



# The Potential of Additional Investment in Early Childhood Development in Montenegro

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## ACRONYMS

ABC	– Carolina Abecedarian project
BFHI	– Baby-friendly hospital initiative
CARE	– Carolina approach to responsive education
CPC	– Chicago Child-Parent Center
ECD	– Early childhood development
ECDAN	– Early Childhood Development Action Network
FMS	– Family material support
G-20	– International forum that brings together the world’s major economies
GAVI	– Global Alliance for Vaccination Initiative
GDP	– Gross domestic product
IPH	– Institute for Public Health
ISSP	– Institute for Strategic Studies and Prognoses
HFM	– Health Fund of Montenegro
MCH	– Mother and child health
MoFSW	– Ministry of Finance and Social Welfare
MONSTAT	– Statistical Office of Montenegro
NCF	– Nurturing care framework
ROI	– Return on investment
SDGs	– Sustainable Development Goals

## INTRODUCTION

Growing scientific evidence confirms the importance of early childhood (from conception to starting school) on the future outcomes of young people and adults. Positive experiences in those first years establish the child’s foundation for physical, mental and emotional development. Furthermore, a positive start in life enables individuals to live more fulfilled and productive lives. Development in the early years lays the groundwork for adults’ human capital, work force participation and capacity for civic participation that determine the prosperity, well-being and future of the societies and countries they live in.

The economic aspect of the early childhood development (ECD) has also been analysed for decades through modelling the return on investment (ROI), cost benefit analyses, calculation of cost of inaction or through longitudinal studies aimed at estimating the impact of early interventions on social status, health conditions and future earnings. Evidence shows that the long-term returns on investment in ECD programmes are positive, and the benefits are manifold (better educational and health outcomes, lower crime rates, higher earnings, lower costs for social programmes, etc.).

Investing in early childhood development is not simply investing in children, but also in the future of entire societies. Such investments are the smartest and most profitable investments any society can make. Investments in early childhood development are:

- *A developmental imperative.* The first 1,000 days of a child’s life are the most important period of his/her development, when critical connections are made in the child’s brain<sup>1</sup>. Development in this period creates the foundation for an individual’s lifelong development – their future success at school, at work and in life in general. Thus, investment in early development means investing in society’s cognitive capital – which in today’s world is its most precious resource.
- *An economic imperative.* Investment in ECD yields a significant economic return, as reflected in the monetary benefits that individuals, families and society as a whole enjoy. The return on investment (ROI) from early childhood development (ECD) programmes ranges from US\$6 to US\$17 per dollar invested.<sup>2</sup> Therefore, such investments are the most efficient way to optimize public expenditure on health, education and social inclusion.
- *A social imperative.* The greatest impact and return are realized by investment that targets society’s most vulnerable individuals and families. ECD programmes reduce poverty and social exclusion of vulnerable groups and help women to become more active in the labour force.

Countries benefit economically in two ways from investments in ECD.

- *Increased productivity* in the labour market. Investing in young children improves their education outcomes, e.g. significantly better results on PISA testing (scoring as much as 50 points higher than other children in reading literacy, mathematics and science), as well as better labour market outcomes (greater productivity and increased earnings – by up to 25 per cent).<sup>3</sup> In addition, some ECD programmes help parents to integrate into

1 “The Science of Early Childhood Development”, Center on the Developing Child at Harvard University, Cambridge, Mass. Available at <https://developingchild.harvard.edu/resources/inbrief-science-of-eed/>.

2 World Bank Group, UNICEF, Inter-American Development Bank, “G20 development working group: Investing in early childhood development”, March 2018. Available at <https://www.ecdan.org/assets/background-study—early-childhood-development.pdf>.

3 J. Heckman, et. al, “Labor Market Returns to an Early Childhood Stimulation Intervention in Jamaica”, *Science*, 344(6187), 2014, pp. 998–1001.



the labour market, further contributing to increased individual and social income and wellbeing.

- *Reduced public expenditure on other programmes.* Investing in children's well-being at a young age allows societies to reduce social spending in the medium term – on health, poverty-reduction and other social care programmes, support for the unemployed and programmes to decrease crime rates.

The justification for investment in ECD reached historic milestones when the United Nations endorsed ECD as a target in the Sustainable Development Goals (SDGs) and the G20 prioritized ECD and called upon governments to adopt national investment benchmarks for ECD spending of 1% to 2% of gross domestic product (GDP). In response, policymakers and governments across the world are increasingly positioning ECD at the core of their development agenda.

The goal of this paper is to present the ECD investment case for Montenegro, demonstrating that investment in early childhood is not simply a desirable goal, but rather should be a critical priority for government plans and policies. The paper takes a three-pronged approach:

1. Determine the current level of investment in ECD, through a budget analysis
2. Explore priority investments for Montenegro and the cost (the 'aspirational package')
3. Determine the return on such investments (ROI of the aspirational package)

Analysis of current investment in ECD in Montenegro was undertaken in the context of the nurturing care framework (NCF). Early childhood development is a period of cognitive, physiological, linguistic, motor and socio-emotional development of children from conception until entry to primary school. The ECD concept covers two dimensions: time (the child's age) and different domains of development. In addition, ECD is a product of interactions with an environment consisting of different layers (family, school, community, society, etc.). The NCF covers five domains (health, nutrition, responsive care for children, early childhood learning and safety and security), which are equally important for children's full development. For each of these domains, the NCF defines the services and programmes needed by children and their caregivers to achieve appropriate results and thus ensure the child's successful early development.

Investment in ECD is defined here as the commitment of financial and other resources through policies, programmes and interventions aimed at ensuring children's early development in the five domains of nurturing care listed above. The analysis covers public funding from all sources (i.e. taxes, international loans and grants and development assistance). However, private and civil society investments are not included in the analysis.





# 1. METHODOLOGY

Two main methodological approaches were applied to this analysis: budgetary analysis, to estimate current ECD expenditures, and cost-benefit analysis, to assess future return on investment of additional investment in ECD (i.e. of an aspirational package of services).

## 1.1 Calculating the current level of ECD expenditures

The goal of analysing current ECD expenditures is to estimate current investment in each ECD service. The main input was a list of mapped ECD services currently available in Montenegro developed by the Institute for Strategic Studies and Prognoses (ISSP) and divided into five NCF domains.<sup>4</sup> The calculation was made using a budget-based approach and covers public interventions and actions (i.e. government spending) as these are the most significant in Montenegro. The figures refer to 2016 and most include operational costs, while some include other costs as well.

The main source of data was Montenegro's 2016 central budget and the budgets of institutions in charge of implementation of various packages of ECD services, such as: The Ministry of Finance and Social Welfare (previously Ministry of Labour and Social Welfare), Ministry of Education, Science, Culture and Sport (Ministry of Education), Ministry of the Interior, Ministry of Health, Health Fund of Montenegro (HFM), Institute for Public Health (IPH) and other national institutions. Data was also collected from the Statistical Office of Montenegro (MONSTAT) and national and international organizations.

The budget provides exact data on some ECD services, but for others data is missing. Based on available data, services can be divided into several categories:

- **Services/programmes/interventions for which data is available in the state budget** (e.g. expenditures on pre-school education or nutrition in pre-school institutions).
- **Services/programmes/interventions for which data is available in the state budget, but additional calculation is necessary** (e.g. costs of day-care centres catering to children of different ages and young adults).
- **Services/programmes/interventions the cost of which can be calculated based on price list or other available data from different institutions** (e.g. birth registration, childbirth, curative examinations). These categories include administrative and personnel costs and the assumption is that they accurately depict real costs.
- **Services/programmes/interventions the cost of which were estimated:** This includes extended investments in ECD; i.e. the proportion of spending that benefits children through services that are directed towards wider population groups, of which children form a part of (e.g. foster care and family outreach services).
- **Indirect spending on ECD services:** These costs include the proportion of spending on services directed to families, but which benefit children (e.g. family material support (FMS), mental health care etc.).
- **Missing data for some services:** Certain assumptions had to be made to

calculate investment in certain services, such as the number of days of medical care for a new-born, number of curative examinations of children. (A more detailed explanation is provided below.)

Using the methodology described above, the following costs were calculated:

- **Total ECD expenditures in Montenegro** (current package of services);

- **Expenditures per ECD domain** (good health, adequate nutrition, early learning opportunities, responsive caregiving security and safety);
- **Total expenditure per ECD domain as a percentage of GDP;**
- **Total ECD expenditure per beneficiary** (calculation based on data for per beneficiary costs of certain services; total unit costs were calculated using weighted arithmetic mean).

## 1.2 Defining priority investments in ECD and determining the return on such investments

Cost-benefit analysis provides information about which investments offer the greatest benefits. Application of this methodology assumes monetization of the benefits and costs of programmes.

To estimate costs, it was necessary to define the types of programmes in which investment would be made. This process called for the design of an 'aspirational package' incorporating a set of prioritized services in which investments are needed. The design was based on: existing gaps identified by the mapping of ECD services in Montenegro<sup>5</sup>; consultations with a reference group<sup>6</sup> and interviews with ECD policy makers and practitioners; analysis of relevant literature in the field of ECD and the status of key indicators on the situation of children in Montenegro.

