmes around children and young people's wellbeing.

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<sup>1</sup> The full economic costs will be €1.2b. Economic costs take account of the displacement effect of public spending and, in line with Campbell and Brown (2003) the financial costs estimated in this report have been inflated by 1.2 to give the economic costs of EuroCohort.

This suggests the impact of EuroCohort – on improvements in the effectiveness of policies and programmes, on better targeting of resources on areas of need, on ceasing to support programmes that do not work, as well as the wider socio-economic and scientific impact – would need to be of a very low level to make investment in EuroCohort economically worthwhile.

## **Conclusions**

There is a clear case for EuroCohort; for investment in a longitudinal study of the wellbeing of children and young people across Europe (O’Leary and Fox, 2018). In this report, we provide details estimates of the likely costs and benefits of EuroCohort, which we believe firmly makes the business case for investing in this research infrastructure.

## 2. Introduction

There is a clear case for EuroCohort, for investment in a longitudinal study of the wellbeing of children and young people across Europe (O’Leary and Fox, 2018). Such investment is likely to generate a number of benefits, to a range of different stakeholder groups. These benefits will come from the use of EuroCohort data to gain insight to the issues affecting children and young people in individual European countries, and across the continent. They will be generated through policy makers and others effecting policy change because of these insights. They will come from statistics authorities, researchers and others having access to high quality, detailed, longitudinal data about children and young people’s wellbeing. They will come from the publication of books and high quality journal articles by academics and others, developing theoretical and empirical insights from these data. And they will come from policy makers and others being able to understand whether policies and programmes targeted at children and young people’s wellbeing have been effective.

But how do we demonstrate these potential benefits, *ex ante*, before the survey has collected any data? Can we make a business case for investing relatively large sums of public money in developing the research infrastructure necessary to deliver EuroCohort, and to fund the collection and analysis of survey data, particularly when there may be many years, and a number of significant steps, between this investment and the effect of likely policy changes? This report answers these questions and makes the financial case for EuroCohort. It builds on previous work by Chris O’Leary and Chris Fox (O’Leary and Fox, 2018). Estimating the likely costs of undertaking a survey that will last take twenty seven years to deliver, and will





involve as many as thirty different countries across Europe, is challenging in and of itself. But to go further, and to demonstrate how such a survey might generate real changes in the wellbeing of millions of children and young people across Europe, takes this challenge to a whole different level. It is particularly important that the business case for EuroCohort is rooted in evidence, is plausible, and is defensible. We believe the case we set out here meets these three criteria.

This report is structured as follows. In the third chapter, we present the approach we have taken to identify the potential benefits and set the methodological issues with estimating, *ex ante*, the impact of EuroCohort. We then identify a number of policy domains – areas of social policy that relate to, or might impact on, children and young people’s wellbeing. Drawing on evidence of the policy impact of existing longitudinal and other large-scale surveys, we provide an evidence-based narrative of how and in what ways EuroCohort might affect the wellbeing of children and young people across Europe.

In chapter 4 we move on to provide greater detail of how we have estimated the likely costs of delivering EuroCohort. We describe the research infrastructure necessary to run a survey that will take a quarter of a century to deliver, and will be undertaken in up to thirty countries across Europe (including countries that are members of the European Union, and some that are not). We set out costed estimates of this research infrastructure, and of the likely costs of each wave of the survey for each country likely to participate. Given the challenges of such *ex ante* estimates, and the scale of the undertaking, we also set out a series of clear limitations and caveats to our approach.

In chapter 5, we set out the cost benefit analysis (CBA) for EuroCohort, using a breakeven approach. We explain the method adopted, the reasons for adopting this approach rather than a more traditional CBA method. We conclude this report with some implications for funders, for policy makers and for other stakeholders working in the field of child wellbeing– arising from this work and for the delivery of EuroCohort. The report is supported by two appendices. Appendix 1 presents five case studies of specific policy impacts of existing surveys and can be used to demonstrate the business case to national funders alongside national policy makers. Appendix 2 contains supplementary material to the CBA of chapter 5.

### 3. Understanding the likely benefits of Eurocohort

In many areas of public expenditure, the likely costs and benefits of an investment are simple to identify and quantify. A new bypass for a town, for example, could lead to x minutes reduction in journey times and



y improvement in air quality. Each mile of the new bypass can be costed in terms of materials, labour, and other costs. The economic costs of changes in journey times and air quality can also be estimated. Reduced journey times can improve productivity, which increases GDP. Improved air quality can reduce pollution-related health events, which can translate into higher QALYs<sup>2</sup>, fewer hospital admissions, and reductions in lost output<sup>3</sup>. By netting off the costs of building a new bypass against the likely benefits from reduced journey times and improved air quality, it is possible to estimate cost benefit ratios of the proposed investment. Ratios above 1 suggest that such investment is economically worthwhile, while ratios below 1 indicate that the costs of the intervention (in this example, building the bypass) are greater than the likely benefits that would arise.

But delivering EuroCohort does not, except for a small number of researchers directly involved, lead to any changes to which an economic cost can be directly attributed. Rather, the benefits of EuroCohort would be generated by the impact that having such data and data analysis might have on policy decisions on how much, and on what policies or programmes, public money is spent on services for children and young people. And even when such policy decisions take account of evidence and analysis such as that produced by longitudinal surveys like EuroCohort, they also take account of other political and historical issues, as well as public opinion. As O’Leary and Fox (2018) identify, examining the benefits of longitudinal surveys requires demonstrating that: (1) that survey data would be used by policy makers; (2) which policy areas are likely to be affected; (3) attribute policy change to the use of these survey data; and (4) estimate the impact of this policy change. Answering these questions requires us to unpack and understand a number of dimensions of the policy process, and of the ways in which survey data might affect policy change. These dimensions are explored in the next chapter. The specific process by which costs and benefits have been estimated are provided in each of the relevant chapters.

It is extremely difficult to trace the *instrumental* impact of longitudinal survey data on policy (Davis-Kean et al, 2017); such data rarely help policy makers to identify specific policy changes required to improve outcomes for a specific population – ‘do x to improve y’. Rather, the impact of such data and data analysis is typically more conceptual in nature: they help provide the context in which policies or programmes might be introduced or change; to evidence issues affect these populations; to provide new and different ways of conceptualising an issue; to contribute to wider debates around an issue; or to provide some understanding of how things have changed following the introduction of new policy or programme. Nor are survey data the only factor affecting policy decisions. Policy is inherently political; it is contextually and temporally

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<sup>2</sup> Quality-adjusted life year, a standard method for estimating the impact of policy interventions on the quantity and quality of life lived.

<sup>3</sup> A measure of the loss of productive capacity or lost days at work.



bound. It is affected by - and affects - public and media opinion. As such, there are a number of different dimensions we need to take into account when trying to understand how, when and in what ways EuroCohort might have policy impact. These dimensions are explored in this chapter.

### 3.1 Distinguishing types of impact and how they affect benefits

If data from EuroCohort are unlikely to have instrumental impact on policy decision, what effect might these data have? The first step in answering this question is to understand the different ways in which evidence (such as survey data and data analysis) might have policy impact.

One means of achieving this goal is to draw on a knowledge mobilisation typology developed by Sandra Nutley, Huw Davies and Isabel Walter (Nutley et al, 2002). This typology draws on previous work by Carol Weiss (Weiss, 1998) about the use of evaluation evidence in policy or programme change. The Nutley et al typology outlines four different ways in which evidence might be impactful. These four ways are:

- **instrumental use**, in which EuroCohort data and data analysis feeds directly into policy decisions at a European Union and individual European country level;
- **conceptual use**, in which EuroCohort data and data analysis might change the broader understanding of the situation; that it might provide new or different ways of thinking about the policy problem or context being considered;
- as an ‘instrument of persuasion’, where EuroCohort is used for the **mobilisation of support**, that is used political to legitimize a policy decision;
- EuroCohort might have a **wider influence**, beyond its direct policy domain, recognising that such influence is both rare and difficult to achieve.

The Weiss categorisation, upon which the Nutley et al typology set out above is based, is about the impact of evaluation on policy - that is, about research on the effectiveness and implementation of specific policies or programmes, and how that research then impacts on the future organisation, configuration, and delivery of those specific policies or programmes, or similar policies and programmes. In relation to EuroCohort, there is a degree of distance between the survey data and any policy or programme impact that might arise



from these data. An alternative typology is provided by Sarah Morton (2015). Morton distinguishes between three levels of research impact, which are:

- **research uptake**, where policy or practice communities, as well as members of the public have engaged with research by reading a report, attending a conference, or otherwise being aware of research findings;
- **research use**, where research users act on the research, using it to inform policy or practice; and
- **research impact**, where research results in a change in awareness, knowledge or understanding, new ideas, attitudes or perceptions.

Both typologies see the policy impact of research as being a complex, nested, and interactive process (Nutley et al, 2007). Both typologies recognise that research impact happens in many different ways, and as such attributing  $y$  policy change to  $x$  piece of research (even if possible) would not uncover the full extent of research impact. We would also contend that that there is not always a clear cut distinction between these different categories. It can be difficult to distinguish between research uptake and research use in particular cases, for example, particularly as use is dependent on uptake. This suggests that a traditional approach to assessing the cost benefit of EuroCohort is likely to face a number of challenges in relation to attributing policy change to the survey.

There are, of course, a number of studies and published guidance documents that provide details on how to evidence the impact of research infrastructures. In March 2019, for example, the OECD published such a document, a Reference Framework for Assessing the Scientific and Socio-Economic Impact of Research Infrastructures (OECD, 2019). This is a very useful framework, and draws on the experience of a number of existing research infrastructures, including several that are directly relevant to EuroCohort (including the European Social Survey and Consortium of European Social Science Data Archives (CESSDA)). Despite the comprehensiveness and usefulness of this framework, we have not used it here to understand the potential impact of EuroCohort.

The OECD framework is an approach to estimating the post hoc impact of existing research infrastructures. It proposes a number of 'core impact indicators' as a means of measuring impact, which include the number of citations, the number of publications, the number of scientific users, public visibility of the research infrastructure, number of patents, research grants related to the infrastructure, and number of full time equivalents employed by the research infrastructure. These are all about demonstrating the *actual* impact of an *existing* research infrastructure. But EuroCohort does not yet exist as a research



infrastructure. It has gathered no data, has no scientific users, led to no publications. The OECD framework will be invaluable to EuroCohort five or ten years after it has been established as a research infrastructure. But, for now, it does not provide a useful framework for identifying ex ante, the potential impact, of EuroCohort.

We have therefore adopted the Nutley et al typology as a means of understanding the potential impact of EuroCohort. We have also adapted it. We have distinguished between direct impacts - which include both Nutley et al.'s instrumental and conceptual impacts – and indirect impacts, which include Nutley et al.'s mobilisation of support and wider influence. Direct impacts here also encompass the type of potential research use and research impact we would expect to see using Morton's typology.

We have focused here on the potential direct impacts – on the instrumental and conceptual effects – in estimating the potential benefits of EuroCohort. While it is highly likely that EuroCohort will also have indirect impacts, these are more difficult to estimate and demonstrate, even for an existing research infrastructure (and, indeed, are avoid by the OECD in its proposed core impact indicators).

### 3.2 Policy cycle and benefits

Another dimension that needs to be taken into account is that data and data analysis from EuroCohort is likely to be impactful in different ways at different points in the policy process. O'Leary and Fox (2018), in their previous examination of the potential policy impact of a longitudinal survey of children and young people identified a number of different ways of describing and segmenting the policy process, developed by authors including Easton (1965), Dror (1968), Jenkins (1978), Brewer and Leon (1983), Hogwood and Gun (1983), Hill (1997), and most recently by Jann and Wegrich (2007). While recognising the many criticisms of such approaches, O'Leary and Fox argued that a stages-based understanding of the policy process nevertheless provided a useful way of understanding how, when and in what ways EuroCohort might affect policy. Using the stages approach, and drawing on the work on O'Leary and Fox (2018), it is possible to identify a number of potential ways in which EuroCohort might have a policy impact, as illustrated in the following table:



Stage	Potential instrumental impacts	Potential conceptual impacts
Problem identification	<ul style="list-style-type: none"> <li>Identify socio-economic variables that affect particular social issues for children and young people</li> </ul>	<ul style="list-style-type: none"> <li>Illustrate the nature and extent of issues with wellbeing in specific European countries, or comparatively across Europe</li> <li>Provide comparative evidence on the nature and scale of differences in wellbeing between European countries</li> <li>Provide data on young people's experiences of social media use over the lifecourse, and differences between European countries</li> <li>Identify differences in parenting styles between European countries</li> <li>Identify differences in education systems between European countries</li> <li>Raise awareness of particular social issues affect young people over the life course</li> </ul>
Evaluation of options	<ul style="list-style-type: none"> <li>Provide data for evaluation that lead to policy or programme decisions by the EU or European countries</li> <li>Provide data for analysis of the impact of policy interventions/programmes within specific European countries</li> <li>Combine survey data with existing survey/secondary data</li> <li>Provide data used in empirical studies that identify, compare or evaluate different policy options for improving children and young people's wellbeing</li> </ul>	<ul style="list-style-type: none"> <li>Improve the survey research infrastructure in specific European countries</li> <li>Raise awareness of the value of longitudinal data in the policy design process</li> </ul>
Evaluation	<ul style="list-style-type: none"> <li>Provide data for analysis and comparison of the impact of different policy interventions/programmes between European countries</li> <li>Provide data for analysis of the impact of policy interventions/programmes within specific European countries</li> <li>Combine survey data with existing survey/secondary data</li> <li>Provide evidence of impact for cost effectiveness or cost benefit analysis</li> <li>Provide data used in empirical studies that evaluate policy interventions or programmes aimed at improving children and young people's wellbeing</li> </ul>	<ul style="list-style-type: none"> <li>Illustrate the nature and extent of issues with wellbeing in specific European countries, or comparatively across Europe</li> <li>Provide comparative evidence on the nature and scale of differences in wellbeing between European countries</li> <li>Provide data on young people's experiences of social media use over the lifecourse, and differences between European countries</li> <li>Identify differences in parenting styles between European countries</li> <li>Identify differences in education systems between European countries</li> <li>Raise awareness of particular social issues affect young people over the life course</li> </ul>

**TABLE 1 POTENTIAL POLICY IMPACTS OF EUROCOHORT (ADAPTED FROM O'LEARY AND FOX, 2018)**



### 3.3 Evidence appetite

Both the Nutley et al (2002) and Morton (2015) typologies outlined above can be described as supply models of the relationship between research and policy (Boswell and Smith, 2017). The core to such models is an assumption of a linear relationship between research and policy. Such approaches often assume that changes in how research is conducted, its quality, its relevance, its timeliness, how it is published and made available – improvements in how research is supplied – can lead to improvements in how research is used and thereby its impact (see, for example, Walter, Nutley and Davis (2005)). There are many issues with supply models of the research-policy relationship, not least of which is the assumption that policy makers are passive research recipients, whose use of research is dependent on how this research is made available to them. But policy makers are not just passive research users (or non-users). There is also a demand side to research impact (Rutter, 2012). Policy makers have preferences for how, when, and what type of evidence they use in the policy process. There are also politics involved (Parkhurst, 2017). Some areas of policy are more technocratic in nature, where research might be more easily used; other areas are highly ideological in nature, where research is much more difficult to incorporate (Sasse and Haddon, 2018). There are often differences between areas of government – government departments, policy areas, levels of government – in research culture (Boa, Johnson and King (2010)). We call this ‘evidence appetite’, and suggest that there will be differences over time, between countries and areas of policy, in the appetite and demand for data and data analysis of the type that EuroCohort will produce. And it is likely that this appetite will itself be effected by the availability of, and insights produced by, EuroCohort.

### 3.4 Policy domains: areas where benefit might occur

One of the most significant impacts that EuroCohort seeks to achieve is to establish “a European Research Infrastructure that will provide, over the next 29 years, comparative longitudinal survey data on child and young adult well-being”; and that will enable analysts to “show the ways in which national policies have made impacts and showing where policy interventions can make significant improvements” in different European countries (ECDP Consortium, 2017). EuroCohort will be one of the two longitudinal, accelerated birth cohort studies worldwide and the only one in the European context that collects comparable data across member states and uses quantitative measures combined with qualitative methods to provide comprehensive picture about children wellbeing over the life course. These three defining features give EuroCohort a unique, strong position to make impact on multiple areas of child policies and youth policies at the national, Union and international level as we discuss below.





First, with information collected on young children (age 0-1 and age 8 at the initial wave), EuroCohort will provide for the first time cross-country longitudinal data with child focus, making it of great value to policy makers considering whether, which and how much to spend on different **child policies**, which recently has become a priority for the European political agenda. As set out in the survey design, EuroCohort will provide comprehensive information on (i) measures of child's wellbeing and cognition, and (ii) information from households, schools and health professionals (ECDP WP8; Lynn, 2019). Given that **quantitative measures** on child wellbeing will be collected from children, parents, schools and healthcare providers, EuroCohort data has potential to meaningfully inform and improve (i) policies on child poverty, well-being and segregation, (ii) education policies, including access to education and childcare policies (in connection with parents labour supply), (iii) policies on parent support such as flexible working, parental leave, and family support services, (iv) healthcare and health policies. All of these policy domains, especially policies on child poverty and well-being, have prioritised in the political agenda by European member states, the European Union (see, e.g., EU Task-Force 2008, Europe 2020 Strategy), and international organizations (see, e.g., 2030 Agenda for Sustainable Development).

Apart from collecting quantitative measures, EuroCohort survey will engage deeply with children and young people by developing mechanisms for them to share their voices, experience and expectations about their lives, well-being and future (ECDP WP6). This child-centric approach is essential for the successful development and implementation of the EuroCohort project (ECDP WP6), a better understanding of transitions in children's and youth's lives from their own perspectives (Goswani et al., 2016), and therefore, maximizing the potential policy benefits that EuroCohort aims to deliver. Currently, the International Survey of Children's Well-Being (ISCWeB) is the only existing cross-country that combines the child-centric approach with collection of diverse quantitative measures of children's lives. While the ISCWeB by the Children's Worlds would provide invaluable comparative data on children's subjective well-being at the international level, the study does not track the same individuals over time. Therefore, they do not allow analysts to understand individual's transitions through different stages of childhood that might be associated to their well-being. Therefore, we would expect that EuroCohort – a comparative, longitudinal children and young people centric well-being survey across EU member states – certainly offers policymakers a number of new possibilities for policy formulation (ECDP Consortium, 2017).

Second, EuroCohort respondents of two cohorts (age 0-1 and age 8 at the initial phase) will be followed from childhood until adulthood (age 23) and thus, provide information on multiple aspects of their lives from childhood, adolescence to adulthood. Such data would **inform and improve youth policies**, which together with policies on child wellbeing and poverty is identified as priority in the Europe 2020 Strategy. Specifically, EuroCohort data can be an essential part of informing decision making process and improving policies relevant to (i) youth employment, (ii) education and training, (iii) poverty and social exclusion, (iv)



healthcare. Among these four areas, policies addressing youth employment and young people's risk poverty are crucial for many European member states.

Third, as already emphasized, the geographical coverage of the EuroCohort study is exceptionally large for a longitudinal cohort study with comparable data going to be collected in 28 member states. Such a large coverage combined with the focus on children and young people is unprecedented and will give EuroCohort a unique position to inform child and youth policies making at not only **at the national level** but more importantly, **at the European Union level and the global level**.

In order to investigate such potential policy benefits of the EuroCohort at greater detail, we generate evidence of policy impact from similar existing longitudinal studies. However, it is important to emphasize that the EuroCohort is designed to be multidisciplinary and multipurpose, covering diverse aspects of children's lives from and about different stakeholders – the children themselves, households, parents and caregivers, schools and healthcare providers. This means that EuroCohort data will be capable of identifying issues, providing insights and delivering impact on policy domains that **are not necessarily limited to those we outline and discuss** in this report.

### 3.5 Generating evidence of policy impact of other similar longitudinal surveys

This section examines the potential policy benefits and effects of the EuroCohort by generating evidence on impact of existing longitudinal surveys. We primarily focus on what we term the direct benefits (that is, in Nutley et al.'s (2011) typology, the instrumental and conceptual impacts) of longitudinal cohort studies on policies concerning children and young people, through which we can directly and immediately link to and assess the potential benefits of EuroCohort based on similar features of study design and approach. In a companion working paper (Ecchia et al., 2019) we provide a comprehensive review of actual and potential direct policy impact of existing longitudinal surveys. We selected five prominent case studies where information was publicly available about the actual use of the evidence derived from longitudinal data to inform and shape specific policy measures. These are illustrated in five policy briefs contained in Appendix 1 and can be used to demonstrate the business case to national funders alongside national policy makers.

Table 1 summarises the actual and potential impact of these surveys around five policy domains: (i) child poverty, (ii) criminal and youth justice, (iii) education, (iv) health and healthcare, (v) welfare. Importantly, the legislative and policy changes affected by findings from longitudinal studies have taken place at all levels, from national to international level.





Among these studies listed in Column 3 of Table 1, we draw on empirical evidence and insights from four longitudinal studies, namely British Cohort Study 1970 (BCS70), Millennium Cohort Study (MCS), National Educational Panel Study (NEPS), and Young Lives study, to illustrate whether and how EuroCohort data can be used in the policymaking process. The four longitudinal studies are selected to provide evidence on potential use of EuroCohort on four policy domains that are most relevant to the type of data that will be generated by EuroCohort, based on previous analysis by Pollock et al (2018): (i) child poverty, (ii) criminal and youth justice, (iii) education, (iv) health and healthcare. They also complement each other in illustrating policy impact at different levels: the national and international level. Specifically, the BCS70, the MCS and the NEPS provide evidence on how longitudinal data with child focus and research evidence using those data sources have been and will be using in the UK (BCS70, MCS) and Germany (NEPS) policy process, which is highly relevant for the European settings of EuroCohort. The Young Lives study, on the other hand, allows us to highlight how cross-country design of EuroCohort will generate and amplify the policy benefits on multiple policy domains and at multiple levels of policymaking, from the national to international level.

<b>Policy domain</b>	<b>Sub-themes</b>	<b>Case studies use data from</b>
Child poverty	Multi-dimensional poverty	Young Lives
	Child poverty and long-term consequences	British Panel Household Study; Understanding Society; Millennium Cohort Study; Young Lives
Health and healthcare	Nutrition, physical growth and recovery	Young Lives
	Healthy diet, lifestyles & mortality	European Prospective Investigation of Cancer Survey of Health, Ageing and Retirement in Europe
	Breastfeeding and child health	Millennium Cohort Study
	Primary care	
	Overweight and obesity	
Mental health & wellbeing	British Cohort Study; Millenium Cohort Study	
Education	Human capital development in developing countries	Young Lives
	Cognitive development	British Cohort Study
	Preschool provision	
	Monitoring and program evaluation	National Education Panel Study



Criminal/youth justice	Child marriage	Young Lives
	Child violence	
Welfare	Pension policies	European Social Survey
	Employment opportunities, pathways & labour market	British Panel Household Study; Understanding Society; Millennium Cohort Study; Survey of Health, Ageing and Retirement in Europe
	Saving scheme	National Child Development Study

### 3.5.1 Child poverty and long-term consequences

In the European settings, the MCS data have been making significant contribution to policymaking in the UK and to extend British policymakers' on child poverty. Findings from the MCS (combined with Understanding Society data) have led the UK's Department of Work and Pension (DWP) to redefine the *Troubled Families Programme*<sup>4</sup>, and more importantly, launched a major initiative, "*Helping Workless Families*"<sup>5</sup>, totalling £42 million in 2017 (Davis-Kean et al, 2017; Ecchia et al., 2019). Currently, the MCS and MCS-based research are continuing to have further and broader impact with policy proposals expanding to other government and third-sector programs. The DWP has started linking the recommendations for *Troubled Families* to the Industrial Strategy to support and incentivize youth to seek and gain employment (Davis-Kean et al, 2017).

In the context of developing countries, since 2017, Young Lives has been a core partner of the Global Coalition to End Child Poverty, which is a network of major global institutions aiming at raising awareness about and cultivating public support in ending child poverty, playing a crucial role in the move to include child poverty overtly in the SDGs. Papers and policy directions led by Young Lives being used by the Coalition to broaden international discussions on policy options and encourage policy changes to eradicate child poverty. Major international organizations as World Bank also use Young Lives data to explore, for example, the roots of the existence and persistence of intergenerational poverty. A notable example is the extensive use of research outcomes from the Young Lives paper "*What inequality means for children*" in the UNICEF/UN Women's report to the High Level Panel on the Post-2015 Agenda. The publication was

<sup>4</sup> "Helping troubled families turn their lives around". Gov.uk.

See more at <https://www.gov.uk/welfare/support-for-families>.

<sup>5</sup> "Improving Lives: Helping Workless Families - indicators and evidence base". Gov.uk.

See more at <https://www.gov.uk/government/publications/improving-lives-helping-workless-families>



regarded as one of the top submissions to UNICEF’s global thematic consultations on the SDGs, offering solid evidence on the damaging effects of inequalities on children.

The ECDP team has identified child poverty and its long-term consequences as one of the most crucial policy domain on which EuroCohort can deliver concrete, direct and observable benefits. With information on child wellbeing collected from multiple stakeholders over 25 years, EuroCohort data can draw a comprehensive picture on children’s lives, and thus, provide essential inputs for policymaking on child poverty. As illustrated above, the evidence from the MCS and Young Lives study – the two antecedents with similar characteristics, suggests this potential benefit could occur.

While the benefits of the MCS on child poverty policies are specific and limited to the UK, the Young Lives study offers the closest and clearest antecedent example on how research using cross-country EuroCohort data can deliver policy impact that goes beyond the border of participating nations and draw global traction. However, the Young Lives focuses mainly on four developing countries in Asia, Africa and Latin American. Precisely in this context, EuroCohort can offer invaluable insights into the determinants and consequences of child poverty across a diverse range of European nations and from the European perspectives, which are currently not available.

