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**A STUDY ON INVESTING IN
EARLY CHILDHOOD EDUCATION
IN MONTENEGRO**

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LIST OF ACRONYMS

GLE	General Law on Education of Montenegro
IMF	International Monetary Fund
IS	Interactive Service
LPE	Law on Primary Education
LPSE	Law on Preschool Education of Montenegro
LSCP	Law on Social and Child Protection
ME	Ministry of Education of Montenegro
MLSW	Ministry of Labour and Social Welfare of Montenegro
MNE	Montenegro
MONSTAT	Statistical Office of Montenegro
OGM	Official Gazette of Montenegro
OGRM	Official Gazette of Republic of Montenegro
PPP	Preschool Preparatory Programme
PSE	Preschool Education
PSI	Preschool Educational Institution
RE	Roma and Egyptian
UNICEF	United Nations Children's Fund
WB	World Bank

EXECUTIVE SUMMARY

Preschool education (PSE) plays a crucial role in the development of children and also has significant positive socio-economic effects on the whole of society, as revealed in many empirical studies devoted to this subject, among which the best known are the studies on investment in early childhood education conducted by James Hackman, and a recent study on the correlation between attending preschool education and scores achieved in PISA tests, conducted in 34 OECD countries.

The experience accumulated in this area has led to a global shift in thinking in the scientific community, increasingly gaining the support of policy makers, who now argue that the primary role of preschool educational institutions should be educational and developmental rather than just the previous primary role of child care. Recognizing the significance of these changes, the Ministry of Education of Montenegro and UNICEF Montenegro initiated the compilation of a study whose results are presented here, and which is aimed at developing scenarios of the widening of preschool education to all children aged 3 until primary-school age, especially those from disadvantaged and marginalized groups.

The analysis of the strategic and the regulatory framework for PSE in Montenegro shows that the importance of preschool education for child development is properly recognized and that there exists a sound basis for programming its further development. *The strategy for early preschool education for the period 2010–2015*, developed in 2010, establishes the maintaining of quality services for early childhood development and education starting from birth until primary school entry.

The Strategy for Early Preschool Education explains the main reasons that the coverage has not been wider: on one hand, it is the lack of space in the current PSIs that is particularly acute in the municipalities of Kolasin, Rozaje, Plav, Tivat, Podgorica and Herceg Novi; on the other hand, in the municipalities of Andrijevisa and Savnik, data suggests the presence of insufficiently utilized physical facilities, which may be the result of dispersion of villages and distance from educational units, so it is necessary to consider innovative models of services and work in order to increase the coverage.

Also, a significant percentage of parents still believe that their child is better off at home than in preschool education institutions, failing to grasp the real benefit from their child attending preschool at this age of his/her development. Without systemic efforts to raise parents' awareness of the benefits and significance of preschool education, no universal coverage of children by preschool education would be possible in Montenegro.

The regulatory framework of preschool education (PSE) in Montenegro is provided by: the General Law on Education (GLE) and the Law on Preschool Education (LPSE), the Law on Primary Education (LPE) and the Law on Social and Child Welfare (LSCW). The main relevant provisions may be summarized as:

- PSIs are financed from the budget (GLE Art. 135 and 136), while parents only finance children's food costs (LPSE Art. 35.1);
- Children from the most vulnerable groups and those whose families are beneficiaries of social benefits do not pay food costs (LPSE Art. 35.3);
- Children in Montenegro go to school in September of the calendar year in which they turn 6 (LPE Art. 31). This

means that they are on average 6.2 years old when they start going to school;

- A preschool preparatory programme (PPP) is to be provided for all children in a municipality who are aged 5 years, until the time they go to school (LPSE Art. 16.2 and 16.3);

Preschool education (PSE) in Montenegro is mainly delivered through preschool education institutions (PSIs) that can be state-run or private. There are 21 state PSIs that have a total of 102 educational units and they are a dominant provider of PSE. Privately licensed PSIs exist only in a few urban areas and cover a small number of children (maximum 3% of the total number of children). They all teach according to publicly approved educational programmes. PSIs are comprised of crèches (for children aged 0–3) and kindergartens (for children aged 3–6).

The total number of children that attend PSE in Montenegro was estimated to be 15,604 children. Out of the total number of children aged 0–6, one-third attend PSE. Looking across the age groups the rate of coverage of children by PSE is significantly lower for children aged 0–3, where only 15% attend crèche, compared to the 3–6 age group where over one-half attend kindergarten. Looking at kindergarten children, the highest coverage is in Budva (94%) and the lowest in Rozaje (just over 10%).

The size of groups in state PSIs shows a wide variance across municipalities in our target age group (3–6 years): from 41 children per group in Herceg Novi and Podgorica's JPU "Ljubica Popovic", to Andrijevic which has only 12 children per group. In fact, many of the kindergartens in the southern and central regions of Montenegro function above full capacity, while many of the ones in the northern region function below full capacity.

When adjusting the group size to legal standards, it shows that there is a total of 3,377 children aged 3–6 that are supernumerary in Montenegrin PSIs, which is almost 30% of the total children of kindergarten age that are attending PSIs.

Primary educational programmes (full-day and half-day) comprise almost 100% of PSE. There is also a 'short programme'¹ that only 0.8% of children from 3 to 6 years attend. Most of the children attend the full-day educational programmes (more than 98% of children in crèche and 88% in kindergarten) as opposed to the half-day programmes (less than 2% in crèche and 11% in kindergarten). Half-day programmes are not at all available at some PSIs, so we cannot be sure what would have been the preferences otherwise. Some of the PSIs that offer only full-day programmes seem to be among those PSIs that function far above their full capacity. Perhaps allowing the parents to choose also half-day programmes in these overcrowded PSIs could improve this in the short run by organizing children who would have chosen half-day programmes into two shifts.

The primary goal of the field research (survey) was to gather information necessary to calculate the cost of one child who attends a full-day programme in kindergarten. The cost measurement was performed following the cost aggregation explained in Myers (2008) and applied in Ravens (2010). According to the data gathered, the simple mean of the total

1 *The short programme* represents continuous or occasional activities that may be organized one or several times a week, lasting three to four hours. As for children who are one year away from starting school and who are not included in the primary programme, PSI must offer PPP in the form of a 'short programme', in order to enable better preparation of children for primary school (LPSE, 2011). This short programme is currently organized only for children who are to start going to primary school in the next calendar year, in two PSIs in Podgorica, for two hours a day.

costs (recurrent and capital) per child was €1,222. This indicator was too volatile (has a high variability²) to have any reasonable viability. In the cost-per-child composition, the most significant part was the salaries of employees with a share of more than three-quarters (75%). The next category by size was food, which contributed 11% to total per-child costs. Teacher education had a minimal share in per-child costs for both state and private PSIs. This is important since teacher training will need investment in order to provide a good-quality preschool preparatory programme.

The survey reveals that almost 80% of the total revenues come from the state, while parents' contributions comprise the rest. The share of the total budget for PSE out of GDP in 2012 in Montenegro was 0.38%. This compares quite unfavourably with Serbia, which allocates 0.43% of its GDP for the PSE budget, as well as with OECD countries that allocate, on average, 0.5% of their GDP for financing PSE. In the PSI (and state) budget there are no allocations to deal with the costs of current maintenance of and repairs to PSI buildings.

The annual recurrent cost of one child in a full-day kindergarten programme, also called the *unit cost*, is estimated using a four-step approach, and it amounts to **€1,066**. From this cost we estimate all the others, including PPP costs.

The currently implemented short programme in Montenegro lasts only two hours and for child development reasons we need to develop a preschool preparatory programme (PPP) that lasts for three hours, and that should last a minimum of 10 months per year and five days a week, so that each child receives

² This means that the individual observations differ significantly compared to the average. One of the measures that reveals volatility is the standard deviation.

600 hours per year of preschool education. **The unit cost of PPP was estimated to be €266.50 per child annually.** This unit cost, together with the c-coefficient (or 'c-density'), is used in a formula proposed by UNDP to estimate the annual PPP costs per child for each municipality. The c-coefficient is used to account for the regional differences that give rise to higher transportation costs (either of children travelling to kindergarten or having the teachers go to the children), and to allow for a smaller group size that is less cost-efficient.

Next, the costs of achieving universal PPP coverage, which assumes introducing PPP coverage for all children over 5 in 2015, for all children over 4 in 2017 and for all children over 3 in 2019, are estimated. The resulting costs of universal coverage by PPP of children who are currently not included in preschool programmes start from less than €1 million in 2015 and 2016, and rise to around €3.4 million in 2019 and 2020, when all three generations are being covered by PSE. This is the additional amount of PSE costs generated by PPP that we need to provide the financing for.

The total estimated recurrent costs of the PSE range from less than €18 million in 2015 to more than €20 million in 2020. In the total PSE costs, the component of the primary programmes' costs is slightly less than €17 million throughout this period, while the PPP costs comprise the rest. The state budget covers approximately 75% of the total estimated PSE costs (the PSE state budget was estimated to comprise 0.38% of GDP, the same as in 2012). Costs that cannot be covered by the state budget range from €4.4 million to €5.6 million annually. They rise as the number of generations covered by PPP grows.

Parents could finance the difference between the PSE revenues and costs from

the state budget. Currently the parents pay an amount of €40 per month for the full-day primary programme and €20 per month for the half-day primary programmes for the food costs of their children, which has been redefined to €1.80 and €0.90 per day on the days that the child actually attends the PSI. The latter policy solution does not seem to be efficient, as it seems that the revenue realization is in some cases prohibitively low. While the actual attendance rate in each of the PSIs is not lower than 80%, the average attendance rate as measured by the fee realization from parents is below 50%³.

With such revenue realization, it is not possible to make commitments for future policy measures. We strongly suggest that this policy – whereby the parents pay for the days their children show up at the PSI – be amended. The possible solutions could range from strictly demanding that the parents' contribution be paid once the child is enrolled, regardless of whether he/she attends the PSI on a particular day or not, to allowing non-payment (of 50% or less of the daily fee) if the child is not able to attend the PSI for more than one week and only with the child's doctor's written approval. Allowing for a fixed amount to be paid each month and a variable amount depending on the child's actual attendance would be less preferable because it would face the same problem of non-realization of revenues.

Various scenarios regarding modes of calculating PSI fees payable by the parents were developed. Assuming that full monthly payment of fees is administered, costing scenarios allow for monthly costs

for parents to be below the threshold of €40 per month for the full-day and €20 per month for the half-day programme (it varies down to around €36 and €14 per child per month). Assuming that parents pay the fees only 80% of the time the monthly fee payable rises significantly. It varies depending on the chosen scenario, but gravitates towards €44 and €22 per child per month, for the full-day and half-day programmes respectively.

In the last chapter the amount of 'initial investment' (capital costs) necessary for the proposed PSE coverage is estimated, and solutions are proposed. The total number of spaces for children (both for primary and PPP educational programmes) needed in 2015 is 3,400 and it grows to around 6,700 in 2020. Most of this space is actually necessary to overcome overcrowdedness in the primary programmes (full-day and half-day) within some PSIs (around 3,150 spaces throughout the observed period) while the rest is for PPP that has a growing demand of just a few hundred spaces in 2015 to the almost 4,000 additional spaces that are needed in 2019.

This additional capacity can be provided within the existing facilities, where possible, or by looking for spaces available in primary schools or other government buildings, by building the additional space within the existing PSIs or by creating new ones. To our knowledge, the Montenegrin government is well aware of these needs and is already building new capacities in some of the municipalities, while having plans to build more in some other municipalities.

3 The total sum of parental contribution received by PSIs in 2012 is extremely low and reveals that parents pay the fees, on average, for less than 50% of the total number of days. This implies that the PSI attendance rate is less than 50%. On the other hand, when asked about the average attendance rates, the PSIs provided the information that the average attendance rate is over 80%.



INTRODUCTION

Preschool education (PSE) plays a crucial role in child development and also has significant positive socio-economic effects on the whole society, as revealed in many empirical studies devoted to this subject. High-quality preschool programmes lead to a reduction in school dropout and grade failure rates, better educational performance, and have a variety of socio-economic returns: reduced crime and unemployment rates as well as decreased other non-functional behaviour among those who attended these programmes (Lynch, 2005). Also, different documents by international organizations advocate investment in a fairer and better-quality preschool education which would have manifold returns, and it is the most socially marginalized that especially benefit from it (OECD, 2006; EACEA, 2009, OECD, 2011). Investing in preschool education is also viewed as one of the most cost-effective investments in improving the lives of individuals and the country as a whole.

It is for this very reason that the Ministry of Education of Montenegro and UNICEF Montenegro initiated compilation of a study, and its finding are conveyed here, aimed at examining the ways that preschool education services can be expanded to as many children as possible, especially to those from vulnerable and marginalized groups. To this end, current costs and funding of preschools have been analysed and scenarios have been prepared for financing expansion of the coverage of preschool education in Montenegro. Coverage expansion scenarios for preschool education have been formulated as a combination of two approaches: improving coverage of children to preschool education in terms of the age of children and the equality of their

access. Scenarios were primarily related to the preschool education of children up to a year before their enrolment in primary school but they would also include gradual expansion of coverage to younger age groups. Additionally, scenarios for enhancing coverage of preschool education place particular emphasis on marginalized and the most vulnerable groups of children: Roma and Egyptian children, disadvantaged children and children with disabilities.

PURPOSE AND OBJECTIVE OF THE STUDY

The purpose of the present study is analysis of the financing scenarios for preschool education, with a special emphasis on socially excluded and marginalized children. The three main objectives of this study were:

- Preparing financing scenarios to ensure universal coverage of children with Preschool Preparatory Programme (one year before enrolling at primary school) as well as scenarios for the gradual expansion of the coverage with ECE services of children age 3–5 years, with the goal of achieving universal access. Focus is placed on marginalized and the most vulnerable groups of children;
- Providing recommendations for normative models of financing services of preschool education to ensure that the most vulnerable children/families are involved; and
- Providing recommendations to optimize the use of assets present in preschool institutions while remaining within the available/planned budget.

This report is structured as follows. The first chapter presents an overview of scientific studies which have considered the importance of preschool education and

which make a strong case for investing in universal preschool programme coverage. This chapter also provides an overview of the strategic framework for preschool education in Montenegro, while chapter 2 provides an analysis of the regulatory framework. Chapter 3 looks into the current situation of the preschool institutions in terms of the number of children, groups and the teaching and support staff, while chapter 4 deals with the recurrent costs and revenues of preschool institutions. Chapter 5 illustrates the method of calculating the unit price for the three-hour preschool programme and submits the running costs of universal coverage of children age 3–6 by the primary preparatory programme (PPP). Chapter 6 provides information as to the full price of universal preschool coverage of children age 3–6. This chapter also provides an overview of possible sources of raising the funds required to ensure universal coverage of preschool education for children 3–6 in reference to different scenarios and methods of distribution of costs. Chapter 7 discusses the capital investments necessary to achieve full coverage of all children age 3–6. The final section provides the main conclusions and recommendations arising from this study.



1. THE IMPORTANCE OF PRESCHOOL EDUCATION

In scientific circles concerned with the well-being and development of children, preschool education long ago became recognized as one of the main tools for social inclusion and addressing the problem of poverty. Abundant literature is available both in the field of economics and in the field of psychology, discussing importance of preschool education for the subsequent schooling performance of the child, but also for the broader socio-economic achievements of a society as a whole. In addition, neuro-scientific evidence indicates that special attention should be paid to preschool child development since this is the period of the most intense development of higher brain functions.

1.1 THEORETICAL AND EMPIRICAL FINDINGS ABOUT EFFECTS OF PRESCHOOL EDUCATION ON CHILD DEVELOPMENT

The body of research dealing with this issue can be divided into two major groups. The first group of studies on the importance of preschool education tackles **universally accessible preschool education** and its importance for later development (Magnuson et al., 2004; Fitzpatrick, 2008; Gormley Jr. et al. 2008; Berlinski et al. 2009; Cascio, 2009; Havnes and Mogstad, 2009). They underscore the critical importance of preschool age in terms of laying the groundwork for future schooling and education, which is why systematic social upbringing at this age is of singular importance for the formation of a child.

For example, Felfe and Lalive concluded that “high-quality centre-based care (preschool, author’s note) promotes child development both in terms of cognitive and non-cognitive skills”. They also found that the extra children attending preschool because access is less restricted benefit

more from formal care than the average child placed in preschool – and conclude that this finding is consistent with the fact that restrictive access favours children from advantaged backgrounds (Felfe and Lalive, 2010). In one of their later papers they conclude that “Universally accessible (preschool, author’s note) care can even contribute to decreased inequalities across children from different socio-economic backgrounds” (Felfe & Lalive, 2012).

Similar conclusions are presented in Gorey’s lucid study made in the field of psychology. The findings of Gorey’s meta-analysis, which included 35 experimental and quasi-experimental studies in the field of preschool education, testify to the fact that the cognitive effects of high-quality educational intervention at an early age are significant and remain high even after 5–10 years, while the emergence of various social problems such as early school dropout, unemployment and criminal behaviour, remains significantly lower among those who had attended pre-primary education even after 10–25 years (Gorey, 2001).

Similar to the findings of the above studies and empirical researches, analyses based on the scores in the PISA test suggest that attending preschool is linked to subsequent student success in countries which have managed to improve the quality of their preschool education. The conclusions of the “PISA in Focus, 2011” report, drawing on data from the PISA tests conducted in 34 OECD countries in 2009, suggest that 15-year-old students who had attended pre-primary education for more than one year outperformed students who had not, in reading assessments. The performance gap in the reading assessments was 54 points, which corresponds to one and a half years of formal schooling. After accounting for the socio-economic status of students, the difference dropped to 33 points, but the gap still remains statistically significant. Findings also suggest that the relation between preschool attendance

and subsequent success correlates to the characteristics of the education system, and that it is directly proportional when:

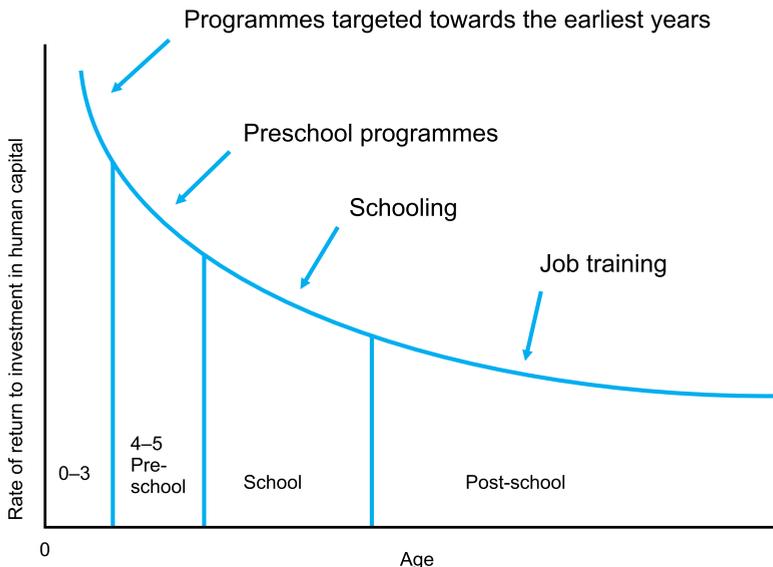
- a) A broader cross-student population has access to preschool education;
- b) Preschool education lasts longer;
- c) The pupil-to-teacher ratio in preschool education is smaller; and
- d) More funds are invested per child in preschool years.