The second step required estimating the level of investment required for each of the programmes/services of the aspirational package. The aspirational package is based on the needed increase in coverage of available services or introduction of new services

where missing. The model did not estimate the cost of improving the *quality* of the services, as there are no studies analysing the quality of ECD services in Montenegro. The cost estimate includes only operational costs (human resources, equipment and materials); infrastructure, and other capital investments are not covered. It is, however, important to note that capital investment would be necessary to increase the coverage of some services (for example, preschool).

The estimate of benefits of each of the programmes examined was needed to facilitate the calculation of their monetary value. Benefits are normally calculated based on long-term longitudinal, empirical studies that provide information on the programme's impact on the targeted population. Unfortunately, such studies are not available for Montenegro. It is recommended that such a study be undertaken once an aspirational package is adopted in Montenegro, to measure its impact in comparison to current baselines. As an alternative, for the purpose of this analysis studies that refer to other countries were used. A comprehensive

<sup>4</sup> Institute for Strategic Studies and Prognoses, "Early Childhood Development in Montenegro – An Overview of Services", ISSP, Podgorica, 2020. Unpublished report commissioned by UNICEF Montenegro.

<sup>5</sup> ISSP, *ibid.*

<sup>6</sup> The purpose of the reference group was to contribute to, review and validate the paper "Early Childhood Development in Montenegro – An Overview of Services" (ISSP, *ibid.*). Members of the reference group were representatives of the Ministry of Labour and Social Welfare, the Ministry of Education, the Ministry of Health, the Institute for Public Health, the Institute for Social and Child Protection, the Bureau for Education, the NGO 'Parents' and the NGO 'Pedagogical Centre'

literature review was conducted to select those that are most relevant and comparable to the Montenegrin case. Based on the literature review, cost-benefit ratios for certain services that are part of the aspirational package (immunization, breastfeeding, parenting support programmes) were used for this study. However, the cost-benefit ratio for preschool programmes was calculated specifically for Montenegro, based on a similar programme in Spain. Hence the current estimate represents an informed assessment of the potential of an aspirational ECD package and specific programmes/services. It is hoped that this analysis will serve as an important input for government consideration and prioritization of ECD policy and programmes and related investments and as a starting point for more comprehensive analyses.

Benefits were calculated by applying the cost-benefit ratio to the estimated investment required for each programme/service from the aspirational ECD package.

$$IR_a = AC_a * r_a$$

**IR** – return on investment

**AC** – additional cost estimated

**r** – cost-benefit ratio

The resulting calculations offer insight into which programmes/services offer the greatest benefits. However, it should be emphasized that the calculations are based on the assumption that service quality standards in Montenegro are similar to those of the services for which cost-benefit ratios were available.

## 2. CURRENT ECD EXPENDITURES

Current expenditure levels in early childhood development were calculated for each of the five domains of the nurturing care framework and for each mapped service – mainly based on data from 2016.

### 2.1. Health expenditures

Health expenditures include public expenditures for: preventive examinations of pregnant women, reproductive health counselling centres, perinatal care, preventive and curative examinations of children through the age of six, patronage services (e.g. home-visiting nurses), vaccination of children, services offered by centres for children with special needs and mental health centres at the primary care level.

**Period of pregnancy.** Total costs were calculated based on data from the Health Fund of Montenegro (HFM) on prices and number of preventive examinations during pregnancy:

Total costs	=	(No. of preventive examinations * Price per examination)	+	(No. of preventive ultrasound examinations * Price per examination)
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The total number of preventive examinations in 2016 was 33,566, and the number of ultrasound examinations totalled 64,325.<sup>7</sup> According to the price list for primary health services, the cost for one preventive examination is € 13.14 and one ultrasound examination costs € 10.51.<sup>8</sup> Thus, the total cost for preventive examinations was € 0.44 million and for preventive ultrasound examinations € 0.68 million, for a total cost of € 1.12 million for examinations during pregnancy.

Service provision during this period also includes the cost of reproductive health counselling centres which, according to HFM data, amounted to € 0.32 million in 2016. Thus, **total prenatal costs amounted to € 1.44 million.**

**Perinatal care.** Perinatal care covers services delivered in maternity wards, including childbirth and examinations and care of mothers and infants. These costs were estimated based on data for the number of childbirths in all hospitals and the price of medical and non-medical services. Key elements of this calculation were based on: (i) the average number of days spent in hospital after delivery and (ii) the number of premature infants, for which data was gathered during interviews with ECD policy makers and professionals in Montenegro.

<sup>7</sup> Data received from HFM.

<sup>8</sup> The HFM price list of for primary health services can be accessed at this link: <https://fzocg.me/Administracija/Documents/15700842031.%20Cjenovnik%20zdravstvenih%20usluga%20na%20primarnom%20nivou%20zdravstvene%20za%C5%A1tite.pdf>.

Table 1: Calculation of costs per new-born (in euros)

	Vaginal	C-section	Data source
<b>Number of births</b>	<b>4,722</b>	<b>2,131</b>	Information on scope of services provided by clinical centres, general and special hospitals in 2016 and Health Fund of Montenegro
Cost of childbirth	26.00	234.00	Price list of health services at secondary and tertiary level of health care – HFM
Cost of use of delivery room	13.30	13.30	Price list of health services at secondary and tertiary level of health care – HFM
Cost of initial hospital treatment of new-born	2.60	2.60	Price list of health services at secondary and tertiary level of health care – HFM
<b>Total costs of childbirth per child</b>	<b>41.90</b>	<b>249.90</b>	
Number of days of care for women and infants	3	6	Estimated based on interviews
Daily cost of medical care	14.13	14.13	Price list of health services at secondary and tertiary level of health care – HFM
Cost of medical materials, per one day on maternity ward	13.26	13.26	Price list of health services at secondary and tertiary level of health care – HFM
<b>Total cost of care per child</b>	<b>82.17</b>	<b>164.34</b>	
New-born discharge	3.90	3.90	Price list of health services at secondary and tertiary level of health care – HFM
Discharge list	7.80	7.80	Price list of health services at secondary and tertiary level of health care – HFM
<b>Total costs of discharge per child</b>	<b>11.70</b>	<b>11.70</b>	

The total costs were calculated as:

$$\begin{aligned}
 & \text{Total costs} \\
 & = (\text{No. of births} * \text{Cost of childbirth per child}) \\
 & + (\text{No. of births} * \text{Total cost of day care per child}) \\
 & + (\text{No. of births} * \text{Total cost of discharge per child})
 \end{aligned}$$

Furthermore, based on interviews, the study estimated 600 premature births per year. According to the HFM price list of health services for secondary and tertiary levels of health care, the daily cost of caring for premature infants is € 30.63 (compared to € 14.13 for other new-borns).<sup>9</sup> Although they are already included in the total number of births (Table 1), due to the difference in the cost of medical care for premature infants and due to their longer hospital stays, an estimated sum of € 0.10 million was added to the overall cost.

Taking into account the above assumptions and data, the **total cost of perinatal care was calculated at € 1.65 million.**

#### Patronage services (home-visiting nurses).

According to the study “Patronage nurse services in Montenegro – Situation analysis and reform options”, total costs per home visit are € 9.30.<sup>10</sup> The study noted that the number of mother and child health (MCH) home visits in 2016 was 31,484, including: home visits to children in the first year of life, health education for mothers and families, home visits to the child during the second year of life, home visits to the child at age 4 and visits to pregnant women and mothers of new-borns to provide health education. In 2016 the total cost of MCH patronage services was € 0.29 million, calculated by multiplying the number of home visits by the cost per visit.

**Costs of immunization.** The cost of immunization was calculated using the number of immunized children under the age of 6 and the average cost of specific vaccines and medical services.

$$\begin{aligned}
 & \text{Total cost} \\
 & = (\text{No. of Vaccine 1} * \text{Price of vaccine 1}) \\
 & + (\text{No. of Vaccine 2} * \text{Price of vaccine 2}) \\
 & + (\text{No. of Vaccine 3} * \text{Price of vaccine 3})... \\
 & + \dots (\text{No. of Vaccine n} * \text{Price of vaccine n}) \\
 & + \text{Costs of services of paediatric team}
 \end{aligned}$$

In 2016 some 56,925 doses were provided to children under 6 years of age, according to the IPH Yearbook.<sup>11</sup> The price of vaccines was estimated based on procurement data received directly from the IPH. The total value of vaccines provided was € 0.54 million. In addition, according to data received from HFM, the cost of administering vaccines was € 0.12 million.

Adding these two sums results in a **total cost of immunization in 2016 of € 0.66 million.**

**Preventive examinations.** HFM data shows that the total cost of preventive examinations of children under the age of six years amounted to € 0.33 million in 2016.

**Curative examinations.** The cost of curative examinations for children aged 0-6 years was calculated based on data from HFM and Montenegro’s master plan development for the health care system for the period 2010-2013.

No exact data on the number and cost of curative examinations in 2016 is available. However, according to the aforementioned master plan, curative examinations of children aged 0-6 make up 47.1 per cent of the total number of examinations nationwide. The assumption was made that this ratio remained largely the same over time. Thus 47.1 per cent was applied to the total number of examinations in 2016 (613,086<sup>12</sup>) to calculate the approximate number of curative examinations of children for 2016: 288,793.