### 3.5.2 Criminal and youth justice: child protection interventions and laws

Regarding this policy domain – child protection interventions and laws, the Young Lives study, currently the only cross-country longitudinal cohort study using both qualitative methods with quantitative measures (Young Lives, 2018), provides a strong and clear supporting evidence of such policy benefits to occur for EuroCohort. Specifically, in 2015, UNICEF OoR Multi-Country Study on Drivers of Violence Affecting Children commissioned the Young Lives team to produce a series of working papers drawing heavily on qualitative data on children’s experiences of violence to promote preventive initiatives against child violence at national, regional and international levels. Since its publication, Young Lives research findings have directly led to legislative changes and immediately generated an enormous amount of global traction and interest on the problem. For instance, the Young Lives findings have led to legal changes in child protection laws in Paraguay and Vietnam, and informed National Action Plans for Children in four countries – Italy, Peru, Vietnam and Zimbabwe. Recently, the Know Violence in Childhood Global Learning Initiative has commissioned Young Lives a background paper on children and violence. The paper is a part of the Initiative’s flagship publication “*Ending Violence in Childhood: Global Report 2017*”. This flagship document is one of the most comprehensive analyses of violence against children, serving as a reference point for the issue and providing a roadmap for the implementation of global preventive strategies.



Similar to the child centric approach of the Young Lives study, the ECDP Consortium has set out the longitudinal children and young people centric approach on child and youth wellbeing as the defining, groundbreaking feature of EuroCohort (ECDP Consortium, 2017; ECDP WP6). However, differently from the settings in developing countries of the Young Lives, EuroCohort has potentially unique position of research **with** and **by** children living in Europe. These features offers national and European Union policymakers a possibility to listen from children's and young people's voice and incorporate child's and youth's own perspectives in policies and interventions concerning them. For instance, EuroCohort data can be impactful on multiple policy domains, such as child poverty and social exclusion, and child protection interventions and laws combatting child violence and sexual abuse.

### 3.5.3 Education

As we discuss at details in the Appendix 1 and in the companion working paper (Ecchia et al., 2019), empirical evidence shows that existing longitudinal studies such as the UK's BCS70 and the Germany's National Educational Panel Study (NEPS) have been and will continue making substantial impact on educational policies in their home countries. Both of them provide extensive information across all educational transition stages, a feature will be shared by EuroCohort. In the UK context, research findings using BCS70 data was pivotal in government decisions around extra spending on pre-school education (O'Leary and Fox, 2018; Appendix 1). In Germany, the NEPS data have been extensively used for measuring and reporting educational achievements in Germany. Germany's Standing Conference of Ministers of Education and Cultural Affairs has promoted NEPS as a part of the comprehensive strategy for national education monitoring. The strategy aims at ensuring that political action on educational issues is data-driven and research-oriented to promote higher educational attainments in Germany (OECD, 2014).

The ECDP Consortium considers education and training policies the policy area of special interest and importance for EuroCohort (ECDP Consortium, 2017; ECDP WP2). EuroCohort will follow the two cohorts of children born and living in Europe since birth (young cohort) and age 8 (older cohort) and collect information not only from children and parents/caregivers but also teachers. Bringing together children, household and schooling data in this way will effectively provide invaluable insights on multiple issues related to educational systems and education policies, including childcare provision, access to education, learning outcomes (regarding both cognitive and noncognitive outcomes).

Moreover, being followed over 25 years, EuroCohort respondents will encounter meaningful transitions between educational stages: infants, 2-3 year olds in childcare centers, 5-6 year olds entering preschools and primary schools, children aged 8-9 and 11-12 being in primary schools, 14-15 year-old adolescences in secondary schools, 17-18 year-olds in upper secondary schools and entering colleges, and 20-21 and 23-24



adults (Lynn, 2019). With the information collected across all educational phases in all member states, EuroCohort will stand out as a fundamental data source for researchers to study educational trajectories and for policymakers to design and implement evidence-based educational policies and reforms, monitor and evaluate the progress, and agenda settings, and international comparison.

#### 3.5.4 Child health and healthcare provision

The MCS demonstrates clearly how a longitudinal study would inform and influence the development of child health and healthcare policies at local, national and international level. In the UK context, MCS-based research findings have had significant impact on policies on children’s mental and physical health as well as parenting practice that we discuss briefly below.

Researchers have been used the MCS data to generate insights into the determinants and consequences of children’s behavioural and socio-emotional development (Hobcraft and Kiernan, 2010; Gregg and Goodman, 2010; Waldfogel and Washbrook, 2008). The research findings have played a critical role in bringing children’s mental health and behavioural issues to the center of poverty alleviation policies. In 2010, the Frank Field’s Review on Poverty and Life Chances, commissioned by the Prime Minister, has heavily cited these aforementioned studies to support the policy proposals of expanding the definition of child poverty from merely material measures to including developmental (cognitive, behavioural and socio-emotional) and health indicators. Importantly, the Inquiry further commissioned and relied primarily on an additional analysis of the MCS data (Washbrook, 2010) to emphasize the perpetual link between poverty and mental illnesses, and to identify parenting education as one of the most potential channels to improve developmental outcomes. Given that the UK’s policy circles and a range of disciplines increasingly acknowledge that children’s mental health shapes later-life outcomes<sup>6</sup>, the rich information of the MCS and previous British cohort studies on these topics will continue to be a vital source of evidence for policymakers for many years to come.

Another prominent example is the use of the first and second wave MCS data, which collect information on new-born babies in the UK, to demonstrate that breastfeeding has protective effects against hospitalizations caused by diarrhoea and respiratory infections. In 2013, amid the debate around exclusive breastfeeding in developed countries, the policy statement by the Association of UK Dietitians (BDA) cited the MCS empirical evidence to strengthen its support for and recommendations on exclusive breastfeeding for the first six months of life<sup>7</sup>. The research has also contributed to best practice and guidance on

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<sup>6</sup> Transforming Children and Young People’s Mental Health Provision: a Green Paper, UK Department of Health and Department of Education, 2017.

<sup>7</sup> Complementary Feeding: Introduction of solid foods to an infant diet, the Association of UK Dietitians, 2013, p.5.

breastfeeding at the international level. Specifically, the study findings have been cited extensively in the UK UNICEF's important book on breastfeeding<sup>8</sup>, which provides empirical evidence and rationale for the implementation of the Baby Friendly Initiative Standards by UNICEF and WHO in 134 countries.

The MCS has also been contributing significantly to public health policies combatting child overweight and obesity in the UK. For example, the Welsh Government launched the Obesity Pathway to prevent and tackle the obesity problems in Wales. Local Health Boards in Wales now use the pathway paper as a benchmark and tool to monitor and evaluate the current implementation. Apart from the actual impact, there are opportunities for further impact of the MCS on informing the policymaking process in Wales as the Welsh Government released the Public Health (Wales) Act 2017 – a national strategy to tackle obesity problem. Given the longitudinal nature of the MCS, identification of risk factors for obesity and overweight may shed further light on preventive measures.

EuroCohort places a great emphasis on collecting health-related information (ECDP Consortium, 2017; ECDP WP8) and identifies health and healthcare policies as a major policy area to which EuroCohort can deliver direct benefits (ECDP Consortium, 2017; ECDP WP2). While EuroCohort study design ensures that objective and subjective measures of child physical and mental health will be collected on children and young people, as similar to the MCS and other longitudinal cohort studies, EuroCohort is in a unique position to deliver policy benefits on health policymaking at national and EU level. First, EuroCohort aims at addressing the gaps for structural monitoring and evaluation the psychological or mental and emotional aspects of child well-being across EU member states through collecting for the first times in-depth information on these topics in 28 participating countries (ECDP Consortium, 2017; Goswami and Pollock, 2016). Such information has not always explored or covered in depth in existing surveys. Second, EuroCohort will stand out as the only cross-country longitudinal cohort study that collecting information directly from health professionals. Indeed, quantitative measures for health professionals are regarded as equally important as measures for other traditional key stakeholders (parents/carers and children) (ECDP WP8). This feature certainly allows EuroCohort to greatly expand the scope and ability of a cohort to carry out research, pave the way for new scientific discoveries, and deliver extensive impact on policies on clinical, public health issues for children and young people.

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<sup>8</sup> The evidence and rationale for the UNICEF UK Baby Friendly Initiative Standards, UK UNICEF, 2013, p.19, p.71, p.103, p.129.

## 4. Costing of the survey

In many areas of public expenditure, the likely costs and benefits of an investment are relatively simple to identify and quantify. A new bypass for a town, for example, could lead to  $x$  minutes reduction in journey times and  $y$  improvement in air quality. Each mile of the new bypass can be costed in terms of materials, labour, and other costs. The economic costs of changes in journey times and air quality can also be estimated. Reduced journey times can improve productivity, which increases GDP. Improved air quality can reduce pollution-related health events, which can translate into higher QALYs<sup>9</sup>, fewer hospital admissions, and reductions in lost output<sup>10</sup>. By netting off the costs of building a new bypass against the likely benefits from reduced journey times and improved air quality, it is possible to estimate the economic performance indicators (Economic Net Present Value, Economic Rate of Return, Benefit-Cost ratio) of the proposed investment. As it has been discussed above, this approach cannot be applied to the evaluation of costs and benefits of EuroCohort. The specific process by which costs<sup>11</sup> have been estimated is provided in this chapter.

### 4.1 Assumptions

#### 4.1.1 Countries

We consider that all 28 European Union Member States will participate in *EuroCohort*. In reality, this is not going to be necessarily true. Experience from other international longitudinal surveys tells us that some EU Member State may not be willing to participate and that participation may change from one wave of the survey to the next.

#### 4.1.2 Research infrastructure

The *EuroCohort* research infrastructure could be developed in a number of alternative ways. We consider here that a central team is in charge for the overall organisation of the survey, the management and the development of the technological infrastructure, documentation, dissemination and communication. We also assume that each Member State will also have a national coordinating team. Those 28 national coordinating teams will manage the field work (probably via data collection agencies) and will co-operate with the central team in other national level issues.

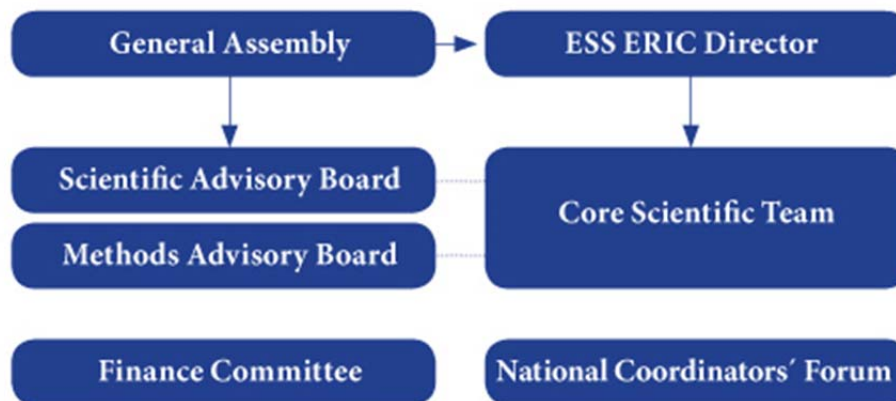
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<sup>9</sup> Quality-Adjusted Life Year, a standard method for estimating the impact of policy interventions on the quantity and quality of life lived.

<sup>10</sup> A measure of the loss of productive capacity or lost days at work.

<sup>11</sup> Expressed in prices of year 2018.

To supply an example of social science’s research infrastructure, the European Social Survey ESS governance arrangements are displayed in the figure below.



**FIGURE 1 ESS GOVERNANCE ARRANGEMENTS – SOURCE: ESS WEBSITE**

However, for the purpose of our costing exercise, it should be stressed that probably the best available way to estimate the cost of the EuroCohort central team is to consider the costs related to a similar European accelerated longitudinal survey. In that respect, the SHARE central team costs approximately €3m per year for international coordination.<sup>12</sup> However, these costs are rising (in 2015 they were about €2.4m)<sup>13</sup>. Therefore, we will consider here that the EuroCohort central team will cost €4m per year. Moreover, there will be prodromic activities of the EuroCohort central team which will start two years before the actual beginning of the fieldwork (that is in the years 2020 and 2021). We estimate that the central team’s cost during those years will be €1.4m per year.

To be able to provide more realistic estimates of the costs in each country, we have divided the 28 EU Member States into high, medium and low cost states. The table below displays the results of this exercise. This categorization was primarily based on Eurostat data about annual net earnings for a single person without children across Europe. However, PPP adjusted GDP per capita was also included in our categorization algorithm. Considering the unweighted Member State average of annual net earnings for a single person without children it is possible to see that the value of this indicator for medium cost states is about 50 per cent lower than the one for high cost states, and, in turn, the value of the same indicator for

<sup>12</sup> See: Share-Eric (2018).

<sup>13</sup> See: Share-Eric (2016).



low cost states is 50 per cent lower than the one for low cost states. Therefore, our National level cost estimates will follow these proportionate reductions.

Taking as a starting point SHARE's financial data, we consider that in years 1 to 4 of the fieldwork period from wave 1 of cohort 1 the national team will cost around €1.15m per year in high cost states. This amount will cover both the national coordination team costs<sup>14</sup> (€250k per year) and the fixed costs of the national agency (€900k per year). We consider that during the two years 2020 and 2021 those amounts will be equal to 30 per cent of the above.

Following the proportions between earnings in high, medium and low cost states reported above, we consider that in medium cost states the above will cost 50 per cent of the high cost states amount and in low cost states it will cost 50 per cent of the medium cost states amount. We also consider that because of the benefits of learning economies, in year 5 team costs will be reduced by €100k in high cost states, by € 50k in medium cost states and by € 25k in low cost states.

Member State	PPP adjusted GDP per capita 2017 (€) <sup>15</sup>	annual net earnings for a single person without children in 2015 (€ , 100 % average worker) <sup>16</sup>	Cost level
Bulgaria	14,800	4,334	Low
Romania	18,800	5,119	Low
Lithuania	23,500	6,652	Low
Hungary	20,300	6,702	Low
Latvia	20,000	6,815	Low
Slovakia	22,900	8,201	Low
Croatia	18,500	8,842	Low
Czech Republic	26,800	8,941	Low
Poland	20,900	8,967	Low
Estonia	23,600	10,638	Low
Slovenia	25,500	12,062	Medium
Portugal	23,000	12,400	Medium
Cyprus	25,400	...	Medium
Greece	20,200	15,234	Medium
Malta	28,900	16,924	Medium
Spain	27,600	20,845	Medium
Italy	28,900	21,114	Medium
France	31,100	26,775	High
Belgium	35,000	26,954	High
Ireland	54,300	27,906	High
Germany	37,100	28,268	High
Austria	38,100	28,524	High

<sup>14</sup> We consider that each national coordination team will include 1.5 full-time equivalent senior researchers.

<sup>15</sup> [https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=sdg\\_10\\_10&plugin=1](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=sdg_10_10&plugin=1)

<sup>16</sup> The most recent year for which EUROSTAT data about the annual net earnings for a single person without children are available online is 2015. See <http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do>





Finland	32,700	29,981	High
Sweden	36,300	33,920	High
Netherlands	38,400	34,826	High
Denmark	38,400	34,878	High
United Kingdom	31,600	37,995	High
Luxembourg	75,900	38,631	High

**TABLE 2 HIGH, MEDIUM AND LOW COST STATES FOR DELIVERING A SURVEY**

#### 4.1.3 Sample size

As a general rule, for our purposes we define a large country as a EU Member State with a population above 10 million people, and a small country as a EU Member State with a population below 10 million people (see the table below). According to this classification, Portugal belongs to the group of large countries, while Hungary, with a population of 9.8 million, should be considered a small country. However, this classification could be refined by considering that the size of the age group 0-24 in Hungary (2,489,938 people) is almost the size of the same age group also in Portugal (2,517,097 people). Therefore, as an exception from the general rule stated above, we decided to include also Ireland into the group of large EU countries.

Following ECDP report deliverable 8.1 on sample design, we consider that each large country starts with an age 0 cohort (Cohort 2) effective sample size of 10,000 children (estimating a 20% difference between nominal and effective sample size, this corresponds to a nominal sample size of 12,500), while each small country starts with an age 0 cohort effective sample size of 5,000 children (6,250 nominal sample size).

For the cohort of 8 year olds (Cohort 1) we consider that each large country starts with an age 8 cohort effective sample size of 8,000 children (10,000 nominal size), while each small country starts with an age 8 cohort effective sample size of 4,000 (5,000 nominal size).<sup>17</sup>

Country	Population 2018	Population 2018 0-24	Size
Germany	82,792,351	19,854,840	large
France	66,926,166	19,983,214	large
United Kingdom	66,273,576	19,745,072	large
Italy	60,483,973	13,964,775	large
Spain	46,658,447	11,503,890	large
Poland	37,976,687	9,831,918	large
Romania	19,530,631	5,132,265	large
Netherlands	17,181,084	4,879,437	large

<sup>17</sup> It seems worth noticing that in a different contest EU-SILC longitudinal sampling (2011) uses similar proportions in determining the longitudinal sample size for each European Country.

Belgium	11,398,589	3,237,557	large
Greece	10,741,165	2,635,682	large
Czech Republic	10,610,055	2,658,075	large
Portugal	10,291,027	2,517,097	large
Sweden	10,120,242	2,956,434	large
Hungary	9,778,371	2,489,938	large
Austria	8,822,267	2,262,834	small
Bulgaria	7,050,034	1,642,606	small
Denmark	5,781,190	1,698,122	small
Finland	5,513,130	1,514,231	small
Slovakia	5,443,120	1,437,466	small
Ireland	4,830,392	1,604,875	small
Croatia	4,105,493	1,049,970	small
Lithuania	2,808,901	730,935	small
Slovenia	2,066,880	504,807	small
Latvia	1,934,379	485,114	small
Estonia	1,319,133	341,992	small
Cyprus	864,236	254,637	small
Luxembourg	602,005	168,071	small
Malta	475,701	120,033	small

**TABLE 3 SIZE OF EU MEMBER STATES – SOURCE: OUR CALCULATION ON EUROSTAT DATA.**

As it is customary in these cases, before the beginning of the very first wave of interviews EuroCohort will undertake a rigorous series of piloting phases from pre-pilot cognitive interviewing through to a full scale dress rehearsal in each country for each cohort.<sup>18</sup> This will allow fine-tuning the functioning of the research instruments and field processes before the start of each cohorts fieldwork waves.

#### 4.1.5 Frequency of interview rounds

Age 8 cohort will be interviewed for the first time at age 8-9. We assume that a follow-up interview for this cohort will occur every 3 years. Therefore, age 8 cohort will have follow-up interviews at 11-12, 14-15, 17-18, 20-21 and 23-24.

Age 0 cohort will be interviewed for the first time at 0-1 with follow-up interviews at 2-3, 5-6, 8-9, 11-12, 14-15, 17-18, 20-21 and 23-24.

Here we assume that each cohort is discarded when it reaches age 24. However, this would be a wasted opportunity and it is likely that funding would be sought at some point in the future for at least one cohort to be followed beyond the age of 24.

<sup>18</sup> ESS team, personal communication.

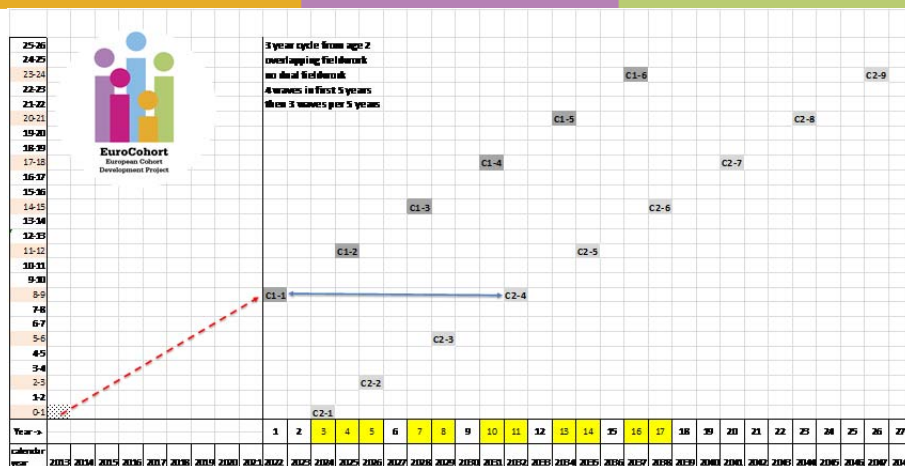


FIGURE 2 LONGITUDINAL DESIGN

#### 4.1.5 Non-response and attrition rates

Following the work on sampling conducted in WP8, we consider a response rate of 75 per cent for the second wave of each cohort, an attrition rate of 15 percent for the third wave and 10 per cent for the fourth wave. After the fourth wave we consider a 5 per cent attrition rate between each wave of the survey.

Response and attrition rates will vary among countries. At this stage we are not able to credibly estimate these variations. Therefore, we consider here that all countries have the same response rate for the first wave of each cohort and the same attrition rate thereafter.

Unsurprisingly, longitudinal survey teams regard response and attrition rates as a central issue which demands a robust minimization strategy. Before each wave of interviews the SHARE publishes guidelines about field procedures to be followed in order to enhance response rates.

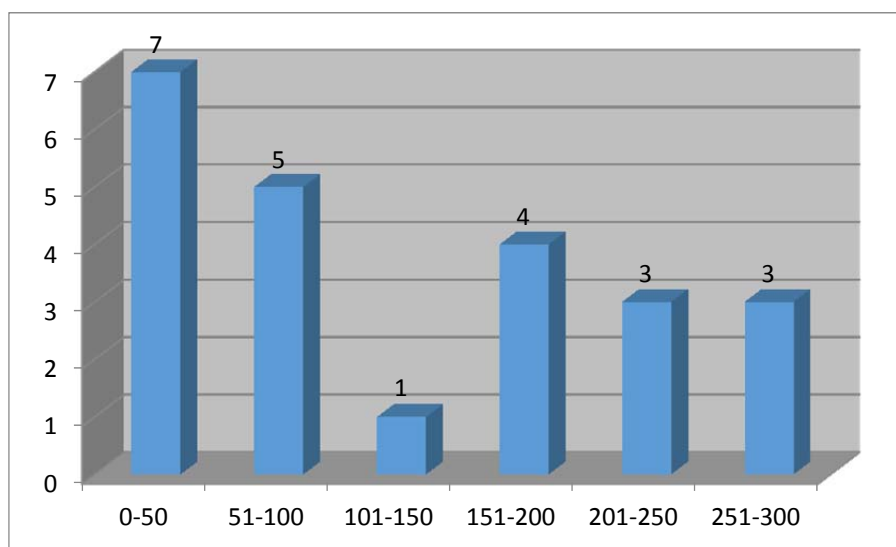
#### 4.1.6 Pilot, interviews and incentives

Following the sample design (see above), we consider that the survey will be based on CAPI interviewing at wave 1 for both cohorts. From wave 2 on the survey will be based on a CAWI-CAPI mixed-mode for both cohorts. We consider that at wave 2 we will have 50 per cent CAWI and 50 per cent CAPI interviewing,



while in the next two waves the percentage of CAWI interviewing will increase by 10 per cent at each wave until reaching 70 per cent, and it will remain constant thereafter.<sup>19</sup>

To estimate the average cost of a CAPI interview in a high cost country we started from the distribution of the average costs per interview in ESS 3 contained in Stoop et al. (2010) and displayed in the figure below and considered the weighted average of the mid-points of the 3 top intervals. As a result, we obtained an average cost of a CAPI interview in a high cost country equal to € 220. Then we converted this figure in € 2018 using the Harmonized Index of Consumer Prices provided by Eurostat for the EU 28 countries, obtaining an € 2018 value of the average cost of a CAPI interview in a high cost country of about € 247.



**FIGURE 3 DISTRIBUTION OF THE AVERAGE COSTS PER INTERVIEW PER COUNTRY (€) IN ESS 3 – SOURCE: STOOP ET AL. (2010)**

We also consider that since 2010 the unit real cost of an interview has increased by € 50. As a result, below we consider that in a high cost country the cost of each CAPI interview with a parent is €300, and that the cost of interviewing a child under 16 is €150. We consider that the cost of interviewing young people over 16 rises to €300.

<sup>19</sup> The might be the case of households where one adult completes online, but another does not and so that household may have to be issued to CAPI anyway. However, below we will not take partial CAWI-respondents into consideration.

For the different waves we consider the following:

- Waves 1-2-3 age 0 cohort: we consider to interview one parent. The cost per sample member is € 300.
- Waves 4-5-6 age 0 cohort: we consider interviews take place with one parents and the child so we will have two interviews per child per wave. The cost per sample member is € 450.
- Waves 7-8-9 age 0 cohort: we consider interviews take place directly with the young person so we will have one interview per young person per wave. The cost per sample member is € 300.

Similarly:

- waves 1-2-3 age 8 cohort (children aged 11-12 to 14-15): we consider interviews take place with one parents and the child so we will have two interviews per child per wave. The cost per sample member is € 450.
- waves 4-5-6 age 8 cohort (young people aged 17-18 to 23-24): we consider interviews take place directly with the young person so we will have one interview per young person per wave. The cost per sample member is € 300.

In the following, we do not consider the cost of pre-pilot cognitive interviewing, because we consider it to be small with respect to the level of uncertainty involved in this costing exercise. With regard to piloting, we consider a 250 interviews per country pilot before each new cohort fieldwork wave, so before waves 1 to 6 of the age 8 cohort and before waves 1-2-3 of the age 0 cohort. We also consider a full scale dress rehearsal in each country before the same cohorts fieldwork waves. Dress rehearsal size will be equal to 400 interviews in small countries and 600 interviews in large ones. Pilot and dress rehearsal interviews will follow the same rules stated above for the wave they refer to and will take place the year before it. Given the complexity of the setting, we consider that the cost of interviews in pilots and dress rehearsals to be equal to those of CAPI interviews.

On the basis of the discussion contained in Villar and Fitzgerald (2017)<sup>20</sup> and taking a precautionary approach, at this stage, we decided to quantify the average cost of a CAWI interview as being 50 per cent of the cost of a CAPI one.

As we have already pointed out before, we consider a 50 percent reduction in cost per sample member in medium cost states and a further 50 percent reduction in cost in low cost states.