The most famous research in this area is that by James Heckman, a Nobel Laureate in economics, who devoted a large part of his research to the importance of investing in early educational development of the child. The so-called Heckman Curve in Figure 1, showing the general conclusion from numerous studies about the return on investment in human capital, is well known.

The figure shows the return on investment (ROI) in education as a function of age in life, assuming that equal amounts are invested for all age groups. Metaphorically speaking, for one dollar invested at each age, the dollar would be most profitable if invested in the child at his/her earliest age, from 0 to 3 years⁴, followed by if invested in the child at preschool age, then at school age, while the return is smallest if invested in a person who has completed their formal education. In other words, the investment in learning at an early age provides a much greater return on investment than the investment made later in life. (Heckman, 2012)

⁴ Of course, it should be remembered that investing in a 0–3-year-old child does not include only investments in preschool institutions, but also any other health/nutritional/educational investments in children of this age and their families.

Figure 1. Return on investment (ROI) in human capital as a function of the age in life



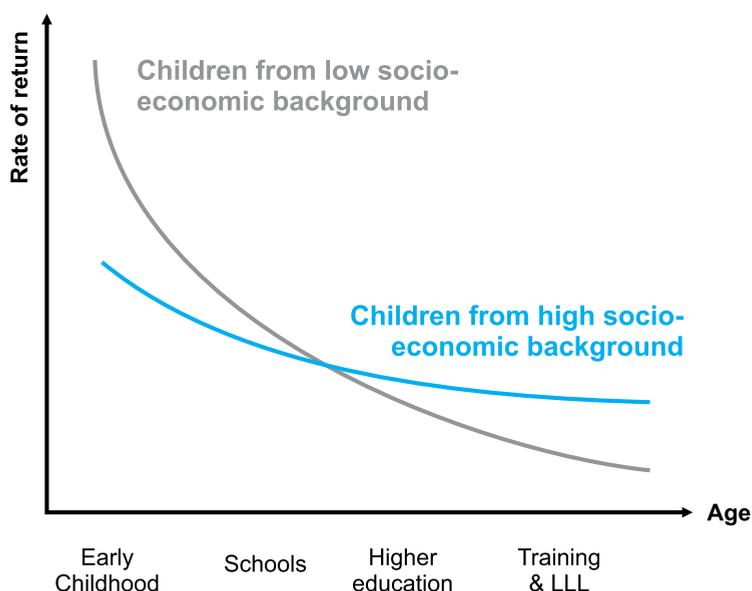
Return per unit of investment across different age cohorts, assuming that equal amounts are invested in each age group

SOURCE: “The case for investing in young children.” (Heckman, 2012)

However, numerous empirical studies have shown that children from marginalized and socially excluded families benefit more from preschool education than other children. Figure 2 is an adaptation of the Heckman Curve by Woessmann (Woessmann, 2006), illustrating the described returns of receiving education at an early age, which are even more pronounced in the case of children from lower socio-economic strata. The figure shows that the return on investment in education at a younger

age is higher for children from families with a lower socio-economic status than for children from families with a higher socio-economic status, while the situation reverses with older age and the return on investment is higher for children from families with a higher socio-economic status. Nevertheless, this return on investment is still significantly lower than the return on investment in programmes targeting marginalized children at an earlier age.

Figure 2. Return on investment (ROI) in human capital as a function of the age in life and socio-economic status



SOURCE: “Efficiency and equity of European education and training policies.” (Woessmann, 2008)

In line with the presented findings is the second group of studies on the importance of preschool education, which refers to measuring returns of the quality intervention programmes targeting children from disadvantaged families at preschool age – the Head Start, the Perry Preschool Project, the Abecedarian Program, and

the Chicago Child–Parent Centers, which were organized so as **to target children from marginalized families**. The main conclusion from these studies is that **high-quality preschool programmes** have a substantial positive impact on the child’s further development, enabling children from disadvantaged families to achieve a

balanced educational start (Blau & Currie 2006; Currie, 2001; Heckman, 2007; Heckman & Masterov, 2007).

For example, studies which evaluated the Perry preschool programme (which focused on extremely disadvantaged children in America and lasted from 1962 to 1967), comparing the outcomes of the control and treatment groups, found that each dollar invested in preschool repaid itself nearly 13 times over through a variety of benefits arising from higher rates of high school completion, better labour market performance and a reduced crime rate (OECD, 2006).

While this evidence refers to interventions involving high-quality programmes administered over half a century ago with an extremely marginalized group, and the same ROI could not be expected from the more general interventions administered on a general population of children, an even much weaker ROI would still constitute a very important benefit for the society and a compelling argument to be considered by decision makers in the field of education (Field et al, 2007).

We also refer to the EPPE⁵ longitudinal study conducted in the United Kingdom, suggesting that preschool education can play an important role in combating social exclusion and promoting inclusion, offering a better start for elementary education to children from marginalized groups. The study also indicates that both the quality of experience in the preschool environment and its quantity (more months, but not necessarily more hours or days) reflect on later achievement (Silva et al, 2004).

Barnett's review of 36 studies on the effects of large-scale public intervention programmes at preschool age for children from marginalized families shows that

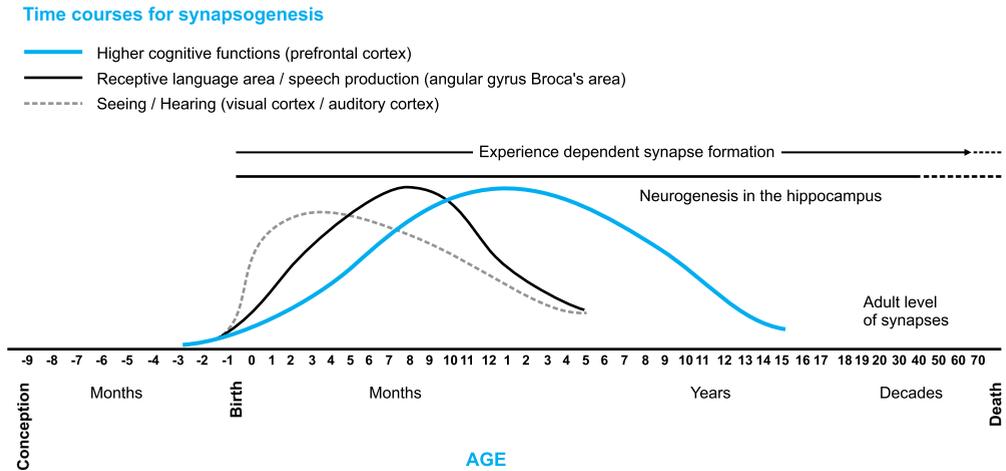
these programmes have substantial short- and long-term effects:

- Short-term positive returns are reflected in higher test scores signalling an increase in IQ among children from marginalized groups who attended these preschool programmes;
- Long-term positive returns of these preschool programmes are the improved well-being of children, their better social adaptation, ensuring a solid basis for long-term schooling and education, contributing to more equitable educational results, decreasing poverty and promoting educational and thus also economic mobility across generations (Barnett, 1995).

After presenting the above data, the question arises as to why early childhood is an important period for the later development of a person. The answer could come from another scientific area. Neuroscientific evidence corroborates the fact that children experience the most intense neural development up to the age of five, which suggests the importance of adequate early stimulation. Figure 3, taken from "From Neurons to Neighborhoods" (Shonkoff & Phillips, eds, 2000), one of the most referenced books in the field of neuroscience, illustrates the process of synapse development for the main brain function groups: sensory function, language and higher cognitive functions. Development of higher cognitive function culminates in the preschool years and by the start of elementary school is already on a downward trajectory. In conclusion, learning during the preschool period has the most significant effect on the further development of mental abilities in children.

5 Effective Preschool and Primary Education study

Figure 3. Brain development



SOURCE: C. Nelson *“From Neurons to Neighborhoods”* (Shonkoff & Phillips, eds, 2000).

1.2 FUNCTION OF PRESCHOOL INSTITUTIONS

What we consider to be the function of preschool institutions has changed significantly in our region over the last 15 years. Their predominantly childminding function as an assistance to parents at work (the care function) has been amended by a new concept of early preschool education that promotes early development and education (the development function of preschool education).

Montenegro is no different from the rest of the European countries. Preschools in nearly all 27 EU Member States have moved from traditional centres where children are taken care of to educational institutions that focus on child development (EACEA, 2009). However, the current situation varies widely across European countries. According to Eurostat, 74% of 3-year-olds attend preschool in the European Union, although, there are large differences between countries. For

example, in Belgium, Spain, France and Italy nearly all 3-year-olds (over 95%) are enrolled in preschool. Coverage is also high in Nordic countries (except for Finland) and ranges between 80% and 95%. Along with traditional preschool institutions, assorted alternative services are available in these countries, resulting in high rates of attendance at an early age. On the other hand, in Greece, Ireland, the Netherlands and Liechtenstein, 3-year-olds cannot attend public preschool institutions.

Further research suggests that in countries where early preschool education is not free-of-charge, household income is one of the predictors of children enrolment in preschool education and care programmes, and as a rule it is the children from the marginalized and vulnerable groups that are less likely to attend them, despite all the evidence suggesting that it is these who need early preschool education the most. (Field et al, 2007)

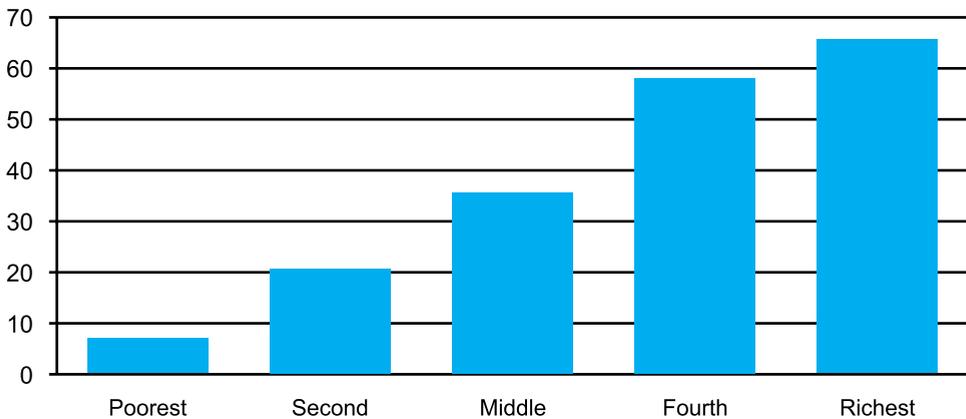
The above analyses are consistent with the current situation in Montenegro. According to the 2006 Multiple Indicator Cluster Survey (MICS5)⁶ in Montenegro access to preschool education for children age 3–5 was 40% at that time⁷ while only

9% of Roma children attended some form of early childhood education programmes. Also worrying is the difference in attendance of preschool education depending on the family financial status: while 66% of children age 3–5 from the most privileged quintile attended some organized preschool education programmes, only 7% did so in the most disadvantaged quintile.

6 MICS5 2013 Montenegro preliminary data, received from UNICEF Montenegro

7 Results on the coverage of children in preschool education in 2012 show that approximately one-third of children age 0–6, or about one-half of children age 3–6, attended the preschool education system, as will be demonstrated further down in this study.

Figure 4. Attendance of preschool education for children age 3–5, by wealth index, 2013



SOURCE: MICS5 2013 Montenegro preliminary data

1.3 STRATEGIC FRAMEWORK FOR EARLY AND PRESCHOOL EDUCATION FOR 2010-2015

The Strategy for Early and Preschool Education for 2010–2015 was passed in 2010. Its guiding principle states “all children in Montenegro, from birth to primary school age, shall be provided with quality services for early development and preschool education in order to achieve

their full potential and become active and productive members of society” (Ministry of Education and Science, 2010).

Further down, the strategy asserts that its “aim is to take a comprehensive and integrated approach to child development from birth to the age of school entry, to the support and empowerment of parents/guardians, as well as of all relevant stakeholders, to ensure holistic development of children”. The strategy is consistent with the relevant strategic

documents at the international and national levels. Below we list the basic international documents reflecting the main principles contained in this strategy:

- **The Convention on the Rights of the Child** (1989) obligates Member States to develop inter-sectoral, coordinated strategies based on children's rights, with a particular focus on early childhood education;
- The World Declaration on **Education for All** (EFA) (1990) – the first objective of this document is the promotion of a comprehensive approach to early childhood development and education, especially for the most vulnerable children and children with disabilities and special needs;
- The UNESCO **SALAMANCA** Statement and Framework (1994) states that regular educational institutions must find a way to successfully educate all children, especially those with disabilities and special needs;
- The **Millennium Development Goals** of the United Nations (2000) define eight global targets for combating poverty, hunger, disease and illiteracy by 2015, of which as many as seven are related to early child development.
- **A World Fit for Children** (2002) as one of the priorities defines the provision of quality education for every child.

The World Bank also supports investing in early childhood development through financing, policy advice, technical support and partnership activities at the country, regional and global levels (WB, 2014).

The new Millennium Development Goals for 2015–2030 seem to place even greater emphasis on the significance of preschool education than has been the case with the 2000–2015 Development Goals. Objective

4.1 in the new draft of said document reads as follows: “By 2030 provide all children with access to quality preschool care and preschool preparatory education”⁸.

We certainly have to mention the fundamental document of the current EU strategic framework, **Strategy Europe 2020** which indicates that “By the year 2020, at least 95% of children between age 4 and the age when mandatory primary education starts, should take part in early education programmes”.

Other national strategies aimed at enhancing coverage of children in preschool programmes, protection against inequality and the right of access to quality education for all children, are as follows: the *National Action Plan for Children* (2004–2010), *Poverty Reduction and Social Exclusion* (2007–2011), the *Action Plan for Implementing the “Decade of Roma Inclusion 2005–2015”*, the *Strategy for Improving the Position of Roma in Montenegro* (2008–2012), the *Regional Development Strategy of Montenegro* (2005), the *Strategic Plan for Education Reform* (2005–2009) and the *Inclusive Education Strategy* (2014–2018).

Analysis of the strategic and legal framework indicates that Montenegro has recognized the importance of preschool education and that there is a good systemic base for its expansion. However, the main reason for insufficient coverage stated in the *Strategy for Early and Preschool Education* is the shortage of infrastructural facilities, especially in urban areas. The *Strategy for Early Preschool Education* finds that the main reason why the coverage was not higher is the lack of space in the existing PSIs, particularly in urban areas. Overloading of the existing

8 <http://www.change.org/p/un-secretary-general-ban-ki-moon-and-un-member-states-put-early-childhood-development-at-the-heart-of-the-new-post-2015-development-framework-to-give-all-children-the-best-start-in-life>

capacities is especially pronounced in the municipalities of Kolasin, Rozaje, Plav, Tivat, Podgorica and Herceg Novi. On the other hand, in the municipalities of Andrijevisa and Savnik, the data suggests the presence of insufficiently utilized physical facilities, since the average number of children per educational unit is smaller than the normative. The strategy further suggests that the low coverage rate of children by PSE in these municipalities may be the result of the wide dispersion of settlements and distance from educational units, so it is necessary to think about innovative models of services and work.

The strategy also cites data suggesting that parents do not recognize enough the importance of early preschool education, and that there is still present the attitude that the children of preschool age are better off at home than in preschool institutions. Although about two-thirds of parents stated that preschool educational institutions are the best form of caring for children until their enrolment in primary school (53% give priority to public, and 13% to private institutions), every fourth parent (25%) still believes that grandparents take better care of children⁹, not really comprehending the real benefit of preschool education for children's development at this stage. This data indicates the need for raising parents' knowledge about the critical importance of preschool education for the development of their children.

1.4 SUMMARY OF THE CHAPTER

Preschool education (PSE) plays a crucial role in child development and also has significant positive socio-economic effects on the whole society, as revealed in many

⁹ Among other parents, 2% chose "nanny", and 6% did not answer. "Assessments of knowledge, attitudes and behaviour connected with childcare" (KAP), UNICEF, 2009, Montenegro. The survey was carried out on a sample of 1,000 parents or caretakers in the general population on the whole territory of Montenegro and 200 parents or caretakers from the RAE population.

empirical studies devoted to this subject. Abundant literature both in the field of economics and in the field of psychology, discusses the importance of preschool education.

- The first group of studies on the importance of preschool education tackles universally accessible preschool education and its importance for later development. They underscore the critical importance of the preschool age in terms of laying the groundwork for future schooling and education.
- Results of analyses based on scores in the PISA test suggest that attending preschool is linked to subsequent student success in countries that managed to improve the quality of their preschool education.
- The second group refers to measuring returns from quality intervention programmes targeting children from disadvantaged families that were organized so as to target children from marginalized families. Studies show that these programmes had a substantial positive impact on the child's further educational achievements, a decrease in the crime rate and other non-functional behaviour and a decrease in the unemployment rate among those who attended these programmes.

Furthermore, scientific research shows that the brain develops in such a way that learning during the preschool age has the greatest effect on the development of the further mental abilities of a child.

The mentioned analysis shows that learning at this age is of singular importance for the formation of a child. That is the reason behind a global shift in thinking in the scientific community, increasingly gaining support by policy makers, that the primary role of preschool educational institutions

should be educational and developmental rather than just its previous primary role of child care.

Analysis of the strategic and legal framework indicates that Montenegro has recognized the importance of preschool education and that there is a good systemic base for its expansion. The Strategy for Early and Preschool Education for 2010–2015, passed in 2010, defines as its guiding principle the provision of quality services for early development and preschool education from birth to primary-school age for all children in Montenegro. The strategy is consistent with the relevant strategic documents at the international and national levels.