9 The HFM price list of health services for secondary and tertiary levels of health care can be accessed at: [https://fzocg.me/Administracija/Documents/15700842744.%20Cjenovnik%20zdravstvenih%20usluga%20na%20sekundarnom%20i%20tercijarnom%20nivou%20zdravstvene%20za%20C5%A1tite%20\(STN\).pdf](https://fzocg.me/Administracija/Documents/15700842744.%20Cjenovnik%20zdravstvenih%20usluga%20na%20sekundarnom%20i%20tercijarnom%20nivou%20zdravstvene%20za%20C5%A1tite%20(STN).pdf)

10 D. Gzirishvili and N. Pejovic-Mandic, “Patronage nurse services in Montenegro – Situation analysis and reform options”, Unpublished report commissioned by UNICEF Montenegro, 2017, p. 28.

11 Figure obtained by adding up children’s vaccinations from the Institute of Public Health of Montenegro, “Health Statistical Yearbook 2016 of Montenegro”, available at <https://s3.eu-central-1.amazonaws.com/web.repository/ijzcg-media/files/1568799498-ijzcg-statisticki-godisnjak-za-2016-godinu.pdf>.

12 HFM, Report on realized contracts with Health Centres for 2016, p.16. Available at [https://fzocg.me/Administracija/Documents/1561023289Zbirni\\_izvjetaj\\_z\\_DZ\\_za\\_2016.pdf](https://fzocg.me/Administracija/Documents/1561023289Zbirni_izvjetaj_z_DZ_za_2016.pdf).



**Total costs = (No. of curative examinations \* Price per examination)**

The price of curative examinations was determined using the price list for primary health care services.<sup>13</sup> Since the number of initial and follow-up examinations was not available, the average price of services was calculated to be € 6.56 (representing the mean of the first curative examination – € 7.88 and the follow-up examination – € 5.25).

The total cost of curative examinations was calculated at **€ 1.90 million**.

**Cost of centres for children with special needs.** According to data received from the HFM, the total cost associated with centres for children with special needs amounted to **€ 0.36 million**.

**Cost of primary care centres for mental health.** The calculation of costs for mental health services for children aged 0-6 years was based on data for the total cost of mental health centres provided by the HFM. Of the total costs (i.e. the cost of each service provided by the centres), only those connected to children and their families were included here, for a total of **€ 0.04 million**.

**Total cost of health services**

The cost of health services for mothers and children was calculated by summing up all calculated costs per category, which reached a total of **€ 6.67 million** in 2016.

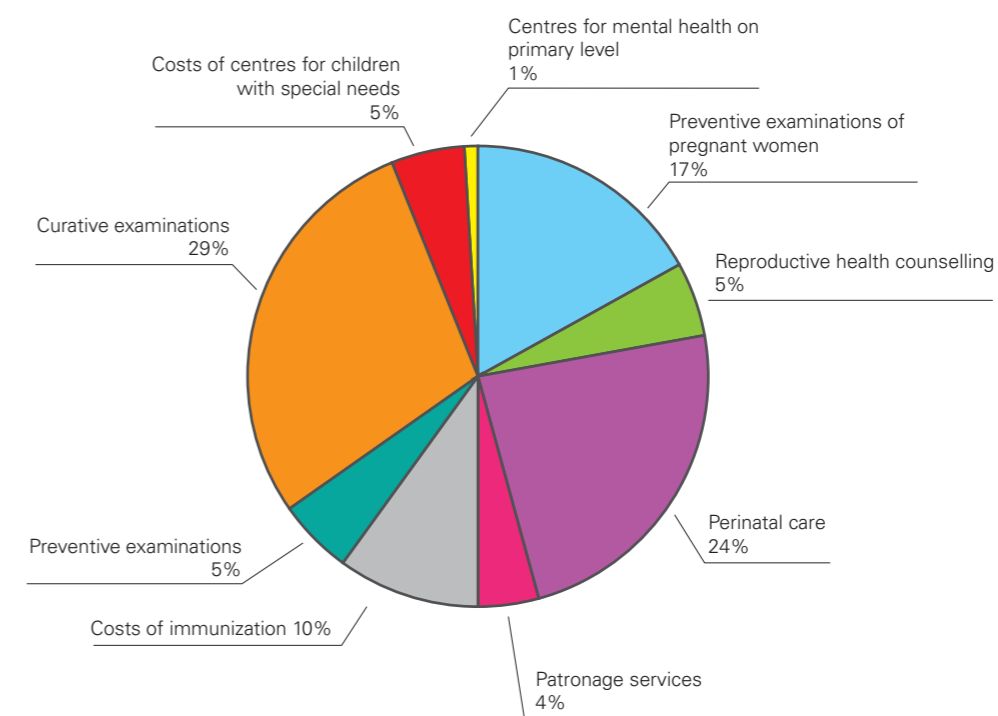
*Table 2: Cost of health services for children, 2016*

No.	Service	€ million
1	Preventive examinations of pregnant women	1.12
2	Reproductive health counselling	0.32
3	Perinatal care	1.65
4	Patronage services (preventative mother and child health)	0.29
5	Costs of immunization	0.66
6	Preventive examinations	0.33
7	Curative examinations	1.90
8	Costs of centres for children with special needs	0.36
9	Centres for mental health (primary level)	0.04
	Total	6.67

Source: ISSP calculations.

As can be seen in the figure below, the two most significant expenditure categories are curative examinations and perinatal care, which constitute 29 per cent and 24 per cent, respectively, of the total cost of health services.

*Figure 1: Structure of health costs*



Source: ISSP calculations.

## 2.2 Nutrition expenditures

Nutrition costs include the purchase of food for preschool institutions which is covered by the Ministry of Finance and Social Welfare (rather than parents). According to Montenegro's 2016 Budget Law<sup>14</sup> the total cost of nutrition in preschool institutions amounted to € 0.61 million.

## 2.3 Early learning opportunities

Early learning opportunities refers to budget expenditures for preschool education. According to the 2016 Budget Law, total expenditure for preschool education amounted to € 18.10 million.<sup>15</sup> In total, 18,957 children were enrolled in public preschools during the 2016-2017 academic year.

## 2.4 Responsive caregiving

No investments in this domain of ECD took place in 2016 (maternity and parental leave is included in the domain "Safety and security"; Section 2.5).

<sup>14</sup> State Audit Institution of Montenegro, "Audit report of the Final Account of 2016 Budget of Montenegro", available at: <http://www.dri.co.me/1/doc/lzvje%20C5%A1taj%20%20reviziji%20Predloga%20zakona%20o%20zavr%20C5%A1nom%20ra%20C4%8Dunu%20bud%20C5%BEeta%20Crne%20Gore%20za%202016.%20godinu.pdf>.

<sup>15</sup> Ministry of Finance and Social Welfare of Montenegro, "Proposal of the Law on Final Account of 2016 Budget of Montenegro", available at: <http://www.mif.gov.me/ResourceManager/FileDownload.aspx?rid=292026&rType=2&file=Predlog%20Zakona%20o%20zavr%20ra%20C4%8Dunu%20Bud%20C5%BEeta%20CG%20za%202016.%20godinu.docx>.

<sup>13</sup> The HFM price list of for primary health services can be accessed at this link: <https://fzocg.me/Administracija/Documents/15700842031.%20Cjenovnik%20zdravstvenih%20usluga%20na%20primarnom%20nivou%20zdravstvene%20za%20C5%A1tite.pdf>.

## 2.5 Safety and security

The estimated costs of providing safety and security include: cost of birth registration, maternity and parental leave expenditures, new-born child benefit expenses; social benefits (FMS and child allowance, excluding categorical benefits) and social services for children under 6 years of age.

**Birth registration.** The cost of birth registration was calculated based on labour costs and other data points, such as the number of births registered.

$$\text{Total cost} = \text{No. of births registered} * \text{Unit labour cost}$$

Unit labour costs were calculated as follows:

$$\text{Unit labour cost} = \text{No. of minutes spent on registration} * \text{Wage per minute}$$

Based on field interviews, it was estimated that the birth registration process takes an average of 10 minutes. Wage per minute was calculated based on average gross monthly wage (751 EUR in 2016, according to MONSTAT). Therefore, estimated labour cost per minute amounted to € 0.0712.

The total number of childbirths in 2016 was 7,569 (MONSTAT<sup>16</sup>).

Based on the above, the total cost was calculated at € 0.005 million in 2016.

**Family outreach services.** Total spending for family outreach workers was € 0.013 million in 2016. Costs were calculated based on data from the MFSW. The total cost of services for the population aged 0–18 was € 37,580.4. Since data by age groups is lacking, costs were estimated based on the percentage of children aged 0–6 years within the larger 0–18 age group, calculated at 34.6 per cent.

**Day care centres.** Estimation of costs for daily care centres was based on available data for the number of users and cost per user. The number of users was estimated based on data published in daily reports by the centres and information received from the MFSW (only 10 children from 0 to 6 years of age in 2016). The approximate cost per user was based on data and interviews with MLSW representatives and budget reports from local municipalities (total cost per child was estimated at € 500 per month per child).