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<sup>20</sup> See Appendix 2.

A way to enhance response rates may be to use monetary incentives for this purpose. As Stoop et al. (2016) puts it:

“There are numerous examples of studies that show that –even modest–‘rewards’ help to improve the response rate [...] It may be necessary to monitor the extent to which monetary incentives disproportionately encourage the participation of people with low incomes compared to those with high incomes and thereby have an effect on the composition of the sample.”

Because of the above, according to the same source it might be advisable to use incentives only for underrepresented groups, and for groups that might be sensitive to incentives.

The use of incentives is to be decided at the country level, because need for them and their effect may depend upon country-specific factors. Therefore, at this stage we are not in the position to estimate either the amount of these incentives or the extent to which they will be awarded. However, we already know that it may be necessary to monitor the extent to which monetary incentives disproportionately encourage the participation of low income people and thereby have an effect on the composition of the sample.

For indicative purposes we assumed that in every country will be awarded an € 10 cash incentive to parents (both for a two parents or a single parent household) which will be sampled for participating in the survey until the child will be less than 8 years old. This will include the first 3 waves for the age 0 cohort. In the next three waves of both cohorts, thus until the child will be 14-15 years old, an € 10 cash incentive will be awarded to parents a further € 5 one directly to the child. In the last 3 waves, so when the young adult will be 17-18 and older, an € 10 cash incentive will be given directly to him. The above figures are to be considered as average incentives. Most likely, the actual incentives which will be awarded to sample members will be differentiated among countries and maybe also among sample members according to a scheme which at this stage has not been envisaged.

## 4.2 Results

The financial total cost of EuroCohort during its whole 29 years projected life span, obtained as detailed above, is summarized in the table below. The figures displayed below are undiscounted values expressed in current euro.



	Cost (€)
Pilot	14.122.500
Incentives	25.551.144
Interviews	305.218.506
EU Central Team	110.800.000
Fixed costs of national agencies	383.180.000
National Coordination Team	117.300.000
Dress Rehearsal	28.560.000
Total cost	984.732.150

**TABLE 4 PROJECTED FINANCIAL TOTAL COST OF EUROCOHORT<sup>21</sup>**

Beside the Central Team's financial total cost of € 110,8 million,<sup>22</sup> we have produced Member State level financial cost estimates, which are displayed in the table below.

Member State	size	Cost level	Total Member State level financial cost (€)
Austria	large	High	43.902.103
Belgium	large	High	56.902.872
Bulgaria	large	Low	11.482.949
Croatia	small	Low	11.482.949
Cyprus	small	Medium	22.289.334
Czech Republic	large	Low	15.205.231
Denmark	large	High	43.902.103
Estonia	small	Low	11.482.949
Finland	large	High	43.902.103
France	large	High	56.902.872
Germany	large	High	56.902.872
Greece	large	Medium	29.104.445
Hungary	large	Low	15.205.231
Ireland	large	High	43.902.103
Italy	large	Medium	29.104.445
Latvia	small	Low	11.482.949
Lithuania	small	Low	11.482.949
Luxembourg	small	High	43.902.103
Malta	small	Medium	22.289.334
Netherlands	large	High	56.902.872
Poland	large	Low	15.205.231
Portugal	large	Medium	29.104.445

<sup>21</sup> As it will become more clear below, to meet the full financial needs of EuroCohort it is necessary to add to this amount the fundraising costs. Their amount will depend upon the amount of private funds which will have to be raised to ensure the financial sustainability of the project.

<sup>22</sup> In Appendix 2 we offer a possible funding scheme for the EU central team's total cost.

Romania	large	Low	15.205.231
Slovakia	large	Low	11.482.949
Slovenia	small	Medium	22.289.334
Spain	large	Medium	29.104.445
Sweden	large	High	56.902.872
United Kingdom	large	High	56.902.872

**TABLE 5 PROJECTED MEMBER STATE LEVEL FINANCIAL COST OF EUROCOHORT BY COUNTRY (EXCLUDING THE COSTS OF CENTRAL UNIT- SEE APPENDIX 2 FOR A POSSIBLE COUNTRY DISTRIBUTION OF THESE COSTS)**

We have also produced Member State level yearly financial cost estimates during the operation of EuroCohort, which are displayed in the table below.

Member State	2020-21	2022-2023	2024-2038	2039-2048
Austria	496.125	2.188.250	1.772.759	1.194.197
Belgium	542.625	3.156.750	2.407.928	1.338.520
Bulgaria	127.688	577.625	468.763	304.088
Croatia	127.688	577.625	468.763	304.088
Cyprus	250.500	1.114.500	903.428	600.791
Czech Republic	140.438	848.625	651.332	345.713
Denmark	496.125	2.188.250	1.772.759	1.194.197
Estonia	127.688	577.625	468.763	304.088
Finland	496.125	2.188.250	1.772.759	1.194.197
France	542.625	3.156.750	2.407.928	1.338.520
Germany	542.625	3.156.750	2.407.928	1.338.520
Greece	274.500	1.618.000	1.236.864	676.648
Hungary	140.438	848.625	651.332	345.713
Ireland	496.125	2.188.250	1.772.759	1.194.197
Italy	274.500	1.618.000	1.236.864	676.648
Latvia	127.688	577.625	468.763	304.088
Lithuania	127.688	577.625	468.763	304.088
Luxembourg	496.125	2.188.250	1.772.759	1.194.197
Malta	250.500	1.114.500	903.428	600.791
Netherlands	542.625	3.156.750	2.407.928	1.338.520
Poland	140.438	848.625	651.332	345.713
Portugal	274.500	1.618.000	1.236.864	676.648
Romania	140.438	848.625	651.332	345.713
Slovakia	127.688	577.625	468.763	304.088
Slovenia	250.500	1.114.500	903.428	600.791
Spain	274.500	1.618.000	1.236.864	676.648
Sweden	542.625	3.156.750	2.407.928	1.338.520
United Kingdom	542.625	3.156.750	2.407.928	1.338.520

**TABLE 6 PROJECTED MEMBER STATE LEVEL AVERAGE FINANCIAL COST PER YEAR DURING THE OPERATION OF EUROCOHORT BY COUNTRY (€)**





## 5. Cost benefit analysis for EuroCohort

Following a traditional cost-benefit approach, two types of CBA could be used to make a business case for a project: (1) the standard CBA in monetary terms: it identifies the time pattern of costs and effects over the life-cycle of the project, from available estimates (and assumptions), and translating impacts into monetary terms. The end results are the economic performance indicators (Economic Net Present Value, Economic Rate of Return, Benefit-Cost ratio) of the proposed investment. They show how much the investment would bring back in terms of return (for every euro spent, how much the policy or stakeholders would save in a specific domain), in various areas in which Eurocohort invests (i.e. child education, child health, etc.); (2) the cost-effectiveness analysis: which is the return in non-monetary terms of project implementation. For instance, in education, as per the cost of Eurocohort implementation in a specific domain, how many children will it help keep in school (for one additional year) as per the total cost of the survey implementation? The Cost-effectiveness ratio, that is the ratio between costs of the program and relative effects. In the case of Eurocohort, we have presented in the previous chapters various reasons why these two standard approaches cannot be fully applied to the Eurocohort business case (see also the 2017 report by Gheorghe et al. on Childonomics for a more general discussion of this point). This is why we will follow a break-even approach, extending the previous analysis conducted in the MYWEB project. This approach will be detailed in this chapter.

From a general viewpoint, since Eurocohort is a project to develop a research infrastructure, it is important to notice that in recent years the use of CBA has been extended to Research, Development and Innovation infrastructure RI projects. An evidence for the above is the fact that European Commission (2014) includes a chapter dedicated to RI projects. However, the target of that chapter consists of capital intensive, physical realizations and it is therefore rather different from the aim of this report which is to apply the CBA technique to a Europe-wide longitudinal survey on children and young adult's well-being. This happens because one of the tasks included in the WP3 of the European Cohort Development Project ECDP is to extend the CBA of a Europe-wide longitudinal survey on children and young adults' well-being which has been already initiated by the FP7 Measuring YouthWell-Being MYWEB project.

### 5.1 The model

To evaluate the social desirability of EuroCohort from the point of view of the efficient use of the available resources it is possible to use as a starting point the framework for the evaluation of Research Infrastructures RIs contained in Florio and Sirtori (2014) and in Florio et al. (2016). However, their paper focuses on capital intensive RIs and explicitly excludes from the definition of RI all surveys, since the service



they provide is more labor, rather than capital, intensive. Therefore, below it will be necessary to adapt their framework to the evaluation of a survey.

According to Florio and Sirtori (2014), broadly speaking the fundamental CBA model for RI is described by the following equation:

$$ENPV_{RI} = ENPV_U + ENPV_N$$

where

$ENPV_{RI}$  = expected net present value of RI.

$ENPV_U$  = expected net present value of the economic benefits BU and costs CU which are associated to any actual or future use of the RI.

$ENPV_N$  = expected net present value of non-use benefits which represent the social value of the research discovery regardless of its possible use.

The next section contains a discussion of the benefits that will be generated by EuroCohort and their distribution among its stakeholders.

## 5.2 Distribution of benefits

The first step to evaluate the benefits generated by a project is to identify the set of potential beneficiaries. In the case under scrutiny this set includes:

- children and young people receiving a benefit from the improvement of the effectiveness of government expenditure and individual programmes that might contribute to improve their well-being. It looks very likely that this group will be enjoying a relevant share of the benefits generated by *EuroCohort*;
- policy-makers getting the chance to develop more efficient and/or effective policies aimed at improving children and young people's well-being. This can allow them to save scarce public resources for different uses;
- scientists and researchers producing knowledge;
- young professionals, junior researchers and students spending time working within the RI;
- people not involved in the ECDP project deriving utility just from being informed about the EuroCohort's results or from the mere fact of knowing that such results exist and that government authorities responsible for expenditures for children and young people are informed about data collected by EuroCohort.



## 5.3 Benefits

### 5.3.1 Use benefits

The use benefits (BU) arising from any actual or possible use of a RI infrastructure can be of four main types:

- Benefits provided to end-users;
- Knowledge output;
- Technological spillovers;
- Human capital accumulation.

#### 5.3.1.1 Benefits provided to end-users (policy-makers, children and young people)

As it is well known, the aim of the ECDP project is to create a RI that will provide longitudinal survey data to be used for better targeting social policies. Therefore, the main benefits generated by this project will be the following:

- it will contribute to improve the well-being of children as they grow up;
- assuming a public interest motivation for policy design, policy-makers will have the chance to improve the use of society's scarce resources by designing more efficient and/or effective policies aimed at improving children and young adult's well-being.

A longitudinal survey is unlikely to generate benefits of this type either at the European or Member State level by itself. Survey data are of benefit only to the extent that they are used in the policy process and affect change in policy, government expenditure and individual programs that might contribute to children and young people's well-being. The impact of a longitudinal study on policy may depend upon several variables. One of them is the format in which survey data are presented. Technopolis Group (2017) is a study assessing the policy, academic and teaching impacts that have been achieved through the European Social Survey. According to this source, data presented in formats that are comprehensible and can be easily shared and used will have a higher probability to be used by policy makers than data presented in a less user-friendly form. The preparation of a tabular volume of European Social Survey EES data for the Austrian ministry of social affairs is an example of translation of ESS data that forms a pipeline to a major use of the data.<sup>23</sup>

As O'Leary and Fox (2018) point out, in order to identify and estimate such benefits, it would be necessary to demonstrate:

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<sup>23</sup> Technopolis Group (2017) Page 7. For further details about the determinants of the policy impact of a longitudinal survey see Appendix 2.

- first, that such data are/would be used by policy makers in the policy process;
- secondly, to identify what policy change has already or is likely to occur;
- thirdly, to attribute any policy change to the use of these data;
- finally, to estimate the impact of any such attributable policy change.

Because of the problems highlighted above, the FP7-MYWeB project did not attempt to identify and quantify the likely benefits of EuroCohort on future children and young people's well-being. To push further ahead the knowledge in this field, the ECDP project aims to supply a contribution to the understanding of the above by producing a number of case studies about the impact of longitudinal studies on policy aimed at improving the well-being of children and young adults.

As a starting point of our work we tried to extend and update the CBA initiated by the FP7-MYWeB project data to supply a new answer to the same research question: assuming data from this survey are used to affect changes in Member State government expenditure in this area, what level of change would be necessary for this investment in order to be considered worthwhile?

To address this question, in an ideal world we should take a with-and-without approach considering the difference between the monetary value of the benefits generated by EuroCohort informed (with scenario) and non-EuroCohort informed (without scenario) children and young people's well-being policies and compare them with the EuroCohort costs.

However, as we have already noticed to quantify the difference between the monetary value of the benefits generated by children and young people's well-being policies both in the with and in the without scenario it would be necessary to overcome two different sets of difficulties:

- to quantify in monetary terms the benefits generated by children and young people's well-being policies;
- to identify very clearly the differences between the without scenario and the world before the implementation of the project, in order to be able to identify correctly the benefits generated by EuroCohort.

Unfortunately, to our knowledge at present it is not possible to solve the above difficulties in a satisfactory and uncontroversial way.

Therefore, as a possible second-best solution we are considering Member State expenditure on children and young people's well-being and then comparing the cost of EuroCohort to this expenditure. Such a comparison will give an indication of the scale of the expenditure change this survey would need to generate for its cost to be considered socially desirable from the point of view of the efficient use of the available resources.

Following very closely the FP7-MYWeB project, it is possible to observe that there is no single, straightforward or commonly agreed method for estimating government expenditure on children and young people's well-being. This reflects both the debates on the nature and conceptualisation of well-being and the challenges of cross-country comparison of government social spending. It is beyond the remit of this piece to address the methodological and empirical debate in this area. Rather, we draw on the substantive work undertaken by the Organization for Economic Cooperation and Development (OECD) and data from the OECD and from Eurostat in this field to provide an estimate of social expenditure in the 21 EU Member States (Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain and United Kingdom) which were also OECD Member States in 2013.<sup>24</sup> We will also use the available data to provide a rough bottom line estimate of total spending on children and young people's well-being for the remaining EU Member States (Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania).

Data on current spending across EU Member States on children and young people's well-being is presented in two ways, namely per capita and total expenditure. The figure below gives an estimate of the 2013 government expenditure on children and young people's by age group in the 21 EU Member States which were also OECD members in 2013. This is the most recent year for which data for all the 21 countries are available.<sup>25</sup> It provides aggregate national government expenditure on:

- education;
- childcare;
- cash benefits and tax breaks;
- other benefits in kind.

According to OECD family database public spending on the family can be categorised as follows.

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<sup>24</sup> As it is well-known, since 2013 two more EU Member States, Latvia (2016) and Lithuania (2018), joined the OECD.

<sup>25</sup> The OECD family database also provides an estimate of total spending on children and young people's in 2015 for Austria, Czech Republic, Finland, France, Germany, Italy, Spain and United Kingdom. However, to ensure a better homogeneity across the data set we have chosen to not to use these data.

Child-related cash transfers to families with children, which includes:

- child allowances, which are sometimes income-tested, and with payment levels that in some countries vary with the age or number of children;
- public income support payments during periods of parental leave;
- income support for single parent families (in some countries).

Public spending on services for families with children, which includes:

- the direct financing or subsidisation of childcare and early childhood education facilities;
- public childcare support through earmarked payments to parents;
- public spending on assistance for young people and residential facilities;
- public spending on family services, including centre-based facilities and home help services for families in need.

Financial support for families provided through the tax system which includes:

- tax exemptions (e.g. income from child benefits that is not included in the tax base);
- child tax allowances (amounts for children that are deducted from gross income and are not included in taxable income);
- child tax credits (amounts that are deducted from the tax liability). If any excess of the child tax credit over the liability is returned to the tax-payer in cash, then the resulting cash payment is recorded under cash transfers above (the same applies to child tax credits that are paid out in cash to recipients as a general rule, for example, in Austria and Canada).<sup>26</sup>

To enable comparison, the analysis is presented in per capita US dollars (PPP)<sup>27</sup>. It is worth noticing that data presented below do not include health expenditure. This absence is a relevant shortcoming of this approach, because health represents an important dimension of well-being.<sup>28</sup>

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<sup>26</sup> See OECD Family Database, PF1.1 Public spending on family benefits.

<sup>27</sup> At this stage, it is not feasible to present these data in euros because of the nature of the underlying data and the way in which the OECD presents its analysis. The OECD has collated budget data from national governments, and categorised these data to enable comparison. The budget data for each country have then been converted to USD, taking account of relative differences between countries in their purchasing power (that is, differences in the cost of buying a standard basket of goods, a method by which the purchasing power parity or PPP is calculated). The OECD does not publish the underlying data it has taken to calculate PPP values. Converting Member States spending disaggregated by Country and age group to euros would create severe approximation problems, whose extent would display a large volatility among Countries. Therefore, this report presents Country and age group data in US dollars while the report converts at the end in euros only the combined spending on children and young people's well-being of the 28 EU Member States using the USD PPP for the EU as a whole.

<sup>28</sup> See OECD (2009) and Dominic Richardson (personal communication, 2017).

However, it is worth noticing that the expenditures included in the OECD database will have effects on the health of their beneficiaries, because child well-being outcomes are clearly interconnected. For instance, education and personal health are clearly correlated. As Barnett and Masse (2007) assessment of the Abecedarian program<sup>29</sup> puts it:

“Better-educated individuals can make more informed and better decisions regarding their personal health. Education increases the ability to be an effective consumer of health care services and producer of personal health. Education also increases income, allowing one to buy higher quality and quantity of health services and to establish healthier living conditions”.<sup>30</sup>

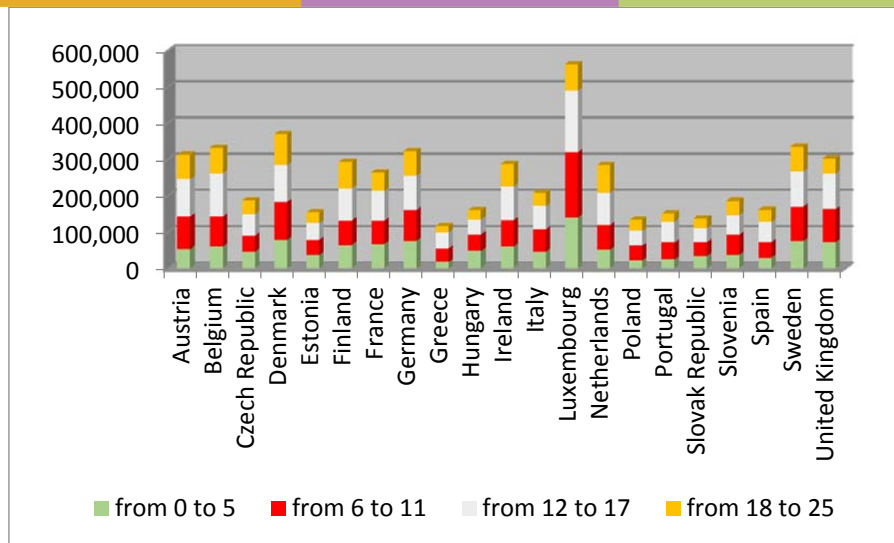
According to the same Barnett and Masse (2007), a proof of this ability to make better personal health decisions can be found in the fact that a follow-up regarding the program participants at age 21 showed that the rates of smoking for the control group and the early educational intervention group were 55 per cent and 39 per cent, respectively.

Campbell et al. (2014) confirm the interconnection between education and personal health showing that according to biomedical data, children randomly assigned to the intervention group the Abecedarian program once they reach their mid-30s had significantly lower prevalence of risk factors for cardiovascular and metabolic diseases than the ones assigned to the control group.<sup>31</sup>

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<sup>29</sup> The Abecedarian program was a pre-kindergarten educational experiment conducted during the '70s in North Carolina. See Appendix 2 for more details.

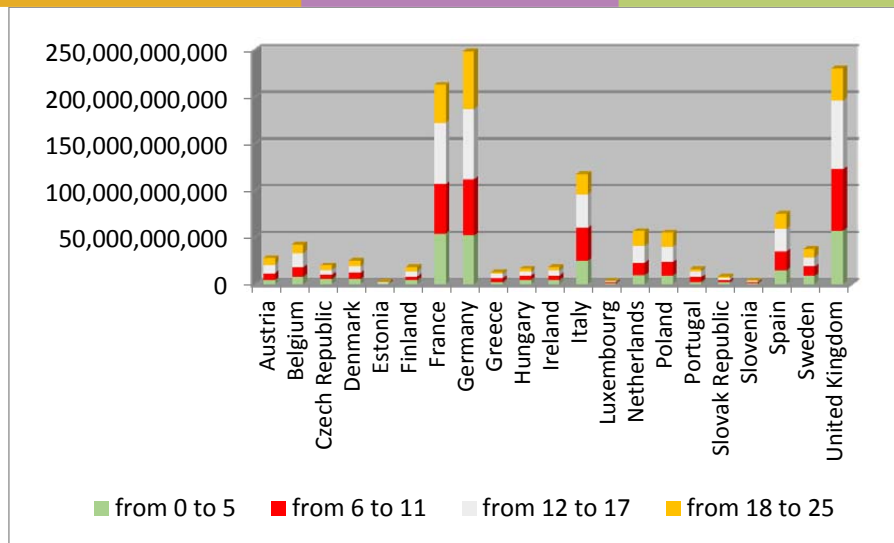
<sup>30</sup> Dominic Richardson (personal communication, 2017) provided us with very useful insides on interconnectedness in child well-being outcomes.



**FIGURE 4 ESTIMATED PER CAPITA SOCIAL SPENDING BY AGE GROUP FOR OECD EU MEMBER STATES IN 2013 (USD PPP) – SOURCE: OECD**

Presenting data on total spending on children and young people’s well-being is less straightforward. To do this, the OECD per capita expenditure by age data for 2013 has been combined with Eurostat population data by age for the same year. This provides a broad estimate of the scale of national spending on public services for children and young people’s by several EU Member States. The expenditure included in this analysis relates to welfare spending (cash benefits, tax breaks, and other benefits in kind) and education spending (childcare and compulsory schooling). It should be stressed that the underlying spending data are aggregated by OECD from the individual national budgets and there are a number of significant limitations around these data (the limitations of this approach are presented in (OECD 2009)). The resulting estimate of the total spending on children and young people’s well-being services aggregated by age group is presented in the figure below.





**FIGURE 5 ESTIMATED PUBLIC SPENDING BY AGE GROUP OF CHILDREN AND YOUNG PEOPLE’S FOR OECD EU MEMBER STATES IN 2013 (USD PPP) – SOURCE: OUR PROCESSING ON OECD AND EUROSTAT DATA**

Tables 10 and 11 in Appendix 2 present the estimated 2013 per capita public spending (USD PPP) by age of children and young people’s in the 21 EU Member States which were also OECD members in 2013 and the relevant population figures provided by Eurostat.

The data from the two tables above were used to obtain an estimate of the total spending on children and young people’s well-being which is displayed in the tables below both in USD PPP and in percentage terms for the age groups 0-5, 6-11, 12-17 and 18-25 years old. As it is possible to see, the total estimated 2013 public spending on children and young people’s well-being by the 21 EU Member States which were also OECD members in 2013 which we obtained as described above is about 1.25 trillion USD PPP.

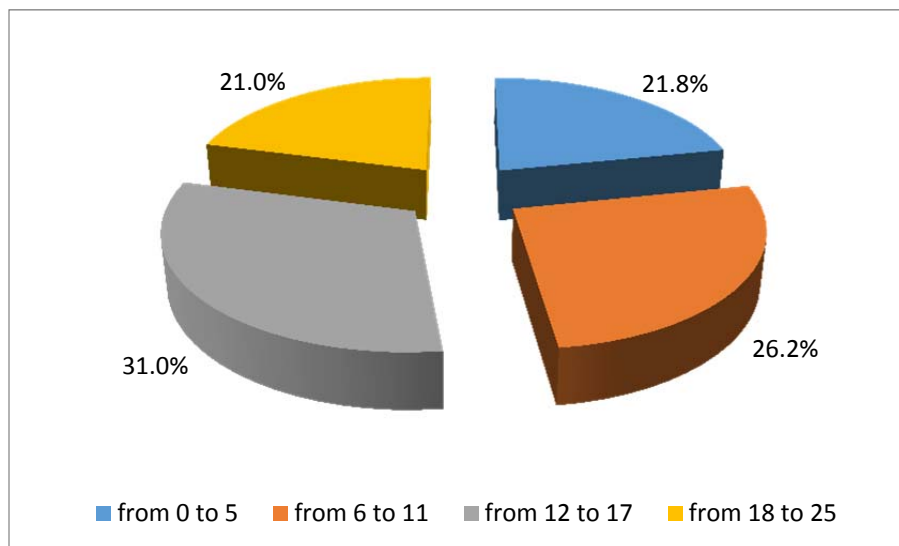
Country/Age group	from 0 to 5	from 6 to 11	from 12 to 17	from 18 to 25	Total
Austria	4.2	7.3	9.1	7.0	27.7
Belgium	7.7	10.2	14.9	9.6	42.4
Czech Republic	5.2	4.4	5.4	4.7	19.8
Denmark	4.9	6.9	7.1	6.1	24.9
Estonia	0.5	0.6	0.5	0.5	2.1
Finland	3.9	4.0	5.4	4.9	18.1
France	53.9	52.6	65.9	40.4	212.7
Germany	51.7	60.3	75.0	61.4	248.5
Greece	1.9	4.1	4.8	2.0	12.8
Hungary	4.4	4.4	4.2	3.2	16.3
Ireland	4.2	4.7	5.4	3.5	17.8
Italy	24.8	34.9	36.1	21.8	117.6
Luxembourg	0.8	1.1	1.1	0.5	3.5



Netherlands	9.4	13.3	17.8	15.9	56.4
Poland	8.9	14.6	16.4	15.2	55.1
Portugal	2.3	4.9	6.5	2.4	16.1
Slovak Republic	1.9	2.0	2.2	2.1	8.2
Slovenia	0.8	1.0	1.0	0.9	3.7
Spain	14.3	20.2	24.4	15.9	74.8
Sweden	8.7	10.0	9.8	8.8	37.3
United Kingdom	57.0	65.6	73.4	34.8	230.7
TOTAL	271.7	327.1	386.5	261.4	1,246.7

**TABLE 7 ESTIMATED PUBLIC SPENDING BY AGE GROUP OF CHILDREN AND YOUNG PEOPLE FOR OECD EU MEMBER STATES IN 2013 (BILLION USD PPP) – SOURCE: OUR PROCESSING ON OECD AND EUROSTAT DATA**

The distribution of the above spending by age group shows that 21.8 percent of it went for children from 0 to 5 years old, 26.2 per cent for the age group from 6 to 11, 31 percent for the age group from 12 to 17 and the remaining 21 percent for the age group from 18 to 25.