However, a significant percentage of parents still believe that it is better for children to be at home than in preschool institutions, not really comprehending the real benefit of preschool education for children's development at this stage. This data indicates the need for providing additional information to parents about the critical importance of preschool education for the development of their children. Without systematic efforts to raise parents' awareness about the benefits and the importance of preschool education, that take into consideration the current attitudes towards preschool education, it will not be possible to achieve full coverage of children in Montenegrin preschool education, and thus Montenegro will lose significant momentum in its efforts to approximate its development to that of European Union countries.



2. REGULATORY FRAMEWORK

Preschool education (PSE) in Montenegro, from the point of view of subject matter analysis, is regulated by the following laws:

- General Law on Education, Official Gazette of the Republic of Montenegro (hereinafter: OGRM) No. 64/02, 31/05, 49/07 and Official Gazette of Montenegro (hereinafter: OGM) No. 04/08, 21/09, 45/10, 40/11, 45/11, 36/13, 39/13 and 44/13
- Law on Preschool Education, OGRM No. 64/02, 49/07 and OGM No. 80/10 and 40/11
- Law on Primary Education, OGRM No. 64/02, 49/07 and OGM No. 45/10, 40/11 and 39/13
- Law on Social and Child Protection, OGM No. 27/13

An overview will be provided of each of these laws, with respect to those provisions that are relevant for this study.

2.1 GENERAL LAW ON EDUCATION¹⁰ (GLE)

The GLE sets out the basic rules for all types of education (preschool education, primary education, secondary general and vocational education, education of individuals with special needs and adult education) in Montenegro and defines the roles of various institutions. The GLE regulates how the educational work for all these types of education is to be organized, and under what conditions it is to be carried out (Art. 1). It provides that education may be delivered within educational institutions (preschool institutions, schools, bureaus and with an organizer of adult education and within student dormitories), that may be state or private, in line with the

GLE and in the manner and under the conditions prescribed by a separate law (Art. 3). The GLE defines education to be an activity of public interest (Art. 4.) and of a secular character with religious activity within public educational institutions being forbidden, except in the case of secondary religious schools (Art. 5).

The GLE provides that education in Montenegro is to be provided on the principles of institutional autonomy from political influence (Art. 6), non-profit aims (Art. 7), equal access to education for all Montenegrins (Art. 8), as well as equality of all citizens of Montenegro in their right to education, regardless of their national affiliation, race, gender, mother tongue, religion, social background and other personal characteristics (Art. 9) with any discrimination being strictly forbidden (Art. 9a).

The GLE provides that preschool institutions provide preschool education in line with the law (Art. 27). It also establishes the National Council as a professional body with various competences. With regard to PSE and our scope of interest, the National Council has the following competences:

- Developing standards for preparation of textbooks for preschool education (Art. 31b.1.5);
- Developing programmes for professional education and advancement of directors of PSI (Art. 31b.1.6) and work programmes for professional associates (Art. 31b.1.7);
- Determining the coming into force of private educational institutions educational programmes and their equality with adequate publicly enforced educational programmes (Art. 31b.2.3); and
- Approving textbooks and teaching materials for PSI (Art. 31b.4).

¹⁰ OGRM No. 64/02, 31/05, 49/07 and OGM No. 04/08, 21/09, 45/10, 40/11, 45/11, 36/13, 39/13 and 44/13.

Several other provisions of the GLE are interesting for our analysis, namely:

- Article 43a allows for public–private partnerships in education;
- The basic terms for establishing an educational institution are set out in Articles 46 and 46a (financial guarantees);
- Articles 65–67 provide for concessional provision of PSE. In effect, these articles provide that, should the public institutions not be able to provide PSE in accordance with the established norms and standards, the Ministry of Education (ME) shall announce a call for concessions that may be extended to private institutions, domestic or foreign, legal entities or natural persons that fulfil the legal conditions for performing this activity;
- Part VIII (Articles 77–86) determines the management structure; each educational institution should have a director with certain qualifications (Art. 78) and a PSI with more than 600 students can, also, have an assistant director (Art. 85).

The basis for financing public and private educational institutions from the Montenegrin budget is provided in Part XVII of the GLE. Budget resources will be provided to a public PSI inter alia, for:

- Gross salaries and other contributions of employees (Art. 136.1.1),
- Current investment maintenance (Art. 136.1.2),
- Investment in institutions (Art. 136.1.3),
- Material costs and energy expenses (Art. 136.1.4),
- Permanent teacher education (Art. 136.1.5),
- Costs of food for children in PSIs whose parents are recipients of social

benefits in accordance with adequate regulation (Art. 136.1.14), and

- Development, counselling and research work in education, and for the travel costs of students (Art. 136.1.16).

Furthermore, educational institutions may be financed from the municipal budget with respect to certain material costs, investment in institutions founded by the municipality, security, mandatory health and sanitary checks, taxes and other communal taxes and contributions (Art. 136a).

Public resources are accorded to an educational institution based on its “economic costs” per student for a particular educational programme, the number of children, a coefficient that is assigned to that programme and other criteria specific to the educational programme, institution and particular (geographic) area (Art. 138.1). The specific methodology for the calculation is to be provided by the ME in line with the norms and standards (including those for creating classes and groups, Art. 138.2 and 4).

A private educational institution may apply for financing from the budget if it provides PSE for at least one year (Art. 139.1). However, in those private educational institutions that are financed from the budget, school fees payable per child may not exceed the fees payable per child in the public educational institutions by more than 10% (Art. 142.2). Finally, in case a private educational institution, due to losing public funding, no longer provides a publicly sanctioned educational programme, the state will provide appropriate resources for those children to finish the programme that they have started. (Art. 145) This is financed out of their financial guarantee provided upon establishment (Art. 46a).

2.2 LAW ON PRESCHOOL EDUCATION¹¹ (LPSE)

PSE is provided for children up to school age and may be organized within a preschool institution (PSI), educational centre or resource centre. Article 5.2 of the Law on Preschool Education (LPSE) provides that PSE may be performed in primary schools and in the premises of other legal persons in accordance with this law.

Children up to three years of age attend a crèche, while children from three years of age attend a kindergarten until they go to school (Art. 8).

Article 11 provides definitions of terms and defines the most vulnerable population groups to include children facing difficulties due to social, linguistic and cultural obstacles.

Enrolment of children in a PSI is, as a rule, done in June, after a public announcement; exceptionally it can be done throughout the year, in accordance with the PSI's capacity (Art. 26).

Educational programmes differ by the number of hours per day that children spend in the PSI (Art. 13), and may be:

- Full-day programmes lasting 6–12 hours,
- Half-day programmes lasting 4–6 hours, and
- Short and specialized programmes that last 3–4 hours.

By types, educational programmes are divided into primary, short, specialized and other programmes (Art. 14.1).

Within the primary programmes, teaching groups of children are formed according to

the following rule depending on the age of the children, (Art. 24.1):

- 8 children per group for children age up to 1 year;
- 12 children per group for children age up to 2 years;
- 14 children per group for children age 2–3 years;
- 10 children in an age-mixed group of children age up to 3 years;
- 20 children per group for children age 3–4 years;
- 24 children per group for children age 4–5 years;
- 25 children per group for children age 5–6 years;
- 20 children in an age-mixed group of children age 3–6 years.

Exceptionally, group size may be increased at the approval of the ME (Art. 24.3)

With regard to short programmes, and in particular for the preschool preparatory programme (PPP), the LPSE provides the following:

- A short programme may comprise continuous or occasional activities that may be organized once a week or more, that may last up to four hours (Art. 16.1).
- The number of children per group in short programmes is to be defined in those programmes (Art. 24.2).
- For children who are not included in the primary programme, in order to achieve a more efficient preparation for primary school, PSIs must offer a PPP as a short programme. PSIs should organize PPPs for children who do not attend the primary programme, at a time and schedule that does not disturb its regular work and programme (Art. 16.2).

11 OGRM No. 64/02, 49/07 and OGM No. 80/10 and 40/11.

- Such a PPP is provided for children from 5 years of age until they start going to primary school (Art. 16.3).

Regarding teaching staff and nurses, LPSE provides the following:

- Teachers, associate teachers and professional associates may perform educational work: for children up to 3 years of age teachers provide educational work, and medical nurses in paediatrics provide preventive care; for children in kindergarten (age 3 until school age) teachers and associate teachers provide educational work, while medical nurses, as a rule specialized in paediatrics, provide preventive care (Art. 28).
- Article 29 provides for education standards of PSI staff: a teacher may be a person who has completed further or higher education for PSE; an associate teacher may be a person who has completed high school, further or higher education of a profile defined by a particular programme; a professional associate may be a person who has completed higher education in a particular field (psychologist, pedagogue, paediatrician, social worker, etc.).
- Teachers, associate teachers and professional associates have a minimum of 26 hours working directly with children per week and a medical nurse in crèche a minimum of 30 working hours. Since the total number of working hours per week is 40, for the rest of their working hours teachers and medical nurses in a crèche may be assigned to other tasks in accordance with the PSI Statute (Art. 33).

Article 28b provides for an Interactive Service (IS), which is organized in a PSI that serves remote rural areas. The IS makes home visits to families

and children in remote rural areas to “instruct the parents, promote and realize programmes and activities that relate to child development” (Art. 28b.2). The IS comprises a teacher, an associate teacher and a professional associate.

The LPSE has provisions dealing specifically with the food costs of children in a PSI:

- Food costs of children in a PSI are payable by parents as provided in a contract between parents and the PSI (Art. 35.1). The content of this contract is determined by the ME (Art. 35.4).
- The management of a PSI, with the approval of the ME, determines the total amount of food costs payable (Art. 35.2).
- Food costs are paid by the Centre for Social Welfare (Art. 35.3), i.e. Ministry of Labour and Social Welfare (MLSW) for:
 - Children without parental care;
 - Children whose parents are beneficiaries of social benefits; and
 - Children from the most vulnerable groups.

The last category, children from the most vulnerable groups, includes “children facing difficulties due to social, linguistic and cultural obstacles” (Art. 11.8), that is, in practice it includes RE children.

2.3 LAW ON PRIMARY EDUCATION¹² (LPE)

Article 31 of the LPE provides that children, who will reach the age of 6 in a calendar year, are to start going to school in that year (i.e. in September of that year).

¹² OGRM No. 64/02, 49/07 and OGM No. 45/10, 40/11 and 39/13.

2.4 LAW ON SOCIAL AND CHILD PROTECTION¹³ (LSCP)

The LCSP defines the funding of food costs in a PSI to be one of the basic forms of child social benefit (Art. 40) that is disbursed under the terms provided by the LPSE (Art. 46).

2.5 SUMMARY OF THE CHAPTER

While the General Law on Education (GLE) sets out the general rules in the education sector (regarding institutional and management infrastructure, provisions for setting up the educational institutions, bodies, budget financing), the Law on Preschool Education (LPSE) determines in more detail the rules set out in the GLE and develops further rules and standards regarding preschool education (PSE).

The GLE provides the terms under which education institutions will be financed from the state and municipal budgets. It determines the types of costs covered by the budget, one of which is the cost of food for children whose parents are on social benefit (GLE Art. 136.1.14).

The GLE also provides the terms under which a private PSI may be financed by the state budget (GLE Art. 139.1 and Art. 142.2).

The LPSE provides for types of PSE programmes and their standards regarding the number of children per group and the number of hours for each programme. It sets the rules and standards for teaching and other professional staff. It also provides for the establishment of an Interactive Service (IS) to address some

of the needs of children and families in remote rural areas¹⁴.

The most important conclusions of the regulatory analysis performed in this chapter are:

- PSIs are financed from the budget (GLE Art. 135 and 136), and parents only finance the food costs of children (LPSE Art. 35.1).
- Children in Montenegro start school in September of the calendar year in which they turn 6 (LPE Art. 31). This means that the children can start the first grade of primary education between 5.8 and 6.8 years old, and they are on average 6.2 years old when they start going to school.
- PPP is to be provided for all children in a municipality who are aged 5 years until the time they go to school (LPSE Art. 16.2 and 16.3). Even though the law says that PPP is to be provided for children from age 5, in practice it applies to the children who are going to start school in the next school year (that is, one preschool generation).
- There is no provision in LPSE on the number of hours, or how many days per week the PPP from Article 16 is to be carried out. However, since PPP is a short programme (LPSE Art. 16.2), and a short programme should last from three to four hours (LPSE Art. 13), this means that PPP should last 3–4 hours.
- The municipal Centres for Social Welfare finance the PSI food costs for both children whose families are beneficiaries of social benefits and children from the most vulnerable groups (LPSE Art. 35.3). The latter

13 OGM No. 27/13.

14 This is one of the instruments we could use in order to achieve full coverage of preschool children. However, since the IS programme started in 2013 as a pilot project, the actual costs are still not available.

category includes both children with special needs and children facing difficulties due to social, linguistic and cultural obstacles (LPSE Art. 11.8).

- The interactive service (IS) as defined in Article 28b of LPSE is a very interesting pre-existing modality, which may not be being used very frequently at the moment, but could be used in an expansion strategy. IS, on one hand, allows for a wider scope of services of preschool education and care (as, for example, is the case with mobile kindergartens in many countries). On the other hand, IS may be used to increase the PSE coverage by raising awareness about the importance of PSE (for example, among the parents in the north to encourage them to send their children to the short programmes, once they are created, even if one or more parents or grandparents are at home to care for the child).



3. PRESCHOOL EDUCATION INSTITUTIONS IN MONTENEGRO

Preschool education (PSE) in Montenegro is mainly delivered through preschool education institutions (PSIs) that are state-owned, but recently private licensed PSIs have also appeared¹⁵. There is a network of state-owned PSIs that cover the territory of Montenegro and they are the dominant provider of PSE. These PSIs are legal entities organized at the municipal level and consist of a network of preschool facilities (units) where preschool education service is delivered to children. There are 21 state PSIs that have a total of 102 units. Private licensed PSIs exist only in a few urban areas and cover a small number of children. They all teach according to publicly approved educational programmes. Educational programmes differ by type. We are interested in primary programmes, which may be full-day (that may last from six to 12 hours per day) or half-day programmes (that may last from four to six hours per day) and short programmes, one of which is the preschool preparatory programme (PPP). A PSI comprises a crèche for children up to 3 years of age, and a kindergarten for children from 3 years of age until they go to school. Different standards apply, with regard to group size, programmes and teaching staff for crèches and kindergartens.

In this section we will analyse in more detail the PSIs in Montenegro with regard to their structure and functioning. The ensuing analysis was done based on primary research performed on Montenegrin PSIs over the period December 2013–January 2014. More details of this research, including the sample size, will be explained in the first part of this section, while the further parts will analyse some of the results on PSI characteristics.

3.1 PRESCHOOL EDUCATION INSTITUTIONS COVERED BY THE ANALYSIS

Our fieldwork (survey) was defined so that we gathered primary data on preschool education institutions (PSI) in Montenegro regarding the number of children, the costs of preschool education (PSE) and other data relevant to our study. Our survey covered all 21 state preschool education institutions (PSI) and six (out of 14) private ones. These, together with the number of children that attended those PSIs, are presented in Table 1. Comparing the number of children from state PSIs from the official data and the ones we present here, shows minor inconsistencies that can be accounted for by the different observation period (we used a calendar year, while the official data is based on a school year observation period).

15 There is also a possibility for private tutoring at home (LPSE Art. 30).

Table 1. PSI included in the study and number of children attending, by age group, 2012

Municipality	Name of PSI	Ownership	Children 0–3	Children 3–6
Andrijevisa	OJ at JU OS “Bajo Jojic”	State	none	37
Bar	JPU “V. Ivanovic-Masanovic”	State	163	591
Bar	PPU “Svetionik”	Private	20	20
Bar	PPU “Mala Bajka”	Private	3	19
Berane	JPU “Radmila Nedic”	State	105	415
Bijelo Polje	JPU “Duso Basekic”	State	75	612
Budva	JPU “Ljubica V. Jovanovic-Mase”	State	240	668
Cetinje	JPU “Zagorka Ivanovic”	State	164	358
Danilovgrad	JPU “Irena Radovic”	State	56	284
Herceg Novi	JPU “Nasa radost”	State	212	851
Kolasin	JPU “Sestre Radovic”	State	40	123
Kotor	JPU “Radost”	State	208	600
Mojkovac	JPU “Jevrosima Rabrenovic-Jevra”	State	23	98
Niksic	JPU “Dragan Kovacevic”	State	210	1026
Plav	JPU “Djecji vrtic”	State	19	197
Pljevlja	JPU “Eko bajka”	State	90	390
Pluzine	JU OC - Djecji vrtic Pluzine	State	9	15
Podgorica	PPU “Lago Frog”	Private	13	40
Podgorica	JPU “Djina Vrbica”	State	875	2185
Podgorica	PPU “Mali princ”	Private	none	25
Podgorica	JPU “Ljubica Popovic”	State	906	2189
Podgorica	PPU “Kucica”	Private	15	30
Podgorica	PPU “Arso”, Konik	Private	3	27
Rozaje	JPU “Bosko Buha”	State	18	117
Savnik	JU OC - Savnik	State	none	13
Tivat	JPU “Bambi”	State	140	442
Ulcinj	JPU “Solidarnost”	State	56	269
Total:			3,663	11,641
<i>Of which private:</i>			<i>1.5%</i>	<i>1.4%</i>

SOURCE: Data gathered by survey (hereinafter: primary data).

Two important methodological explanations regarding the data should be made before we analyse the results in Table 1:

- I. First, in this table and throughout our analysis we divide the children into two basic age groups: children aged 0–3 and children aged 3–6. The first age group comprises children aged 0–3 who attend a crèche. The second age group is our target age group¹⁶. It includes children who are 3 years old and above, who attend kindergarten. Since in Montenegro all children who are 6 must go to school in September of that calendar year, this is the upper age limit for this group. Finally, we would also be interested to look into children in the last age group in kindergarten, children who will be going to school the following September and who started the school year when they were between 4.8 and 5.8 years of age, since they will be our primary interest group for PPP programming.
- II. Secondly, since our primary research goal was to calculate the costs of PSE per child and the best source of costs of PSI are available in their annual accounts, we defined the scope of our analysis as one year (that is, we gather data on annual costs and our observation period is one calendar year). The field research was done in December 2013 and January 2014 and the data on costs for 2013 was not yet available, so we chose 2012 as our observation year. For the same reason the number of children attending PSI from our survey represents the number of children in the calendar year 2012.¹⁷

As explained, our sample which is presented in Table 1 includes all existing state PSIs (21 of them): one for each municipality (except for Zabljak which is covered by Pljevlja's state PSI) and two for Podgorica. This means that we have a census with regard to state PSIs. Furthermore, our sample includes six out of the 14 existing private PSIs and the PSIs were chosen using convenience sampling. However, due to the fact that state PSIs cover the vast majority of children that attend PSE, the total error of our sample is minimal. This we will prove in the following exercise (see Table 2).