Therefore, **total costs amount to € 0.060 million.**

**Foster care.** The average monthly payment to foster families, according to information obtained during interviews, was € 300. A total of 362 children were living with foster families, according to the MLSW.<sup>17</sup> The total costs for foster care amounted to **€ 1.303 million.** Since data by age groups is lacking, costs were estimated based on the percentage of children 0–6 years of age within the 0–18 age population (34.6 per cent). Consequently, total costs for foster care for children aged 0–6 would amount to **€ 451,000.**

**Counselling and therapy.** The estimation of costs related to counselling and therapy services includes only the cost of running a national hotline for victims of domestic violence. These costs in 2016 totalled **€ 0.023 million**, according to MFLSW data. (The cost

of psychologists at preschools are included under early childhood education.)

The cost of institutional care for children 0–6 is not included in the calculation. The aspirational package, however, takes into account the need for additional foster care placements for children 0–6 as the preferable option for alternative care.

**Social benefits.** Total expenditures for material support to families amounted to **8.385 million EUR.** Costs were calculated based on data from 2016 Budget Law.<sup>18</sup> Total FMS costs were weighted by the 76.99 per cent of families (of total FMS beneficiaries) that also received a child allowance, thereby eliminating FMS beneficiaries who have no children.

The total cost of child allowances was calculated based on the percentage of children aged 0–6 within the total population of children aged 0–18, which was applied to the total costs for child allowances mandated in the 2016 Budget Law.<sup>19</sup> The total costs for child allowances was thus calculated at **1.122 million EUR.**

The 2016 Budget Law also calls for social benefits related to maternity/parental leave and for new-borns. The total cost of these benefits was **15.584 million EUR.**

Table 3: Safety and security costs, 2016

No.	Type of safety and security costs	€ million
1	Birth registration	0.005
2	Family outreach worker	0.013
3	Day-care centres	0.060
4	Foster care	1.303
5	Counselling and therapy services	0.023
6	Social benefits	25.091
	6.1. Family material support	8.385
	6.2. Child allowance	1.122
	6.3. Other social benefits	15.584
<b>Total</b>		<b>26.495</b>

Source: ISSP calculations.

Based on these figures, the **total cost for safety and security was € 26.5 million in 2016.**

16 MONSTAT, "Vital Statistics 2016", available at: [https://www.monstat.org/userfiles/file/demografija/pr\\_kretanje%202016/Prirodno%20kretanje%20stanovnistva%20u%20Crnoj%20Gori,%202016%20godina.pdf](https://www.monstat.org/userfiles/file/demografija/pr_kretanje%202016/Prirodno%20kretanje%20stanovnistva%20u%20Crnoj%20Gori,%202016%20godina.pdf).

17 Ministry of Labour and Social Welfare of Montenegro, "Report on the work of Ministry of Labour and Social Welfare 2016", available at: <http://www.mrs.gov.me/informacije/planrada/171397/IZVJEStAJ-O-RADU-I-STANJU-U-UPRA-VNIM-OBLASTIMA-IZ-NADLEzNOSTI-MINISTARSTVA-RADA-I-SOCIJALNOG-STARANJA-ZA-2016-GODINU.html>.

18 The State Audit Institution, Ibid.

19 Ibid.



## 2.6. Conclusion

Public investments in early childhood development policies and programmes (including social protection which constitutes 51 per cent of total costs) in 2016 stood at € 51.88 million, representing 1.3 per cent of GDP or 2.4 per cent of the 2016 state budget. Without social protection expenditures, the percentage of GDP investment would be as low as 0.68 per cent.

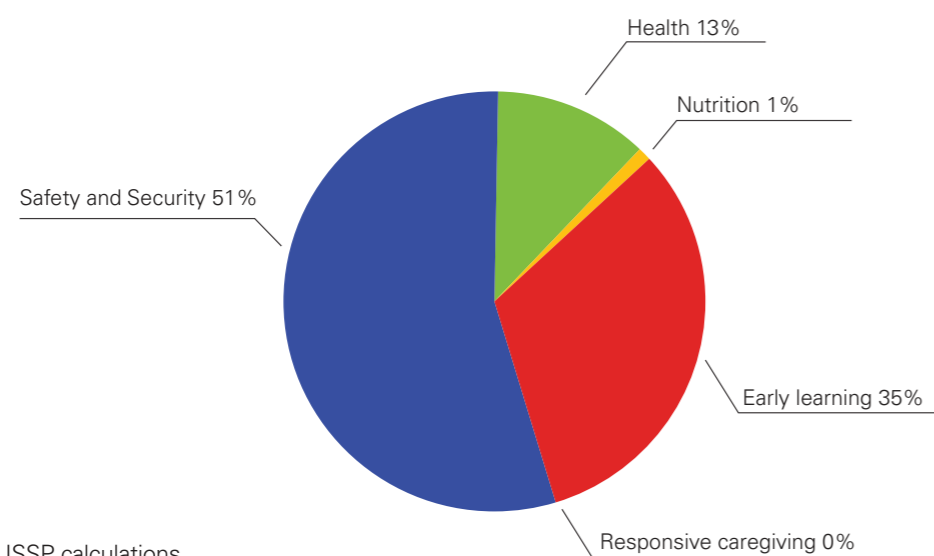
Table 4: Total ECD costs, 2016

No.	Costs of each NCF domain in Montenegro	€ million
1	Health	6.67
2	Nutrition	0.61
3	Early learning	18.10
4	Responsive caregiving	0.00
5	Safety and security	26.50
	Total	51.88

Source: ISSP calculations.

The figure below demonstrates that safety and security and early learning were by far the most costly elements of Montenegro’s expenditures on early child development.

Figure 2: Structure of investments in ECD programmes in Montenegro in 2016



Source: ISSP calculations

Spending of 1.3 per cent of GDP is below the targeted 2 per cent of GDP recommended by the Early Childhood Development Action Network (ECDAN) and the amount required to operationalize the G-20 ECD initiative. This level of investment is also below the estimated 0.8 per cent of GDP required to provide the World-Bank-defined ‘basic package of services’<sup>20</sup> and significantly lower than the estimated 3 per cent of GDP needed from middle-income countries to offer the enhanced package of services,<sup>21</sup> which excludes social protection.

<sup>20</sup> The basic package includes: prenatal health care, immunization, micronutrients, parent-oriented programmes, birth registration and one year of preschool education.

<sup>21</sup> The enhanced package includes the services defined in the basic package, as well as: access to clean water and air, appropriate sanitation and a 40:1 or lower student/teacher ratio in primary schools, but not social protection.





### 3. ASPIRATIONAL PACKAGE AND COST-BENEFIT ANALYSIS

#### 3.1. Defining and estimating the cost of the aspirational package

A 2020 analysis of services linked to ECD in Montenegro shows that policies and services in some domains of nurturing care have already been established, but improvement is needed in almost all areas.<sup>22</sup>

With regard to health, perinatal care does not meet international standards and initiatives to introduce the concept of 'baby-friendly' services have not been institutionalized. In addition, the planned preventative patronage nurse home-visiting services are being only partially implemented, the number of early intervention centres is limited and mental health centres are only available in a few municipalities. Preventive examinations of children are less frequent and shorter than those prescribed, due to paediatricians' workloads. In the area of nutrition, the three existing nutrition counselling facilities are underutilized. Breastfeeding promotion programmes exist but are not continuous, and mothers lack sufficient support to overcome breastfeeding problems. Education coverage is not universal, and the quality of pre-primary education programmes could be improved; toy libraries and development centres are available only in some municipalities. Parenting education recently started to be offered in a limited number of municipalities. In the area of safety and security, services by family outreach workers are only offered in some municipalities. Day-care centres are also not widely available and there are few public shelters for children and mothers victimized by violence. Implementation of counselling and therapy services is insufficient in practice. In almost all areas, lack of national protocols on implementation of certain services was noted by the study, along with a lack of regulations for monitoring and evaluating the quality of

services. Finally, very few protocols exist for record-keeping and exchange of information between institutions from different domains.

Communication with the reference group provided valuable input on required improvements, particularly in the domain of health services, specifically regarding improved services for pregnant women and prenatal services. The group also proposed the introduction of baby-friendly programmes in maternity wards. For services provided at home, there is a clear need to improve the patronage nurse service, especially by increasing the number of visits. A major problem underlying the suboptimal quality of almost all health services is the shortage of medical staff (gynaecologists, paediatricians, nurses etc.) and of training and educational programmes for medical staff, prompting proposals for more continuous education and increasing the number of health workers. Continuous promotion was proposed to increase immunization coverage.

In the area of nutrition, the importance of continued breastfeeding promotion was emphasized by the reference group, as well as programmes and services to help mothers cope with breastfeeding problems. In this context, the importance of patronage nurse services was re-emphasized.

In the domain of education the reference group stressed the need for continued efforts to promote preschool education and even more importantly, introducing new educational programmes, especially for children aged 0 to 3 years to stimulate brain development during this critical phase of life – and creating conditions for their full implementation. Services aimed at educating children unable

to attend preschool due to distance should be expanded to increase coverage.

In regard to responsive caregiving, existing programmes need to be further developed so that they are present in all municipalities.

In the area of safety and security, there is considerable room for upgrading existing services, such as community support services provided at day-care centres. Services that have recently begun to be implemented, such as the family outreach worker, should be extended to all municipalities. With regard to all of the services mentioned above, the importance of monitoring and controlling their quality was emphasized. The establishment of a children's shelter was proposed as a new service. In the area of material benefits, establishment of an alimony fund was proposed, along with amendments to existing regulations designed to advance beneficiary identification and targeting, particularly among vulnerable groups.