**FIGURE 6 PERCENTAGE DISTRIBUTION OF THE ESTIMATED PUBLIC SPENDING BY AGE GROUP OF CHILDREN AND YOUNG PEOPLE FOR THE OECD EU MEMBER STATES IN 2013 – SOURCE: OUR PROCESSING ON OECD AND EUROSTAT DATA**

A rough bottom line estimate of total spending on children and young people’s well-being for EU Member States which were not OECD members in 2013 (Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania) could be obtained by multiplying the number of residents of these countries belonging to each cohort from 0 to 25 displayed below times the corresponding 2013 per capita spending on children and young people’s well-being of Greece, which in that year was the OECD EU Member State displaying the

lowest overall level of this indicator. This would lead to a total estimate of further 46.3b USD PPP of yearly spending on children and young people's well-being.

The estimates presented above suggest a combined expenditure of around 1.3 trillion in 2013 USD PPP for the 28 EU Member States. At 2013 PPP<sup>32</sup>, this would amount to around €950b.

As the review of case studies about the actual and potential impact of longitudinal studies performed by the ECDP project points out,<sup>33</sup> it is difficult to pinpoint and quantify specific evidence of the actual instrumental impacts and to envisage potential instrumental impacts of longitudinal studies. Therefore, this study will not attempt to fully quantify the benefits provided to end-users by EuroCohort.

To show that EuroCohort represents an efficient use of the available resources from the point of view of society as a whole this study will rely mainly on an approach highlighting the very low incidence of the economic cost of EuroCohort over the total expenditure by EU Member States on children and young people's well-being. Therefore, our approach will be closer to a break-even analysis than to a traditional cost-benefit analysis.

### 5.3.1.2 Knowledge output

A very imperfect measure of knowledge output is given by publications and presentations at conferences. The value of a publication VP can be calculated as

$$VP = VNI + VI$$

where

VNI = social value of producing new information;

VI = social value of the degree of influence of this publication on the scientific community.

If we make the assumption that scientists are perfectly mobile across borders, it follows that the market for scientist is perfectly competitive. Therefore, the opportunity cost of her time can be assumed as equal to her average hourly compensation. Under this assumption, a reasonable proxy of VNI is her marginal production cost. This is a major contribution in terms of CBA of any RI. The importance of knowledge output in terms of CBA may experience a further increase in the case of surveys, because as we have already pointed out they may be regarded as labour intensive RIs.

<sup>32</sup> According to the OECD database, the PPP for the EU as a whole in 2013 was 1 USD = 0.734 euro.

<sup>33</sup> See Appendix 1.



According to European Commission (2007) the average yearly salary of an EU researcher in 2006 was almost €38k. That will be about 2018 €45.2k. To estimate the VNI generated by an RI following Florio and others (2016) it is possible to assume a 60 per cent share of time devoted to research activities by the average EU researcher and an average yearly productivity of 3 papers per year. Under the above assumptions the marginal production cost of an article can be roughly estimated in € 9k.

The dimensions of knowledge output produced from a Europe-wide longitudinal study like EuroCohort can be roughly predicted using the results of the ESS non-student user survey presented by Technopolis Group (2017). According to these results, ESS non-student users who have produced any outputs (e.g. reports, blog posts, articles, courses, books) using data and information obtained from the ESS have been 1,105.

A more complete assessment of the amount of ESS-based output can be obtained from the ESS database because users are required to log any output they have produced on this database. According to Technopolis Group (2017) on March 23, 2017 a total of 2,704 outputs have been logged on the ESS bibliography. Around half of these (1,373) were journal articles, while book chapters, edited volumes and conference papers/posters made up a further large portion of the total.

Table 5: Outputs logged on ESS bibliography (23 March 2017)

	Member/observer countries (2017)		All other countries		All		TOTALS
	2003-2012	2013-2018	2003-2012	2013-2018	2003-2012	2013-2018	
Journal articles	446	460	230	237	676	697	1373
Book chapters	156	87	69	31	225	118	343
Edited volumes	27	46	133	60	160	106	266
Conference papers/ posters	82	71	39	37	121	108	229
Report/ working papers	78	68	25	29	103	97	200
Newspaper/magazine articles	11	88	4	4	15	92	107
Books (monographs)	51	34	18	3	69	37	106
Theses, dissertations	32	22	13	11	45	33	78
Available manuscripts	1	1	0	0	1	1	2
<b>TOTALS</b>	<b>884</b>	<b>877</b>	<b>531</b>	<b>412</b>	<b>1415</b>	<b>1289</b>	<b>2704</b>

**TABLE 8 OUTPUTS LOGGED ON ESS BIBLIOGRAPHY ON MARCH 23, 2017 – SOURCE: TECHNOLIS GROUP**

Timing the 1,716 main outputs (journal articles and book chapters) logged in the ESS database for the unit value of €9k estimated above, it is possible to roughly estimate the VNI generated by the ESS-based output up to March 2017 in a little more than €15m.



The number of citations a paper will get can be used as a proxy for its degree of influence on the scientific community. The shadow price of a citation could be estimated as the opportunity cost of the time employed by a scientist to read and understand somebody else's paper and to decide to quote it.

After the mutual cancellation of RI scientists' papers and scientific labor costs, we can conclude that the benefit generated by the knowledge output can be measured by the sum of the value of citations that RI scientists' papers receive and the value of the subsequent waves of citations. This is probably a minor contribution in terms of CBA of our RI.

It is possible to start the process of estimating the benefit of knowledge output which could be generated by EuroCohort by noticing that according to Times Higher Education data quoted by Florio and Sirtori (2014) the average number of citations for a Social Sciences journal article is 4.67.<sup>34</sup>

According to Florio et al. (2016) the average time needed to evaluate someone else's paper and to decide to cite it is one hour. By multiplying the average number of citations for a Social Sciences journal article times the number of ESS-based outputs logged on the ESS database it is possible to estimate the social value of the degree of influence of ESS generated publications in about 12,600 hours of research work. Taking into consideration once again European Commission (2007) to estimate the average hourly wage of an EU researcher it is possible to divide his yearly salary for 1,720 hours per year of work, obtaining €22,10 per hour, which could be translated in about 2018 €26,20. Timing this amount by 12,600 it is possible to obtain a monetary evaluation of the degree of influence of the ESS-based output on the scientific community up to March 2017 in about €300k.

### 5.3.1.3 Technological spillovers

A longitudinal survey is not likely to produce the same technological externalities generated by capital intensive RIs. However, as Technopolis Group (2017) puts it, the ESS, which is a longitudinal survey like EuroCohort, has generated technological spillovers because "... has had considerable impact in terms of influencing the design of other surveys, acting as something of a benchmark. Eurofound's EQLS is one example of a major survey that has benefitted from benchmarking against the ESS."<sup>35</sup>

This idea is underpinned by the ESS user survey results. As it is possible to see from the table below, around 2/3 of the respondents believed that their use of ESS data or information had contributed to improved

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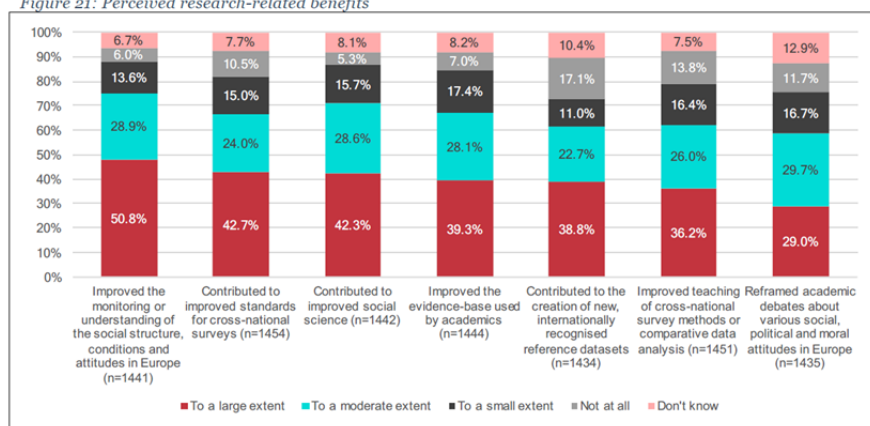
<sup>34</sup> Reference period: 2000-2010.

<sup>35</sup> Technopolis Group (2017) Page 3.

standards for cross-national surveys either to a large or moderate extent. Furthermore, more than 70 per cent of respondents believed that their use of ESS data or information had contributed to improved social sciences either to a large or moderate extent.

Up to this moment to our knowledge it is not possible to put a widely accepted monetary value on the technological spillovers generated by a longitudinal survey like EuroCohort. Therefore this project will not attempt to supply a figure that could be rightly exposed to heavy criticism. Further research is needed on this point.

Figure 21: Perceived research-related benefits



Survey item: "Based on your experience, to what extent has your use of ESS data or information led to the following academic and research-related benefits for you or other people in your field or work or interest?" (244 skipped)

FIGURE 7 PERCEIVED RESEARCH RELATED BENEFITS OF ESS – SOURCE: TECHNOLIS GROUP <sup>36</sup>

### 5.3.1.4 Human capital accumulation

EuroCohort will contribute to human capital accumulation in several different ways. On the one hand, students and young scientists who will spend a period working within EuroCohort will accumulate higher human capital relative to their peers. This human capital will take the form of both technical and scientific abilities (hard skills) and personal ones, like communication, negotiating and organizational capabilities (soft skills).

The present value of capital accumulation private benefits produced by the RI is the sum of the expected increase in lifelong salary that each of them will earn over her career compared with the without-the-project scenario.

<sup>36</sup> Technopolis Group (2017) Page 35.



On the other hand, like the ESS database also the EuroCohort one will supply an important resource to the academic community both because it will be used for creating new teaching materials and because it will be used directly for guided learning and independent dissertation work.

Technopolis Group (2017) highlights some of the benefits described above as generated by the European Social Survey ESS. According to this source the ESS provides an important teaching resource in many contexts: it is a useful tool for entry-level teaching, particularly in smaller countries that do not have many suitable alternative data sources to act as real-world teaching tools. Likewise, it is widely used at higher levels, both for guided learning and independent dissertation work (at master and PhD levels).<sup>37</sup> The latter can have significant positive effects. In a small survey of students conducted as part of Technopolis Group (2017) 83 per cent of respondents valued ESS either as 'quite important' or 'very important' for their studies, and large proportions reported a strongly positive impact on their ability to use data, their analytical skills and the quality of their work overall.<sup>38</sup>

The importance of the ESS as a teaching resource can be assessed noticing that almost one third of the active users have used its database to create teaching materials.<sup>39</sup> The role of ESS as a teaching resource is important also because there is a generational effect in ESS use: students become familiar with the ESS making it their natural go-to option later in their careers.<sup>40</sup>

Obviously, the contribution by a European Longitudinal Survey like EuroCohort to human capital accumulation cannot be quantified in advance because it will depend, at least partially, upon the ability of the national teams to disseminate the results produced both in academic and non-academic contexts.

### 5.3.2 Non-use benefits

In the most general possible terms, the social benefits not related to any known actual or future use of an RI BN can be expressed as the sum of two terms, which are the quasi-option value and the existence value:

BN = non - use benefits = quasi option value + existence value

where:

- Quasi-option value is the potential for unknown future use benefits.

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<sup>37</sup> Technopolis Group (2017) Page 1.

<sup>38</sup> Technopolis Group (2017) Page 4.

<sup>39</sup> Technopolis Group (2017) Page 3.

<sup>40</sup> Technopolis Group (2017) Page 81.

- The existence value is the value of pure knowledge, regardless of the fact that it might find some use in the future.

We are planning to assess non - use benefits generated by the ECPD project using relevant secondary data from the existing literature. Most likely, the quasi-option value of the pure knowledge generated by EuroCohort is not a relevant issue. Therefore, this term is not going to be discussed here. Our literature review shows that the existence value could be a more interesting issue. However, we leave it open for further research.

## 5.4 Costs

### 5.4.1 The social opportunity cost of public funds

Most likely, a large part of the cost EuroCohort will be met out of public funds. As Campbell and Brown (2003) put it, public funds can be obtained from taxes, borrowing or printing money. If the government is rational and informed it will use each of these sources up to the point at which its marginal cost is equal to the marginal cost of each of the other two. This implies that the marginal cost of public funds obtained through taxation is equal to the marginal cost of public fund obtained from any other source. Therefore, it is possible to consider the social opportunity cost of public funds equal to the social opportunity cost of tax revenues. The latter includes collection costs, which are the costs incurred by the public sector to collect taxes, compliance costs, which are costs of tax-form-filing incurred by the private sector and deadweight loss, which is the cost of the misallocation resources induced by the structure of the tax system.

Most studies of the marginal cost of public funds find that the opportunity cost of raising an additional euro of tax revenue is around €1.20.<sup>41</sup> Therefore, we will use this value to quantify the opportunity cost of the public funds that will be used to finance EuroCohort.

### 5.4.2 The Shadow Cost of EuroCohort

According to the Commission Implementing Regulation 2015/207 of 20 January 2015, the shadow (opportunity) costs of EuroCohort must be calculated by applying the relevant conversion factors to the financial costs reported above.

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<sup>41</sup> Campbell and Brown (2003).



Below we have calculated the opportunity costs of EuroCohort using only the financial to shadow cost conversion factor accounting for the opportunity cost of public funds. To do that we made the assumption that 80 per cent of the whole cost of EuroCohort will be met by public funds while the remaining 20 per cent will be met by private ones.<sup>42</sup> Under this assumption, the projected total opportunity costs of EuroCohort during its whole 29 years projected life span, obtained as detailed above, is about €1.1b. The main components of this cost are summarized in the table below. The figures displayed are undiscounted values expressed in 2018 euro.

	Cost (€)
Pilot	16.382.100
Incentives	29.639.327
Interviews	354.053.467
EU Central Team	128.528.000
Fixed costs of national agencies	444.488.800
National Coordination Team	136.068.000
Dress Rehearsal	33.129.600
Fundraising cost	29.541.964
<b>Total cost</b>	<b>1.171.831.258</b>

**TABLE 9 PROJECTED TOTAL SHADOW COST OF EUROCOHORT**

Beside the undiscounted EU central team's total opportunity cost of €128.5m,<sup>43</sup> we have produced Member State level economic cost estimates, which are displayed in the table below. The figures displayed are undiscounted values expressed in 2018 euro.

Member State	size	Cost level	Total Member State level shadow costs (€)	Average yearly Member State level shadow costs (€)
Austria	large	High	52.243.503	1.801.500
Belgium	large	High	67.714.418	2.334.980
Bulgaria	large	Low	13.664.710	471.197
Croatia	small	Low	13.664.710	471.197
Cyprus	small	Medium	26.524.307	914.631
Czech Republic	large	Low	18.094.225	623.939
Denmark	large	High	52.243.503	1.801.500
Estonia	small	Low	13.664.710	471.197
Finland	large	High	52.243.503	1.801.500

<sup>42</sup> Under this assumption EuroCohort would need to raise about €200m of private funds over its 29 years life span. For sake of completeness we need to notice that raising €200m of private funds will generate fundraising costs that, according to Rodriguez (2018), could amount to €30m. This amount will increase the financial total cost of EuroCohort calculated above from €984m to €1.014b (+3 per cent).

<sup>43</sup> In Appendix 2 we offer a possible funding scheme for the EU central team's total cost.

France	large	High	67.714.418	2.334.980
Germany	large	High	67.714.418	2.334.980
Greece	large	Medium	34.634.289	1.194.286
Hungary	large	Low	18.094.225	623.939
Ireland	large	High	52.243.503	1.801.500
Italy	large	Medium	34.634.289	1.194.286
Latvia	small	Low	13.664.710	471.197
Lithuania	small	Low	13.664.710	471.197
Luxembourg	small	High	52.243.503	1.801.500
Malta	small	Medium	26.524.307	914.631
Netherlands	large	High	67.714.418	2.334.980
Poland	large	Low	18.094.225	623.939
Portugal	large	Medium	34.634.289	1.194.286
Romania	large	Low	18.094.225	623.939
Slovakia	large	Low	13.664.710	471.197
Slovenia	small	Medium	26.524.307	914.631
Spain	large	Medium	34.634.289	1.194.286
Sweden	large	High	67.714.418	2.334.980
United Kingdom	large	High	67.714.418	2.334.980

**TABLE 10 PROJECTED MEMBER STATE LEVEL SHADOW COSTS OF EUROCOHORT BY COUNTRY**

## 5.5 Results

As Campbell and Brown (2003) points out, cost and benefits estimates tend to be based on the assumption of a constant price level and unchanged relative prices. This approach is coherent with the Commission Implementing Regulation 2015/207 when it states that the economic analysis should be carried out in constant accounting (shadow) prices. Therefore, here we carry out our analysis in constant prices.

From the above it is possible to conclude that the average yearly undiscounted shadow cost of EuroCohort can be quantified in about €40m. That means that the order of magnitude of this figure is 7.

As it has been shown above, the total yearly expenditure by EU Member States on children and young people's well-being can be estimated in almost € 1 trillion.<sup>44</sup> Therefore, the order of magnitude of this expenditure is almost 12.

<sup>44</sup> We decided to use the 2013 level of expenditure because at the moment these are the only comparable data available at the EU level.



As a consequence, it is possible to conclude that the yearly cost of the survey is almost 5 orders of magnitude smaller than the overall 2013 yearly expenditure by EU Member States on children and young people's well-being.

However, within a cost-benefit analysis framework we need to consider that there will be a lag between the timing of the survey's costs and the one of the occurring of its benefits. This lag will arise because EuroCohort will start generating costs from the beginning of year 1, while its benefits will not materialize for several years. The reasons of the latter are twofold:

- the information content of a longitudinal survey grows with each wave of interviews. Therefore, it may need several years to reach the threshold level at which it will be able to influence the decision-making process;
- the decision-making process can have a relevant inside lag. Once EuroCohort has reached the information threshold level necessary to influence the decision-making process, it may take time until actual decisions informed by this longitudinal survey will be born.

In order to account for the above, we consider a lag of six years between the beginning of EuroCohort and the time its benefits will start to materialize (that is from 2027 onwards). To keep our calculations simple, we consider a 4 per cent social discount rate. This value is the unweighted average of the social discount rates for Cohesion and non Cohesion Member States (5 per cent and 3 per cent respectively) set as a general rule by the Commission Implementing Regulation 2015/207 of 20 January 2015.

Our results show that in order to get a positive Net Present Value NPV the survey will need to generate about €59m of average benefits per year starting from year 6.

The above is suggesting that only improvements in the effectiveness of Member State expenditure on child and young people's well-being of 1 over 17k of their 2013 total spending on this subject would need to be affected by the availability of longitudinal survey data for the PV of the benefits of EuroCohort to outweigh the PV of its costs.<sup>45</sup> It needs to be stressed that the potential for such improvements is not evenly spread between Member States; some Member States (notably the UK, Germany and Ireland) already commission

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<sup>45</sup> Furthermore, we need to stress once more that to consider benefits of EuroCohort over expenditure on children and young people's well-being ratio is just a cautious bottom-line approach, because this expenditure is likely to have longer-term impacts, so policies that improve children and young people's well-being should also bring savings in adult services such as health and social care, and improvements in adult's productivity.

several longitudinal and other surveys while others do not currently have access to such data. This result is fully consistent with the first key finding highlighted by our review of case studies on the impact of longitudinal studies. It also needs to be stressed that the expenditure by EU Member States on children and young people's well-being data we have used do not include health expenditure. Therefore, the above result does not consider the positive health effect of the improvement in the effectiveness of Member State expenditure on child well-being EuroCohort will generate.

There are still important opportunities to improve the effectiveness of the expenditure by the 28 EU Member States on children and young people's well-being. To the best of our knowledge we do not have examples of CBA-CEA regarding to social spending in the EU. However, the Childonomics project (2017) represents a very important step in this direction.

With regard to the US, Aos et al. (2004) contains a literature review on prevention and early intervention programs for youth evaluation conducted, generally in the United States, since 1970. As to September 2004, some of those programs could give to taxpayers a good return for their money. However, some other of them fails to generate more benefits than costs. Therefore, the efficiency of the expenditure on children and young people's well-being could be improved by switching resources from the latter to the former.

Schweinhart (2016) takes into consideration several U.S. Early Childhood Care & Education ECCE programs and coherently with Aos et al. (2004) concludes that only high-quality ECCE programs display a return of investment which is large enough to allow affirming that they are socially desirable from the point of view of the efficient use of the available resources

Obviously, the above conclusions about improving the efficiency of the expenditure on children and young people's well-being in the US by switching resources cannot be applied directly to EU Member States because of the differences between the US and the 28 EU's Member States social conditions. However, the results presented below suggest that most likely there is room for improving this efficiency also within the EU.

## 5.6 Sensitivity analysis

According to the Commission Implementing Regulation 2015/207 of 20 January 2015, sensitivity analysis, which determines the critical variables or parameters of the model (i.e. those whose variations, positive or



negative, have the greatest impact on the project's performance indicators), shall take the following aspects into consideration:

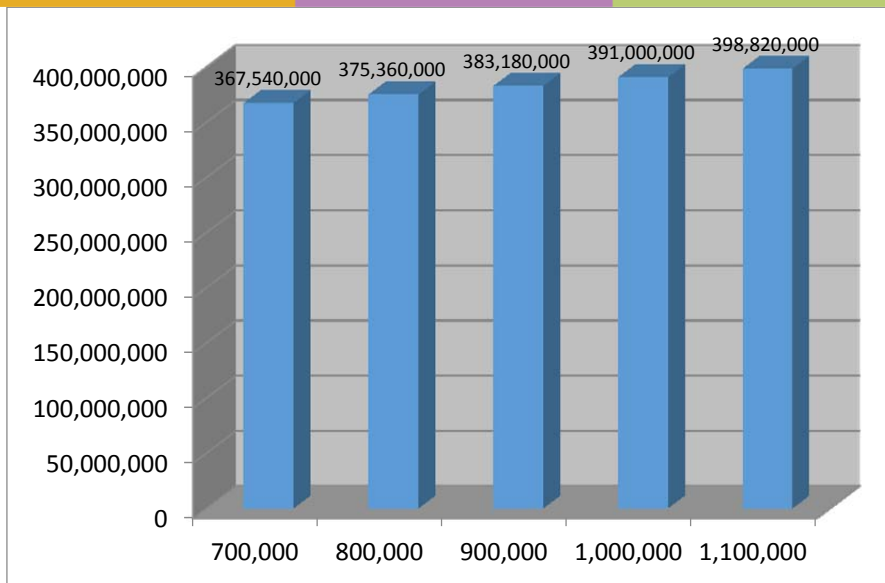
- the critical variables are the ones whose 1 per cent variation results in more than 1 per cent variation of the NPV;
- the analysis is carried out by varying one element at a time and determining the effect of that change on the NPV;
- the switching values are defined as the percentage change the critical variable should assume to make the NPV equal to zero;
- scenario analysis allowing the study of the combined impact of determined sets of critical values and in particular, the combination of optimistic and pessimistic values of a group of variables to build different scenarios, which may hold under certain hypotheses.

We consider as a critical variable for sensitivity analysis purposes the yearly cost of the national team in high cost countries. Changes in the magnitude of this figure will lead to proportional changes in the yearly cost of national teams both in medium and low cost countries according to the proportions stated in the relevant sections of this deliverable. To decide the interval of the values of this variable to be considered in our analysis, one could notice that the main EU reference documents about CBA, which are the Commission Implementing Regulation 2015/207 of 20 January 2015 and the Guide to Cost-Benefit Analysis of Investment Projects published by the European Commission in 2015, do not provide any indication about this issue.

To the best of our knowledge, the single document providing at least a general indication about the width of the interval of variation of a critical variable to be considered by a sensitivity analysis is the Guidelines for Investment Appraisal produced by the Italian Ministry of Transport and Infrastructures. According to this document, the sensitivity analysis usually must be performed by varying the value of the critical variables by +/- 10 per cent and +/- 25 per cent. Therefore, this document will consider the effects of variations of the value of the selected critical variable by +/- 10 per cent and +/- 25 per cent.

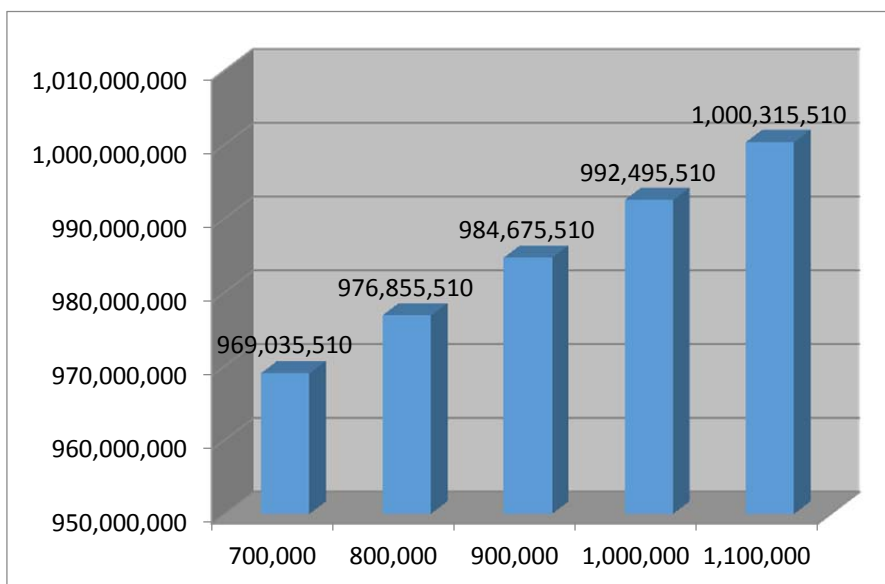
The figure below displays the effects of variations of the yearly fixed financial cost of national agencies in high cost countries from €700k to €1.1m on the undiscounted total financial cost of the national teams over the whole 29 years life span of EuroCohort.