As the last row in Table 1 shows, out of 15,304 children in our sample (3,663 in crèche + 11,651 in kindergarten) less than 1.5% attend a private PSI. We have included six out of the total of 14 private PSIs in our study. Using the existing information, we have estimated the total number of children who attend PSE in Table 2. We use the average number of children in the six private PSIs in our sample (36 children) as an estimate for the size of the other eight private PSIs, the ones that were not included in our sample. This gives a total number of 288 children possibly not included (8×36). We round it up to a generous 300 (because we can afford to) and calculate the estimate of the total number of children that attend PSE in Montenegro to be 15,604 children ($15,304 + 300$). Furthermore, we calculate the share of private PSIs in the estimate to be a generous 3.3% and conclude that our sample covers approximately 98% (a conservative estimate) of the total population of children in Montenegro who attend PSE (see Table 2).

16 We are estimating the costs per child of a full-day kindergarten (for 3–6-year-old children) programme.

17 This was decided in accordance with our interviews with the representatives of ME and of PSI in a pilot before running the survey.

Table 2. Estimation of the total population of children in Montenegro age 0–6 who attend PSE, 2012

	Children 0–3	Children 3–6	Children 0–6
<i>Calculating the share of private PSI in the sample:</i>			
Total no. of children in our sample	3,663	11,641	15,304
No. of children in private PSI	54	161	215
Share of children in private PSI in the sample	1.5%	1.4%	1.4%
<i>Extrapolating no. of children in private PSIs not included in the sample:</i>			
Average no. of children per private PSI			36
Multiplied by 8 for the eight private PSIs not included in our sample			288
A generous estimate for no. of children not included in our sample			300
<i>Estimation of the size of total population of children who attend PSE:</i>			
Total no. of children who attend PSE (our sample + generous estimate)			15,604
Share of children in private PSIs out of total population, an estimate			3.3%
Share of children in private PSIs from our sample, out of total population			1.4%
Share of children in private PSIs not in our sample, out of total population			1.9%
Estimated share of total population* covered by our sample:			98.1%

* Here the term ‘population’ applies to the population of children who attend PSE.

SOURCE: Primary data and our estimations.

3.2 THE RATE OF COVERAGE OF CHILDREN BY PRESCHOOL EDUCATION IN MONTENEGRO

In the previous section we looked at the absolute numbers of enrolled children. In this section we will analyse the coverage rate, that is, the numbers of children that attend PSE as a share of all Montenegrin children in the relevant age brackets.

To calculate the total coverage of children in Montenegro by PSE, we used data on the total number of children in Montenegro

obtained from MONSTAT. We needed the number of children age 0–6 in 2012 and the census was performed in Montenegro in 2011. So, the number of children age 1–6 for each municipality was taken from 2011 Census data on children age 0–5¹⁸. We assumed that there was no child mortality and no migration of children within Montenegro or in and out of Montenegro. The results of the analysis of the rate of

18 Djeca u Crnoj Gori, Podaci iz popisa 2011. MONSTAT and UNICEF, 2012, for Census 2011 data. (http://www.monstat.org/userfiles/file/vijesti/Djeca_u_Crnoj_Gori_crnogorski.pdf) and the number of newborns in 2012 from the MONSTAT site.

coverage of children in Montenegro by PSE are presented in Table 3. As we have already argued above, the coverage of the rest of PSIs that are not included in our sample cannot be more than 2% of the

total number of children attending PSE, so we can conclude that our calculations of PSE coverage presented in Table 3 underestimate the total coverage by a maximum of 2%.

Table 3. The rate of coverage of children by PSE in Montenegro, by municipality, 2012*

Municipality	Children 0–3			Children 3–6			Children 0–6		
	In PSE	In MNE	Cove- rage	In PSE	In MNE	Cove- rage	In PSE	In MNE	Cove- rage
<i>High-enrolment municipalities:</i>									
Budva	240	860	28%	668	712	94%	908	1,572	58%
Tivat	140	573	24%	442	490	90%	582	1,063	55%
Kotor	208	794	26%	600	693	87%	808	1,487	54%
Herceg Novi	212	1,027	21%	851	993	86%	1,063	2,020	53%
Cetinje	164	479	34%	358	422	85%	522	901	58%
Total:	964	3,733	26%	2,919	3,310	88%	3,883	7,043	55%
<i>Medium-enrolment municipalities:</i>									
Podgorica	1,812	8,014	23%	4,496	7,260	62%	6,308	15,274	41%
Kolasin	40	251	16%	123	216	57%	163	467	35%
Danilovgrad	56	602	9%	284	601	47%	340	1,203	28%
Bar	186	1,569	12%	630	1,446	44%	816	3,015	27%
Pljevlja (& Zabljak)	90	846	11%	390	908	43%	480	1,754	27%
Niksic	210	2,660	8%	1,026	2,462	42%	1,236	5,122	24%
Mojkovac	23	240	10%	98	250	39%	121	490	25%
Ulcinj	56	729	8%	269	688	39%	325	1,417	23%
Plav	19	479	4%	197	537	37%	216	1,016	21%
Total:	2,492	15,390	16%	7,513	14,368	52%	10,005	29,758	34%
<i>Low-enrolment municipalities:</i>									
Bijelo Polje	75	1,905	4%	612	1,739	35%	687	3,644	19%
Berane	105	1,361	8%	415	1,343	31%	520	2,704	19%
Savnik	0	48	0%	13	55	24%	13	103	13%
Andrijevisa	0	152	0%	37	159	23%	37	311	12%
Pluzine	9	65	14%	15	76	20%	24	141	17%
Rozaje	18	1,249	1%	117	1,161	10%	135	2,410	6%
Total:	207	4,780	4%	1,209	4,533	27%	1,416	9,313	15%
Total MNE	3,663	23,903	15%	11,641	22,211	52.4%	15,304	46,114	33.2%

*Both state and private PSIs from our sample are included in this analysis.

SOURCE: Primary data, MONSTAT data on number of children and our calculations.

The figures we obtained in this analysis regarding state PSIs and their coverage are fully in line with the official figures. Slight differences in the number of children per PSI are due to a different reporting period. In fact, most of the difference between the results we obtained and the official ones stems from the fact that we have included private PSIs in our analysis. Even though private PSIs comprise less than 1.5% of the total number of children, their influence is visible. Using both simple and weighted means in calculations helps us to see this influence: in calculating the simple mean across PSIs we give equal weights to private and state PSIs; when using the number of children per PSI to calculate the weighted means, private PSIs' influence is almost lost because they have a miniscule number of children.

Since in Table 3 we have analysed coverage across municipalities, we added the number of children from all PSIs in one municipality to get the total number of children in that municipality. Furthermore, we had to add Pljevlja and Zabljak municipalities together because the PSI from Pljevlja also covers Zabljak through one of its units which is located in Zabljak.

As Table 3 illustrates, out of the total number of children age 0–6, 33.2% attend PSE. Coverage of children varies across municipalities and across age groups. Looking across municipalities the total coverage of 0–6-year-old children varies from 6% in Rozaje to 58% in Budva and an overall pattern is perceived: the coverage varies from higher in the south to the lower in the north of Montenegro. Looking across the age groups the coverage is significantly lower for children aged 0–3, where only 15% attend crèche, compared to the age group of 3–6 year old children where just over one half (52.4%) attend kindergarten.¹⁹

¹⁹ The varying coverage of children by PSE across municipalities is further analysed in Table 6.

We have ordered municipalities by coverage in our target age group (children aged 3–6) so that the municipality with the highest coverage comes first (Budva with 94% coverage) and the lowest comes last (Rozaje with just 10% coverage). A natural split into three sets of municipalities is visible. Table 3 is arranged to highlight these three sets of municipalities: the high-enrolment, the medium-enrolment set and the set of municipalities with a low enrolment rate.

The first set includes the high-enrolment municipalities and consists of five municipalities: the four most advanced municipalities from the southern region²⁰ (Budva, Herceg Novi, Kotor and Tivat), and Cetinje (from the central region). These five municipalities are the place of residence of 15% of the total number of children in Montenegro. At the same time, out of the total number of children who attend PSI, 25% of them are in these municipalities.

The high-enrolment set has a total coverage (weighted mean)²¹ of 55% of all children age 0–6 by PSE, much higher than the overall average (33.2%, see Table 3). Furthermore, this set is characterized by an extremely high coverage of kindergarten children (3–6-year-olds). On average 88% of children age 3–6 from this set are covered by PSE, with Budva having 94% of children in its municipality attending PSE,

²⁰ Montenegro is divided into three main regions. The southern region (or coastal region) is comprised of six municipalities: Bar, Budva, Herceg Novi, Tivat, Kotor and Ulcinj. The central region is comprised of Podgorica, Danilovgrad, Niksic and Cetinje. The northern region is comprised of the following 11 municipalities: Andrijevica, Berane, Bijelo Polje, Mojkovac, Kolasin, Plav, Pljevlja, Pluzine, Rozaje, Savnik and Zabljak.

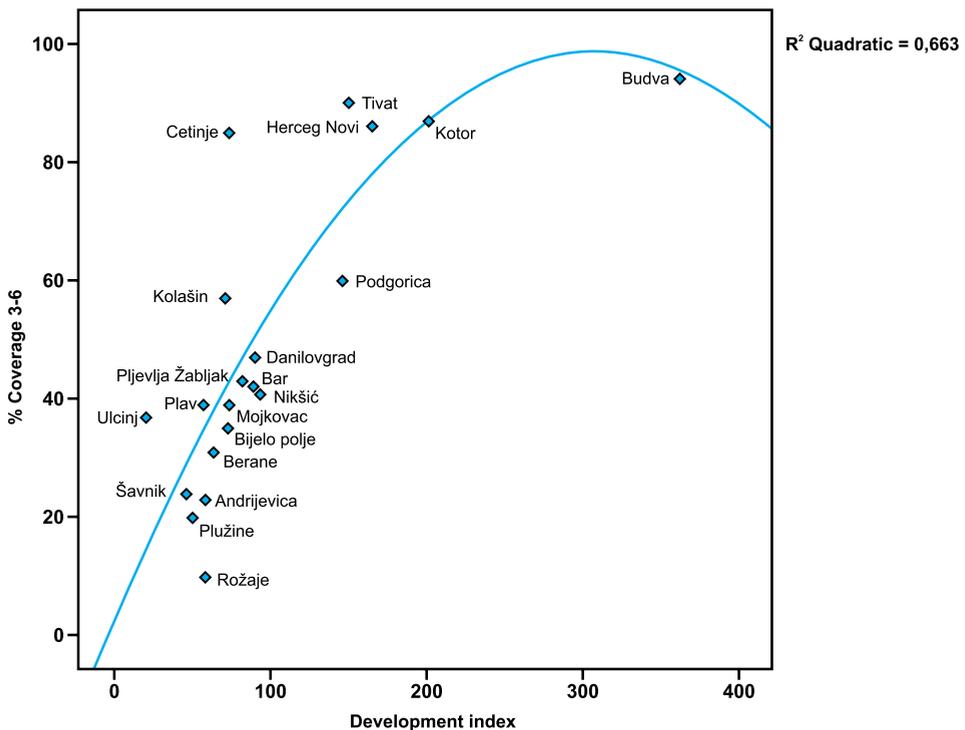
²¹ We have decided to use a weighted mean, where the weights are the number of children in a particular PSI, as a measure of the average because we are interested in seeing what the coverage for a child is. Had we calculated the simple mean, where each PSI would have had equal influence on the average value, that information would have told us the average coverage of a PSI.

to the lowest, Cetinje, which has 85% of children on its territory in PSE.

The medium-enrolment set includes 10 municipalities (if we count Pljevlja and Zabljak as two separate municipalities). These are: three out of four municipalities from the central region (Podgorica, Danilovgrad and Niksic), Ulcinj and Bar from the southern region and five more advanced municipalities from the northern region (Mojkovac, Kolasin, Plav, Pljevlja and Zabljak). Out of the total number of children in Montenegro, 65% of them live on the territory of these municipalities. Out of the total number of children who go to PSI, 65% are in this set.

This is in every aspect a middle set, with the coverage across all age groups being almost the same as the total for Montenegro: total coverage of children (0–6-year-olds) with PSE in this set is 33.6%, as opposed to 33.2% in Montenegro; 16% of crèche-attending children from this set are covered by PSE, while for Montenegro the same indicator is 15%; finally, 52.3% of kindergarten children in this set attend PSI, while 52.4% is the average for Montenegro. Being the most numerous this is understandably also the set with the most variable coverage of children. The target group coverage varies from 62% in Podgorica to 37% in Plav.

Figure 5. Relationship between municipality development index and rate of coverage of children by PSE, Montenegro, 2012



SOURCE: Our calculation and Strategy of Regional Development of Montenegro, 2010–2014, for the Development Index

The low-enrolment set consists of six northern municipalities that have the lowest coverage of children in their municipalities: Andrijevica, Berane, Bijelo Polje, Pluzine, Rozaje and Savnik. These municipalities account for 20% of the total number of children in Montenegro, yet only 9% of the total children in PSI.

Average coverage in the low-enrolment set is far below the Montenegrin average. Coverage of children aged 0–6 by PSE in this set is only 15%, while the Montenegrin average is more than double that (33.2%). While in this set 27% of total kindergarten-age children attend a PSI, in the whole of Montenegro it is almost twice as much – 52.4% of children aged 3–6 attend a PSI.

The total PSE coverage (both crèche and kindergarten) varies from only 6% in Rozaje to 19% in the municipalities of Bijelo Polje and Berane. Coverage of kindergarten varies from 10% in Rozaje to 35% in Bijelo Polje. These are very low figures indeed and we can conclude that this last set of municipalities with the lowest enrolment rates will present a challenge and should be given preferential treatment in the development of strategies for the full coverage of children.

The relationship between the level of development of each municipality is defined by its Development Index²² and the rate of coverage of children aged 3–6 by preschool education. As we can see there is strong indication of a positive relationship between the level of development of a municipality and the number of children who attend PSE. The reasons for this could be the following: that in the more developed municipalities it is easier to access the preschool institutions

(due to the higher population density, better infrastructure and a higher number of PSI units); that the parents in the more developed municipalities are more likely to be better educated and have better awareness of the positive effects that PSE has on their children; that in the more developed municipalities the parents are more likely to be working, and hence would need a childminder; yet another reason could be that in the more developed municipalities parents are better-off and can more easily afford for their children to attend PSE.

In Figure 5 we also estimated non-linear regression that has been plotted as a curve (a parabola). Estimating the (non-linear) regression function provides us with information that tells us in which municipalities the rate of coverage is higher (above the trend) and in which it is lower (below the trend) than the expected level as explained by the Development Index. For example, we can see that in the Municipality of Cetinje the rate of coverage is higher than the level we would expect bearing in mind the level of development of this municipality. Conversely, the Municipality of Podgorica has a lower rate of coverage than would be expected when taking into account the level of development of this municipality.

3.3 THE NUMBER OF CHILDREN PER GROUP IN PRESCHOOL EDUCATION INSTITUTIONS

The number of children per group for each PSI in our sample is calculated and presented in Table 4. In this table we have sorted the cases by the group size for children aged 3–6²³.

22 The Development Index was constructed and presented in the document “Strategy of Regional Development of Montenegro, 2010–2014”, developed by the Montenegrin government.

23 See the last column in Table 4.

Table 4. Number of children per group in PSI, by age group, in Montenegro, 2012

Municipality	Name of PSI	Children 0–3			Children 3–6		
		No. of children	No. of groups	Children/ group	No. of children	No. of groups	Children/ group
Herceg Novi	JPU "Nasa radost"	212	8	27	851	21	41
Podgorica	JPU "Ljubica Popovic"	906	29	31	2,189	53	41
Cetinje	JPU "Zagorka Ivanovic"	164	6	27	358	9	40
Podgorica	JPU "Djina Vrbica"	875	27	32	2,185	57	38
Budva	JPU "Ljubica V. Jovanovic-Mase"	240	11	22	668	19	35
Plav	JPU "Djeciji vrtic"	19	1	19	197	6	33
Pljevlja	JPU "Eko bajka"	90	4	23	390	12	33
Berane	JPU "Radmila Nedic"	105	5	21	415	13	32
Danilovgrad	JPU "Irena Radovic"	56	2	28	284	9	32
Bar	JPU "V. Ivanovic-Masanovic"	163	5	33	591	19	31
Kolasin	JPU "Sestre Radovic"	40	2	20	123	4	31
Bijelo Polje	JPU "Duso Basekic"	75	3	25	612	21	29
Kotor	JPU "Radost"	208	9	23	600	21	29
Rozaje	JPU "Bosko Buha"	18	1	18	117	4	29
Tivat	JPU "Bambi"	140	6	23	442	15	29
Podgorica	PPU "Arso", Konik	3	1	3	27	1	27
Podgorica	PPU "Mali princ"				25	1	25
Ulcinj	JPU "Solidarnost"	56	2	28	269	11	24
Niksic	JPU "Dragan Kovacevic"	210	12	18	1,026	49	21
Bar	PPU "Svetionik"	20	1	20	20	1	20
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	23	2	12	98	5	20
Podgorica	PPU "Lago Frog"	13	1	13	40	2	20
Bar	PPU "Mala Bajka"	3			19	1	19
Pluzine	JU OC - Djeciji vrtic Pluzine	9	1	9	15	1	15
Podgorica	PPU "Kucica"	15	1	15	30	2	15
Savnik	JU OC - Savnik				13	1	13
Andrijevisa	OJ at JU OS "Bajo Jojic"				37	3	12
Total:		3,663	129		11,641	324	
Simple mean:				21			27
- for state PSIs				23			29
- for private PSIs				13			21
Weighted mean:				26			32
- for state PSIs				27			33
- for private PSIs				14			20

SOURCE: Primary data and our calculations.

Regarding the information presented in Table 4 we would like to explain that, in general there are two teachers per group, so that the average group size is roughly twice as high as the average number of children per teacher. The latter indicator will be discussed later in this chapter (see Table 7).