In relation to children with disabilities, reference groups members emphasized the need for developing early intervention programmes, primarily through the transformation of centres for children with special needs into early intervention centres and their establishment at all primary health care centres, with sufficient qualified staff. It is also important to provide these children with quality social and child protection services (day-care centres, etc.) and quality education.

Based on the results of the 2020 study and inputs from the reference group, an aspirational package of services was created. The aspirational package represents those services deemed to be a priority and comprises additional services and programmes needed to fill gaps in coverage and missing services. It includes:

- Filling the coverage gap for home-visiting services
- Introducing BFHI
- Promoting immunization

- Enhancing developmental screening and early intervention
- Promoting breastfeeding
- Increasing preschool education coverage in both the general and most vulnerable populations
- Implementing parenting programmes
- Enhancing protection from violence (introducing child protection protocols and counselling and therapy)
- Preventing family separation (improved coverage by family outreach services and foster care).

The desired state of affairs and the cost of achieving it are both estimated (see table below). The estimate mostly covers operational costs (including personnel costs). It does not include infrastructure costs, and it mostly excludes investments in improvement of quality due to the difficulty of estimating such costs for individual services and programmes.

The amount needed to cover the operational costs of implementation was estimated based on a set of assumptions. These calculations should be understood as an initial input and indicator of the importance of investing in ECD but should be further refined once more precise data becomes available.

22 Institute for Strategic Studies and Prognoses, "Early Childhood Development in Montenegro – An Overview of Services", Ibid.

Table 5: Summary of needed additional investments in Montenegro

		Current state of affairs	Desired state of affairs	Cost of the aspirational package (€ million)
Good health	Home-visiting service*	The home-visiting (patronage nurse) service is available in all municipalities; however, fewer visits than prescribed are being realized in practice.	Patronage services are provided in line with the regulations	0.23 for increasing operational costs only
	Perinatal care	The 'baby-friendly' concept has not become a routine practice in maternity wards in Montenegro	'Baby-friendly' concept implemented in all maternity wards	0.08 for increasing operational costs only <sup>23</sup>
	Immunization	Below 86%, depending on the vaccine (especially low for MMR), due to the practice of delaying vaccination and parental hesitation	95% of children aged 0–6 years vaccinated	0.20 for training professionals and for demand-generation activities
	Screening and early intervention	There are no standardized screening instruments for early identification of developmental disabilities; existing early intervention programmes are inadequate	Introduction of a standardized screening instrument; children with developmental delays and disabilities have access to early intervention services following best international practice	0.4 (protocols and training, rough estimate due to lack of data)
Adequate nutrition	Breastfeeding and support for breastfeeding	Mothers are not adequately supported to overcome problems related to breastfeeding; promotion programmes are not continuous	Children are exclusively breastfed during the first six months of life	0.05 for additional investment in promotional campaigns and counselling
Early learning opportunities	Preschool education for Roma children. Outreach activities and system support to enable access.	15.5% of children aged 3–5 years attend preschool education (MICS, 2018)	Full coverage	0.1 for outreach and access (estimate)
	National preschool education coverage rate	52.8% of children aged 3–5 years attend preschool education (MICS, 2018)	95% in 2020	5.8 increase in operational costs (excluding required infrastructure costs)
	Inclusive early education	100 children with disabilities attend early education programmes	Children with disabilities have improved access to early education programmes	0.13 for outreach and access (estimate)

23 Operational costs and investment in facilities increased by 5% after transition to BFH, according to: J. DelliFraine et al., "Cost comparison of baby-friendly and non-baby-friendly hospitals in the United States", Pediatrics, 127.4, April 2011, pp. 989-94.

Responsive caregiving	Support for parenting*	Support for parents is insufficient, sporadic and not widely accessible	National scale-up of an existing parenting programme ('Parenting for lifelong health for young children for parents of children aged 2–9')	0.30 operational costs based on the example of one programme
	Security and safety	Protection from violence*	Further training on recently developed procedures for handling cases of violence against children is needed; the level of development and application of various counselling and therapeutic services within the Centres for Social Work is low	Training on application of protocols for the protection of children from violence; scaling up counselling and therapy services for all children aged 0–6 years who are victims of violence
		Preventing family separation and institutionalization (family outreach worker, foster care)	Family outreach worker service is available in seven of 24 municipalities; foster-care services remain underdeveloped	Family outreach worker services available in all municipalities; further development of the foster care programme
<b>Total investment</b>				<b>751</b>
* denotes services with a high potential for multisector cooperation				

Note: The package of services that requires additional investment does not include material benefits, such as financial support and child allowances. However, material benefits play an important role in poverty reduction. According to a 2018 study by MONSTAT ("Statistics on Income and Living Conditions") social transfers contribute to poverty reduction by 7.8%. Enhancing these benefits should be considered, expanding outreach to cover all families with children aged 0–6 years at risk of poverty.

Source: ISSP

## Further details on annual investment required

**Patronage services.** According to the study “Patronage nurse services in Montenegro –Situation analysis and reform options”, the additional investment needed to provide full implementation of standards for patronage services in Montenegro amounts to € 0.23 million.<sup>24</sup>

**Perinatal care.** Additional investments needed for perinatal care were estimated based on inputs from the study ‘Cost Comparison of Baby-Friendly and Non-Baby-Friendly Hospitals in the United States’<sup>25</sup> and the cost of current levels of perinatal care in Montenegro. According to the study, baby-friendly facilities have 5 per cent higher costs than non-baby-friendly facilities. Current spending on perinatal care in Montenegro is € 1.60 million; the total additional investment required was estimated to be € 0.08 million.

**Immunization.** Additional immunization investments would be needed to achieve the target coverage of 95 per cent. Estimated costs include training of health professionals and awareness-raising campaigns and other demand-generation activities targeting caregivers. Achieving this, according to an estimate by UNICEF Montenegro, would require around € 1 million over the next five years, or € 0.20 million annually. Thereafter, demand-generation activities would be required to maintain the rates, but possibly at a lower cost.

**Screening and early intervention.** Introduction of standardized child development monitoring and screening instruments and enhancement of early intervention services for children with developmental delays and disabilities, following international best practice and the social model of disability, would require additional resources. An estimate of € 0.4 million was used, however a more precise cost estimate is expected in the next two years.

**Breastfeeding campaigns.** Based on the campaigns that UNICEF has implemented to date, it was estimated that the additional cost of campaigns for breastfeeding and support for breastfeeding counselling would be at least € 0.05 million.

**Preschool education.** The starting point for projecting additional operating costs for preschool education was the goal of covering 95 per cent of children aged 3 to 6 years with early education by 2020, which was set out in the strategy for early and preschool education in Montenegro 2016-2020.

To estimate the additional number of children who need to be enrolled to achieve the target, both the current number of children aged 3 to 6 years attending preschool and the number of additional children needed to reach the target were calculated. The number of children aged 3–6 years in preschool institutions or early childhood education was calculated to be 15,735, or 76.07 per cent of all children enrolled in preschool institutions (20,686 children).<sup>26</sup>

The number of children aged 3–6 to be targeted was estimated based on MONSTAT population projections for 2018, and the percentage of children aged 3, 4 and 5 years on the total population according to 2011 census data.

**Number of children = (No. of children aged 3–6 in 2011/population in 2011) \* Population in 2018**

The estimated number of children aged 3 to 6 years in 2018 was 22,290. Since the target is to enrol 95 per cent of children in this age group, 21,175 children would need to be enrolled in preschool education.

The difference between current and targeted enrolment is 5,440 children. Using the cost per child of € 1,066 as per the 2014 study,<sup>27</sup> the total **additional investment to cover op-**

**erational costs would be € 5.80 million.** As noted previously, this figure does not include infrastructure costs, which are essential to absorb more than 5,000 additional children.

The cost of additional investment in preschool education for **children with disabilities** was estimated at € 0.13 million. Since an increase in coverage at the national level (as described above) would include children with disabilities, the figure of 0.13 million EUR refers only to the cost of additional activities to improve outreach and access to preschool.

Enrolling **Roma and Egyptian children** into preschool education requires an **additional € 0.1 million.** According to the Strategy for Social Inclusion of Roma and Egyptians in Montenegro (2016-2020),<sup>28</sup> only 21.5 per cent of Roma children are enrolled in preschool education. Since an increase in coverage at the national level (as described above) would include Roma children, the above figure of € 0.1 million refers only to the cost of additional activities to improve outreach and access to preschool in ethnic minority communities.

**Parenting.** Calculation of needed investments for parenting programmes is based on the assumption that 2,000 parents should participate in parenting programmes annually, as per inputs from UNICEF Montenegro. Also, according to UNICEF’s preliminary estimate, the cost per parent for evidence-based parenting programmes amounts to € 150 (based on the UNICEF-supported programme Parenting for Lifelong Health for Young Children). Total additional investment needed for parenting programmes amounts to **€ 0.30 million.**

**Counselling and therapy.** The calculation of additional needed investment in counselling and therapy services was based on an estimate of the number of victims of violence and the cost of therapy. The average number of victims during the period 2014–2018 was 409 (MLSW). Assuming a minimum of eight therapy sessions per user and an approx-

imate price per session of € 30 (based on interviews), the total additional investment for counselling services would amount to **€ 0.10 million** annually – assuming that the number of victims of violence remains stable.