**FIGURE 8 EFFECTS OF VARIATIONS OF THE VALUE OF THE YEARLY FIXED FINANCIAL COST OF NATIONAL AGENCIES IN HIGH COST COUNTRIES ON THE UNDISCOUNTED TOTAL COST OF THE NATIONAL TEAMS**

The figure below displays the effects of the same variations of the fixed financial cost of national agencies in high cost countries on the undiscounted total financial cost of EuroCohort over its whole 29 years life span.



**FIGURE 9 EFFECTS OF VARIATIONS OF THE VALUE OF THE YEARLY COST OF FIXED FINANCIAL COST OF NATIONAL AGENCIES IN HIGH COST COUNTRIES ON THE UNDISCOUNTED TOTAL COST OF EUROCOHORT**

At this stage the true mix of private and public funds that will finance EuroCohort is still unknown. Therefore, this sensitivity analysis needs to account for the effects of changes in the incidence of public funds over the total cost of EuroCohort falling within the interval between 70 and 90 per cent.

The following table summarizes the undiscounted total opportunity cost of EuroCohort during its whole 29 years projected life span when the incidence of public funds over the total cost of EuroCohort increases from 70 to 90 percent. As it is possible to see, as the incidence of public funds over the total cost of EuroCohort increases from 70 to 90 percent the undiscounted total opportunity cost of EuroCohort during its whole 29 years projected life span increases from €1.12b and €1.16b.

% of public funds	70 per cent	80 per cent	90 per cent
Pilot	16.099.650	16.304.148	16.664.550
Incentives	29.128.304	29.801.565	30.150.350
Interviews	347.949.096	354.053.467	360.157.837
EU team	126.312.000	128.528.000	130.744.000
Fixed costs of national agencies	436.825.200	444.488.800	452.152.400
National Coordination Team	133.722.000	136.068.000	138.414.000
Dress Rehearsal	32.558.400	32.979.612	33.700.800
Fundraising cost	44.312.947	29.541.964	14.770.982
Total cost	1.166.907.598	1.171.831.258	1.176.754.919

**TABLE 11 PROJECTED TOTAL OPPORTUNITY COST OF EUROCOHORT WHEN THE INCIDENCE OF PUBLIC FUNDS OVER THE TOTAL COST INCREASES FROM 70 TO 90 PER CENT (€)**

We have repeated our CBA using the above values of the incidence of public funds over the total cost of EuroCohort. Our results show that as the incidence of public funds over the total cost of EuroCohort increases from 70 to 90 per cent in order to get a positive Net Present Value NPV EuroCohort will still need to generate about €59m of average benefits per year starting from year 6 (that is from 2027 onwards). Therefore we can conclude that a reasonable change in the incidence of public funds over the total cost of EuroCohort would not affect our conclusions in a significant way.

## 6. Conclusions

This report presents the results of work package 3. In this work package we have developed three main tasks: a) establish realistic estimates for the construction of, and ongoing annual costs, for each EU member states to undertake EuroCohort using information about the sample size, frequency of data collection and staff costs (following the sample design presented in D8.1). In addition, estimate the funding requirements



for the survey hub team; b) extend the MYWEB CBA, using available information about the spending on child well-being across EU member states; c) develop case studies which clearly show the benefits of longitudinal data in understanding and responding to social issues (in particular but not exclusively) relating to children. The case studies have been chosen based on a literature review and with the help of partners in the consortium.

In a nutshell, the cost benefit analysis (using a break-even approach) which is presented in the report suggests that improvements in the effectiveness of Member States' expenditure related to child well-being (due to the availability of new longitudinal survey data provided by EuroCohort) of a measure around 1 over 17k would be sufficient for the benefits of such a survey to outweigh the financial costs. It needs to be stressed that the potential for such improvements is not evenly spread between Member States; some Member States (notably the UK, Germany and Ireland) already commission several longitudinal and other surveys while others do not currently have access to such data. This result is fully consistent with the first key finding highlighted by our review of case studies presenting the impact of longitudinal studies. The results of this report emphasise the importance of investing resources (private and public) in order to achieve a better understanding of children and young adults' well-being as a reference for policy makers and various stakeholders (academic, practitioners and so forth), both at the European and national levels, which was also a key finding of MYWeB project.

The analysis conducted here is not only relevant for the survey design (WP8) and the costing of the pilot (WP9) but also for the general objective of reaching out for policy makers and funders (WP4). In this respect, the costing exercise we have proposed is also to be read in connection with the governance structure of EuroCohort (WP5). In conclusion, this report provides, in our opinion, a coherent framework for the business case of EuroCohort and its future implementation.

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## APPENDIX 1

### The policy impact of longitudinal research: Five case studies

Policy impact case study 1: British Cohort Study 1970

Policy impact case study 2: European Social Survey

Policy impact case study 3: Germany's National Education Panel Study

Policy impact case study 4: Young Lives

Policy impact case study 5: Millennium Cohort Study

Understanding the Potential Impact of EuroCohort







# The impact of longitudinal research

## Policy impact case study 1: British Cohort Study 1970

[www.eurocohort.eu](http://www.eurocohort.eu)

### The policy impact of the *British Cohort Study 1970*

The UK is a world leader in longitudinal studies, with many decades of investments in a range of different surveys (Davis-Kean et al, 2017), and UK birth cohort studies set the standards by which similar surveys are conducted internationally.

#### The BCS70 at glance:

##### The British Cohort Study

is based at the Institute of Education and managed by the Centre for Longitudinal Studies, both at University College, London.

**Funding:** The study is funded by the UK's Economic and Social Research Council.

**Duration:** 1970 – Present

One survey which has been particularly impactful is the **British Cohort Study**. Over and above the significant body of academic research generated by the British Cohort Study, there are three key areas of policy impact:

#### Education

Analysis by Leon Feinstein found that bright **children from poor families were overtaken by less able children from affluent backgrounds by age 6**, and that there was no evidence that school entry made any difference.

- David Halpern, former chief analyst in the Prime Minister's Strategy Unit under Tony Blair, states that Feinstein's analysis was **pivotal in government decisions around extra spending on pre-school education** (O'Leary & Fox, 2018).

- The analysis was also used to make the case for higher spending in the government's *Every Child Matters* Green paper in 2003 (IoE, 2010).

#### Children at Risk

Findings from the British Cohort Study (and other birth cohort study) demonstrates the **effects on later life of adverse childhood experiences**. **Policy makers from across government** draw on this analysis to focus services to identify and support those children most at risk (Davis-Kean et al, 2017).

#### Reading Behaviour

Alice Sullivan and Matt Brown analyse **reading behaviour of children** using the BCS70.

- They find that (i) children between the age of 10 and 16 who read for pleasure made more progress in maths, vocabulary and spelling than those children who rarely read, and (ii) this was more important to children's cognitive development than their parents level of education.
- Their research was highlighted both in the **British Labour Party's education policy review** in 2014, and in the UK's Department for Education policy document *Reading; The next steps. Supporting Higher Standards in Schools* (IoE, 2015).





## The wider impact of the *British Cohort Study 1970*

*“When people ask me, ‘does social science evidence ever change policy?’ a particular incident springs to mind. In the context of a broad-ranging discussion on education and skills, with a thick set of analytical material in front of us, one of the Ministers present tore out one of the Strategy Unit’s slides and – leaning forward to put it in front of the Prime Minister declared ‘...but what are we going to do about this?. The slide.....showed how the cognitive ability of bright children from poorer backgrounds appeared to be overtaken by that of much less able children from affluent backgrounds long before they ever entered school. within a year more than £500k was assigned to build a programme of pre-school provision for the UK”*

**Halpern (2008) cited in O’Leary and Fox (2018).**

The British Cohort Study has contributed to policy debates, parliamentary inquiries, and wider discussions around a number of different policy areas including education, social care, primary health care, and public health.

The study is referenced in a number of highly influential government inquiries and reports.

With its siblings, the National Child Development Study and the Millennium Cohort, the British Cohort Study has been a key source of evidence for:

- the Warnock Committee on Children with Special Educational Needs,
- the Independent Inquiry into Inequalities in Health,
- the Moser Committee on Adult Basic Skills,
- the Milburn Inquiry,
- the National Equality Panel,
- and the Marmot Review of Health Inequalities.



The British Cohort Study is referenced in several policy documents, under both Labour and Conservative governments.

## British Cohort Study 1970

**The British Cohort Study** is one of three cohort studies that together have generated **over 2000 research publications** that have provided insights into how **health, education, and family backgrounds of children have lasting impacts on their later-life outcomes.**

**The British Cohort Study (BCS70)** follows more than 17,000 people born in England, Scotland and Wales in a single week of 1970. There have been nine 'sweeps' of all cohort members at birth, ages 5, 10, 16, 26, 30, 34, 38, 42 and 46.

The BCS70 has collected information on health, physical, educational and social development, and economic circumstances among other factors.

### Key findings from the study include:

- Cohort members with lowest literacy levels at age 34 were twice as likely to report poor physical health;
- Parents' interests in children's education is a significant predictor of education attainment;
- Children's development is not affected by their mothers working during their first year of life;
- Children's cognitive development is affected by poverty: bright children from poorer backgrounds are overtaken by less able children from affluent backgrounds by age 6;
- Graduates are less depressed, healthier and less likely to require social security benefits than non-graduates;
- There is little evidence of social mobility increasing in the second half of the 20<sup>th</sup> century.

# BCS70

## 1970 British Cohort Study

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## The policy impact of the *European Social Survey*

The European Social Survey (ESS) is a world-leading example of how a cross-national, time-series survey should be conducted in order to ensure cross-country comparability

### The ESS at glance:

**The European Social Survey** coordinated by City, University of London, and the project's Director is Professor Rory Fitzgerald.

**Funding:** Its funding is provided through an annual membership fee paid by each participating country and amounts to around 2,3 million Euros per annum for financial years 2013 to 2017 (ESS ERIC, 2016).

**Duration:** 2001-Present

The European Social Survey has proved effective in influencing both the academic and non-academic world: the data it provides constitutes a powerful tool for assessing the changes in beliefs, values and attitudes across European countries (Kolarz, et al., 2017).

### Estonian Strategy for Children and Families

The ESS played a significant role on the design of “*Strategy of Children and Families 2012-2020*” at the **Estonian Ministry of Social Affairs**.

- The strategy relied on indicators constructed with ESS data;
- Estonian policymakers employed ESS in order to better understand the attitudes towards child-rearing in Estonia relative to other European countries.

### Austrian Social Affairs and Welfare Policies

The **Austrian Ministry for Labour Social Affairs and Consumer Protection** (BMASK) co-funds the ESS with the intention of using the data, partially due to a lack of national level data (Technopolis Group, 2017).

- The **Department of General Social Policy Affairs** at the BMASK has employed the ESS as the core Austrian data source for monitoring welfare attitudes since 2009.
- The BMASK used ESS data in the press release to provide supporting evidence for the ministry's argument not raising the pension age.

### Lithuanian Action Plan for Citizenship Education

The analysis using ESS data was a crucial input in the formulation of the “*Lithuanian Action Plan for Citizenship Education 2016*” – a joint project of several **Lithuanian governmental institutions and Ministries**.

- It was among the main driver to justify the need for a new approach to facilitating civic engagement among Lithuanian youth.
- The ESS data was employed because members involved in developing the Action Plan recognized the need to analyse Lithuania within the European context



## The wider impact of the *European Social Survey*

*“...the ESS has contributed to the development and implementation of the Estonian children and family policy by providing policymakers with relevant background information on the Estonian position on several indicators, particularly around parents’ awareness about, and attitudes towards, child-rearing. The ESS is considered especially valuable because it provides an opportunity to compare Estonia’s performance with other European countries.”*

### **ESS Eric Impact Case study**

Technopolis (2017)

### Estonian Strategy for Children and Families

In **Estonia**, the ESS data has continued contributing to the implementation of the “*Strategy of Children and Families 2012–2020*” (Technopolis Group, 2017).

- The indicators derived from the ESS now provide essential data for monitoring the Strategy implementation and comparing Estonia’s performance with other European countries.
- The **Department of Children and Families** has used evidence derived from the ESS as background information in their public presentation and in response to inquiries from the media.
- The findings using ESS data on parenting practice and corporal punishment against children has also triggered internal policy discussion within the Ministry around the issues.
- It is considered that the ESS has raised the public awareness about positive parenting and child rights among Estonian.

### NordMod 2030

*NordMod 2030* – a **pan-Nordic research project** analysing the Nordic model – has used the ESS data for reflections on central issues including trust and life satisfaction and satisfaction with public services in Nordic nations (Technopolis Group, 2017).

- NordMod 2030, underpinned in crucial parts by the ESS, is the basis for major agenda settings for the future of social democratic perspective in Nordic countries.
- NordMod 2030 has constituted the foundation for the *Sørmarka Declaration* by the **Nordic Workers’ Congress** – a political answers to the challenges and a political manifesto to the future of the Nordic model.



## European Social Survey

“Access to high quality comparative data will help us to improve our understanding of the profound social, political, economic and demographic changes occurring in Europe as well as the relationship between Europe and the rest of the world.”

**Máire Geoghegan-Quinn**, then European Commissioner for Research, Innovation and Science (quoted in ESS ERIC, 2017)

**The European Social Survey (ESS) is a cross-national survey established in 2001 and conducted every two years in more than 20 European countries.**

It investigates the **attitudes, beliefs and social structure** of citizens in Europe. The first round took place in 2002, involved at least 22 countries; Round 9 is being carried out in 2018 and includes 28 countries. The original questionnaire is written in British English and then translated into national language used as first language by at least 5 per cent of the population.

The survey consists of two parts:

- The core module aims at detecting and monitoring key issues of European society and provide information on the changing values and attitudes in Europe;
- There are also two rotating modules which change from round to round and focus on specific topics concerning European societies, such as immigration, personal and social well-being, welfare attitudes.

On November 2013, the European Commission awarded the ESS the status of **European Research Infrastructure Consortium (ERIC)**, which represented a crucial step for ensuring the survey’s long term funding horizon (European Commission, 2013).



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### The policy impact of *Germany's National Education Panel Study*

The National Educational Panel Study (NEPS) is one of the largest longitudinal studies in Europe and has been a fundamental source of data for studying competence development, educational trajectories and its underlying mechanisms.

#### The NEPS at glance:

**The National Education Panel Survey** is based at Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg.

#### Funding:

From 2009 to 2013: the NEPS is funded by the German Federal Ministry of Education and Research (BMBF) as part of the Framework Program for the Promotion of Empirical Educational Research

From 2014-present: the NEPS is funded by the BMBF (50%) and the German Federal States (Bavaria: 25%, other states: 25%).

**Duration:** 2009-present

#### Germany's National Educational Panel Study

Germany's Federal Ministry of Education and Research, in response to the needs for longitudinal data to answer policy-relevant questions and to provide evidence-based advice to the Ministry, has funded the first phase of NEPS (2009-2013) and remains its major backer since then. NEPS data have been extensively used for measuring and reporting educational achievements in Germany.

#### National education monitoring

**Germany's Standing Conference of Ministers of Education and Cultural Affairs** has promoted NEPS as a part of the comprehensive strategy for national education monitoring. The strategy aims at ensuring that political action on educational issues is data-driven and research-oriented to promote higher educational attainments in Germany (OECD, 2014).

#### Evaluating and informing educational reforms

In 2011, the **German Research Foundation** established Priority Programme, "Education as a Lifelong Process", to support NEPS-based research from 2012 to 2019. Within the Programme, two projects conducted by the NEPS team has informed policymakers about the impact of federal educational reforms in two Federal States – **Thuringia** and **Baden-Wuerttemberg**.



## The wider impact of *Germany's National Education Panel Study*

*The German National Academy of Sciences Leopoldina (2016) stresses three key functions served by longitudinal studies:*

- *they are the most fit to documenting the changes happening in societies over time;*
- *only surveying the same individual over time social scientists are able to deduce the correct cause-effect relationships among significant aspects of peoples' lives*
- *longitudinal surveys are an excellent tool for monitoring and forecasting and are hence a fundamental ally in policy-making.*

NEPS data are used for monitoring and reporting on the state of German's educational system (see the *Report on Vocational Education and Training (2017)* for a recent example in English language).

### Assessing the Effects of Educational Reforms

The NEPS team has conducted two projects assessing and informing policymakers about the effects of federal educational reforms.

- The former examines the organizational reform study of the upper Gymnasium level in **Thuringia**.
- The latter focuses on the G8 reform study in **Baden-Wuerttemberg** where "the introduction of the eight-year high school stream was considered controversial by politicians and the public, partially because of the lack of empirical data supporting the decision" (Hübner et al., 2017).
- Using data from NEPS, the researchers find mixed evidence of the impact of the reform on students' achievements and well-being.

### Monitoring Education in Germany

NEPS is part of the comprehensive strategy for educational monitoring promoted by Germany's **Standing Conference of Ministers of Education and Cultural Affairs (KMK)**.

- In this context, the Leibniz Institute for Educational Trajectories, which carries out NEPS has been founded in order to provide relevant longitudinal data.
- NEPS collaborates to write the report "*Education in Germany*" which provides a detailed picture of the conditions of the German educational system every two years (Leibniz Institute for Educational Trajectories, 2018).





## Germany's National Education Panel Study

The National Educational Panel Study (NEPS) is a longitudinal study on education in Germany from 2010 and is one of the largest panel studies in Europe.

NEPS follows more than 60000 participants belonging to six cohorts (and additional 40000 context persons) and aged 0 to 67 years are surveyed on a yearly basis.

The six cohorts include: infants, 4 year-olds enrolled in kindergarten, 10- to 11-year-olds attending fifth grade, 14- to 15-year-olds in ninth grade, first-year undergraduate students in higher education, and 23- to 64-year-old adults (NEPS, 2012).

Collecting data on six cohorts covering all educational phases has made NEPS one of the richest panel studies in Europe.

***The scientific community and German policy-makers both strongly agree that longitudinal studies are the only ones to reconstruct how educational attainments unfold over the life course and how they relate to critical transitions in each person's educational path*** (Wissenschaftsrat, 2013).

NEPS is located at **Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg**. The study is currently managed by Prof. Dr. Cordula Artelt and was previously managed by Prof. Dr. Hans-Günther Roßbach from 2012 to 2017. The Consortium is composed 20 partners from Germany in a multidisciplinary cluster of academic excellence. Approximately 46 million euros were spent for data collection costs, while the personnel costs amounted to around 14 million euros (Wissenschaftsrat, 2013).



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### The policy impact of *Young Lives*

Young Lives has been extensively used in a number of high-impact publications and by major global institutions that have had, or will have, influence on global policy. The longitudinal study is conducted in four developing countries: Ethiopia, India, Peru and Vietnam from 2001 to 2016.

#### Young Lives at glance:

**Young Lives** project is coordinated out of the Department of International Development at the University of Oxford.

**Funding:** Young Lives has been core-funded by the UK Department for International Development (DFID) and by the Netherlands Ministry of Foreign Affairs.

**Duration:** 2001 – 2016

#### Evaluating and Informing Cash Transfer Program

The Young Lives Peru data has been used to evaluate and induced changes in **Juntos – a conditional cash transfer program in Peru**.

- The research suggested that the program needs to be accompanied by improving access and quality of health and education services (Escobal and Benites, 2012; Andersen et al., 2015).
- The suggestions were taken by Juntos in revising its annual strategic plan as confirmed by Aurea Cadillo, Head of Planning & Budget of the program.
- From 2013, Juntos requires compulsory school enrolment from preschool to high school level and offers annual student bonus tied to high school graduation.

#### Legislative changes in child's protection laws

Studies on children's experience of violence using Young Lives data has been the core of the Multi-Country Study on drivers of violence (MCS) led by the **UNICEF Office of Research**.

- The analyses played crucial roles in leading to national legislative changes that bar corporal punishment in **multiple countries**.
- They include the issuance of *Law 30403* in **Peru** and the enactment of the *Child Protection Creed* in **Vietnam** (Young Lives, 2018).
- The *National Action Plans for Children* in four countries – **Italy, Peru, Vietnam** and **Zimbabwe**, have been partially informed by MCS research using the Young Lives data (Young Lives, 2018).

#### Issuance of Indian's Law on Child Marriage

Young Lives research on child marriage has direct and powerful impact on the issuance of an **Indian Supreme Court Judgement October 2017** on child marriage.

- Young Lives report on the cause and consequences of child marriage in India has been quoted at great length as supporting arguments for the Judgement (Indian Supreme Court, 2017).

## The wider policy impact of *Young Lives*

*“Thanks to the Young Lives study, JUNTOS have had a source of knowledge on the poverty impact in children. Their advice and technical assistance has helped us to clarify issues, and provide evidence to show how a cash transfer programme should function. JUNTOS has taken on board reflections and recommendations from some of the Young Lives findings in the revision of its annual strategic plan..”*

### **Aurea Cadillo**

Head of Planning and Budget at Juntos (2016)

### Global Institutions’ Strategies on Child’s Health

Young Lives research on nutrition using 15 years of data has made a discovery that there are points in later childhood and adolescence during which early deficiency in physical health and cognitive development can be reversed.

- The research findings has been incorporated into policy recommendations for tackling early health deficiency by major global institutions, including **UNICEF**, the **World Bank** and **Save the Children**.
- In 2016 and 2017, Young Lives research has informed **Save the Children’s** three-year Global Campaign “*Every Last Child*”, focusing on nutrition, excluded groups and adolescent girls.
- Save the Children also included Young Lives analysis into their report, “*Food for Thought*”, for the **G8 Summit pre-meeting 2013**.

### Banning Child Marriage in Ethiopia

Boyden et al. (2012) have used Young Lives Ethiopian data to show that child marriage is persistent and widespread in **Ethiopia** with strong support of social customs, parents and children themselves.

- In 2013, the **Ethiopian Ministry of Women, Children and Youth Affairs** (MoWCYA) then asked Young Lives team to comment on the “*National Strategy and Action Plan on Harmful Traditional Practices against Women and Children*” as well as participate in consultation workshops preparing the legislative draft.
- In 2016, Young Lives provided training to the MoWCYA staffs and moderated a disseminating workshop of the **Population Council** about Ethiopian adolescents and children



**Young Lives**



## Young Lives

**Young Lives is a multi-disciplinary longitudinal study of childhood poverty conducted in four developing countries: Ethiopia, India, Peru and Vietnam from 2001 to 2016.**

### Background to Young Lives Study

The study follows two cohorts of children over 15 years: the younger cohort consists of 2000 children born in 2001/2002; the older cohort consists of 1000 children born in 1994/1995.

- At the core of Young Lives is the household and child survey, conducted every three years, which covers topics related to the children's personal, familial and environmental contexts.
- The school survey, started in 2010, complements the core data by providing information on schooling outcomes.
- A subset of 200 children is selected for qualitative longitudinal research, conducted over a seven-year period, which provides a more in-depth perspective over the impact of poverty on children's lives.

The research project is coordinated out of the Department of International Development at the University of Oxford, led by Professor Jo Boyden.

Young Lives has been core-funded by the UK Department for International Development (DFID) (2006–09 £7 million; 2009–17 £16 million) and by the Netherlands Ministry of Foreign Affairs (2010–14: £2.7 million).

Additional funding came from the Bernard van Leer Foundation, the Children's Investment Fund Foundation, Irish Aid, the Oak Foundation, the Royal Norwegian Embassy in Hanoi, UNICEF Office of Research-Innocenti, and the William and Flora Hewlett Foundation (University of Oxford, 2014).

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## The policy impact of the Millennium Cohort Study

UK is a world leader in longitudinal studies, with many decades of investments in a range of different surveys (Davis-Kean et al, 2017), and UK birth cohort studies set the standards by which similar surveys are conducted internationally.

### The MCS at glance:

**Millennium Cohort Study** is based at the Institute of Education and managed by the Centre for Longitudinal Studies (CLS) at University College London (UCL).

**Funding:** The MCS is funded by Economic and Social Research Council (ESRC) and a consortium of government departments.

**Duration:** 2001-Present

The Millennium Cohort Study findings have directly led to changes in healthcare policies, and been referred to in numerous policy documents, both by the U.K. government and global organizations.

### Breastfeeding

The MCS data have shown that breastfeeding has protective effects against diarrhea and respiratory infections.

- The **Department of Health** refers to the study findings in the introduction of its guideline on local breastfeeding support services. **National Institute for Health and Care Excellence (NICE), British Dietetic Association, and National Childbirth Trust** also frequently cite the findings in their guidelines.
- The **UK UNICEF's** flagship publication on breastfeeding has cited the findings extensively to provide empirical evidence and rationale for the implementation of the Baby Friendly Initiative Standards **by UNICEF and WHO in 134 countries.**

### Obesity

In response to the MCS findings of alarming rates of childhood obesity in Wales, the **Assembly Government in Cardiff** launched the *All Wales obesity pathway* paper. **Local Health Boards in Wales** now use the pathway paper as a benchmark and tool to monitor and evaluate the current implementation (Welsh Government, 2016).

### Immunisation

Data from the MCS in 2004 showed that 12% of MCS children were unimmunized against measles, mumps and rubella - 6% of them did not receive any immunization and 6% received one vaccine separately. Researchers at the University of College London have suggested tailored interventions to improve complete vaccine uptake. **NICE's 2009 guidelines for the National Health Services** have referred to these recommendations (UCL, 2014).





## The wider impact of the Millennium Cohort Study

*“[W]hen you read stories about how effective early intervention actually is or about the effects on a child of different patterns of parental work, they are likely to draw on analysis of the millennium birth cohort”*

**David Willetts**,  
then Minister of  
State for  
Universities and  
Science (quoted in  
UCL, 2014)

**The Millennium Cohort Study** is one of the three cohort studies at the Centre for Longitudinal Studies at UCL (alongside the 1958 National Child Development Study and 1970 British Cohort Study). Together these studies have provided data for **over 4,000 publications** that have generated insights into how health, education, and family backgrounds of children have lasting impacts on later-life outcomes. The study has been and certainly continues shaping public health policy and influencing policy thinking and public debate on poverty, social mobility and child development.