Looking at the results presented in Table 4 we can see a marked difference between the two age groups, 0–3 and 3–6, as evidenced by a difference in their average values. In this table we have calculated both the simple mean and the weighted mean. While the simple mean gives equal weights to each PSI, the weighted mean takes into account the size of each PSI expressed by the number of children they have. So, the latter measure gives us an average group size that a child would go to, while the first one tells us more about the difference among the individual PSIs. The first one, a simple average, is sensitive to the lower number of children in private PSIs as they have the same weight as the large state PSIs. Because of a very small total number of children in private PSIs (1.5% in our sample) their effect is minimized in the weighted average. Which is why we have presented both in this table.

From the averages we can see that there is a pronounced difference when they are calculated across state PSIs and across private PSIs. On average, private PSIs have a much smaller number of children per group than the state ones. For the 0–3 age group private PSIs have an average group size of 13 or 14 (simple and weighted average) while state PSIs have an average group size of 23 and 27 (simple and weighted average). The situation is similar with our target age group 3–6, as Table 4 illustrates. The results presented in Table 4 also show a wide variance across municipalities. In our target age group the highest number of children per group is 41 and there are two such PSIs, one in Herceg Novi and Podgorica's JPU "Ljubica Popovic". The

PSI in the Municipality of Cetinje has 40 children per group and follows closely after these two. The next is the other state PSI in Podgorica with 38 children per group, followed by Budva's state PSI that has 35 children per group. At the other end of the spectrum is Andrijevica's state PSI that, with 12 children per group, has the lowest number of children per group in our target age group. It is followed by Savnik's state PSI with 13 children per group and then by one private PSI in Podgorica and the state PSI from Pluzine that each has 15 children per group. Since the results in Table 4 have been sorted according to the highest number of children per group in the kindergarten age group, we can compare rankings in this table with the rankings in Table 3 and see that there is a similar pattern in both tables with regard to ranking. At the top are municipalities from the southern region with the exception of Bar and Ulcinj, and the central region municipalities in both of the tables (with a few more advanced northern region municipalities as outliers), while the second half of the table is dominated by northern municipalities, as well as Bar and Ulcinj.

One of the underlying factors that could have influenced the results in both of these tables is 'over-capacity' and 'under-capacity' in individual PSIs. In fact, many of the kindergartens in the southern and central regions of Montenegro function above full capacity, while many of the ones in the northern region function below full capacity. We can address this issue further because in our survey we have asked this question and six (out of 21) state PSIs and five (out of six) private PSIs replied that they could accommodate additional children given the current number of teachers and availability of space. These six state PSIs are the ones in: Andrijevica, Berane, Danilovgrad, Mojkovac, Pluzine and Savnik. As we can see, all these are in the bottom half of Table 4²⁴.

24 Additional analysis of available capacities is presented in Chapter 7.

Table 5. Actual number of children age 3–6 in PSIs and the legal standard, Montenegro, 2012

Municipality	Name of PSI	No. of groups	Legal STAND per group	No. of children by STAND	No. of children in SURVEY	Difference SURVEY – STAND
Andrijevisa	OJ at JU OS "Bajo Jojic"	3	20	60	37	-23
Bar	JPU "V. Ivanovic-Masanovic"	19	23	437	591	154
Bar	PPU "Svetionik"	1	20	20	20	0
Bar	PPU "Mala Bajka"	1	20	20	19	-1
Berane	JPU "Radmila Nedic"	13	23	299	415	116
Bijelo Polje	JPU "Duso Basekic"	21	23	483	612	129
Budva	JPU "Ljubica V. Jovanovic-Mase"	19	23	437	668	231
Cetinje	JPU "Zagorka Ivanovic"	9	23	207	358	151
Danilovgrad	JPU "Irena Radovic"	9	23	207	284	77
Herceg Novi	JPU "Nasa radost"	21	23	483	851	368
Kolasin	JPU "Sestre Radovic"	4	23	92	123	31
Kotor	JPU "Radost"	21	23	483	600	117
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	5	23	115	98	-17
Niksic	JPU "Dragan Kovacevic"	49	23	1,127	1,026	-101
Plav	JPU "Djecji vrtic"	6	23	138	197	59
Pljevlja	JPU "Eko bajka"	12	23	276	390	114
Pluzine	JU OC - Djecji vrtic Pluzine	1	20	20	15	-5
Podgorica	PPU "Lago Frog"	2	20	40	40	0
Podgorica	JPU "Djina Vrbica"	57	23	1,311	2,185	874
Podgorica	PPU "Mali princ"	1	20	20	25	5
Podgorica	JPU "Ljubica Popovic"	53	23	1,219	2,189	970
Podgorica	PPU "Kucica"	2	20	40	30	-10
Podgorica	PPU "Arso", Konik	1	20	20	27	7
Rozaje	JPU "Bosko Buha"	4	23	92	117	25
Savnik	JU OC - Savnik	1	20	20	13	-7
Tivat	JPU "Bambi"	15	23	345	442	97
Ulcinj	JPU "Solidarnost"	11	23	253	269	16
Total:				8,264	11,642	3,377

SOURCE: Primary data, LPSE and our calculations.

In order to find out about PSIs that function above full capacity, and those that function below full capacity we can also consult the regulatory norms and standards. The Law on Preschool Education (LPSE)

of Montenegro²⁵, in Article 24, Para. 2, provides for the size of a group in kindergarten. In case of a crèche, the size

²⁵ See the Regulatory overview for more detail.

of a group of children depends on their age: it should be eight children when they are up to 1 year old, 12 children when they are up to 2 years old, 14 children if they are 2–3 years old and 10 children in a group for the mixed-age group 0–3. The size of a group in crèche is almost half the size of a kindergarten group, according to the LPSE. The same Article 24, Para. 2, provides that for kindergarten children aged 3–4 years the group size should be 20, for children aged 4–5 years the group size should be 24, 25 for children aged 5–6 years and the group size should be 20 for the mixed-age group in kindergarten.

So, looking at the legal standard we can conclude that our average group size in most kindergartens is far higher than the standard set up by the LPSE. In fact, when we substitute the group size according to the LPSE to our kindergartens and calculate the number of children according to the legal standard we can calculate how many extra children there are in PSIs in Montenegro. The results of this exercise applied to our target age group (3–6) are exhibited in Table 5. The number of children that should be in a group in each PSI is given in column 4 of Table 5, headed “Legal STAND per group”²⁶.

This we multiply by the actual number of groups in each PSI (in the third column) to get the total number of children that the PSIs should have, according to the legal standards. This is presented in the fifth column of Table 5, headed “No. of children by STAND”. The actual number of children in each PSI is given in the sixth column and in the last column we calculate the difference between the number of children

actually in the PSI and the number that should be there if they were to strictly adhere to the letter of the LPSE.

The last column in Table 5 gives us information about PSIs that function above full capacity, or are ‘over-capacitated’ (the difference is positive) and those that function below full capacity, or those that are ‘under-capacitated’ (the difference in the last column is negative) if the legal norm were strictly observed. The sum of that column tells us that there is a total of 3,377 children that are “extra” in Montenegrin PSIs, which is almost 30% of the total children of kindergarten age that are attending PSIs. When divided by the number of children in a group according to the legal standards, this amounts to 147 additional child groups. This figure of 3,377 children is, in fact, consolidated information that hides the total sum of “extra” children above the legal standard across the municipalities (which is 3,541 children), as well as the total sum of available spaces in PSIs in the other municipalities (a total of 164 children mainly in Niksic, Andrijevic and Mojkovac).

3.4 THE NUMBER OF CHILDREN PER TYPE OF PROGRAMME IN PRESCHOOL EDUCATION INSTITUTIONS

In this part we will analyse which types of educational programmes children attend in PSI. As already explained, the primary preschool programmes comprise full-day (that last 6–12 hours per day) and half-day programmes (that last 4–6 hours per day). Furthermore, there is a short programme for preschool children, which currently lasts only for two hours. The number of children for each programme, by age group is presented in Table 6.

²⁶ The actual number differs across PSIs depending on whether the groups have children of mixed age (the legal standard is 20 for kindergartens and 10 for crèches), or whether there are groups of children of the same age in which case we use the average legal standard for differently sized age groups, which is 23 for kindergartens and 13 for crèches.

Table 6. Number of children per type of educational programme in PSI, Montenegro, 2012

Municipality	Name of PSI	Children 0–3			Children 3–6			
		Full-day	Half-day	Total	Full-day	Half-day	Short	Total
Andrijevica	OJ at JU OS "Bajo Jojic"				10	27		37
Bar	JPU "V. Ivanovic-Masanovic"	163		163	564	27		591
Bar	PPU "Svetionik"		20	20		20		20
Bar	PPU "Mala Bajka"	1	2	3	12	7		19
Berane	JPU "Radmila Nedic"	105		105	415			415
Bijelo Polje	JPU "Duso Basekic"	75		75	393	219		612
Budva	JPU "Ljubica V. Jovanovic-Mase"	240		240	668			668
Cetinje	JPU "Zagorka Ivanovic"	164		164	358			358
Danilovgrad	JPU "Irena Radovic"	56		56	254	30		284
Herceg Novi	JPU "Nasa radost"	212		212	851			851
Kolasin	JPU "Sestre Radovic"	40		40	123			123
Kotor	JPU "Radost"	208		208	557	43		600
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	10	13	23	37	61		98
Niksic	JPU "Dragan Kovacevic"	210		210	738	288		1,026
Plav	JPU "Djecji vrtic"	19		19	160	37		197
Pljevlja	JPU "Eko bajka"	90		90	340	50		390
Pluzine	JU OC – Djecji vrtic Pluzine	9		9	15			15
Podgorica	PPU "Lago Frog"	13		13	25	15		40
Podgorica	JPU "Djina Vrbica"	875		875	1,826	279	80	2,185
Podgorica	PPU "Mali princ"					25		25
Podgorica	JPU "Ljubica Popovic"	906		906	2,139		50	2,189
Podgorica	PPU "Kucica"	8	7	15	20	10		30
Podgorica	PPU "Arso", Konik		3	3		27		27
Rozaje	JPU "Bosko Buha"	18	0	18	87	30		117
Savnik	JU OC – Savnik		0		13			13
Tivat	JPU "Bambi"	140	0	140	391	51		442
Ulcinj	JPU "Solidarnost"	42	14	56	133	136		269
Total:		3,604	59	3,663	10,129	1,382	130	11,641
As a percentage:		98.4%	1.6%	100%	87%	11.9%	1.1%	100%

SOURCE: Primary data and our calculations.

At a first glance we can see that very few children attend the short programme: only 130 children in two state PSIs in Podgorica choose this programme. Further, it is noticeable that most of the children attend

full-day educational programmes (98.4% of children in crèches and 87% of children in kindergartens) as opposed to half-day programmes (1.6% in crèches and 11.9% in kindergartens). However, half-

day programmes are not available at all in some PSIs, so we cannot be sure what the preferences would have been otherwise. In fact, some of the PSIs that offer only full-day programmes seem to be among those PSIs that at the same time function above full capacity. Perhaps allowing the parents to choose also half-day programmes in these overcrowded PSIs could improve this, in the short run, by organizing children who would have chosen half-day programmes, into two shifts.

3.5 THE NUMBER OF CHILDREN PER TEACHER AND TYPE OF PROGRAMME IN PRE-SCHOOL EDUCATION INSTITUTIONS

The results of analysis of the number of children per teacher are presented in Table 7. Since we have been using all the available data in our calculations in order to get more information, that is, we have been calculating the number of teachers by different types of programme and age groups, getting the results was not at all straightforward. These are the explanations:

- Some PSIs do not have a crèche. These are indicated in Table 7 and include: the state PSI in Andrijevica, “Mali princ” private PSI in Podgorica and the state PSI in Savnik;
 - Two private PSIs have crèche and kindergarten children in the same group apparently (although these groups are rather small). This is indicated in Table 7 and we have not calculated the average number of children per teacher in these cases;
 - In many cases PSIs have indicated that they have full-day teachers for children attending full-day PSE and half-day teachers for children attending half-day PSE. In these instances we have calculated the
- number of children per teacher for the full-day and for the half-day children separately, following the available data. When calculating the “Overall” column (that is, the overall number of children per teacher) in these PSIs we have used the weighted average of the two calculated child/teacher ratios, where weights were the number of teachers for full-day and half-day programmes each. This is the case, for example, with Mojkovac’s PSI;
 - In a few PSIs there are children that attend half-day programmes, but there is no indication that separate teachers have been allocated for those children. This is the case, for example, with Niksic and Ulcinj. In fact, in these cases often we have information that half-day and full-day programme children go to the same group. This means that the number of children per teacher has been calculated using children from both the full-day and the half-day programmes, divided by the number of teachers available. For this reason in the mentioned instances the number of full-day programme children per teacher in Table 7 is smaller than the “Overall” number of children per teacher;
 - When a PSI has only a full-day programme for children, or only a half-day programme, then the number of children per teacher was equal to that (the only available) value;
 - We did not use the short programme (PPP) group size in these calculations. There are only two PSIs that have a short programme. If we had included the short programme in calculating the number of children per teacher for these two they would not have been comparable to the other PSIs. Furthermore, this short programme lasts only two hours and therefore is not comparable to the other two primary programmes, the full-day and half-day programmes.

Table 7. Number of children per teacher in PSI in Montenegro, 2012

Municipality	Name of PSI	Children 0–3 per teacher			Children 3–6 per teacher		
		Full-day	Half-day	Overall	Full-day	Half-day	Overall
Andrijevica	OJ at JU OS "Bajo Jojic"	No crèche			10	14	19
Bar	JPU "V. Ivanovic-Masanovic"	16		16	19	7	18
Bar	PPU "Svetionik"		10	10		5	5
Bar	PPU "Mala Bajka"	Both groups are together, 22 children and 2 teachers					
Berane	JPU "Radmila Nedic"	20		20	17		17
Bijelo Polje	JPU "Duso Basekic"	22		22	10	14	11
Budva	JPU "Ljubica V. Jovanovic-Mase"	24		24	15		15
Cetinje	JPU "Zagorka Ivanovic"	18		18	13		13
Danilovgrad	JPU "Irena Radovic"	28		28	16	8	14
Herceg Novi	JPU "Nasa radost"	27		27	18		18
Kolasin	JPU "Sestre Radovic"	10		10	12		12
Kotor	JPU "Radost"	23		23	15	11	14
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	5	7	6	12	8	9
Niksic	JPU "Dragan Kovacevic"	14		14	6		9
Plav	JPU "Djecji vrtic"	19		19	23	9	18
Pljevlja	JPU "Eko bajka"	23		23	17	13	16
Pluzine	JU OC – Djecji vrtic Pluzine	5		5	8		8
Podgorica	PPU "Lago Frog"	13		13	13		20
Podgorica	JPU "Djina Vrbica"	19		19	15	12	15
Podgorica	PPU "Mali princ"	No crèche				13	13
Podgorica	JPU "Ljubica Popovic"	20		20	20		20
Podgorica	PPU "Kucica"	6		15	7		11
Podgorica	PPU "Arso", Konik	Both groups together, 30 children and 2 half-day teachers					
Rozaje*	JPU "Bosko Buha"	9		9	11	15	12
Savnik	JU OC – Savnik	No crèche			13		13
Tivat	JPU "Bambi"	22		22	25	13	22
Ulcinj	JPU "Solidarnost"	11		14	12	11	12
Simple mean:				17	14		
Weighted mean:				19	15		

SOURCE: Primary data and our calculations.

As the last row in Table 7 shows the average number of children per teacher for a crèche is 17, while for the kindergarten age group there are only 14 children per teacher²⁷. This is a simple average, meaning that each PSI has equal influence in calculating the average value. It gives an average indicator across all PSIs and tells us that an average PSI in Montenegro has 14 children per teacher for the age group 3–6. However, if we weight the average by the number of teachers in each PSI, that is if we take into account the size of each of these PSI, then the average is 15. This figure tells us that an average child in Montenegro age 3–6 will be attending PSE where there are 15 children per teacher.

3.6 SUMMARY OF THE CHAPTER

Preschool education in Montenegro is mainly delivered through preschool education institutions (PSIs) that can be state and private. There are 21 state PSIs that have a total of 102 units and they are the dominant provider of PSE. Private licensed PSIs exist only in a few urban areas and cover a small number of children. They all teach according to publicly approved educational programmes.

Primary research (a survey) was performed and the following results were found:

- The total number of children that attend PSE in Montenegro was estimated to be 15,604 children. The share of private PSIs is estimated to be less than 3.3% of the total number of children;

- Out of total number of children age 0–6, 33.2% attend PSE. Looking across municipalities the total coverage of 0–6-year-old children varies from 6% in Rozaje to 58% in Budva and an overall pattern is perceived: the coverage varies from higher in the south to the lower in the north of Montenegro. Looking across the age groups the coverage is significantly lower for children age 0–3, where only 15% attend crèche, compared to the 3–6 age group where over one-half attend kindergarten;
- Looking at kindergarten children, the highest coverage is in Budva (94%) and the lowest in Rozaje (just over 10%). When arranged by level of coverage, a natural split into three sets of municipalities is visible:
- The high-enrolment municipalities are: Budva, Tivat, Kotor, Herceg Novi and Cetinje. These five municipalities are the place of residence of 15% of the total number of children in Montenegro. The high-enrolment set has a total coverage (weighted mean) of 55% of all children aged 0–6 by PSE, much higher than the overall average of 33.2%;
- The medium-enrolment set includes 10 municipalities: Podgorica, Kolasin, Danilovgrad, Bar, Pljevlja with Zabljak, Niksic, Mojkovac, Ulcinj and Plav. Out of the total number of children in Montenegro, 65% of them live on the territory of these municipalities. This is in every aspect a middle set, with the coverage across all age groups being almost the same as the total for Montenegro;
- The low-enrolment set consists of six northern municipalities that have the lowest coverage of children: Bijelo Polje, Berane, Savnik, Andrijevisa, Pluzine and Rozaje. These municipalities account for a

²⁷ The children in crèches are being taken care of by nurses as well as by teachers, which is why the average number of children per teacher is higher for crèches than for kindergartens even though we would have expected otherwise.