**Family outreach workers.** The additional investment required for family outreach services was based on the assumption that this service should be available in all municipalities in Montenegro. At the time the report was being written, it was available in just seven municipalities (Bijelo Polje, Podgorica, Kotor, Budva, Herceg Novi, Pljevlja and Zabljak), covering a small number of highly vulnerable families within a total population of 348,095 citizens. The cost amounts to € 13,020. Additional investment would make this service available to additional vulnerable families in the remaining population (274,132 citizens), based on the 2018 MONSTAT population projection of 622,227, and would require **a minimum investment of € 0.01 million.**

**Foster care.** Average monthly payments to foster families, according to information provided during interviews, are € 300. The total number of foster children is estimated based on the assumption that all children currently living in an institution in the country or abroad or living with family but may still be in need of foster care (approximately 30 children) would be placed with a foster family. Thus the total investment required to place additional children aged 0–6 years in foster care is calculated at **€ 0.11 million per year.**

To implement the aspirational package of services with the current level of service quality, **an additional annual investment in ECD programmes of € 7.51 million would be required.**

24 Gzirishvili and Pejovic-Mandic, *ibid.* p. 40.

25 DelliFraine et al., *ibid.*

26 I. Prica, L. Čolić, and H. Baronian, “A study on investing in early childhood education in Montenegro,” UNICEF, Podgorica, 2014.

27 Prica, Čolić and Baronian, *Ibid.*

28 Ministry of Justice, Human and Minority Rights of Montenegro, “Strategy for the Inclusion of Roma and Egyptians in Montenegro 2016-2020,” available at <http://www.mmp.gov.me/ResourceManager/FileDownload.aspx?rid=234110&Type=2&file=Strategija%20za%20sociojalnu%20inkluziju%20Roma%20i%20Egip%C4%87ana%202016-2020%20i%20AP%20za%202016.pdf>.



### 3.2 Assessment of the cost-benefit ratio

To ascertain the benefits of the proposed investments and evaluate the financial impact, Table 6 identifies the potential return on investment for specific service packages, based on an analysis of international studies relevant to the Montenegrin context.

Table 6: Estimated cost-benefit ratio for Montenegro

Programme	Estimated cost-benefit ratio for Montenegro	Justification
Immunization	16:1	Based on the assessment of ROI in immunization in middle-income countries <sup>29</sup>
Nutrition – support for breastfeeding	35:1	Based on the assessed ROI of breastfeeding support programmes at the global level <sup>30</sup>
Preschool education for the general population <sup>31</sup>	74:1	Based on the results of implementation of a preschool education improvement programme implemented in Spain, with characteristics similar to Montenegro's preschool education programme, and adjusted for Montenegro, <sup>32</sup> it is expected that for vulnerable children the cost benefit would be even greater, this should be the subject of additional assessments.
Parenting support programmes	14:1	Based on analysis of the results of implementation of a parenting programme in Estonia, with characteristics similar to the parenting programme being delivered in Montenegro <sup>33</sup>

### Detailed explanation of assumptions for the cost-benefit ratios used in this paper

**Breastfeeding.** The most recent data from the Global Breastfeeding Initiative was used to calculate the rate of return for breastfeeding initiatives.<sup>34</sup> The data show that every dollar invested in breastfeeding generates US\$35 in economic returns. The estimates are based on several benefits, among which the two most important are: prevention of child mortality and children's cognitive development, which impacts their educational attainment, participation in the workforce and lifetime earnings. In addition, this rate of return includes the benefit of reducing the risk of ovarian and breast cancer among women. This ratio was applied to BFHI and to home visitation (given the potential of this service to promote and support breastfeeding).

**Immunization.** A review of literature on the ROI for immunization showed the feasibility of using the results in low- and middle-income countries. The study assessed ROI associated with achieving projected coverage levels for vaccinations to prevent diseases in 94 low-income and middle-income countries covered by the Global Alliance for Vaccination from 2011 through 2020.<sup>35</sup> Authors used the cost-of-illness approach related to ten antigens<sup>36</sup> and projected that immunizations would yield a net return about 16 times 10 cost of investment. The study also quantified the broader economic benefits using the full income approach and found that, more broadly, the net return was 44 times the cost.

The authors decided to use the conservative rate of 16 in the case of Montenegro.

**Parenting support programmes.** One study that sought to apply the international methodology to a national context was the 'Incredible Years' (IY) parenting programme in Estonia.<sup>37</sup> IY was developed in the United States and implemented in many countries; in Estonia it was piloted from 2014 to 2017. The programme aimed to help parents of pre-schoolers (i.e. children 3–6 years of age) to develop effective strategies to prevent or cope with children's behavioural problems and developmental issues. The Estonian study assessed the effects of the programme, taking into account both its direct, proven impacts and the expected impacts arising from a future decrease in behavioural problems during the person's life.<sup>38</sup>

According to the analysis, the Estonian pilot project had an internal rate of return of 23 per cent, and for each euro invested saved € 14.4 in the long run.<sup>39</sup> This rate of return was used for Montenegro.

**Preschool education.** The assessment of the rate of return on pre-school education was based on a comprehensive literature review of the costs and benefits of preschool educational programmes, as illustrated by the case study below.

29 ISSP analysis based on Ozawa, S., et al., "Return on Investment from Childhood Immunization in Low- And Middle-Income Countries, 2011–20," Health Affairs, 35, 2, 2016, pp. 199–207.

30 ISSP analysis based on Global Breastfeeding Initiative, "Nurturing the Health and Wealth of Nations: The Investment Case for Breastfeeding," Geneva, WHO, 2017.

31 An assessment for preschool programmes for vulnerable groups has not been completed due to data limitations but according to analysis and the literature, the cost-benefit ratio is expected to be higher compared to the general population.

32 ISSP analysis based on T.M. van Huizen, E. Dumhs, and J. Plantenga, "A Cost-Benefit Analysis of Universal Preschool Education: Evidence from a Spanish Reform," Working Papers 16–11, Utrecht School of Economics, 2016.

33 ISSP analysis based on M. Kärson, "The Incredible Years – Implementation in Estonia," presentation of the evaluation results of this parenting programme in Estonia, 2019.

34 Global Breastfeeding Initiative, "Nurturing the Health and Wealth of Nations: The Investment Case for Breastfeeding," WHO, Geneva, 2017.

35 S. Ozawa, et al., "Return on Investment from Childhood Immunization in Low- And Middle-Income Countries, 2011–20," Health affairs, 35 2, 2016, pp. 199–207.

36 Haemophilus influenzae type b, hepatitis B, human papillomavirus, Japanese encephalitis, measles, Neisseria meningitidis serogroup A, rotavirus, rubella, Streptococcus pneumoniae and yellow fever.

37 CIVITTA, Vanemlusprogrammemei "Imelised aastad" mõjuvaldkondade ning kulude ja tulude analüüs, 2016.

38 The study used: (i) the Eyberg Child Behaviour Inventory score to assess the effectiveness of the programme, (ii) the frequency of use of health and social services, which has been measured in international studies with the help of the Client Service Receipt Inventory questionnaire, (iii) costs related to the implementation of the IY programme and (iv) long-term impacts revealed through later events in the person's life (lower probability of commission of crime, shorter time spent in unemployment and greater probability of attaining a higher level of education).

39 Presentation from the workshop "Baltic workshop to build capacity in parenting programmes to prevent violence against children" held in Vilnius, Lithuania 8-9 January 2019, available at: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0014/401054/Baltic-workshop\\_Vilnius-Jan-2019-report-FINAL.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0014/401054/Baltic-workshop_Vilnius-Jan-2019-report-FINAL.pdf?ua=1).

### 3.2.1. Case study: Cost-benefit analysis of preschool education

Among the most well-known assessments of the rate of return on preschool education are reviews of the HighScope Perry Preschool project (1962), ABC/CARE(1972) and a 1985 Chicago preschool project conducted by American Professor James Heckman.<sup>40</sup> The U.S. studies also include reviews of several large-scale public programmes, such as Head Start and a pre-K programme in Tulsa, Oklahoma. The findings are summarized below:

- Analysis of the HighScope Perry Preschool project shows that the ratio of benefits to cost was US\$ 8.74 per dollar invested, by age 27. Most of the benefits were due to increased earnings and savings on crime prevention. The programme was targeted to low-income black children; the cost per child was US\$18.26.
- The Carolina Abecedarian (ABC) project and the Carolina Approach to Responsive Education (CARE) offered comprehensive developmental resources to disadvantaged African-American children from birth to age 5, including nutrition, access to health care and early learning. It showed a 2-to-4 times return ratio, assessed at age 21. The main benefits were increased earnings by mothers, increased life-expectancy (associated with lower tobacco use) and savings on remedial education.
- The Chicago Child-Parent Center (CPC) early education programme was a high-quality early education and parenting programme in the U.S. city of Chicago, with a programme cost of US\$9.00 per child. It demonstrated the high economic returns for preschool programmes: for each dollar invested the return was \$10.80 by the age of 26). The benefits included increased earnings and tax revenues; averted

criminal justice system and victim costs; and savings on child welfare, special education and grade repetition. In addition, the study showed that the returns on the preschool programme were higher than those for school-age programmes.