### Knowledge and Insight

- MCS data were used to **evaluate two major national programmes**, the Children’s Fund and Sure Start (IoE, 2010).
- The Millennium Cohort Study has served as a **model for longitudinal cohort studies** in other countries, contributing to academic knowledge on survey methodology and inspiring similar studies in New Zealand, France and Ireland.
- The CLS has recognised the value of media coverage and therefore the MCS findings have become a part of a **public debate**, which has helped to **demonstrate the value of longitudinal data to policy makers**.

## The Millennium Cohort Study

**“The primary aims of the MCS are to:**

- collect detailed longitudinal information on the early life circumstances of the children of the new century
- trace links to later outcomes and achievements
- generate insights that will help to improve the health, development and wellbeing of individuals in future generations.”  
(IoE, 2011)

**The Millennium Cohort Study is a benchmark for birth cohort studies globally. It has been following the lives of over 19,000 children born in the United Kingdom in years 2000 and 2001.** The children have been surveyed at ages of 9 months, 3, 5, 7, 11, 14 and 17 years and the survey intends to follow them into adulthood. It is the first longitudinal study to include all four countries of the United Kingdom. It covers diverse topic ranging from child and parental health, ethnicity, income, education and school choice to child behaviour, cognitive development and social capital

**Key findings from the studies using MCS data include:**

- Breastfeeding protects against infant hospitalisation for diarrhoea and respiratory tract infections and was associated with lower prevalence of overweight at 3 and higher cognitive scores at 3 and 5;
- Children from disadvantage backgrounds and minority ethnic families were educationally up to a year behind their most privileged peers already by age 3;
- At 14, children of mothers who had a degree were less likely to be overweight than the children of mothers with a low level of education;
- The level of vocabulary among 14-year-olds was higher among those who read for pleasure and those growing up in a home rich in books.

**Links between cultural factors and higher vocabulary scores for teenagers**

**Growing up in a home rich in books:**



**42% more** words than those from a home with very few books

**Reading for pleasure most days:**



**26% more** words than those who never read at all

**Figure 1.** Centre for Longitudinal Studies (2017, 20 November). *MCS Age 14 initial findings – Links between cultural factors and higher vocabulary scores for teenager* [digital image]. Retrieved from: [link](#)

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**EuroCohort is a proposed European longitudinal survey of children and young people's wellbeing.**

## ***Growing Up in Europe: EuroCohort***

**EuroCohort** will directly benefit children and young people by collecting both objective and subjective well-being measures which will be used to ensure that social policies are evidence based. Major themes covered in the survey include:

***Inequality, Learning, Digital Life and Lifestyle.***

The survey is currently being developed through the **European Cohort Development Project (ECDP)**, led by the Policy Evaluation and Research Unit at Manchester Metropolitan University (MMU) in the UK.

**Funding:** The study is funded under the European Union's Horizon 2020 research and innovation programme under grant agreement No 7770449.

The aim of EuroCohort is to provide deep, insightful, comparative and longitudinal data on the wellbeing experiences of children and young people across Europe. By doing so, researchers, governments and others might better understand – and take steps to improve – youth's life chances, outlook, happiness and wellbeing.

## **The Potential Impact of EuroCohort**

To understand whether and how EuroCohort might have such impact, researchers from MMU and University of Bologna (UNIBO) have developed a series of impact case studies. These examine the policy impacts that other longitudinal surveys have delivered.

These impact case studies explore how and in what ways these studies have effected government policies, by asking three important question:

- *How did the survey affect policy?* Did survey analysis directly lead to new or changed policies? Did it contribute to wider discussions on the need for policy change?
- *What type of knowledge or insight did the survey provide?* Did the survey provide insight into social problems? Of what policy interventions worked and did not work? Of how to make policies more effective?
- *Was the policy effective?* Is there any evaluation or other research evidence that the policy was effective and had a positive effect in the ways intended?



## APPENDIX 2

### Cost benefit analysis of EuroCohort

#### Additional material

A 2.1 Cost Benefit Analysis of EuroCohort

A 2.2 Literature Review

A 2.2.1 Cost-Benefit Analysis of children and young people's well-being projects

A 2.2.2 Policy impact of a longitudinal survey

A 2.2.3 Human capital accumulation

A 2.2.4 The existence value

A 2.2.5 The cost of mixed-mode data collection

A 2.3 A financing scheme for the EuroCohort EU central team

A 2.4 Tables and data





## 2.1 The appraisal of children and young people's well-being projects

Cost-benefit analysis CBA is an analytical tool that is used to appraise an investment project from the point of view of society as a whole. More precisely, CBA is a tool designed to appraise a project from the point of view of the efficient use of the available resources according to the Kaldor-Hicks criterion. According to this criterion, an investment project is desirable from the society's point of view if people benefiting from it could notionally compensate the losers for their losses with part of their gains and still be better-off than without the investment. To appraise a project CBA adopts a so-called **with-and-without** approach. The idea underlying this technique is to measure the differences between the world **with** the project and the world **without** the project, both in terms of opportunity cost of resources and of benefits generated, and to compare these differences.

CBA has been extensively used as an appraisal tool for several types of projects, among which there are transport infrastructure projects. However, the use of this appraisal tool for projects related to domains like culture, environment and scientific research remains uncommon.

"CBA is more commonly used in large infrastructure projects such as roads, railroads, airports and ports and less frequently in projects related to culture and leisure and scientific research. Germany, Ireland and Turkey are the only countries performing CBA for all type of projects." (OECD 2015).

It might be interesting to notice that only starting from 1993 applications for assistance from the Structural Funds started to require including "the results of prior appraisal of the medium-term economic and social benefits of the proposed measures commensurate with the resources to be deployed."<sup>1</sup> It seems also worth noticing that only Council Regulation (EC) 1164/94 establishing a Cohesion Fund explicitly requires that the projects to be financed by the Fund should contain a CBA. However, it was only with CBA Commission Implementing Regulation 2015/207 of 20 January 2015 that the main principles of conducting a CBA were established in a legally binding manner.

In recent years the use of CBA has been extended from civil infrastructure projects to Research, Development and Innovation infrastructure RI ones. The 2014 edition of the Guide to Cost-Benefit Analysis of Investment Projects, published by the European Commission, includes a chapter dedicated to the latter. However, that chapter is dedicated to capital intensive, physical realizations and it is therefore rather different from the aim of this report which is to apply the CBA technique to *EuroCohort*. This happens because one of the tasks included in the WP3 of the European Cohort Development Project ECDP is to extend the CBA of an Europe-wide longitudinal survey on children and young adults' well-being which has been already initiated by the FP7-MYWeB project.

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<sup>1</sup> Council Regulation (EEC) 2082/1993 of July 20, 1993, art. 14.1.

In 2013-2015 the European Investment Bank Institute financed the research project Cost-Benefit Analysis in the Research, Development and Innovation Sector. The aim of this project was identical to the one carried out by European Commission (2014) in terms of target investments.

A main idea emerging from the final report of this project<sup>2</sup> is that CBA for RI projects should be seen as a complement, not as a substitute for other evaluation methods of RI projects.

Florio and Sirtori (2014), focuses on capital intensive Research Infrastructures RI and explicitly excludes all surveys from the definition of RI, since the service they provide is more labor, rather than capital, intensive.

According to Florio et al. (2016) typical RIs share a number of constituent features. They are:

- Based on tangible assets;
- High capital intensive facilities;
- Major facilities;
- Long lasting facilities.

The above features are common for traditional infrastructures in other sectors, like transport. For this reason, according to these authors the use of a CBA framework seems particularly appropriate. They feel that the justification of a CBA framework for surveys is less robust for lack of the above features. However, their approach contains a few insights which can be useful also in our case.

To appraise ex-ante a European longitudinal survey from a social viewpoint using a CBA framework is not going to prove to be an easy (or maybe even a feasible) task. This difficulty will have several origins. One of them is that for some social programs the most significant benefits do not accrue until some years after the program has ended. This is especially true for programs that intervene early in the lives of children and their families. Therefore in this case uncertainty associated with future benefits (often projected on the basis of observed outcomes) needs to be recognized and considered. Also, the cost of a program may vary from market to market as a result of differences in wages and the prices for other goods and services. The values associated with the various program benefits may also differ across countries.<sup>3</sup>

Finally, it is worth noticing that an important goal of government spending on children and young people's well-being is to improve the social and economic prospects of disadvantaged children and that CBA is not suited to assess the distributional effects of a project or a policy. This is an intrinsic shortcoming to the use of this tool to appraise government spending on children and young people's well-being and, as a consequence, to appraise *EuroCohort* from the point of view of the efficient use of the available resources.

## 2.2 Literature Review

In this section we are going to present a short literature review of different projects and published works addressing CBA and, more broadly, appraisal of policies aimed at improving children and young people's well-being.

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<sup>2</sup> Florio et al. (2016).

<sup>3</sup> Karoly (2008).

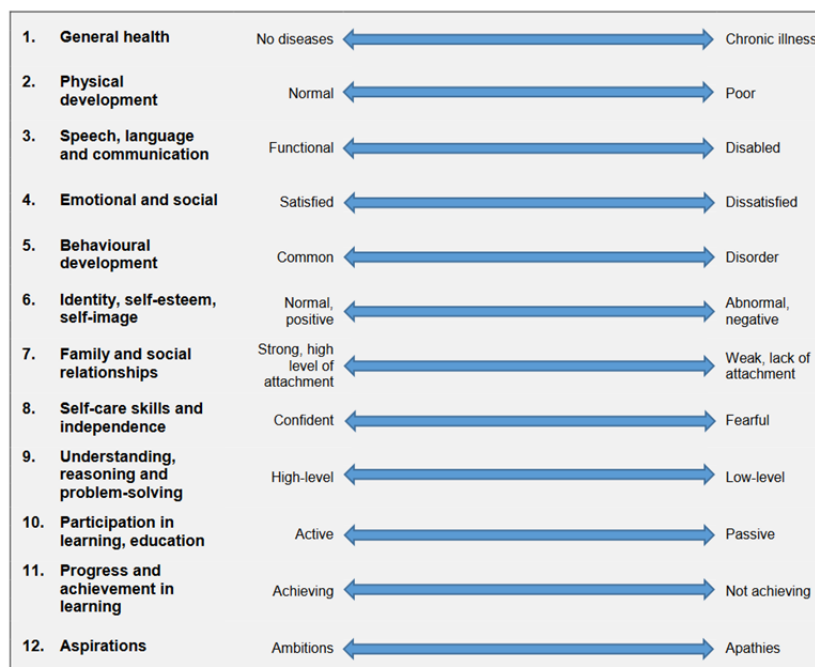


The Childonomics research project (2017) was trying to define a different approach to assess the economic return of investment into child services and interventions. This approach is not meant to be purely Cost-Effectiveness Analysis CEA or CBA because of anticipated difficulties with aggregating into a single measure all relevant outcomes (economic, social, health, education, psychological) resulting from a service, being it a natural unit such as ‘life saved’ (CEA), a monetary unit such as ‘net monetary gain’ or ‘ROI ratio’ (CBA). One of the key aims of Childonomics is to communicate benefits and value beyond a single number, and to reflect a broad range of outcomes and their interplay.

The full evaluation methodology that appears to be closest to the aims of Childonomics is Cost Consequence Analysis CCA, which presents costs and outcomes side by side in a disaggregated manner. CCA is a form of CEA which presents the range of benefits identified alongside with the costs incurred without aggregating them in a single metric (e.g. a cost-effectiveness ratio), leaving instead the decision makers (and users of the methodology, in a broader sense) to incorporate their own considerations when judging the relative merits of the intervention or programme.

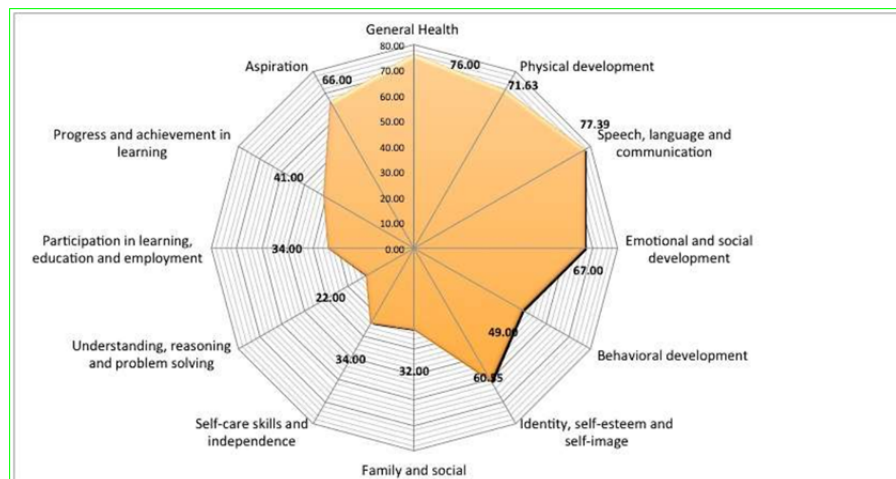
At the individual level, case management is an approach to coordinate the provision of specialized, highly specialized, and alternative social services based on an assessment of need.

By aligning the process of needs assessment with the setting up of relevant targets and objectives for interventions, it is possible to develop indicators that can identify progressive levels of meeting needs or clients’ abilities to achieve specific tasks. Thus, needs assessment forms a fundamental basis, not only for service planning and service provision, but also for the monitoring and evaluation of outcomes for each client.



**FIGURE 1 EXAMPLE OF CATEGORIES OF OUTCOMES FOR CHILDREN RECEIVING HIGHLY SPECIALISED SERVICES – SOURCE: CHILDONOMICS**

The Childnomics methodology emphasizes the agency of stakeholders in assigning value to outcomes and identifying meaningful indicators. Outcome profiles can be synthesized in an outcomes monitoring system, as shown in figure 2. For convenience, all categories of outcomes can be marked with a value ranging from 0 to 100. For certain outcomes, like parent knowledge and competency or progress in social skills, it may be the case that only a qualitative judgment can be made due to lack of appropriate means of measurement.



**FIGURE 2 EXAMPLE OF AN OUTCOME MONITORING SYSTEM – SOURCE: CHILDONOMICS**

Going beyond the individual level, an approach to assess the broader outcomes of social services uses the concept of social impact.

Some authors and International Organisations such as the Organisation for Economic Cooperation and Development (OECD, 2009) suggest using the concept of ‘child well-being’ for measuring the results of child-focused policies across countries. The idea is to use a number of indicators for measuring child well-being. Those indicators may be grouped into six domains:

- material well-being;
- housing and environment;
- educational well-being;
- health and safety;
- risk behaviors;
- quality of school life.

However, this source not only does not try to quantify child well-being in monetary terms, but also it does not try to aggregate the above domains into a single overarching index. What it does is to perform a comparative analysis in 30 OECD countries ranking them for each of the above domains. The results of this analysis are reported in the table displayed below.

To create this table, each indicator was converted into a standardized distribution. Then a within-dimension average was taken. This within-dimension standardized average was then used to rank countries in each dimension.

Using standardized figures each country with half a standard deviation higher than the OECD average is colored blue on that dimension, whilst countries in dark grey are at least a half standard deviation lower.

**Table 2.1. Comparative policy-focused child well-being in 30 OECD countries**  
1 ranks the best performing country

	Material well-being	Housing and environment	Educational well-being	Health and safety	Risk behaviours	Quality of school life
Australia	15	2	6	15	17	n.a.
Austria	5	9	18	27	27	11
Belgium	11	11	20	26	13	19
Canada	14	n.a.	3	22	10	16
Czech Republic	18	24	19	5	23	17
Denmark	2	6	7	4	21	8
Finland	4	7	1	6	26	18
France	10	10	23	19	12	22
Germany	16	18	15	9	18	9
Greece	26	19	27	23	7	24
Hungary	20	21	12	11	25	7
Iceland	8	4	14	2	8	1
Ireland	17	5	5	25	19	10
Italy	19	23	28	17	11	20
Japan	22	16	11	13	2	n.a.
Korea	13	n.a.	2	10	2	n.a.
Luxembourg	3	8	17	7	14	23
Mexico	29	26	29	28	30	n.a.
Netherlands	9	17	4	8	9	3
New Zealand	21	14	13	29	24	n.a.
Norway	1	1	16	16	4	2
Poland	28	22	8	14	20	15
Portugal	25	20	26	18	6	21
Slovak Republic	27	25	24	1	22	25
Spain	24	13	21	12	16	6
Sweden	6	3	9	3	1	5
Switzerland	7	n.a.	10	21	5	13
Turkey	30	n.a.	30	30	29	12
United Kingdom	12	15	22	20	28	4
United States	23	12	25	24	15	14

**TABLE 1 COMPARATIVE POLICY-FOCUSED CHILD WELL-BEING IN 30 OECD COUNTRIES – SOURCE: OECD<sup>4</sup>**

As Childonomics puts it, a Value for Money analysis is an approach for measuring the value of programmes which relies on the concept of a results chain, this follows the transformation of monetary resources into outputs and outcomes towards generating an impact. While Value for Money concentrates on the relationship between inputs and outcomes-impact, it can and should be measured at all stages of the results chain. When outcomes cannot be measured, it is often appropriate to focus measurement on outputs. However, to our knowledge there are no common outputs across EU in terms of public expenditure on children and young adults' well-being.

<sup>4</sup> n.a.: no country data.

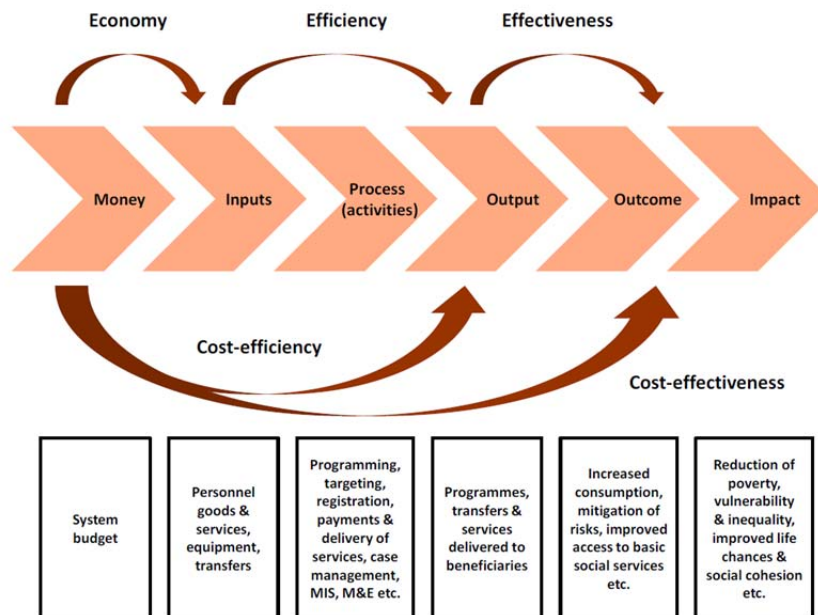


FIGURE 3 APPLYING VALUE FOR MONEY 3E FRAMEWORK APPLIED TO SOCIAL PROTECTION SYSTEMS - SOURCE: CHILDONOMICS

### 2.2.1 Cost-Benefit Analysis of children and young people’s well-being projects

To our knowledge, not many CBA analysis dealing with spending on children and young people’s well-being exist. Therefore, currently in the literature it is possible to find only monetary values of benefits generated by a few types of spending on children and young people’s well-being.

For instance, Saminder & others (2016) provide some estimates of the monetary value of benefits and costs generated by the services supplied by the Children’s Centre Services in England. Those Centres were launched in 2002 to provide integrated multi-agency services at a single point of access for families with young children. Those services include childcare and early education programs, health services, parenting classes and specialized family support services.

The monetary values of average cost of delivery per user, average benefit per user, net benefit and benefit to cost ratio of baby health services, child play, parent support services and specialist parent/family support services provided are summarized in the table displayed below. They are a result of the Evaluation of Children’s Centers in England, a study undertaken by NatCen Social Research, the University of Oxford and Frontier Economics which followed children until the age of three. Therefore, the potential longer term benefits of those services were estimated using existing evidence of the links between child and family outcomes at age three and later lifetime outcomes for the child. As a consequence, as Karoly (2008) points out, they contain the uncertainty associated with any future outcome.



To assess the outcome of children and young people’s well-being policy it is also necessary to take into consideration that there is a gap in time between when this policy was implemented and when the outcome was measured, and that returns on some interventions may take more time than others.<sup>5</sup> According to National Evaluation of Sure Start Team (2011), the economic benefits of early childhood interventions typically do not emerge until at least fifteen years after the intervention begins.

Furthermore, an additional element of uncertainty in such assessment is to be found in the fact that the benefits generated by spending on children and young people’s well-being might also be transmitted across generations. As Barnett and Masse (2007) points out, this transmission mechanism is due to a better educational attainment by the beneficiaries of this spending, higher future earnings of more educated individuals and a positive correlation between parental income and the income of children.

The results displayed below show that the parent services have a higher benefit to cost ratio than the more child based ones. The benefits of baby health services evaluated via a reduction in Strengths and Difficulties Questionnaire SDQ conduct problems score and via an improved early HLE have been presented separately, highlighting how the value for money estimates could differ dependent upon which outcomes are considered in an evaluation of the impact.<sup>6</sup>

Service group	Average cost of delivery per user	Average benefit per user	Net benefit	Benefit to cost ratio
Baby health (any time) (via SDQ conduct problems)	£4,468	£2,236	- £2,232	0.50
Baby health (any time) (via early HLE)	£4,468	£6,162	£1,694	1.38
Child play (since wave 1)	£1,669	£3,029	£1,360	1.81
Parent support (any time)	£958	£2,985	£2,027	3.12
Parent support (since wave 1)	£831	£5,395	£4,564	6.49
Specialist parent/family support (any time)	£1,685	£6,099	£4,414	3.62
Specialist parent/family support (since wave 1)	£746	£4,827	£4,081	6.47

**TABLE 2 VALUE FOR MONEY OF CHILDREN’S CENTRE SERVICES (£ 2014) – SOURCE: SAMINDER ET AL. (2016)**

The table below highlights the benefits for baby health services accruing to the individual, to the Government and to society and to society more broadly. It is interesting to notice that almost the whole

<sup>5</sup> Across the academic literature in the United Kingdom and the United States, early child well-being factors have been shown to have a link to later education outcomes, and education outcomes are shown to have a link to later well-being. (Dominik Richardson (personal communication, 2017)). On the same issue see also Bukoki et al. (2014).

<sup>6</sup> The SQD is a brief emotional and behavioural screening questionnaire for children and young people. The tool can capture the perspective of children and young people, their parents and teachers. It takes between five and ten minutes to be completed.

value of the benefit generated by baby health services is associated with improved labor market outcomes. It also seems worth noticing that most of the value of those benefits accrues to the individual rather than to the Government or society more broadly.

Quantifiable outcomes	Total value of benefits	Private	Public	Society
Reduction in truancy	£2	£0	£2	£0
Reduction in exclusion	£7	£0	£7	£0
Reduction in youth crime	£5	£0	£5	£0
Reduction in smoking	£26	£26	-£9	£9
Reduction in mental health problems	£24	£0	£24	£0
Reduction in adult crime	£4	£0	£1	£3
Increase in lifetime earnings	£2,028	£1,573	£455	£0
Reduction in welfare benefits	£141	£0	£141	£0
<b>Total</b>	<b>£2,236</b>	<b>£1,599</b>	<b>£625</b>	<b>£12</b>

**TABLE 3 VALUE OF BENEFITS FOR BABY HEALTH SERVICES (£ 2014) – SOURCES: SAMINDER ET AL. (2016)<sup>7</sup>**

Barnett and Masse (2007) present the results of a CBA conducted for the Abecedarian program, which offered educational experiences of up to 10 h/day for children from early in the first year of life until they entered kindergarten (approximately 250 days per year). Under this program a group of 111 disadvantaged North Carolina children born between 1972 and 1977 were randomly assigned as infants to either the early educational intervention group or the control group.

Those results are displayed in the table below, which shows that an important benefit of the Abecedarian program was the labor market success of participant’s mothers. As it is possible to see, estimated net present value is positive up to discount rates exceeding 7 per cent. The data presented below were obtained from a randomized trial with longitudinal follow-up through age 21.

<sup>7</sup> There is a negative benefit to the Government from the reduction in smoking due to a loss of tax revenues. Benefits to society from reduced smoking include reduction in lost productivity for premature deaths, cost to business of smoking breaks, smoking-related sick days and fire caused by smokers’ materials.



Present value of Abecedarian benefits and costs per child (2002 dollars)

	Discount rate (%)		
	3	5	7
Program cost (net)	\$35,864	\$34,599	\$33,421
Program benefits			
Part. earnings	37,531	16,460	6376
Earnings of future generations	5722	1586	479
Maternal earnings	68,728	48,496	35,560
K-12 education	8836	7375	6205
Smoking/health	17,781	4166	1008
Higher education costs	-8128	-5621	-3920
AFDC	196	129	85
Total benefits	\$130,666	\$72,591	\$45,793
Net present value	\$94,802	\$37,992	\$12,372

**TABLE 4 CBA OF THE ABECEDARIAN PROGRAM – SOURCE: BARNETT AND MASSE (2007)**

Karoly (2016) contains a review of the CBA results for several US preschool programs. Among those programs the one displaying the lowest benefit-cost ratio is the Oklahoma’s universal preschool program (Tulsa program) serving children one year before entering kindergarten. A reason for the presence of these low benefit-cost ratio is that the counterfactual condition is not consistent among the evaluated programs.

As it is possible to see from the table below, this source contains the benefit-cost ratio for both the full-day and the part-day programs. Furthermore, for each of the above values of the benefit-cost ratio for children in each of the three following income groups: free-lunch students, reduced-price lunch students and full-price lunch students are provided. The values of the benefit-cost ratio provided range from 4.08 for part-day free lunch students to 2.82 for full-day full-price lunch students, which represents the lowest value of this indicator among the programs evaluated by this study.