20% of total number of children in Montenegro. Average coverage is far below the Montenegrin average – only 15% coverage for children age 0–6;

- On average, the private PSIs have a much smaller number of children per group than the state ones. For the age group 0–3 private PSIs have an average group size of 13 and 14 (simple and weighted average) while state PSIs have an average group size of 23 and 27 (simple and weighted average). The situation is similar with our target age group of 3–6 years.
- Group size in state PSIs shows a wide variance across municipalities in our target age group: from 41 in Herceg Novi and Podgorica's JPU "Ljubica Popovic", to Andrijevic that has only 12 children per group. In fact, many of the kindergartens in the southern and central regions of Montenegro function above full capacity, while many of the ones in the northern region function below full capacity.
- When adjusting the group size to legal standards, it shows that there is a total of 3,377 children aged 3–6 that are "extra" in Montenegrin PSIs, which is almost 30% of the total children of kindergarten age that are attending PSIs.
- Most of the children attend full-day educational programmes (98% of children in crèches and 88% in kindergartens) as opposed to half-day programmes. However, half-day programmes are not available at all at some PSIs, so we cannot be sure what the preferences would have been otherwise. In fact, some of the PSIs that offer only full-day programmes seem to be among those PSIs that at the same time function above full capacity. Perhaps allowing the parents to choose also half-day

programmes in these overcrowded PSIs could improve this, in the short run, by organizing children who would have chosen half-day programmes, into two shifts.



4. COSTS AND REVENUES OF PRESCHOOL EDUCATION INSTITUTIONS IN MONTENEGRO

The primary goal of our field research (survey) was to gather information necessary to calculate the cost of one child who attends a full-day programme in kindergarten. Following the cost aggregation explained in Myers (2008) and applied in van Ravens (2010) in our research, the costs are calculated according to the following aggregation: teacher salary, training and supervision, utilities, material expenses, food, nutrients, medical supply, transport and initial investment. In our preliminary interviews with representatives of Montenegrin PSIs, we defined our questionnaire to obtain information on the following cost categories²⁸:

- Employee salaries (broken down into teachers' salaries, nurses' salaries and the other staff),
- Food costs,
- Utility costs,
- Current maintenance,
- Teachers' education,
- Rent, and
- Others (there was the option to add additional costs as necessary)²⁹.

This data was provided but only at the level of each PSI, that is, it was not available separately for kindergarten and crèche, for example, or separately for full-day and half-day programmes so that we could calculate these individual educational programmes' costs. In this chapter we will first analyse this information about costs as provided by the questionnaire, after which we will further analyse the available data to estimate the average cost per child of a full-day kindergarten, i.e. separate the

different costs. To round up this analysis, in the last section of this chapter we will look at the revenues of the PSIs from our sample as well as Montenegrin budget allocations for PSE.

4.1 TOTAL COSTS PER CHILD

The total annual cost of a PSI in this part we calculated by adding individual annual costs as provided by our respondents. These include both recurrent and capital costs. Here we will analyse these total costs across PSIs and their average values. Later in this chapter we will analyse these costs in more detail in order to estimate the 'normal' annual recurrent costs or 'unit cost' per child of a full-day kindergarten programme. Here we will analyse only the raw data on costs, as presented in Table 8.

Column 4 in Table 8 gives total annual costs per PSI, as provided from our primary data (survey). We have divided these total costs by the total number of children per PSI in the same period to compute the values provided in column 5 headed "Regular" cost per child. The exact number of children we used to calculate this ratio is the total number of children according to the survey, and this has already been provided in the previous tables: it is the sum of columns 4 and 5 in Table 1, it is provided in column 8 in Table 3 and it is also the sum of columns 3 and 6 in Table 4. The resulting costs we have dubbed the "Regular" cost per child and we have presented them in column 5 in Table 8.

As we can see from the result, it is rather volatile. The simple mean across PSI for this column is €1,222; this is the average "regular" cost per child across PSIs³⁰.

28 As in van Ravens (2010) we will not address the costs of initial investment in this part of the analysis. Transport costs will be included, as discussed later.

29 The cost composition was decided after a pilot was run with the PSI to identify the way they account for their costs.

30 The weighted mean in this case is much lower, €1,075, and this figure represents the average costs a child would pay going to a PSI.

This average has a standard deviation that is 41.9% (513/1,222) of the mean, meaning that the individual PSI costs, on average, oscillate about 42% around the mean. This is a very high volatility indeed, warning us that our average is not reliable. The minimum value for this column (€692 in a private PSI in Podgorica) is less than a quarter of the size of the maximum cost per child (€2,881 in the state PSI in Pluzine).

We investigated this volatility (variability) issue³¹ further and were told that these very high costs per child had been mainly due to having a too few of children in some PSIs. To check what the costs would be, and how volatile they would be if the capacity were used fully in all PSIs, we have used the information provided by the PSI in our questionnaire: whether the PSI could accommodate more children, and how many more, without engaging new employees or space. These children we call the “extra” children that the PSI could accommodate, and the total number of children with “extra” children is provided in the third column of Table 8 (with the heading “No. of children + EXTRA”).

The new costs per child, calculated using this number of children, are provided in the column 6 of Table 8. As we can see from the table, the new simple mean for cost per child is lower, as expected, since we are dividing the same costs with a higher number of children. However, the weighted average is not that much lower. These two facts, put together, show that the costs per child in some PSIs are inflated due to low attendance rates, but also that these are “smaller” PSIs that do not have that many children anyhow, so the overall effect is not significant.

Looking at the deviation from the mean in the same per-child cost calculation (column 6 in Table 8 with the heading “Costs per child EXTRA”) we can calculate that the average deviation from the mean is 33.7% (354/1,050), which is much lower compared to the previous 41.9%. However, the ratio of minimum to maximum cost per child is now 1:5 (€415 in a private PSI in Podgorica vs. €2,109 in a state PSI in Rozaje), i.e. it is higher than in the previous scenario.

31 Individual observations differ significantly from the average value, which indicates that the average is not a good estimate for this indicator. One of the measures of volatility, i.e. variability of the result is the standard deviation,

Table 8. Total PSI annual costs (raw survey data) per child, Montenegro, 2012

Municipality	Name of PSI	No. of children + EXTRA	Total Costs (€)	Costs per child (€/child)		
				Regular	EXTRA	CUSTOM
Andrijevica	OJ at JU OS "Bajo Jojic"	47	43,185	1,167	919	720
Bar	JPU "V. Ivanovic-Masanovic"	754	807,218	1,071	1,071	1,608
Bar	PPU "Svetionik"	50	40,500	1,013	810	1,350
Bar	PPU "Mala Bajka"	47	23,240	1,056	494	1,162
Berane	JPU "Radmila Nedic"	550	453,314	872	824	1,245
Bijelo Polje	JPU "Duso Basekic"	687	700,084	1,019	1,019	1,341
Budva	JPU "Ljubica V. Jovanovic-Mase"	908	1,087,077	1,197	1,197	1,874
Cetinje	JPU "Zagorka Ivanovic"	522	677,285	1,297	1,297	2,376
Danilovgrad	JPU "Irena Radovic"	390	336,900	991	864	1,446
Herceg Novi	JPU "Nasa radost"	1,063	1,029,965	969	969	1,755
Kolasin	JPU "Sestre Radovic"	163	238,506	1,463	1,463	2,021
Kotor	JPU "Radost"	808	862,096	1,067	1,067	1,437
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	131	156,948	1,297	1,198	1,113
Niksic	JPU "Dragan Kovacevic"	1,236	1,972,113	1,596	1,596	1,537
Plav	JPU "Djecji vrtic"	216	193,233	895	895	1,306
Pljevlja	JPU "Eko bajka"	480	492,199	1,025	1,025	1,501
Pluzine	JU OC - Djecji vrtic Pluzine	54	69,137	2,881	1,280	2,305
Podgorica	PPU "Lago Frog"	58	44,602	842	769	892
Podgorica	JPU "Djina Vrbica"	3,060	2,873,510	939	939	1,729
Podgorica	PPU "Mali princ"	40	20,171	807	504	1,009
Podgorica	JPU "Ljubica Popovic"	3,095	3,152,859	1,019	1,019	1,975
Podgorica	PPU "Kucica"	45	60,000	1,333	1,333	1,200
Podgorica	PPU "Arso", Konik	50	20,750	692	415	692
Rozaje	JPU "Bosko Buha"	135	284,694	2,109	2,109	2,791
Savnik	JU OC - Savnik	23	33,378	2,568	1,451	1,669
Tivat	JPU "Bambi"	582	428,676	737	737	1013
Ulcinj	JPU "Solidarnost"	325	349,577	1,076	1,076	1,253
Simple mean:				1,222	1,050	1,493
Standard deviation:				513	354	493
Weighted mean:				1,075	1,060	1,635

SOURCE: Primary data, LPSE and our calculations.

While in the “extra children scenario” we have now taken into account that the costs per child of the PSIs that do not use their full capacity are overestimated, we did not take into account the fact that some PSIs function above their full capacity (they are ‘over-capacitated’), that is, they have more children per group than is the legal standard. This we have already analysed in Table 5, where we calculated the number of children that should be in a kindergarten if the legal norms on group size were followed. That number of children we have now used to divide the total costs in order to see what would be the cost per child were we to have the standard group size – both in the PSIs that function above full capacity, and those that function below full capacity. The result is presented in the seventh (last) column of Table 8, with the heading “CUSTOM” costs per child.

Under the last scenario for the number of children we have far less children in PSIs overall (see analysis in Table 5) and therefore the costs per child are higher. The simple average is €1,493 per child (average for PSIs) and the weighted average is even higher than that – it is €1,635 per child (average for children). Regarding the spread in this last scenario, the ratio of the standard deviation to the (simple) mean shows that the cost per child of individual PSIs on average varies by 33.0% around the simple mean, which is somewhat lower than in the previous scenario. However, the ratio of the minimum cost per child per PSI (which is again €692 from the Podgorica private PSI, exactly the same as in the first, “Regular” scenario) to the maximum (€2,791 in Rozaje) is now 1:4.0 and this is the lowest ratio compared to the other two scenarios.

As we can see, the average figure is too volatile in all of the presented scenarios. One of the reasons for this is varying efficiencies across PSIs – some

kindergartens may just have too many administrators for the number of children they provide care and education for, or other specific costs (e.g. a gardener or even a driver). We cannot verify that such may be the case. However, since the purpose of our study is to introduce universal coverage for children of certain age groups, this will increase the number of children in all kindergartens and these potential inefficiencies should be less visible.

With regard to our study purpose – measuring typical costs per child – the problem seems to be the fact that the per-child costs here have been calculated over the total number of children who can attend either crèche or kindergarten either full-day or half-day (as Table 6 presents in full detail). Each of these programmes has its own intrinsic costs that are not visible in this aggregated form. In order to calculate the “normal” (or typical) costs per child (we will call them unit costs in the further analysis), we will have to clean the current data, i.e. separate the crèche costs from kindergarten costs and express half-day costs in terms of full-day costs. In the end the result we will be looking for is the annual recurrent cost of one child in a full-day kindergarten programme (unit cost). This cost we will estimate in the third section of this chapter. In the last section we will analyse sources of finance (revenues) of Montenegrin PSIs.

4.2 PRESCHOOL EDUCATION INSTITUTIONS’ COSTS BY COMPOSITION

As already explained above, costs in our questionnaire were divided into different categories that were in line with both the costing model we use and the particular categories used in the PSIs’ accounting. Among the categories mentioned at the beginning of this section, the most dominant

are: teachers' salaries, other staff salaries, nurses' salaries, food costs, utilities and current maintenance costs. All the other costs when added up amount to 7% of total costs. We have reorganized the cost categories to capture a smaller number of cost categories that have the highest share of total costs and made them presentable in a table. These categories are: salaries of all employees, food costs, utilities and maintenance costs, and all other costs. To make these costs comparable across the PSIs, we have divided them by the number of children (the regular number from the survey) and presented them in Table 9. Because we have divided them by the regular number of children, the "Total" column here represents costs per child in the regular scenario in Table 8.

The averages presented in the last row are indicative but are very unstable, that is, they vary highly across the PSI (high standard deviation). For example, staff salaries per child have an average value of €917; yet these costs are as low as €420 in a private PSI in Bar and are six times as high (€2,422) in Pluzine.

With this caveat in mind, let us look at the result in the first row at the bottom of Table 9. It tells us that the simple mean total annual cost of €1,222 per child is composed of: €917 for the salaries of employees, €130 for food, €90 for utility costs and current maintenance costs, while all the other costs account for €85 per child annually. The salaries of employees, according to this calculation, are the most significant part of total costs per child in the PSI. They amount to more than three-quarters (75%) of the total costs. The next category by size is food, which contributes only 11% to the total costs.

There is a notable difference between state and private PSIs, with regard to both their scope and composition, as indicated in the last rows of Table 9. While

the weighted average cost per child for private PSIs is €973, for state PSIs it is 10% higher and amounts to €1,076 per child. To examine this difference further we made an analysis, presented in Table 10, which observes state PSIs (n=21) and private PSIs (n=6) as two separate subsamples and shows a more broken-down composition of total costs and costs per child.

As Table 10 shows, the greatest difference between private and state PSIs is observed with regard to staff salaries. There is around a €300 difference in per-child costs of salaries between private and state PSIs. In the cost composition, the share of salaries for state PSIs is more than 20 percentage points higher than in the case of private PSIs. Looking across three different categories of salaries (teachers, nurses and other staff) this difference between state and private PSIs seems to be equally distributed across them. We checked the data on teacher salaries and it seems that the private PSIs provide very low salaries for their employees – both as compared to the overall average and in particular compared to the salaries that the other teachers get within the same municipalities.

Table 9. PSI annual cost (current and capital) by composition, per child, Montenegro, 2012, in €

Municipality	Name of PSI	COSTS PER CHILD, OF:				
		Employee salaries	Food	Utilities + current maintenance	Other	Total
Andrijevica*	OJ at JU OS "Bajo Jojic"	1,056	98	0	14	1,167
Bar	JPU "V. Ivanovic-Masanovic"	761	69	65	175	1,071
Bar	PPU "Svetionik"	420	150	180	263	1,013
Bar	PPU "Mala Bajka"	491	218	125	222	1,056
Berane	JPU "Radmila Nedic"	694	78	36	64	872
Bijelo Polje	JPU "Duso Basekic"	811	65	63	79	1,019
Budva	JPU "Ljubica V. Jovanovic-Mase"	896	111	61	129	1,197
Cetinje	JPU "Zagorka Ivanovic"	1,020	119	55	103	1,297
Danilovgrad	JPU "Irena Radovic"	687	158	87	58	991
Herceg Novi	JPU "Nasa radost"	782	64	90	32	969
Kolasin	JPU "Sestre Radovic"	1,229	118	52	65	1,463
Kotor	JPU "Radost"	896	77	35	59	1,067
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	1,077	74	91	55	1,297
Niksic	JPU "Dragan Kovacevic"	1,398	88	50	59	1,596
Plav	JPU "Djecji vrtic"	769	47	43	35	895
Pljevlja	JPU "Eko bajka"	759	101	154	12	1,025
Pluzine	JU OC - Djecji vrtic Pluzine	2,422	171	288	0	2,881
Podgorica	PPU "Lago Frog"	532	151	139	20	842
Podgorica	JPU "Djina Vrbica"	717	93	62	66	939
Podgorica	PPU "Mali princ"	451	247	28	80	807
Podgorica	JPU "Ljubica Popovic"	768	107	85	59	1,019
Podgorica	PPU "Kucica"	867	133	42	291	1,333
Podgorica	PPU "Arso", Konik	428	167	80	17	692
Rozaje	JPU "Bosko Buha"	1,859	105	54	90	2,109
Savnik*	JU OC - Savnik	1,644	538	385	0	2,568
Tivat	JPU "Bambi"	568	77	40	52	737
Ulcinj	JPU "Solidarnost"	755	87	44	189	1,076
(1) Simple mean:		917	130	90	85	1,222
<i>Composition:</i>		<i>75%</i>	<i>11%</i>	<i>7%</i>	<i>7%</i>	<i>100%</i>
(2) Weighted mean:		840	94	68	73	1,075
State PSIs:		844	93	68	72	1,076
Private PSIs:		553	167	104	149	973

* PSIs in Andrijevica and Savnik use the premises of a primary school, so they do not have utility and current maintenance costs (as well as some other cost categories).

SOURCE: Primary data and our calculations.

On the other hand, food costs per child are €70 higher in private PSIs compared to state PSIs. A possible explanation is that this is due to the size of the PSIs. Private PSIs have a smaller number of children (ranging from 22 to 53, see Table 1) so the fixed part of the food delivery/preparation costs is spread over a smaller number of children, making the per-child costs of food higher for private PSIs³².

³² Food costs may be underestimated due to the fact that PSIs do not take records of food preparation costs separately from other costs. That is, only costs for food groceries are clearly distinguished from the other costs, while costs related to food preparation that cannot be decoupled from the other costs (for example: electricity used for food preparation cannot be easily decoupled from total electricity costs, or cleaning costs that are incidental to cooking and serving the food cannot be easily separated from total cleaning costs).

A similar explanation would probably also apply to utility costs, which are again higher in per-child terms for private PSIs (see Table 10). Rental costs per child are also higher for private PSIs compared to state PSIs. This is because state PSIs in most cases do not pay rent since their premises are state-owned.

Finally, it is worth noticing that teacher education constitutes a minimal share in per-child costs for both state and private PSIs. This is of interest for our study since we will need to invest in teacher training in order to provide a good-quality preschool preparatory programme.

Table 10. Total annual costs (current and capital) and total annual costs per child, private vs. state PSIs, Montenegro, 2012

	Private PSIs			State PSIs		
	Total costs (€)	Costs/child* (€/child)	Composition	Total costs (€)	Costs/child* (€/child)	Composition
Salaries, of which:	118,930	553	56.8%	12,732,506	844	78.4%
Teachers	75,331	350	36.0%	7,954,604	527	49.0%
Nurses	16,299	76	7.8%	1,739,740	115	10.7%
Other staff	27,300	127	13.0%	3,038,162	201	18.7%
Food costs	35,980	167	17.2%	1,399,724	93	8.6%
Utilities	17,249	80	8.2%	643,799	43	4.0%
Current maintenance	5,061	24	2.4%	379,120	25	2.3%
Teacher education	1,130	5	0.5%	30,516	2	0.2%
Rent	23,400	109	11.2%	45,992	3	0.3%
Other	7,512	35	3.6%	1,010,297	67	6.2%
Total:	209,262	973	100.0%	16,241,954	1,076	100.0%

*These are weighted means across PSIs.

Note: There are six private PSIs and 21 state PSIs.

SOURCE: Primary data and our calculations.