- In 2014 the Washington State Institute for Public Policy reviewed earlier preschool programmes (both targeted and universal), and concluded that, on average, benefits outweighed costs by four-to-one for state and local programmes and by 2.5-to-1 for Head Start. The Institute also calculated that the benefit of reducing the average size of a kindergarten class by just one student had a 94 per cent chance of producing higher benefits than costs.
- A study of the effects of a large-scale universal preschool programme in the U.S. city of Tulsa, Oklahoma found that benefits exceeded costs by about two-to-one – considerably lower than the cost-benefit ratios of more targeted and intensive pre-school programmes such as Perry Preschool and CPC programmes.

The U.S. studies presented above are some of the best-known studies of the benefits of preschool educational programmes. However, they may not be fully relevant to a country located in Europe. The major difference is that the U.S. programmes targeted disadvantaged groups and were run for many years. In addition, the overall economic and social context in the U.S. and Europe is different, especially in terms of the labour market, organization of social security and crime rates. For this reason, the present study also reviewed studies in Europe.

Two available studies that offer sufficient information took place in Spain and Ireland. The most recent study examines the impact

of a Spanish education reform that lowered the age of eligibility for publicly provided universal preschool from age 4 to age 3. The study calculated the benefit-cost ratio of this intervention at around 4:1, noting that the reform had a positive impact on maternal employment and improved child development.<sup>41</sup>

In 2005 the Irish National Economic and Social Forum estimated the long-term

societal benefits of a state-funded universal early education programme, concluding that benefits were seven times greater than associated costs. Benefits were achieved in the areas of educational outcomes, labour market earnings and taxation, the justice system and the value of childcare for families. The findings are summarized in the table below.

**Table 7: Cost-benefit analysis of some preschool educational programmes**

Programme	Type of programme	Estimated benefits	Cost benefit ratio
<b>HighScope Perry Preschool, USA</b>	High-quality programme for disadvantaged population	Increased school and career achievement as well as reduced costs in remedial education, health and criminal justice system expenditures.	7–10
<b>ABC/CARE, USA</b>	University-centred high-quality programme	Health, quality of life, participation in crime, labour income, IQ, schooling and increases in mothers' labour income as a result of subsidized childcare. <sup>42</sup>	6.3
<b>Chicago Child-Parent Center Early Education Programme, USA</b>	High-quality parenting education programme	Earnings and tax revenues; averted contact with criminal justice system and victim costs; savings on child welfare, special education and grade retention. <sup>43</sup>	10
<b>Head Start, USA</b>	Federal programme funding early childhood education, social services and health services for children aged 3 and 4	Reduced crime, labour market earnings associated with high school graduation, savings on grade repetition, public assistance, health care associated with educational attainment	2
<b>Washington State and local programme, USA</b>	Universal programme or programmes targeting low-income students	Reduced crime, labour market earnings associated with high school graduation, savings on grade repetition, public assistance, health care associated with educational attainment	4
<b>LOGSE - Spain reform</b>	Universal preschool public programme	Maternal employment and improved child development	4
<b>Irish public programme</b>	State-funded universal early education programme	Education outcomes, labour market earnings and taxation, justice system and savings for families on the cost of childcare	4–7

A detailed review of the programmes analysed led to the conclusion that the positive results identified in the 2014 Heckman study could possibly be applied in the case of preschool programmes targeted to vulnerable populations in Montenegro, for instance Roma and Egyptian children. For the purposes of this study, however, the Spanish cost-benefit ratio was used as the starting point (return ratio of 4), which was then adjusted for Montenegro and applied to Montenegro, i.e., 7.4 ROI.

41 Van Huizen, Dumhs and Plantenga, "A Cost-Benefit Analysis"

42 Centre for Early Childhood Development, "Early Years," *Bulletin of the Centre for Early Childhood Development*, 23: 1, February 2017. <https://cecd.org.za/wp-content/uploads/2020/01/early-years-february-2017.pdf>.

43 J. Reynolds, J. et. al., "Age-26 Cost-Benefit Analysis of the Child-Parent Center Early Education Programme," National Institutes of Health, 2011, p.1. <https://hubert.hhh.umn.edu/ECEpdf/Reynoldsetal2011.pdf>.

### 3.2.2 Calculation of the cost-benefit ratio of the preschool education programme in Montenegro based on the 'LOGSE' reform in Spain

To evaluate the cost-benefit ratio for preschool education, some inputs were obtained from a case study of the effects of investing in preschool education in Spain. The 'LOGSE' reform initiated in 1997 extended eligibility for preschool education by one year. Specifically, before the reform children of four and five years of age were eligible for free, universal public preschool education. The reform increased eligibility to three-year-olds, leading to a significant increase in public preschool enrolment rates. The reform not only increased the availability of preschool services for 3-year-olds, but also had an impact on the quality of services by regulating educational content, group size and educational requirements for staff. The effects of these measures were evaluated by experts in the report "A Cost-Benefit Analysis of Universal Preschool Education-Evidence from a Spanish Reform".<sup>44</sup>

This study is relevant for analysing the cost-benefit ratio of preschool education, as it uses a specific example to quantify the monetary effects of exactly one additional year. In addition, the analysis is comprehensive and allows for the application of certain assumptions when calculating cost-benefit ratios in other countries, including Montenegro. The study not only provides a cost-benefit analysis of expanding access to universal preschool education, it also takes into account the diverse and rich literature on this topic and incorporates the findings into its assessments, thereby contributing to universality in approaches to assessing the ROI of preschool education.

The authors use 'intention-to-treat' (ITT)<sup>45</sup> effects derived from other literature for further calculations to provide an overview

of the estimated impact on maternal employment and child development. Hence, newly calculated impact ('treatment-on-treatment effects', or TOT) become the central parameters, as they indicate the effects of reform per child in preschool on post-reform student cohorts.<sup>46</sup> The authors compare the cost of one additional 3 year old in preschool with the average benefits gained by mothers' ability to join the workforce and improving the cognitive skills of a 3 year-old. This approach permits an estimate of the benefit/cost ratio of the investment, and the results provide insight into how well investment in preschool education pays off; that is, the value, expressed in monetary terms, that society receives back for each euro invested.

This study is appropriate for application in Montenegro because it provides a broad view of the impacts, describing how to use TOT effects to extrapolate the benefits to parents, children and taxpayers. The authors opine that these TOTs can be applied in the case of Montenegro due to the similarity between the systems.

Hence, in the case of Montenegro the impact on children (through improved skills reflected through life-time employment and wages), parents (through maternal employment and reduced wage penalty) and taxpayers (through taxes on earnings) were all measured.

Table 8: Measured cost-benefit ratio in preschool education

	Children	Parents	Taxpayers	Society
<b>Measured effects</b>				
<b>Maternal employment effect</b>				
<b>Mothers' earnings</b>		1,226.4		1,226.4
<b>Taxes on earnings</b>			110.4	110.4
<b>Grade retention (cost primary school)</b>				
<b>Projected effects</b>				
<b>Mothers' earnings</b>				
<b>Reduced wage penalty</b>		218.5		218.5
<b>Taxes on earnings</b>			19.7	19.7
<b>Grade retention</b>				
<b>Child's earnings</b>				
<b>Taxes on earnings</b>				
<b>Improved skill effect</b>				
<b>Child's earnings (wage effect)</b>	4,278			4,278
<b>Child's earnings (employment effect)</b>	1,475.5			1,475.5
<b>Taxes on earnings</b>			517.8	517.8
<b>Total benefits</b>	5,753.5	1,444.9	647.9	7,846.3
<b>Total costs</b>			1,066.0	1,066.0
<b>Net present value</b>	5,753.5	1,444.9	-418.1	6,780.3
<b>Benefit/cost ratio</b>			0.6	7.4

Source: ISSP calculations.

Since there is no data on the average wage for women by age group, it was necessary to make calculations based on an overall average wage. The assumption on real wage growth was the average growth rate for the last 10-year period (0.75 %).

For the category "mothers' earnings" (maternal employment effect) the TOT of 0.2 estimated in the Spanish case was multiplied by the average annual wage for 2018. Savings from the reduction in the time a mother's career was interrupted by childcare responsibilities were also estimated. The average wage over the next five years was projected and served as the basis for calculating savings, using the following formula:

Year 1: TOT value (0.2) \* estimated annual wage \* 0.076- (wage reduction avoided)

Year 2: TOT value (0.2) \* estimated annual wage \* 0.046- (wage reduction avoided in second year)

Year 3: TOT value (0.2) \* estimated annual wage \* 0.029- (wage reduction avoided in third year)

Year 4: TOT value (0.2) \* estimated wage \* 0.02- (wage reduction avoided in fourth year)

Year 5: TOT value (0.2) \* estimated wage \* 0.016- (wage reduction avoided in fifth year)

44 Van Huizen, Dumhs and Plantenga, Ibid.

45 ITT (intent to treat) refers to those made eligible for treatment/intervention.

46 TOT (treatment of treated) refers to those who actually benefitted from the treatment/intervention. The TOT impact was calculated in the Spanish case by dividing the ITT by the relative increase in public preschool coverage.