Table 2. Benefit-Cost Analysis Results for US Preschool Programs

Program (Follow-Up Age)	Per Child (in 2014 dollars)			Benefit-Cost Ratio
	PDV Costs	PDV Benefits	NPV Benefits	
Perry Preschool (age 19)	24,192	86,095	61,903	3.56
Perry Preschool (age 27)	18,329	75,399	57,070	4.11 <sup>abc</sup>
Perry Preschool (age 27)	20,850	182,238	161,389	8.74
Perry Preschool (age 40)	20,850	355,912	335,063	17.07
Perry Preschool (age 40)	–	–	–	7.1–12.2 <sup>d</sup>
Chicago CPC (age 21)	9,719	69,364	59,644	7.14 <sup>a</sup>
Chicago CPC (age 26)	9,719	105,294	95,575	10.83
Tulsa part-day program (age 5)				
Free lunch students	5,170	21,084	15,914	4.08 <sup>a</sup>
Reduced-price lunch students	5,170	15,462	10,291	2.99 <sup>a</sup>
Full-price lunch students	5,170	17,775	12,605	3.44 <sup>a</sup>
Tulsa full-day program (age 5)				
Free lunch students	10,341	31,990	21,649	3.09 <sup>a</sup>
Reduced-price lunch students	10,341	35,703	25,362	3.45 <sup>a</sup>
Full-price lunch students	10,341	29,197	18,857	2.82 <sup>a</sup>
Head Start (varies)	8,830	23,150	14,320	2.63
State and district preschool programs for low-income 3- and 4-year-olds (varies)	7,191	30,119	22,928	4.20

**TABLE 5 CBA RESULTS FROM US PRESCHOOL PROGRAMS – SOURCE: KAROLY (2016)**

Aos et al. (2004) contains a literature review on prevention and early intervention programs for youth evaluation conducted, generally in the United States, since 1970. As to September 2004, some of those programs could give to taxpayers a good return for their money. However, some other of them fails to generate more benefits than costs. Therefore, the efficiency of the expenditure on children and young people's well-being could be improved by switching resources from the latter to the former.

Schweinhart (2016) takes into consideration several U.S. Early Childhood Care & Education ECCE programs and coherently with Aos et al. (2004) concludes that only high-quality ECCE programs display a return of investment which is large enough to allow affirming that they are socially desirable from the point of view of the efficient use of the available resources.

Obviously, the above conclusions about improving the efficiency of the expenditure on children and young people's well-being in the US by switching resources cannot be applied directly to EU member states because of the differences between the US and the 28 EU's member states social conditions. However, the results presented below suggest that most likely there is room for improving this efficiency also within the EU.



<b>Table 1</b>				
<b>Summary of Benefits and Costs (2003 Dollars)</b>				
Estimates as of September 17, 2004	Measured Benefits and Costs Per Youth			
	Benefits	Costs	Benefits per Dollar of Cost (3)	Benefits Minus Costs (4)
	(1)	(2)	(3)	(4)
<b>Pre-Kindergarten Education Programs</b>				
Early Childhood Education for Low Income 3- and 4-Year-Olds*	\$17,202	\$7,301	\$2.36	\$9,901
HIPPY (Home Instruction Program for Preschool Youngsters)	\$3,313	\$1,837	\$1.80	\$1,476
Parents as Teachers	\$4,300	\$3,500	\$1.23	\$800
Parent-Child Home Program	\$0	\$3,890	\$0.00	-\$3,890
Even Start	\$0	\$4,863	\$0.00	-\$4,863
Early Head Start	\$4,768	\$20,972	\$0.23	-\$16,203
<b>Child Welfare / Home Visitation Programs</b>				
Nurse Family Partnership for Low Income Women	\$26,298	\$9,118	\$2.88	\$17,180
Home Visiting Programs for At-risk Mothers and Children*	\$10,969	\$4,892	\$2.24	\$6,077
Parent-Child Interaction Therapy	\$4,724	\$1,296	\$3.64	\$3,427
Healthy Families America	\$2,052	\$3,314	\$0.62	-\$1,263
Systems of Care/Wraparound Programs*	\$0	\$1,914	\$0.00	-\$1,914
Family Preservation Services (excluding Washington)*	\$0	\$2,531	\$0.00	-\$2,531
Comprehensive Child Development Program	-\$9	\$37,388	\$0.00	-\$37,397
The Infant Health and Development Program	\$0	\$49,021	\$0.00	-\$49,021
<b>Youth Development Programs</b>				
Seattle Social Development Project	\$14,426	\$4,590	\$3.14	\$9,837
Guiding Good Choices (formerly PDFY)	\$7,605	\$687	\$11.07	\$6,918
Strengthening Families Program for Parents and Youth 10-14	\$6,656	\$851	\$7.82	\$5,805
Child Development Project ‡	\$448	\$16	\$28.42	\$432
Good Behavior Game ‡	\$204	\$8	\$25.92	\$196
CASASTART (Striving Together to Achieve Rewarding Tomorrows)	\$4,949	\$5,559	\$0.89	-\$610
<b>Mentoring Programs</b>				
Big Brothers/Big Sisters	\$4,058	\$4,010	\$1.01	\$48
Big Brothers/Big Sisters (taxpayer cost only)	\$4,058	\$1,236	\$3.28	\$2,822
Quantum Opportunities Program	\$10,900	\$25,921	\$0.42	-\$15,022
<b>Youth Substance Abuse Prevention Programs</b>				
Adolescent Transitions Program ‡	\$2,420	\$482	\$5.02	\$1,938
Project Northland ‡	\$1,575	\$152	\$10.39	\$1,423
Family Matters	\$1,247	\$156	\$8.02	\$1,092
Life Skills Training (LST) ‡	\$746	\$29	\$25.61	\$717
Project STAR (Students Taught Awareness and Resistance) ‡	\$856	\$162	\$5.29	\$694
Minnesota Smoking Prevention Program ‡	\$511	\$5	\$102.29	\$506
Other Social Influence/Skills Building Substance Prevention Programs	\$492	\$7	\$70.34	\$485
Project Towards No Tobacco Use (TNT) ‡	\$279	\$5	\$55.84	\$274



<b>Table 1 (Continued)</b>				
<b>Summary of Benefits and Costs (2003 Dollars)</b>				
Estimates as of September 17, 2004	Measured Benefits and Costs Per Youth			
	Benefits	Costs	Benefits per Dollar of Cost	Benefits Minus Costs
	(1)	(2)	(3)	(4)
<b>Youth Substance Abuse Prevention Programs (Continued)</b>				
All Stars ‡	\$169	\$49	\$3.43	\$120
Project ALERT (Adolescent Learning Exp. in Resistance Training) ‡	\$58	\$3	\$18.02	\$54
STARS for Families (Start Taking Alcohol Risks Seriously)	\$0	\$18	\$0.00	-\$18
D.A.R.E. (Drug Abuse Resistance Education) #	\$0	\$99	\$0.00	-\$99
<b>Teen Pregnancy Prevention Programs</b>				
Teen Outreach Program	\$801	\$620	\$1.29	\$181
Reducing the Risk Program ‡	\$0	\$13	\$0.00	-\$13
Postponing Sexual Involvement Program ‡	-\$45	\$9	-\$5.07	-\$54
Teen Talk	\$0	\$81	\$0.00	-\$81
School-Based Clinics for Pregnancy Prevention*	\$0	\$805	\$0.00	-\$805
Adolescent Sibling Pregnancy Prevention Project	\$709	\$3,350	\$0.21	-\$2,641
Children's Aid Society-Carrera Project	\$2,409	\$11,501	\$0.21	-\$9,093
<b>Juvenile Offender Programs</b>				
Dialectical Behavior Therapy (in Washington)	\$32,087	\$843	\$38.05	\$31,243
Multidimensional Treatment Foster Care (v. regular group care)	\$26,748	\$2,459	\$10.88	\$24,290
Washington Basic Training Camp §	\$14,778	-\$7,586	n/a	\$22,364
Adolescent Diversion Project	\$24,067	\$1,777	\$13.54	\$22,290
Functional Family Therapy (in Washington)	\$16,455	\$2,140	\$7.69	\$14,315
Other Family-Based Therapy Programs for Juvenile Offenders*	\$14,061	\$1,620	\$8.68	\$12,441
Multi-Systemic Therapy (MST)	\$14,996	\$5,681	\$2.64	\$9,316
Aggression Replacement Training (in Washington)	\$9,564	\$759	\$12.60	\$8,805
Juvenile Offender Interagency Coordination Programs*	\$8,659	\$659	\$15.48	\$8,100
Mentoring in the Juvenile Justice System (in Washington)	\$11,544	\$6,471	\$1.78	\$5,073
Diversion Progs. with Services (v. regular juvenile court processing)*	\$2,272	\$408	\$5.58	\$1,865
Juvenile Intensive Probation Supervision Programs*	\$0	\$1,482	\$0.00	-\$1,482
Juvenile Intensive Parole (in Washington)	\$0	\$5,992	\$0.00	-\$5,992
Scared Straight	-\$11,002	\$54	-\$203.51	-\$11,056
Regular Parole (v. not having parole)	-\$10,379	\$2,098	-\$4.95	-\$12,478
<b>Other National Programs</b>				
Functional Family Therapy (excluding Washington)	\$28,356	\$2,140	\$13.25	\$26,216
Aggression Replacement Training (excluding Washington)	\$15,606	\$759	\$20.56	\$14,846
Juvenile Boot Camps (excluding Washington)* §	\$0	-\$8,474	n/a	\$8,474
Juvenile Intensive Parole Supervision (excluding Washington)*	\$0	\$5,992	\$0.00	-\$5,992

**TABLE 6 SUMMARY OF BENEFITS AND COSTS OF PREVENTION AND EARLY INFORMATION PROGRAMS FOR YOUTH (\$ 2003) – SOURCE: AOS ET AL. (2004)<sup>8</sup>**

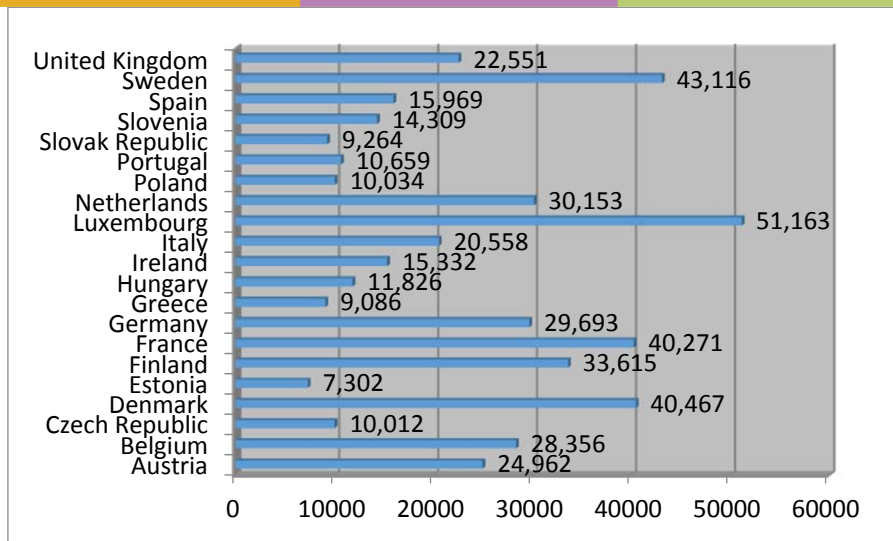
A partial attempt to estimate the benefits generated by the expenditure on children and young people's well-being in the 28 EU member states can be conducted by quantifying the benefits generated by the expenditure on childcare for children from 0 to 5 years old in these countries.

A rough estimate of the latter figure can be obtained by estimating this expenditure and then multiplying it times an appropriate benefit-cost ratio.

To estimate the expenditure on childcare for children from 0 to 5 years old for the 21 EU member states which are also OECD members it is possible to combine the OECD family database figures about the 2013 per capita value of this indicator with Eurostat population data by age for the same year. In this way, it is possible to estimate a total value of this spending for these 21 EU member states in about 121.9 billion USD PPP.

<sup>8</sup> The values on this table are estimates of present-valued benefits and costs of each program with statistically significant results with respect to crime, education, substance abuse, child abuse and neglect, teen pregnancy and public assistance. Many of these programs have achieved outcomes in addition to those for which the authors were able to estimate the monetary benefits.





**FIGURE 4 ESTIMATED PUBLIC SPENDING ON CHILDCARE FOR CHILDREN FROM 0 TO 5 YEARS OLD FOR OECD EU MEMBER STATES IN 2013 (USD PPP) – SOURCE: OUR PROCESSING ON OECD AND EUROSTAT DATA**

A rough bottom line estimate on childcare for children from 0 to 5 years old for the seven EU member states which were not OECD members in 2013 (Bulgaria, Croatia, Cyprus, Latvia, Lithuania, Malta and Romania) could be obtained by multiplying the number of residents of these countries belonging to each cohort from 0 to 5 displayed above times the corresponding 2013 per capita spending on childcare for children from 0 to 5 years old by Estonia, which in that year was the OECD EU member state displaying the lowest overall level of this indicator. This would lead to a total estimate of further 2.8 billion euros of yearly spending on childcare for children from 0 to 5 years.

The estimates presented above suggest a combined 2013 estimated expenditure on childcare for children from 0 to 5 years old for the 28 EU member states equal to around 124 billion USD PPP out of an estimated total spending on children and young people’s well-being by the same countries equal to around 1.3 trillion USD PPP. At 2013 PPP, this 124 billion USD PPP expenditure would amount to around 91 billion euros.

To obtain an appropriate benefit-cost ratio for the expenditure on child care for children from 0 to 5 years old in the 28 EU member states estimated above is by far more difficult.

To apply values of the benefit-cost ratio from US preschool programs displayed in the tables above to the EU member states expenditure on childcare for children from 0 to 5 years old should be done with caution because of the differences among the Oklahoma’s and the 28 EU’s member states social conditions.

Keeping in mind the above, a rough bottom line estimate of the total benefit generated by the 28 EU member states expenditure on childcare for children from 0 to 5 years old could be obtained by multiplying the 2.82 benefit-cost ratio, which represents the lowest value of this indicator reported by Karoly (2016), times the 91 billion euros related estimated expenditures, obtaining a value of the total benefit of about 257 billion euros.

Because of the purpose of this work it is interesting to notice here that according to Academy of Social Sciences (2013), the introduction of Children’s Centres in U.K. has been informed by findings from the 1970



cohort of the *Effective Pre-School, Primary and Secondary Education project* longitudinal study, which shed light on the influence of pre-school education on children's academic and social-behavioral outcomes. Those findings also highlighted the role of the home learning environment (HLE)<sup>9</sup>, the family, neighborhood and other school experiences on children's learning, progress and dispositions. As a result, they led to important changes in U.K. children well-being policy, including an increase in funding for training early years staff and the introduction of Children's Centres.

### 2.2.2 Policy impact of a longitudinal survey

The impact of a longitudinal study on policy may depend upon several variables. One of them is the visibility of the resulting survey data. As Technopolis Group (2017) puts it: "Another issue related to the lower perceived impact of the ESS in the non-academic sector is the lack of visibility of the data not only to policymakers and policy officers, but also to journalists. Despite many interviews claiming that the ESS results deserve more attention, they have rarely been pointed out as a go-to option for those active in the news media. It is worth noting that the ESS has only had a media and communication officer since 2015 [as it is well known, the ESS was established in 2001], so its own efforts in this area are quite recent."<sup>10</sup>

The visibility of those survey data can be enhanced through the organization of physical events. As Technopolis Group (2017) puts it: "...physical events often constitute a more important element (note of the author: of non-academic ESS impacts) than written outputs. In our long list of identified impacts, these have been most evident at the political level, but they do feature in policy (i.e. ministry or government agency) level as well [...] we find many cases of ESS data and/or methodology being directly integrated into aspects of data collection and monitoring by government agencies and other entities."<sup>11</sup>

Technopolis Group (2017) contains the results of an ESS active non-student users survey. This survey was sent to all registered non-student users. However, given the much better response rate from those who noted some engagement with ESS in the past 12 months, the analysis was limited to results from this group only. Those results show that more than 30 per cent of active ESS users noted that their use of its data had resulted in moderate or large extent of benefit in terms of improved evidence used by policymakers and other professionals, as well as contribution to improved policy and practice.<sup>12</sup>

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<sup>9</sup> The HLE includes the physical characteristics of the home, but also the quality of the implicit and explicit learning support they receive from the caregivers, through activities like going to the library, painting and drawing, playing with/being taught letters, playing with/being taught numbers, songs/poems/rhymes (HM Government, 2018).

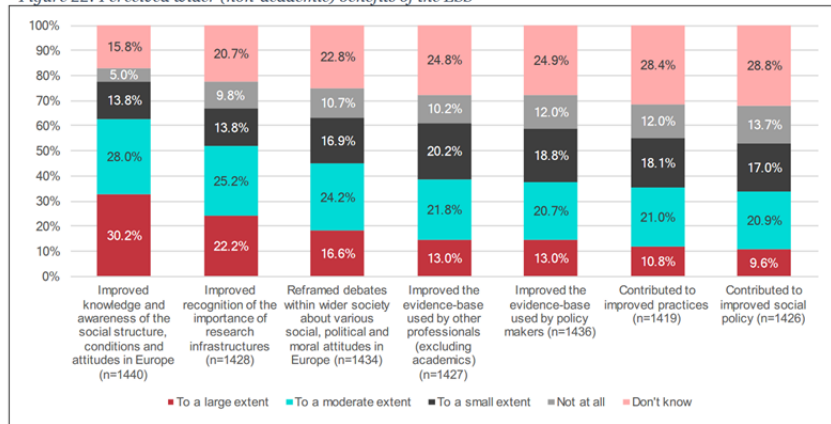
<sup>10</sup> Technopolis Group (2017) Page 66.

<sup>11</sup> Technopolis Group (2017) Page 68.

<sup>12</sup> Technopolis Group (2017) Page 35.



Figure 22: Perceived wider (non-academic) benefits of the ESS



Survey item: "Based on your experience, to what extent has your use of ESS data or information led to the following wider benefits for you or other people in your field of work or interest?" (247 skipped)

**FIGURE 5 PERCEIVED WIDER (NON-ACADEMIC) BENEFITS OF THE ESS - SOURCE: TECHNOPSIS GROUP**

According to Technopolis Group (2017), the ESS impact pathway includes two different dimensions:

- researchers or other users may use ESS data to produce outputs (research papers, policy reports, etc.) which in turn lead to impact elsewhere (e.g. high citation impact of published work, recognition of a new research field, change in policy or practice);
- the existence of ESS data in itself can have impacts, without the intermediate stage of the production of ESS-based work.<sup>13</sup>

"...here are instances of formal scientific outputs (e.g. academic journal articles) that are directly picked up in policy or other practical domains, other publication types often play a critical role. Several of our non-academic case studies have as a starting point not academic papers (though occasionally these feature as a precursor), but policy reports with a less analytical and more expository approach, seeking to provide an evidence base to eventual users, rather than conduct genuinely academic research...even a high profile policy report based on ESS data will almost certainly not be the only factor behind an eventual impact: other aspects of an evidence base, as well as public debate, electoral considerations and a host of further elements may well be in play."<sup>14</sup>

<sup>13</sup> Technopolis Group (2017) Page 11-12.

<sup>14</sup> Technopolis Group (2017) Page 67.



Figure 3: Impact of the ESS and impact of ESS-based work

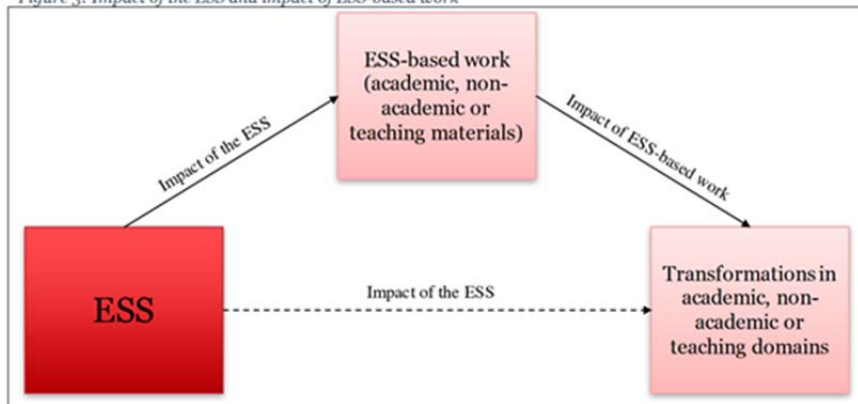
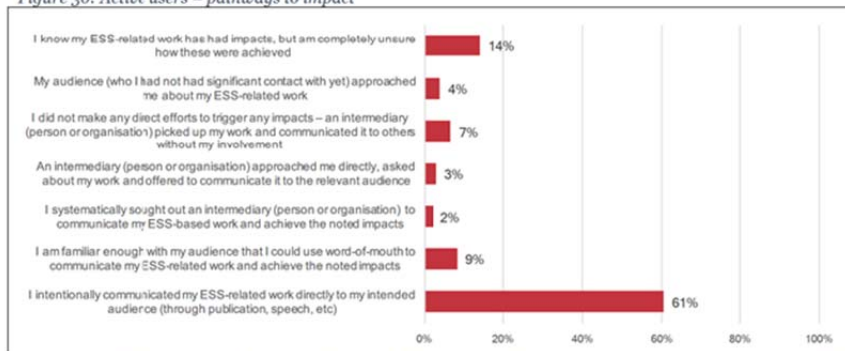


FIGURE 6 IMPACT OF THE ESS AND IMPACT OF ESS-BASED WORK - SOURCE: TECHNOLIS GROUP

Technopolis Group (2017) survey findings show also that 14 per cent of active ESS users believe that the most significant impact of the ESS-based work came about through pull factors (i.e. where an audience or intermediary approached them, or even utilised their work without their direct involvement). Further, 72 per cent of respondents report a push scenario, where the users themselves actively reached out to their audience, either directly or through intermediaries.

Figure 36: Active users – pathways to impact



Survey item: 'Reflecting on what you would consider the most significant impact resulting from your use of ESS, please select the statement that best describes how it was achieved' (n=1022, 687 N/A or skipped)

FIGURE 7 PATHWAYS TO IMPACT OF THE ESS – SOURCE: TECHNOLIS<sup>15</sup>

### 2.2.3 Human capital accumulation

Catalano et al. (2015) contains the results from a survey of 384 fellows and students who at the time of the survey either were working or had been working and studying at different experiments on particle accelerators at CERN. The aim of this survey was to measure the human capital formation deriving from this experience.

Needlessly to say the LHC at CERN is a capital intensive, physical RI, while EuroCohort would be a labor intensive, mainly non-physical RI. Therefore, it would not be correct to extend the results of the above

<sup>15</sup> Technopolis Group (2017) Page 69-70.





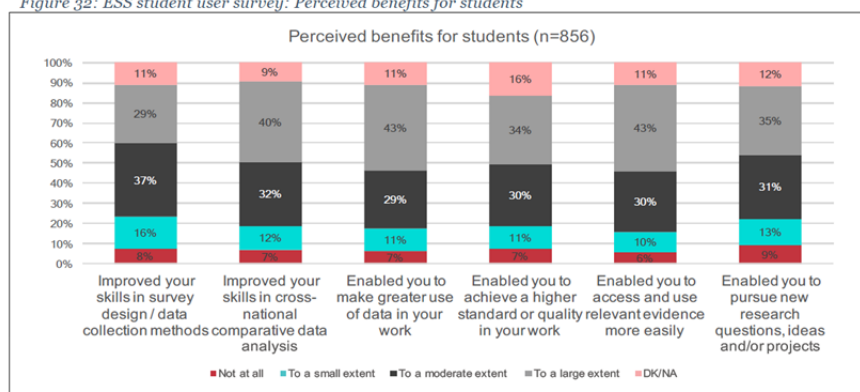
survey for estimating the human capital accumulation generated by EuroCohort. Problems related to that extension are mainly related to the fact that CERN is a physical working environment where people work together running experimental work and interpreting the results obtained, creating a very stimulating environment. A longitudinal survey is mostly just an open-source database from where anybody can extract the data she needs for her purposes. Therefore, the human capital accumulation generated by the overall working environment will be much smaller than the one that will take place in a physical RI.

In spite of the above limitation, it may be useful to notice that in this survey respondents were asked to rate the importance of their research period at CERN for their professional career using a 5-point Likert-scale (not relevant, of little relevance, moderately relevant, relevant, very relevant). Seventy-six per cent of respondents that at the moment of the survey were working and 84 per cent of respondents who were still studying rated their research period at CERN as relevant or very relevant for their career.

Respondents who were working at the time of the survey declared that their current salary was 9.5 per cent higher than the salary earned by somebody else who had not benefitted from the LHC experience. In the long term they expected an average salary premium around 10.9 per cent. The expectations of the not-working respondents were quite similar. Respondents that at the time of the survey were either still studying or unemployed expected that their salary will be 10.4 per cent higher than the salary earned by somebody else who had not benefitted from the LHC experience.

Technopolis Group (2017) contains the results of a student user survey, which may be useful for estimating the contribution of a social survey like EuroCohort to human capital accumulation as it will be perceived by the students directly involved in this accumulation, in spite of the very low response rate obtained. As it is possible to see from the figure below, more than half of respondents noted that this tool has enabled them to access and use relevant evidence more easily to a large or moderate extent. Furthermore, according to a large proportion of respondents other benefits generated by the ESS include improving their skills in design or data collection methods and in cross national comparative data analysis.