4.3 ESTIMATING THE ANNUAL COSTS OF A CHILD AGE 3–6, IN A FULL-DAY PRESCHOOL EDUCATION PROGRAMME

Until now our discussion has been based on analysis of the data we gathered on PSIs in Montenegro. However, the primary purpose of this research was to estimate the costs of PSE, and specifically the costs of introducing a preschool preparatory programme. In order to do this, our first goal is to estimate the typical or ‘normal’ recurrent costs per child of a full-day kindergarten programme. These we will call the unit costs of a full-day kindergarten programme. We will estimate them in this section, using the data we gathered in our primary research.

Step 1: Calculating the annual recurrent costs

As we previously explained, the costs we have gathered contain both recurrent and capital costs and they are provided at the level of PSIs. Therefore, the first step was to remove the capital costs from our total costs. We therefore redefine our cost variables to form two variables: Recurrent Costs and Capital Costs. This was done separately for each PSI, due to some ambiguous costs. Hereinafter we will discuss and analyse only the recurrent costs, while the capital costs will be discussed towards the end of this study under the heading ‘Initial investment’.

Step 2: Removing crèche costs from the total annual costs

Since almost all PSIs have children age 0–3 and children age 3–6, data on their costs is not provided separately for kindergartens and crèches. Since we

need to estimate the costs of a child in a full-day kindergarten, in the next step we need to separate the costs of the crèche from the costs of the kindergarten. We know that the crèche costs are higher than the kindergarten costs, but we do not know how much higher. Even though in our questionnaire we did ask, many of the respondents did not know what proportion of costs should be allocated to their crèche and which to their kindergarten. Some respondents made guesses that are in fact closely correlated only to the number of children in the crèche vs. the number of children in the kindergarten. This would imply that the costs of the crèche are the same as the costs of the kindergarten. However, some other respondents who seem to be better informed answered that the costs of the crèche per child are higher than those for the kindergarten (sometimes even twice as high). We find this position to be more realistic as we will argue below.

According to the Law on Preschool Education (LPSE) of Montenegro, Article 24, Para. 2, the size of a group for a crèche (12 children when the age was up to 2 years, 14 for children up to 3 years and 10 for mixed-age groups) is almost half the size of the kindergarten groups (20 for children aged 3–4 years, 24 for children aged 4–5 years, 25 for children aged 5–6 years and 20 for mixed-age groups). If the costs of teachers and nurses are the same for crèches and kindergartens, then the per-child costs of teachers and nurses should be almost doubled for crèches compared to kindergartens. Since we know that employee costs dominate in the per-child costs for both kindergartens and crèches, this implies that the per-child cost of kindergartens must indeed be significantly lower than the per-child cost of crèches.

Lacking reliable information to get the exact kindergarten costs, we will have to

estimate them using the information that is available from our questionnaire. Since we have data on total costs, as well as on the number of children who attend a

kindergarten and who attend a crèche, we can run a regression on our sample, defined as:

$$Rcosts = \beta_0 + \beta_1 Cchild + \beta_2 Kchild$$

where:

Rcosts – Recurrent costs of the PSI,

Cchild – Number of children in crèche,

Kchild – Number of children in kindergarten,

β_0 – Intercept,

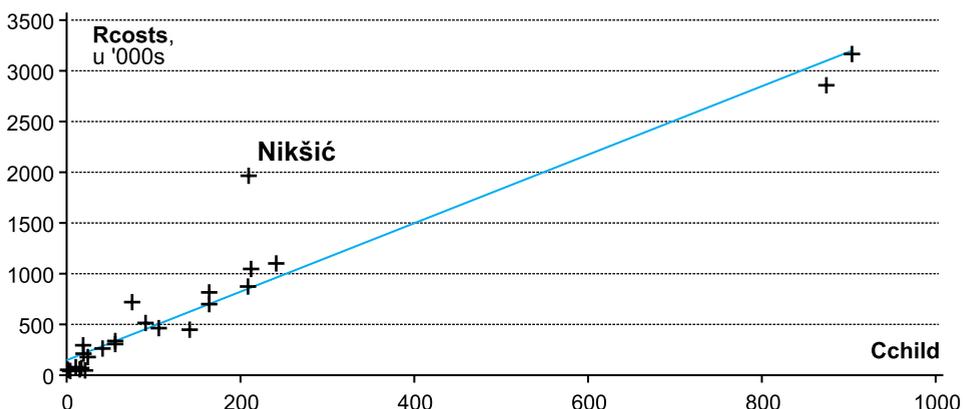
β_1 – Regression coefficient – marginal cost of a child in a crèche,

β_2 – Regression coefficient – marginal cost of a child in a kindergarten.

So, in this regression we are going to use the information that we do have – the number of children in kindergarten and crèche – in order to estimate the costs allocated to these two categories. The regression equation, in fact, allows us to estimate how much the total recurrent costs would

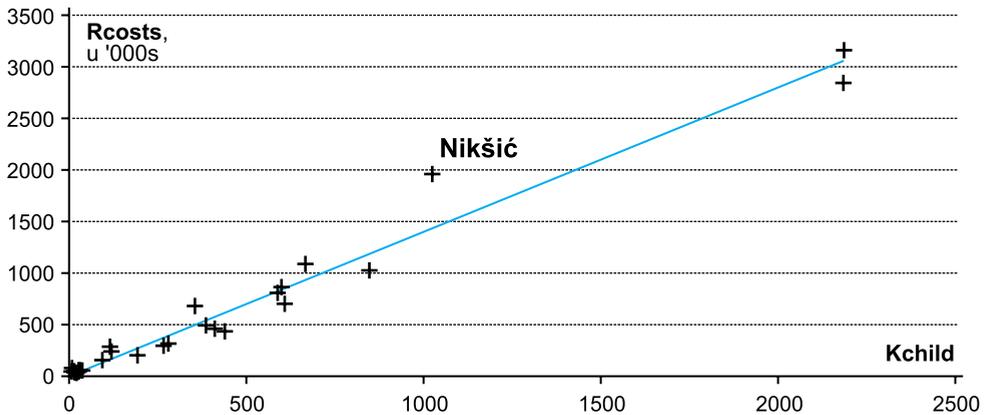
increase should we have one more child in the crèche while keeping the other variable constant (the regression coefficient β_1), or if we had one more child in the kindergarten and keeping the other variable constant (the regression coefficient β_2). These are called marginal costs.

Figure 6. Recurrent annual costs and the number of children in crèche, in €



SOURCE: Primary data and our calculations.

Figure 7. Recurrent annual costs and the number of children in kindergarten, in €



SOURCE: Primary data and our calculations.

Running the regression on all the cases, actually, did not produce a valid result (very high p -values for β_1). Therefore, we analysed the residuals and found out that Niksic is an outlier, especially with regard to children in crèche. To prove the point, we made a scatter-plot diagram of total recurrent costs against and the number of children in crèche (Figure 6),

as well as against the number of children in kindergarten (Figure 7). As we can see from the chart, Niksic really is a noteworthy outlier and since our number of cases is small it visibly influences the result.

Running the same regression again, but now on all cases except for Niksic, gives us the following result:

$$Rcosts = 38,689 + 1,280Cchild + 847Kchild, \quad R^2 = 0,99$$

(0,004) (0,000)

In the second line of the above equation we provide p -values for regression coefficients. R^2 tells us that we can explain 99% of total variations by our regression. Very low p -values are what gives us confidence in our estimates of β_1 and β_2 coefficients.

β_1 shows us that an additional child in crèche would cost €1,280 annually, ceteris paribus, while an additional child in kindergarten (β_2) would cost €847 per annum, keeping other variable constant.

From this we can calculate the ratio of kindergarten costs per child to crèche costs per child to be 1:1.51. In effect, **this means that one child in a crèche costs the same as 1.51 children in a kindergarten.** Or, the other way round, one child in a kindergarten costs the same as 0.66 (=1/1.51) children in a crèche. This we will apply to our primary data on costs to estimate the total costs of kindergarten, i.e. to remove the crèche costs from our further analysis.

Step 3: Expressing all programmes in terms of a full-day kindergarten programme

After removing capital costs from total costs to obtain recurrent costs in Step 1 and estimating crèche costs in order to isolate kindergarten costs in Step 2, in this step we estimate the costs of different PSE programmes in relation to each other.

According to the LPSE of Montenegro, Article 13, the length of PSE programmes may be:

- A. Full-day programmes that last from six to 12 hours,
- B. Half-day programmes that last from four to six hours, and
- C. Short and specialized courses that last from three to four hours.

Here we are interested in the full-day and half-day programmes, but later also in the short programme that will be the focus of our analysis in the other chapters of this study. Our previous analysis shows that currently most PSIs have full-day and half-day programmes, while only two PSIs organize a two-hour short programme for a total of 130 children (see Table 6 above and the accompanying analysis).

We have noticed that many of the PSIs do not differentiate between children in the full-day programme and children in the half-day programme, in the sense that they are kept together in some kindergartens, that half-day children are allowed to come and leave as they please (i.e. there is no strict time when the children should come, they can come any time but stay for a shorter number of hours in the half-day programmes than in the full-day programmes). This would mean that there is no difference in the level of service a child gets from the full-day and half-day programmes and hence the costs per hour of these two programmes should

be the same. So, for the time being³³ we are making a hypothesis that the costs of primary programmes correspond directly to the number of hours a child stays in the PSI. We are assuming that (recurrent) costs of primary kindergarten programmes depend only on the number of hours they last, which means that an hour of the full-day kindergarten programme costs the same as an hour of the half-day kindergarten programme.³⁴

Going back to Article 13 of the LPSE of Montenegro, we will estimate the total number of hours for each programme. Since we are assuming that the costs of a child directly correspond to the number of hours he/she stays in the PSI, the cost of each programme will correspond to the average number of hours it lasts. Since our goal is to estimate the unit costs of a full-day kindergarten programme per child, we will express all the other programmes in terms of a full-day (kindergarten) programme. We will estimate the average number of hours for each programme as follows:

- A. The full-day programme lasts on average for 9 hours:
 - The average number of hours from the legal norm is 9, and this is also the expected number of hours a full-day working parent would leave their child in the PSI for;
- B. The half-day programme should last on average for five hours:
 - This is a simple average of the regulatory norm and our database

³³ This hypothesis will later be relaxed to allow for lower per-hour costs of PPP; for more details please see section 5.1 below.

³⁴ Please bear in mind that we previously estimated crèche costs to be 1.51 times as high as kindergarten costs (Step 2). The same assumption that the hourly costs of full-day and half-day programmes are equal applies for crèche costs as well; it is only that the overall cost level is higher for crèches than for the kindergartens and we estimated it to be 1.51 times as high.

shows that for the current half-day programmes mean is 5.28 while and the median is 5. The half-day programme will be expressed as 5/9 of a full-day programme;

C. The short programme currently lasts two hours, but will last three hours:

- Currently the short programme is organized only for children who are one year before going to school and it lasts for two hours. There are just 130 children in these programmes organized by two state-owned PSIs. In our calculation of costs relating to historical (2012) data from our sample we will express the short programme as 2/9 of a full-day programme.³⁵

In the further analysis we will aim to transform the existing short programme to a three-hour Preschool Preparatory Programme (PPP), according to the legal provisions of the LPSE reviewed in the second chapter of this study. We will discuss in great detail the adequate way of estimating the costs of this programme in relation to a full-day kindergarten in the following chapter.

$$\begin{aligned}
 1 \text{ child in half-day kindergarten} &= 5/9 \times (1 \text{ child in full-day kindergarten}) \\
 1 \text{ child in full-day crèche} &= 1.51 \times (1 \text{ child in full-day kindergarten}) \\
 1 \text{ child in half-day crèche} &= 5/9 \times 1.51 \times (1 \text{ child in full-day kindergarten}) \\
 &= 0.83 \times (1 \text{ child in full-day kindergarten})
 \end{aligned}$$

We can apply these weights to all children across PSIs to calculate the number of 'normative children in full-day kindergarten'.

³⁵ This is probably an overestimation of the real costs of the short programme. However, there are too few children (130 out of the total 15,304) in this programme that lasts only two hours so this category anyhow does not have a measurable effect on our results.

So, after adjusting for the number of hours for each of the programmes, in order to express all the programmes in terms of a full-day kindergarten programme, we can calculate the normal cost of one child in a full-day kindergarten, which was our goal.

Step 4: Getting the results

Now we can express all programme costs in terms of the annual cost of one child in a full-day kindergarten, using the results we obtained above:

- In Step 2 we estimated that the crèche full-day or half-day costs are equal to 1.51 times the kindergarten full-day or half-day costs, respectively, and
- In Step 3 we estimated that the half-day kindergarten or crèche costs are equal to 5/9 of the full-day kindergarten or crèche costs, respectively.

This allows us to recalculate the total number of children and express them in terms of a '1 full-day kindergarten child', by applying the following weights:

Now we can divide the annual recurrent costs (calculated in Step 1) by the number of 'normative children in full-day kindergartens' for each PSI to calculate its specific recurrent (annual) costs per a full-day kindergarten child. The mean of these values is €1,286 and the median is €1,066. Since the object of this exercise is to calculate typical or 'normal' costs

per child it is more appropriate to use the median value here (it is more robust and impervious to atypically high costs in some of the PSIs). Nevertheless, we checked both estimates by plugging them into the original data and found out that the median estimate gives better validity (i.e. the resulting costs differ less from the original costs). So, finally, we can say that **the unit cost of a full-day kindergarten is €1,066**. For a half-day kindergarten

the cost is €592 (we multiply the full-day costs by the ratio 5/9 that we estimated in Step 3 for conversion of the costs from the half-day into the full-day programme). Furthermore, we use the ratio between crèche and kindergarten costs of 1:1.51 to calculate our unit costs for crèche and get the result that €1,610 is the unit cost of a full-day crèche and €894 is the unit cost of a half-day crèche. The calculations of unit costs are as follows:

Full-day kindergarten cost per child	=	€1,066,
Half-day kindergarten cost per child	=	5/9 x 1,066 = €592,
Full-day crèche cost per child	=	1.51 x 1,066 = €1,610,
Half-day crèche cost per child	=	0.83 x 1,066 = €894.

4.4 REVENUES OF PRE-SCHOOL EDUCATION INSTITUTIONS IN MONTENEGRO

The regulatory review in the first part of our study shows that public PSIs are financed from the state budget with regard to the following cost categories (GLE, Art. 136):

- a) Gross salaries and other contributions of employees,
- b) Current investment maintenance,
- c) Investment in institutions,
- d) Material costs and energy expenses,
- e) Permanent teacher education,
- f) Costs of food for children in PSIs whose parents are recipients of social benefits in accordance with the adequate regulation, and
- g) Development, counselling and research work in education, and for the travel costs of students.

In the same section, and also in this chapter, we explained that in Montenegro parents only pay the food costs of children in PSE (LPSE Art. 35.1). Furthermore, as we explained, the following categories of children are exempt from paying food costs:

- Children without parental care,
- Children whose parents are beneficiaries of social benefits, and
- Children from the most vulnerable groups.³⁶

Food costs for these children are financed by the Ministry of Labour and Social Welfare (MLSW) via its Centres for Social Welfare (LPSE Art. 35.3).

These facts suggest that we could expect the state budget to be the main source

³⁶ The category "children from the most vulnerable groups" includes "children facing difficulties due to social, linguistic and cultural obstacles" (LPSE Art. 11.8), i.e. it includes non-integrated RE children.

of finances for state PSIs, followed by parents' contributions for food costs. In this section we will analyse the sources of finances for PSIs, as well as their scope and composition across PSIs.

A section of our questionnaire was devoted to questions about the revenues of PSIs.

Only one (out of six) private PSI provided answers to the questions regarding their revenues. All state PSIs provided answers to these questions except for the PSIs in Andrijevisa and Savnik, which use a primary school as their premises and do not keep separate accounts.

Table 11. Total revenues and total revenues per child, by source, in Montenegrin state PSIs³⁷, 2012

	ME	MLSW	Municipality	Parents	Other	Total
Revenues:						(€)
Regular revenues	11,502,831	157,548	13,438	2,977,065	106,860	14,757,743
Occasional revenues	0	5,080	0	0	82,478	87,558
Total revenues	11,502,831	162,628	13,438	2,977,065	189,339	14,845,301
Composition	77.5%	1.1%	0.1%	20.1%	1.3%	100.0%
Revenues per child:						(€/child)
Simple mean:	850	14	15	170	15	1,046
Weighted mean:	765	11	1	198	13	987

SOURCE: Primary data and our calculations.

Private PSIs indicated that they were almost exclusively financed by the parents. The only private PSI that provided information on its concrete revenue received annually €1,424 on average per child. This PSI also had other sources of revenue that amounted to €142 per child annually.

Total revenues and total revenues per child for state PSIs (excluding the PSIs in Andrijevisa and Savnik) are presented in Table 11. As we were expecting, most of the financing comes from the state, almost 80% of the total revenues, mostly from the Ministry of Education budget allocation. Parents as a source of finance contribute around 20% of the total revenues, while the

'other sources' amount to little more than 1% (these are mostly donations). Table 11 also shows revenues per child in its last two rows. These are calculated both as a simple mean across PSIs (€1,046) and as a weighted mean (€987), where the weights are the number of children in each PSI. However, these averages do not provide a good measure since they are too volatile, as we will explain further.³⁷

³⁷ Excluding the PSIs in Andrijevisa and Savnik, as already explained above.

Table 12. Revenues per child, state PSI, Montenegro, 2012, in €

Municipality	Name of PSI	Government	Parents	Other	Total
Bar	JPU "V. Ivanovic-Masanovic"	758	247	0	1,005
Berane	JPU "Radmila Nedic"	499	116	52	667
Bijelo Polje	JPU "Duso Basekic"	920	112	18	1,051
Budva	JPU "Ljubica V. Jovanovic-Mase"	846	248	3	1,098
Cetinje	JPU "Zagorka Ivanovic"	1,103	188	1	1,292
Danilovgrad	JPU "Irena Radovic"	468	207	40	715
Herceg Novi	JPU "Nasa radost"	840	140	5	984
Kolasin	JPU "Sestre Radovic"	1,180	109	5	1,294
Kotor	JPU "Radost"	935	203	6	1,144
Mojkovac	JPU "Jevrosima Rabrenovic-Jevra"	1,196	95	0	1,291
Niksic	JPU "Dragan Kovacevic"	797	188	16	1,002
Plav	JPU "Djecji vrtic"	964	61	0	1,025
Pljevlja	JPU "Eko bajka"	857	146	4	1,007
Pluzine	JU OC - Djecji vrtic Pluzine	302	285	0	587
Podgorica	JPU "Djina Vrbica"	600	205	19	825
Podgorica	JPU "Ljubica Popovic"	776	258	10	1,045
Rozaje	JPU "Bosko Buha"	1,959	84	0	2,043
Tivat	JPU "Bambi"	555	183	2	740
Ulcinj	JPU "Solidarnost"	890	148	30	1,068
Simple mean:		865	170		1,046
Standard deviation:		346	63		308
Weighted mean:		777	198	13	987
<i>Composition:</i>		<i>79%</i>	<i>20%</i>	<i>1%</i>	<i>100%</i>

SOURCE: Primary data and our calculations.