These reductions were discounted using the same rate as the Spanish study (3 per cent). The sum of such amounts is equal to the savings from a reduced length of career interruption.

However, the benefits to children are the most impressive, and can be seen through life-time impact on wages and employment.

The total number of boys and girls aged 3–6 in Montenegro was calculated using MONSTAT population data and the number of infants born during the three consecutive previous years, ending with 2015. At the end of 2018, these children constituted the 3–6 age cohort. This number was used to estimate the benefits per child (i.e. wage effect and employment effect). Current coverage (53 per cent) and target coverage (95 per cent) for preschool education was used for this exercise to facilitate the calculation of differences in the number of employed in the future.

For the category child earnings ('wage effect') the average salary for Montenegro for the next 58 years was projected, based on the assumption that the average 3 year old will start to work at age 21 (18 years from now) and that she/he will be active in labour market for 40 years (until 2078). For that period, a 5.5 per cent wage increase due to participation in a preschool programme (as was calculated for the Spanish case) was applied to the projected average wage.

### 3.3 Final results

This monetary calculation was based on the estimated costs of a selection of services in the aspirational package and cost-benefit ratios of each of the services that were included in the analysis. The returns presented can be expected in cases for which the quality of Montenegrin programmes is comparable to the interventions on which the cost-benefit ratios are based. The values calculated also highlight the loss (or opportunity cost) that Montenegrin society may pay if it fails to invest in early childhood development.

Then, the discount rate of 3 per cent was used to calculate the present value of benefits. This figure was calculated for the projected number of employed. To estimate only the wage effect, the same (current) employment rate was applied throughout the entire period. This figure was applied to the number of those included in the difference in preschool education coverage to calculate the benefit per person.

Child earnings ('employment effect') were calculated by using the assumption (used in the Spanish case) that children who attend preschool are 1.8 per cent more likely to be employed. Expanded coverage is used as a basis for calculating differences in employment. The current employment rate and increased employment rate were used to calculate the difference in employment (applied only to the additional children to be covered by preschool education). This figure was then multiplied by the average projected wage and discounted. The discounted value was divided by the additional number of children covered by the preschool education programme.

In total, all measured and projected impacts on society can be understood through **the cost-benefit ratio, which amounts to 7.4 in the case of Montenegro.**

Table 9: Summary of additional investments and return on investments

	Additional investment (million EUR)	Return on investment (million EUR)
Parenting	0.30	4.20
Immunization	0.20	3.20
Child developmental monitoring, screening and early intervention	0.4	Data not found
Preschool education	5.80	42.92
Family outreach worker service	0.01	Data not found
Counselling and therapy services	0.10	Data not found
Foster care	0.11	Data not found
Patronage services	0.23	8.05
Campaigns for breastfeeding	0.05	1.75
Perinatal care - BFHI	0.08	2.80
<b>TOTAL</b>	<b>7.28</b>	<b>62.92</b>

Source: ISSP calculations

Note: the estimated costs do not include the costs of service quality improvement and infrastructure cost

If Montenegro were to **invest € 0.20 million** annually in programmes aimed at increasing the coverage of full childhood immunization to 95 per cent – including awareness-raising among parents, education and training programmes for health professionals and programmes to improve vaccine management – the **benefits would amount to € 3.20 million** over the long run.

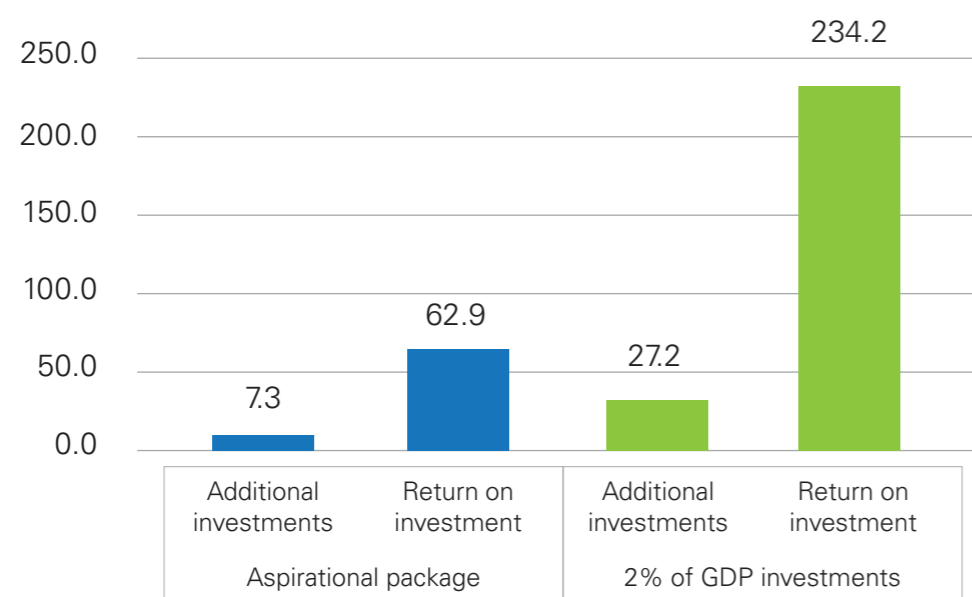
From an annual **investment of € 0.08 million in enhancing** perinatal care by introducing BFHI in maternity wards, € 0.23 million for increasing coverage of patronage/home visitation service and € 0.05 million for campaigns that encourage breastfeeding – **a return of € 2.80, € 1.75 and € 8.05 million respectively could be expected.** This return would be the result of improved cognitive abilities among children, leading to better educational outcomes, as well as higher earnings, reduced child mortality rates and a reduction in health expenditures due to the population's improved health status.

If Montenegro **increased its investments in preschool education by € 5.80 million** to cover 95 per cent of children aged 3–6 years,

in the long run the country **would obtain a return of € 42.92 million**, thanks to improved child development, increases in their future earnings and improved employability of mothers. The benefits of programmes targeting particularly vulnerable children are likely to be even greater and deserve a separate analysis (given that vulnerable children are already included in the national coverage, to avoid duplication they were not included in this calculation).

**Investment of € 0.30 million annually in programmes to strengthen parenting skills could generate benefits of up to € 4.20 million** in the long run. This return would result from reduced behavioural problems among children, which in turn would reduce their use of health and social services, likelihood of engaging in criminal activities and time spent in unemployment, as well as increasing their chances for better educational outcomes. If additional parenting support programmes tailored to fit different categories were implemented, the initial investment would be higher but would result in a higher rate of return.

Figure 3: Estimated investment and return on investment (in € million)



Source: ISSP calculations.

A total additional investment of € 7.28 million could be expected to yield benefits of € 62.92 million (1.6 per cent of 2016 GDP, or 1.3 per cent of 2019 GDP) over the long run. The rate of return is underestimated, given that data on ROI for child developmental monitoring, screening and early intervention, preschool education for vulnerable children, family outreach worker service, foster care and counselling and therapy services were not included in the calculation.

If Montenegro were to increase its investment in ECD programmes from 1.3 to 2 per cent of 2016 GDP, this would translate into an additional investment of € 27.2 million. The long-term return on this kind of investment would be € 234.2 million, or 4.7 per cent of the country's 2019 GDP.

However, it should be stressed that the figures presented were calculated based on several assumptions. The first is that cost-benefit rates for each programme are drawn from global literature, (except for education benefits, which were adjusted to the Montenegrin case). This means that presented returns should be expected when the quality of the Montenegrin programmes is at least equal to the standard for interventions on which the cost-benefit ratios are based. The second is that this analysis does not include capital costs (investment in infrastructure) and the third is that calculations ignore benefits that are not measured in financial terms and are thus conservative. Despite these limitations the analysis is sufficiently illustrative to clearly highlight the positive effects and importance of investing in early childhood development.

## 4. CONCLUSION

Montenegro has child development policies, programmes and services in all five domains of NCF. **Investment in these policies and programmes in 2016 stood at € 51.88 million, representing 1.3% of GDP.** Without social protection expenditures, the percentage of GDP investment would be only about 0.68%. This level of investment is below the 0.8 per cent of GDP estimated by the World Bank to be needed for a basic package of services excluding social protection and significantly less than the 2 per cent target suggested by ECDAN.

To implement the aspirational package of services with the current level of quality of services provided, **an additional annual investment in ECD programmes of € 7.28 million is needed. In the long run, these investments are expected to yield benefits valued at minimum € 62.92 million (given the lack of data on some services), or 1.3 per cent of the GDP for 2019.** These costs do not include spending on improving service quality or expanding/improving infrastructure.

Reaching the most vulnerable families and children with adequate services would require additional investment but offers significant long-term returns. Failure to make this additional investment in early childhood development would mean a loss of potential for Montenegrin society.

To avoid such a loss, Montenegro should consider adopting a **comprehensive, costed national early childhood development policy** that integrates all domains of the nurturing care framework.

The introduction of new services, or service packages, should entail an analysis of the costs and impacts of such investments on beneficiaries. Longitudinal studies or evaluations to accurately determine the effects and return on investment of these services in Montenegro is recommended.

This paper confirms that investing in early childhood development is one of the most cost-effective investments that a government can make, as it generates cognitive capital, which is the basis for economic and social prosperity.

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