Figure 32: ESS student user survey: Perceived benefits for students

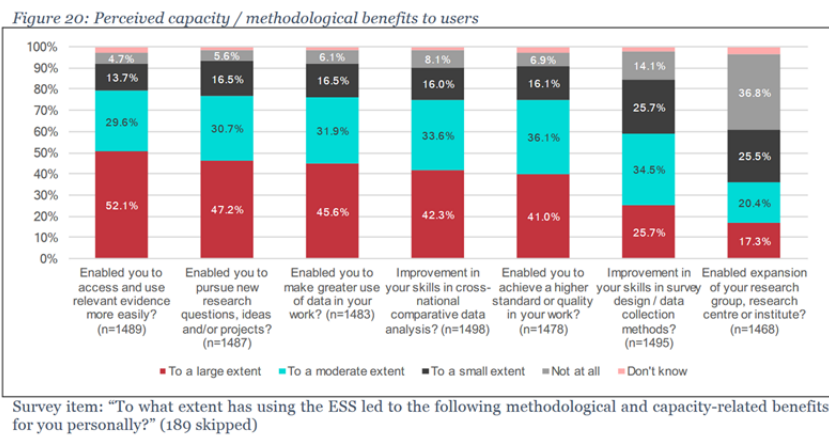


Source: Technopolis, student user survey. NB: These results are indicative only: the response rate to this survey was far lower than for our survey of active non-student users, and excludes student users who are not registered with ESS themselves (due to receiving ESS data directly from their teacher). Nevertheless, we include them here as indicative results as they closely replicate the findings from our interviews.



**FIGURE 8 BENEFITS OF THE ESS DATABASE PERCEIVED BY STUDENTS - SOURCE: TECHNOLIS GROUP<sup>16</sup>**

Also some of the results of the Technopolis Group (2017) ESS active non-student users survey, reported in the figure below, may be used for estimating the contribution of a social survey like EuroCohort to human capital accumulation as it will be perceived by the professionals directly involved in this accumulation. As it is possible to see from the figure below, according to a large proportion of those active users the ESS has had a significant effect on their know-how. The availability of this tool has generated a benefit to their ability to access and to use more easily data relevant to their endeavours, and to pursue new research questions, ideas or projects. According to a large proportion of survey’s respondents further benefits to ESS users were higher quality standards in their work and the improvement of their skills in data use and analysis.



**FIGURE 9 PERCEIVED CAPACITY/METHODOLOGICAL BENEFITS TO USERS OF THE ESS DATABASE - SOURCE: TECHNOLIS GROUP<sup>17</sup>**

### 2.2.4 The existence value

The existence value of pure knowledge generated by Large Hadron Collider LHC at CERN, in Geneva, (where the Higgs boson was discovered) is investigated by Florio et al. (2018), who present the results of a Contingent Valuation Experiment conducted for a sample of 1,022 students coming from five European Universities, located in four different countries (Spain, UK, Italy and France) with the aim to find out their willingness-to-pay a lump-sum to support the LHC. The results of their experimental work show an average willingness-to-pay for basic research by those students equal to EUR 4.5 una tantum.

It seems useful to point-out that the LHC at CERN is a capital intensive, high visibility physical RI, while EuroCohort would be a labor intensive, mainly non-physical RI. Therefore, it would not be correct to use the above result directly for estimating the non-use benefits generated by EuroCohort.

Florio and Giffoni (2018) present the results of a Contingent Valuation Experiment conducted among a representative sample of 1,005 French citizens with the same aim to find out their willingness-to-pay to

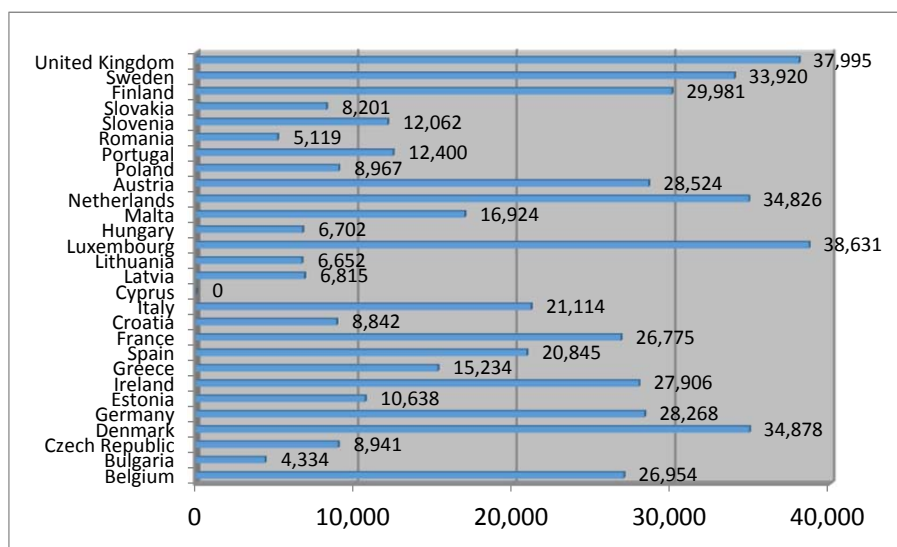
<sup>16</sup> Technopolis Group (2017) page 58.

<sup>17</sup> Technopolis Group (2017) Page 34.



support the LHC at CERN. The results of their experimental work show an average willingness-to-pay for basic research by those citizens equal to EUR 4 per person per annum. In this case the universe was the French population aged between 16 and 74 in 2017, which amounted to 47.5 million people. Therefore, from the above result it is possible to estimate the willingness-to-pay by the adult French population to support the LHC in about 190 million euro per year.

Florio and Giffoni (2018) shows that income is an important variable that impacts the willingness-to-pay for the LHC. Therefore to try to extend this result to the 28 EU countries would be a difficult exercise. To be conservative, one could extend the results presented above for the adult French population to the population aged between 16 and 74 of Germany and the United Kingdom, which, as it is possible to see from the figure below, are the only two large EU countries where, according to EUROSTAT, in 2015 the annual net earnings of an average single worker without children were higher than in France.



**FIGURE 10 NET EARNINGS OF A SINGLE PERSON WITHOUT CHILDREN, 100% OF AVERAGE WORKER (€) – SOURCE: EUROSTAT**

According to EUROSTAT in 2017 the total population of France, Germany and the United Kingdom aged between 16 and 74 was equal to 159.5 million people. Assuming that the average willingness-to-pay to support the LHC at CERN of Germans and Britons was equal to the same EUR 4 per person per annum resulting from Florio and Giffoni (2008), it would be possible to estimate the total willingness-to-pay to support the LHC at CERN by the adult population of those 3 countries in 638 million euro per year.

It seems useful to point-out once again that the LHC at CERN is a capital intensive, high visibility physical RI, while EuroCohort would be a labor intensive, mainly non-physical RI. Therefore, it would not be correct to use the above result directly for estimating the non-use benefits generated by EuroCohort.

### 2.2.5 The cost of mixed-mode data collection

As for the cost of mixed-mode data collection, according to Villar and Fitzgerald (2017) switching from face-to-face interviews to mixed-mode data collection would lead to fieldwork savings. However, it would be



possible to expect higher costs for development of questionnaire instruments, quality control, fieldwork monitoring and data processing in multiple modes. Materials such as instructions and invitation letters would also have to be designed and tested for multiple modes.

Information about the relative costs of different data collection modes was collected by asking national statistical institutes in several European countries. The answers obtained are reported in the table below.

Table 16.5. Relative costs of fieldwork using different modes.

Country	ESS Field Agencies (=National Statistics Institute)			
	F2F	Tel.	Postal	Web
Austria~	100	30	25	-
Belgium	100	70	-	25
Belgium~	100	80	83	62
Cyprus	100	50	-	-
Cyprus~	100	80	50	40
Denmark	100	35	25	25
Finland~	100	50	35	-
Germany	100	43	20	15
Hungary	100	80	60	50
Iceland	100	40	25	15
Ireland	100	65	50	*
Italy	100	60	70	50
Norway~	100	50	25	20
Poland	100	-	40	-
Portugal	100	75	50	-
Romania~	100	60	-	-
Russia	100	63	-	-
Slovakia	100	85	35	65
Slovenia	100	30	25	20
Spain	100	60-70	30	30
Sweden	100	60	30	-
Switzerland	100	50	-	-
Switzerland~	100	40	20	5
Ukraine	100	60	50	40

Note: Question phrasing was: "To help give us an idea of the relative costs of fieldwork using different modes of data collection, please estimate the average cost of conducting a survey of a random probability sample of the population using the modes listed below. (Assume 1,000 achieved interviews and a 20 minute questionnaire). You do not need to give the actual cost estimate. Simply describe the relative costs of modes b, c, and d (below) as a percentage of the cost of mode a (a survey using face-to-face interviewing). Please enter your answers below."

TABLE 7 RELATIVE COSTS OF FIELDWORK USING DIFFERENT MODES – SOURCE: VILLAR AND FITZGERALD (2017)



### 2.3 A financing scheme for the EuroCohort EU central team

Taking a very general approach, the financing of the EuroCohort EU central team could take place according to two different possible financing schemes:

- Full European financing;
- Full national financing;
- Intermediate financing both from European funders and national funders.

In this section we present a possible intermediate financing scheme to cover the EuroCohort EU central team's total cost. According to this scheme, each participating country will pay a € 50,000 yearly membership fee. Starting from 2027, European funders will cover € 500,000 per year. The remaining part of this cost will be covered by each participating country with an additional amount calculated according to the GDP of each country.

Taking as a reference point the GDP level of 2018 the above would result in the yearly contributions amounts per EU Member State as displayed below.

Country	2020-2021	2022-2026	2027-2048
Austria	50.000	113.213	101.057
Belgium	50.000	123.771	109.584
Bulgaria	50.000	59.035	57.297
Croatia	50.000	58.427	56.806
Cyprus	50.000	53.394	52.741
Czech Republic	50.000	83.862	77.350
Denmark	50.000	98.730	89.359
Estonia	50.000	54.201	53.393
Finland	50.000	88.239	80.885
France	50.000	434.590	360.630
Germany	50.000	604.374	497.764
Greece	50.000	80.242	74.426
Hungary	50.000	71.601	67.447
Ireland	50.000	102.140	92.113
Italy	50.000	337.663	282.343
Latvia	50.000	54.834	53.904
Lithuania	50.000	57.390	55.968
Luxembourg	50.000	59.638	57.785
Malta	50.000	52.017	51.629
Netherlands	50.000	176.621	152.271
Poland	50.000	131.311	115.674
Portugal	50.000	83.008	76.660
Romania	50.000	83.217	76.829
Slovakia	50.000	64.768	61.928
Slovenia	50.000	57.523	56.076
Spain	50.000	247.821	209.778
Sweden	50.000	126.462	111.758
United Kingdom	50.000	441.908	366.541

**TABLE 8 YEARLY CONTRIBUTION TO THE EUROCOHORT CENTRAL TEAM'S COST PER COUNTRY (€)**



## 2.4 Tables and data

This section contains some additional tables of data.

Age/Country	Bulgaria	Croatia	Cyprus	Latvia	Lithuania	Malta	Romania	Total
0	65,930	41,661	10,124	19,713	30,461	4,183	179,018	351,090
1	68,526	40,980	9,724	18,744	30,241	4,244	184,451	356,910
2	69,058	43,341	10,102	19,150	30,330	4,013	206,839	382,833
3	72,786	44,133	10,049	20,947	30,816	4,104	215,029	397,864
4	70,160	43,121	9,751	22,717	29,173	4,134	215,565	394,621
5	67,742	41,274	9,209	21,966	27,229	3,860	211,666	382,946
6	66,884	41,195	9,406	20,907	26,815	3,849	212,816	381,872
7	65,277	42,405	8,954	20,090	26,678	3,882	215,701	382,987
8	64,915	40,364	9,054	18,937	26,755	3,849	209,509	373,383
9	62,622	39,886	8,863	19,340	27,058	4,010	209,877	371,656
10	61,980	40,402	8,688	18,572	26,657	3,917	207,351	367,567
11	61,964	41,288	9,233	18,036	27,970	3,972	210,421	372,884
12	65,850	43,723	9,346	18,675	30,394	4,377	221,371	393,736
13	66,623	45,206	9,358	17,761	32,638	4,399	219,867	395,852
14	59,672	47,560	9,933	16,761	33,361	4,651	220,128	392,066
15	58,081	50,050	10,458	17,200	34,237	4,825	217,025	391,876
16	64,947	50,807	11,119	17,947	35,615	4,939	212,272	397,646
17	64,995	48,813	11,623	19,555	37,328	5,030	216,986	404,330
18	71,517	48,240	12,319	21,375	38,447	5,193	225,947	423,038
19	76,271	48,728	13,051	23,556	42,078	5,559	219,125	428,368
20	80,134	47,380	14,021	27,052	45,710	5,838	221,305	441,440
21	86,683	51,239	13,681	27,734	45,185	5,939	225,759	456,220
22	93,527	50,848	14,187	29,119	43,574	6,023	250,798	488,076
23	97,619	51,011	14,228	29,306	40,627	6,283	286,060	525,134
24	99,470	53,222	14,971	30,403	39,782	6,245	289,749	533,842
25	97,341	53,148	14,637	30,666	40,959	5,979	290,008	532,738
Total	1,880,574	1,190,025	286,089	566,229	880,118	123,297	5,794,643	10,720,975

**TABLE 9 POPULATION (0-25) PER AGE FOR NON-OECD EU MEMBER STATES IN 2013 – SOURCE: EUROSTAT**





Country/Age group	from 0 to 5	from 6 to 11	from 12 to 17	from 18 to 25
Austria	15.2	26.4	33.0	25.4
Belgium	18.2	24.0	35.2	22.6
Czech Republic	26.5	22.1	27.5	24.0
Denmark	19.7	27.6	28.3	24.4
Estonia	25.4	26.1	25.8	22.7
Finland	21.6	21.9	29.5	27.0
France	25.3	24.7	31.0	19.0
Germany	20.8	24.3	30.2	24.7
Greece	15.1	31.9	37.5	15.6
Hungary	27.3	27.1	26.0	19.6
Ireland	23.6	26.5	30.4	19.6
Italy	21.1	29.7	30.7	18.6
Luxembourg	24.2	31.2	31.0	13.6
Netherlands	16.6	23.5	31.6	28.2
Poland	16.1	26.5	29.7	27.7
Portugal	14.4	30.4	40.5	14.6
Slovak Republic	23.4	24.6	27.0	25.1
Slovenia	21.8	27.1	27.7	23.4
Spain	19.1	27.1	32.6	21.2
Sweden	23.2	26.8	26.4	23.6
United Kingdom	24.7	28.4	31.8	15.1
TOTAL	21.8	26.2	31.0	21.0

**TABLE 10 ESTIMATED PUBLIC SPENDING BY AGE GROUP OF CHILDREN AND YOUNG PEOPLE FOR OECD EU MEMBER STATES IN 2013 (%) - SOURCE: OUR PROCESSING ON OECD AND EUROSTAT DATA**

Age/ Country	Austria	Belgium	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Luxembourg	Netherlands	Poland	Portugal	Slovak Republic	Slovenia	Spain	Sweden	United Kingdom
0	8,199	10,383	11,335	22,456	23,084	12,161	12,183	16,821	2,663	11,358	12,936	7,110	30,728	10,023	5,792	8,560	10,387	20,931	6,509	16,104	9,343
1	4,958	5,318	7,307	11,493	2,766	9,110	8,420	10,123	1,428	8,094	4,043	5,422	21,687	4,143	2,255	1,047	5,455	4,541	3,038	9,854	5,725
2	5,260	9,220	7,157	11,594	2,754	11,138	9,203	10,150	1,523	8,361	4,043	6,886	24,230	4,453	1,615	1,048	5,884	3,912	3,532	12,067	7,548
3	9,766	11,510	6,813	11,163	2,773	10,621	12,279	12,675	1,617	6,128	14,711	8,331	26,772	9,887	3,214	4,172	3,571	2,897	5,390	12,496	17,220
4	12,290	11,466	6,614	11,048	2,868	10,723	12,386	13,037	4,137	6,891	11,237	8,502	18,709	11,308	3,745	4,675	3,973	2,411	5,432	12,684	17,250
5	12,673	11,467	6,023	11,018	2,848	10,769	12,357	13,144	6,417	7,002	12,461	8,740	17,596	11,590	5,358	4,970	4,244	2,212	5,469	12,727	14,626
6	10,646	13,682	6,861	21,392	3,566	10,375	10,402	13,575	6,216	6,384	12,171	10,272	31,181	11,319	4,775	7,647	5,473	8,754	7,079	12,173	14,673
7	14,943	13,771	7,320	21,562	7,721	11,557	10,351	13,530	6,360	8,015	12,302	10,226	31,687	11,320	7,076	7,714	6,521	9,219	7,099	18,144	14,830
8	15,161	13,778	7,321	15,340	7,851	11,675	10,069	13,448	6,406	8,146	12,395	10,241	30,808	11,324	7,180	7,792	6,594	9,213	7,111	17,418	15,013
9	15,156	13,739	7,320	15,335	7,740	11,379	10,031	13,522	6,380	8,166	12,217	10,267	30,117	11,328	7,184	7,823	6,657	9,217	7,116	15,702	14,997
10	16,598	13,741	7,324	15,338	7,745	11,434	10,108	14,905	6,432	7,896	12,209	10,336	28,783	11,325	7,198	7,864	6,558	9,225	7,128	15,696	14,884
11	17,426	13,840	8,542	15,341	7,680	11,420	13,368	16,004	6,233	7,097	12,129	10,914	28,076	11,381	7,194	7,879	6,507	9,257	7,126	15,706	17,352
12	17,516	18,866	9,846	15,389	7,834	11,442	13,712	15,973	7,340	6,981	13,298	10,952	28,676	13,629	7,156	9,445	6,493	9,201	9,274	15,747	17,443
13	17,521	20,236	9,940	17,271	7,755	15,736	13,783	15,940	7,515	6,988	15,624	10,967	29,054	15,129	6,774	9,789	6,517	9,218	9,600	16,196	17,580
14	17,511	20,375	9,956	17,713	7,671	16,090	13,742	15,954	7,518	7,120	15,547	10,968	28,914	15,223	6,796	10,019	6,548	9,190	9,579	16,272	17,456
15	16,987	20,375	9,946	17,682	7,701	15,900	13,749	15,931	7,385	6,964	15,767	10,863	29,216	15,197	6,755	9,995	6,553	9,193	9,591	16,314	17,346
16	16,497	20,249	9,950	17,126	7,488	15,468	13,483	15,718	7,359	6,679	15,811	10,527	27,273	15,065	6,744	9,898	6,293	9,073	9,333	16,348	14,989
17	16,653	20,051	9,752	16,483	6,974	13,864	13,212	15,174	7,220	6,577	15,940	10,191	26,486	15,171	6,673	9,337	5,999	8,928	8,810	16,113	13,554
18	15,307	17,121	8,896	12,218	6,307	12,495	12,704	13,236	3,689	5,470	16,037	6,537	14,700	12,857	5,975	5,514	5,581	8,404	6,911	15,760	9,648
19	10,309	15,038	7,093	9,729	5,081	7,356	10,691	10,801	3,170	4,546	12,288	4,550	13,687	12,911	4,839	3,488	5,042	6,779	6,280	8,043	8,689
20	8,562	12,715	5,393	9,334	4,534	7,470	7,431	9,703	2,611	4,059	10,691	4,554	11,324	12,382	4,617	2,524	4,338	5,482	5,666	7,238	8,364
21	8,070	10,179	4,637	11,014	4,151	9,712	6,357	8,903	2,005	3,486	8,748	5,456	10,299	11,250	4,459	2,072	3,780	5,116	4,864	8,560	5,847
22	7,512	7,266	4,005	11,656	3,435	10,633	5,314	7,805	1,732	2,943	6,449	4,289	8,109	9,742	3,741	1,902	3,435	4,602	3,798	8,429	3,681
23	6,931	4,461	3,434	11,493	2,721	9,983	4,140	6,953	1,538	2,338	3,608	3,909	6,313	7,481	3,102	1,888	3,023	3,875	2,858	7,946	2,492
24	6,344	2,602	2,745	10,461	2,113	8,447	3,016	5,853	1,108	1,717	2,662	3,624	4,728	5,670	2,118	1,732	1,813	3,035	2,051	6,824	1,755
25	4,163	1,306	1,902	8,996	1,117	6,582	2,170	4,911	1,018	1,175	2,057	3,223	3,426	4,016	1,005	1,837	859	2,009	1,403	5,462	1,271

TABLE 11 ESTIMATED PER CAPITA PUBLIC SPENDING BY AGE OF CHILDREN AND YOUNG PEOPLE'S FOR OECD EU MEMBER STATES IN 2013 (USD PPP) – SOURCE: OECD



This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under the Grant Agreement no 777449.

Age/ Country	Austria	Belgium	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Luxembourg	Netherlands	Poland	Portugal	Slovak Republic	Slovenia	Spain	Sweden	United Kingdom
0	77,976	127,664	108,692	58,246	14,021	59,637	785,203	674,411	100,035	89,012	69,790	524,021	6,012	175,587	378,895	89,600	55,828	22,003	453,294	113,487	804,201
1	79,607	129,655	109,146	59,718	14,725	60,455	792,716	665,848	105,801	87,932	72,128	538,422	5,984	180,066	388,824	95,663	61,091	22,117	475,616	113,452	814,026
2	80,661	132,111	119,504	64,422	15,864	61,830	811,397	684,310	110,394	90,027	70,922	549,886	6,230	184,869	413,175	99,508	57,903	22,683	481,415	118,224	802,553
3	78,599	131,196	121,413	64,006	15,669	61,410	810,141	674,000	114,810	96,807	71,293	559,136	6,032	185,681	429,198	96,035	59,805	22,153	492,831	115,175	791,938
4	80,036	131,742	122,945	66,564	15,850	60,751	817,806	693,673	112,645	99,509	70,652	565,676	6,007	185,999	427,148	100,159	57,141	22,386	519,609	113,245	792,240
5	78,875	129,241	118,385	65,643	15,493	60,075	815,226	693,323	108,153	97,519	71,022	563,733	5,966	182,529	399,823	98,232	54,464	20,552	501,018	112,071	782,737
6	80,660	128,596	108,825	66,634	14,587	60,394	830,504	679,924	109,935	101,219	66,542	563,851	6,071	185,741	379,897	100,925	54,015	19,581	497,160	111,392	761,549
7	80,948	125,487	102,991	65,676	14,012	59,111	814,249	690,255	106,725	97,947	65,027	559,948	5,956	187,713	365,911	104,926	54,516	18,646	486,932	107,422	738,772
8	82,221	123,851	98,257	65,801	13,561	59,242	811,139	708,941	105,443	94,398	65,236	564,337	5,977	193,606	354,320	103,486	54,003	18,435	481,849	107,344	717,502
9	80,935	120,766	94,370	65,766	12,660	58,158	808,033	709,866	105,805	94,036	63,966	559,070	5,960	200,397	348,265	106,301	51,673	17,741	473,572	105,764	700,694
10	83,059	119,895	93,457	65,167	12,562	57,159	814,241	723,162	106,612	96,383	63,081	554,507	5,996	201,347	351,747	107,282	50,889	18,178	454,994	102,808	684,868
11	80,796	121,912	91,609	66,273	12,161	57,571	827,658	740,709	107,147	96,756	61,831	560,097	6,109	203,324	364,510	106,889	51,540	18,187	451,693	98,856	688,723
12	83,814	123,948	90,888	68,228	12,485	58,268	844,728	774,419	107,278	97,573	60,926	568,569	6,460	207,168	374,521	116,352	55,028	18,872	451,288	98,629	707,471
13	83,930	122,356	89,486	67,549	11,725	58,986	806,845	776,505	107,331	94,420	60,267	558,200	6,234	202,560	377,660	113,987	55,925	18,069	440,838	96,381	728,242
14	87,246	123,194	90,328	67,903	11,444	58,345	803,419	793,557	107,504	97,327	60,246	558,885	6,239	201,335	388,977	110,856	56,755	18,492	427,889	97,609	744,936
15	90,384	125,104	90,847	69,593	11,803	60,618	790,864	819,081	107,828	101,271	59,506	557,634	6,439	195,575	405,453	110,555	58,546	18,806	430,216	98,985	760,601
16	94,642	125,655	91,102	70,278	12,467	62,150	799,971	806,180	108,563	109,455	57,411	558,878	6,571	194,631	422,214	109,725	59,596	19,540	426,017	104,481	770,870
17	94,438	125,251	96,985	72,834	12,602	64,570	792,391	782,723	108,461	115,987	55,644	558,078	6,296	195,365	434,307	108,955	60,930	19,553	425,122	112,796	771,852
18	98,354	127,080	108,522	73,491	13,103	66,775	768,596	797,051	111,670	119,149	55,605	567,276	6,466	202,655	462,245	108,764	65,680	20,138	432,388	121,689	788,245
19	102,737	132,190	122,809	72,028	14,046	66,600	759,693	833,070	109,660	121,177	55,474	582,595	6,361	204,625	481,104	113,207	72,240	20,430	451,867	126,676	812,891
20	105,470	138,183	123,795	73,946	16,206	68,759	789,843	854,829	118,164	124,999	55,678	606,645	6,420	208,934	499,789	114,044	73,419	20,775	470,394	132,567	836,779
21	108,041	141,120	131,438	72,131	16,698	67,784	791,073	896,047	123,021	129,573	54,903	608,559	6,389	213,451	529,394	115,354	76,875	22,410	472,820	135,450	866,695
22	107,594	141,923	133,541	72,597	18,825	68,475	797,534	992,202	122,445	127,765	56,484	618,018	6,658	216,024	540,841	114,757	78,320	23,122	483,689	137,497	876,042
23	108,091	140,550	132,888	71,337	20,115	67,072	788,577	988,850	125,082	124,105	56,236	619,465	6,676	209,614	544,056	113,177	78,382	24,473	500,066	131,521	870,672
24	109,469	141,431	138,424	69,614	20,359	67,668	790,377	1,022,753	128,641	122,923	57,182	634,149	7,048	208,664	558,736	114,552	80,929	26,690	516,666	130,118	873,372
25	108,577	140,331	137,429	67,004	20,152	64,658	784,883	1,009,129	121,407	122,410	59,501	624,324	7,037	209,413	567,451	114,334	81,756	27,167	532,641	125,037	869,590

TABLE 12 POPULATION (0-25) PER AGE FOR OECD EU MEMBER STATES IN 2013 – SOURCE: EUROSTAT



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