Revenues per child by source of finance (government, parents and 'other') for each PSI are presented in Table 12. At a first glance we can see that there is a wide variation in revenue per child across the PSIs. While the simple mean value of

revenues per child is €1,046, as already shown in Table 11, from Table 12 we can see that it varies from as low as €587 per child in Pluzine's PSI to a value more than 3.5 times as high, of €2,041 in Rozaje's PSI. Similarly, the standard deviation figure

(€308) shows us that the revenue per child deviates substantially, on average by 30% (308/1,046) from the mean.

When comparing the per-child revenue from the government across PSIs we notice that this variable is even more volatile compared to the total revenues per child. This we can observe in the third column of Table 12. While the simple mean is €865, the minimum value of government financing per child of €302 in Pluzine's PSI is 6.5 times lower than the almost €2,000 per child received by Rozaje's PSI. Furthermore, the standard deviation for this indicator is 346, showing that the government's contribution per child for individual PSIs deviates on average as much as 40% around its mean. One of the reasons for this volatility is the fact that the government funds are provided not only to finance certain costs (as explained in the first paragraph of this section), but also to finance the food costs of a certain category of children (as explained in the second paragraph of this section) and the number of such children varies across PSIs.

When comparing across the PSIs, contributions per child from parents are more volatile than those from the government. Our data shows, for example, that the state PSI in Niksic receives annually only €61 per child from the parents, while Pluzine's PSI has the highest per-child contributions from parents of €285 per child annually. Just as above, it would be logical to assume that the amount of revenues received from parents by individual PSIs, again, varies due to the fact that some children are exempt from paying the food costs (the only item payable by the parents, as already explained) and the number of such children varies across PSIs.

It is interesting that Pluzine's PSI has at the same time the highest per-child contributions from parents and the lowest

per-child contribution from the budget, which is only as we would expect it to be. It is also notable that Rozaje's PSI has both the highest total revenue per child and the highest revenue per child from government sources. When investigating this further we can see that Rozaje's PSI comes out as a significant outlier here. Total revenues per child in Rozaje's PSI are €2,041, which is twice as high as the average revenue per child and around €750 higher than the next highest PSI.

The simple mean for the 'other' category does not make statistical sense, as it takes into account all zero values and that is the reason why we have not presented it in Table 12. To show the effect on the total of all three components, therefore, we have included weighted averages for all three sources of revenue in the last rows, keeping it in line with the information presented in Table 11.

Table 13 provides a detailed account of the actual budget allocations for PSE in the Montenegrin budget for our observed period, the year 2012. Total budget expenditure realisation for PSIs, as shown by Table 13, amounts to €12,106,018, which is not very different from the amount reported by our PSIs, €11,678,898 (see Table 11, it is obtained by adding total revenues from ME, MLSW and municipalities).

Table 13. Budget items related to financing of PSE and total budget expense, Montenegro, 2012, in €

Funct. classification	Economic classification of expense	Description	Plan	Realization
	4	Expense	1,408,299,484	1,452,013,972
41601		Ministry of Labour and Social Protection		
	42	Transfers for social protection		
	421	Stemming from social protection rights		
1041	4216	Food for children in PSI	585,328	584,765
40701		Ministry of Education		
10801		Programme: Preschool education	11,523,338	11,521,253
	4	Expense	11,523,339	11,521,253
	41	Recurrent expense	11,500,195	11,498,111
	411	Gross salaries and contributions of employer	10,970,000	10,968,051
0911	4111	Net salaries	7,130,000	7,129,989
0911	4112	Taxes on salaries	800,000	799,997
0911	4113	Contributions payable by employees	2,000,000	1,999,999
0911	4114	Contributions payable by employer	900,000	899,999
0911	4115	Municipal taxes	140,000	138,067
	412	Other personal income	28,785	28,775
0911	4127	Early retirement	27,785	27,775
0911	4129	Other contributions	1,000	1,000
	413	Material and services costs	374,124	373,999
0911	4131	Material costs	60,485	60,440
0911	4132	Business travel costs	2,134	2,056
0911	4134	Energy costs	250,000	249,999
0911	4135	Telephone services costs	6,130	6,129
0911	4139	Services contracted	55,375	55,375
	414	Current maintenance	0	0
0911	4142	Repairs of buildings	0	0
	418	Other expense	127,286	127,286
0911	4181	Communal contributions	127,286	127,286
	44	Capital expense	23,143	23,143
	441	Capital expense	23,143	23,143
0911	4413	Expense of buildings	10,000	10,000
0911	4415	Expense of equipment	5,143	5,143
0911	4416	Expense of investment maintenance	8,000	8,000

SOURCE: Law on Final Account of Budget of Montenegro for 2012, December 23, 2013

The share of the total budget for PSE of GDP in 2012 in Montenegro is 0.38%³⁸. This compares quite unfavourably with Serbia, which allocates 0.43% of its GDP to the PSE budget, as well as with the OECD countries that allocate, on average, 0.5% of their GDP to financing PSE.

Finally, information in Table 13 shows that there are no budget allocations to deal with the costs of current maintenance and repairs of buildings. Montenegrin PSIs are, in general, already functioning above their capacity and new premises are a real necessity, but it is also important to properly repair and be able to maintain the existing premises.

4.5 SUMMARY OF THE CHAPTER

The primary goal of our field research (survey) was to gather information necessary to calculate the cost of one child who attends a full-day programme in kindergarten. In measuring costs we followed the cost aggregation explained in Myers (2008) and applied in van Ravens (2010).

In this chapter firstly we analyse the total annual costs per PSI in absolute terms, and in per-child terms, and find the following:

- The simple mean of total costs per child is €1,222. This indicator is too volatile to have any reasonable viability. The salaries of employees are the most significant part of total costs per child with a share of more than three-quarters of the total costs. The next category by size is food, which contributes to only 11% to the total costs.

- The difference between private and state PSIs is observed primarily with regard to staff salaries: in state PSIs the share of salaries is more than 20 percentage points higher than in the case of private PSIs.
- Teacher education makes up only a minimal share in per-child costs for both state and private PSIs. This is of interest for our study since we will need to invest in teacher training in order to provide a good-quality preschool preparatory programme.

In the second part of this chapter we calculate the annual recurrent cost of one child in a full-day kindergarten programme, which we also call the unit cost, in the following procedure:

- In the first step we separate the capital costs from the total costs to get the recurrent costs;
- In the second step we separate the costs of crèche from the costs of kindergarten. We do this using regression equations that allow us to estimate how much the total recurrent costs would increase should we have one more child in crèche (or kindergarten) while keeping the other variable constant. From this we estimate that one child in crèche costs the same as 1.51 children in kindergarten;
- In the third step we estimate that the half-day kindergarten or crèche costs are equal to 5/9 of the full-day kindergarten or crèche costs, respectively.
- In the final step 4 we recalculated the total number of children and express them in terms of a '1 full-day kindergarten child' (our unit cost) so that we could divide the annual recurrent costs (calculated in step 1) by the number of 'normative children in full-day kindergarten' for

³⁸ Montenegrin GDP for 2012 was €3.15 billion (an estimate from the IMF site) and the budget allocation for PSE was €12.1 million in 2012.

each PSI to calculate its specific recurrent (annual) costs per full-day kindergarten child.

- As a result of this process we estimated that **the unit cost of full-day kindergarten is €1,066**. For a half-day kindergarten the cost is €592 (we multiply the full-day costs by the ratio 5/9 that we estimated in Step 3 for conversion of costs from the half-day into the full-day programme). Furthermore, we use the ratio between the crèche and the kindergarten costs of 1.51 to calculate our unit costs for crèche and get the result that €1,610 is the unit cost of a full-day crèche and €894 is the unit cost of a half-day crèche

A section of our questionnaire was devoted to the questions on revenues of PSIs. Almost 80% of the total revenues comes from the state, while parental contributions comprise the rest.

The share of the total budget for PSE of GDP in 2012 in Montenegro is 0.38%. This compares quite unfavourably with Serbia, who allocates 0.43% of its GDP to the PSE budget, as well as with the OECD countries that allocate, on average, 0.5% of their GDP to financing PSE.

In the budget there are no allocations to deal with the costs of current maintenance and repairs of buildings. While Montenegrin PSIs are, in general, already functioning above their capacity and new premises are a real necessity, it is important to properly repair and be able to maintain the existing premises before building new ones – that will again need to be maintained. Lacking government resources for doing long-overdue repairs on some premises, perhaps the ‘initial repair’ may be done through socially responsible actions and other donor-oriented programmes.



**5. ESTIMATING THE COSTS OF INTRODUCING
THE PRESCHOOL PREPARATORY
PROGRAMME WITH UNIVERSAL COVERAGE**

Our analysis so far has been mainly oriented towards the primary PSE programmes, the full-day and half-day ones. Montenegrin PSIs, as we explained, also have short programmes, but at present it is only a short PSE programme lasting two hours delivered by two PSIs for 130 children who are one year away from starting school. It is the goal of the government to introduce the preschool preparatory programme (PPP), with the aim of achieving universal coverage of children who are one year away from starting school. In this chapter we will deal exclusively with the short programme we defined as PPP.

The importance of PSE and its positive effects on child development and the whole of society have been well documented. “Since much of cognitive functioning is well established by the time the child is age four or five, with the implication that the rate of return on investments in primary school is much lower, it means that investments in education at the preschool level may bring much higher long-term private and social benefits.” (Heckman, 2007; Heckman and Masterov, 2007, as quoted in UNICEF 2012a) Lynch (Lynch, 2005) provides an overview of the findings regarding the positive sides of early child education and lists a whole set of advantages. Recently, Vujic and Baronijan provided evidence for the existence of “a positive relationship between preschool attendance in Serbia and school performance measured through PISA tests in mathematics, reading and science at the age of 15” (Vujic and Baronijan, 2011, as quoted by UNICEF 2012a). The findings are in agreement that the positive effects of PSE in early childhood are several times higher for children from marginalized groups in society.

In this chapter we will estimate the costs of introducing a PPP with the goal of achieving universal coverage of preschool

children. We will first estimate the unit costs of PPP, then calculate the cost of implementing universal PPP for all children who will go to school the following year (for practical reasons we will call them children age over 5), as well as for expanding this PPP to children who are two years away from starting school (we will call them ‘children age 4–5’) and three years away from starting school (‘children age 3–4’). In this way all kindergarten children will be covered by the PPP.

Given the importance of the PPP for child development and its socio-economic benefits for society as a whole as explained above, this programme would be free of charge. This means that the PPP would be free for all children in Montenegro who fall under this specified age group (from 3 years old up to the time they start primary school education), including children who already attend kindergarten. It is crucial for the PPP to be free so that every child will have equal access.

We will estimate the costs of introducing in 2015 PPP with universal coverage for all children (including those who already attend PSI) age 5 until they go to school, for children who are age 4 and above in 2017 and for children who are 3 and above in 2019. Therefore, if it were to fully implement this programme, Montenegro would achieve universal coverage of children age 3–6 with free PSE in 2020.

5.1 ESTIMATING COSTS OF THE THREE-HOUR PRESCHOOL PREPARATORY PROGRAMME

From the previous analysis we learned that PPP is to be provided for all children in a municipality who are 5 years old until the time they go to school (LPSE Art. 16.2 and 16.3); in practice this applies to one

preschool generation ('children aged 5 and above'). LPSE does not state the number of hours, or days per week this PPP is to be carried out for. However, since PPP is a short programme (LPSE Art. 16.2), and a short programme should last from three to four hours (LPSE Art. 13), this means that PPP should also last three to four hours.

The current short programme implemented in Montenegro lasts only two hours and we have to develop a three-hour PPP that is better suited to achieve the necessary developmental effects³⁹. **This three-hour programme, in order to be efficient and effective in realizing child development goals, should last a minimum of 10 months, five days a week, so that each child receives 600 hours per year of preschool education.**

We would like our PPP also to provide a snack for all children. The reason is that this would make it more attractive especially to vulnerable groups that otherwise would not send their children to PPP. Food provided, especially in case of children from vulnerable groups, is likely to have an additional developmental effect if it includes some of the staple foods that children may be otherwise missing in their diets.

In the previous chapter we estimated the costs of all primary programmes in terms of full-day kindergarten costs (see step 3 under section 4.3). We will extend the same approach here and express PPP costs in terms of full-day kindergarten costs. When we estimated the costs of primary programmes we assumed that their respective per-hour costs were the same. If we made the same assumption about PPP, its costs would be one-third of the costs of a full-day programme

(since it lasts three hours and a full-day programme, on average, lasts nine hours). However, we find that this can be only an upper limit for PPP costs. These costs should, in fact, be lower than the primary programmes' (full-day and half-day) costs because:

- PPP will not need dormitories since the children will not be sleeping, and
- As these courses will be organized either in the morning or the afternoon, but not across noon, the children would have a snack and not a full meal⁴⁰.

Bearing in mind that for both of these reasons PPP costs would be much lower compared to the appropriate primary programmes' costs per hour, we will estimate the PPP costs to be not one-third but one-quarter of a full-day cost. In this way we are making the PPP 25% less costly per hour compared to the primary kindergarten programmes' cost per hour.

This position is supported by other empirical findings: ISET Policy Institute (2012) that finds this ratio to be around 1:4⁴¹. Presenting the evidence of Armenia, Kyrgyzstan and Poland, van Ravens (van Ravens, 2010) concludes that "the experience of other CEE/CIS regions suggest that the half-day unit costs are about a quarter of the costs of full-day KG (kindergarten)"⁴²; recent and as yet unpublished findings in Macedonia point in the same direction.

39 In fact, three hours is not only better than two hours for child development reasons, but also for more practical reasons. Three hours give the parent just a bit more time to go to the market or do some housework. This could make the programme more attractive to parents.

40 This may also be relevant with regards to cost-effective organization. For example, if you have the 4-year-olds in the morning and the 5-year-olds in the afternoon, you can use the same classroom, and even teacher. Note that for the 3-year-olds, we might be forced to have them attend in the morning because most sleep mainly in the afternoon,

41 See page 70 in ISET Policy Institute (2012). The ratio of the adequate costs in Table 16 is around 1:4 for both geographical regions.

42 Here 'half-day programmes' correspond to our short programme (PPP).

We calculated our 'normal' annual kindergarten costs per child (unit costs) in section 4.3, and the unit cost of a child in a full-day kindergarten programme is €1,066. Following our discussion immediately above we will estimate the unit costs for PPP to be one-quarter of that value, which is €266.50 per child annually. The results of the previous two studies in the region estimated unit costs of PPP to be €160 in Macedonia (van Ravens, 2010) and average costs of €490 in Serbia (UNICEF, 2012a). Note that in

the case of Serbia €490 is not a unit cost, but an average cost. As we will show later (see Table 14), average costs in our case will be €320 and they are comparable to €490 in Serbia. Therefore, this puts our estimate somewhere in between these two reference values (for Macedonia and for Serbia).

We will use unit costs to calculate individual PPP costs for all municipalities, following the approach applied in van Ravens (2010) and using a formula proposed by UNDP:

$$Exp_i = c_i \times Norm \times P_i,$$

where:

- Exp_i – total costs for the government from PSE programmes
- c_i – factor or coefficient to take into account special circumstances (transport costs)
- $Norm$ – or unit price, is what needs to be paid per child, in normal circumstances
- p_i – population, total number of children covered
- i – indicates the observed municipality.

On the right-hand side of the above equation we have three explanatory variables: the c-coefficient, which we will discuss immediately below; the Norm, which is the PPP unit cost we just estimated (€266.50); and p, the number of children that are to be covered by the programme, which we will estimate from the official statistics and our primary data, in the next section of this chapter.

First we will discuss the c-coefficient, or 'c-density'. It is used to underline the difference in per-child costs across municipalities. The costs of providing universal PPP to children in Montenegro are going to be higher in municipalities with lower population densities, compared with those with higher population

densities. This is especially the case for remote and hard-to-reach areas that need additional costs in order to provide PPP to all the children in order to achieve the aimed universal coverage of children with PPP. Furthermore these more sparsely populated areas in Montenegro are also generally less developed, have a higher percentage of vulnerable children (UNICEF, 2012) and currently a very low rate of coverage of children with PSE (see Table 3 and the discussion below it). In fact, it was discovered that the population density generally has an important impact on these costs. That is exactly what the c-coefficient, or 'c-density' is used for and how it is applied (see Table 14). Based on population sparseness, it allows for

additional costs that may be spent on organizing transport for children to and from the PSI or for organizing teachers who could travel to where the children are living⁴³. This additional amount of costs is also meant to cover the extra costs of having to deal with a small group size.⁴⁴

The second column in Table 14 gives information on the population density, i.e. the number of people per square kilometre, in each municipality. The highest population density is in the Municipality of Tivat which has 305 people living per square kilometre. On the other end of the spectrum we have Savnik municipality which has only four people living per square kilometre. Following the approach applied in Macedonia in van Ravens (2010), we will construct a c-coefficient so that it allows costs to rise by 25% for the municipality with the lowest population density (Savnik) compared to the municipality with the highest density (Tivat) for which there is no increase in cost (c=0).

For that purpose first we will calculate the value called 'Top-up' by subtracting population density in each municipality (in the second column) from the maximum population density for a municipality (305). 'Top-up' now has the value of zero for the most densely populated municipality and the highest value for the least populated municipality. Finally, in the fourth column, we calculate c-density by multiplying 'Top-up' by 0.083056. This factor was calculated to allow the c-factor to reach a maximum of 25% for the municipality with the highest 'Top-up', that is:

$$25 / 301 = 0.083056.$$

43 So, for example, a teacher who works full-time could work in the morning in one place, and in another in the afternoon.

44 For example, in a village which is too remote to have children travel, we may only find ten 5-year-olds. This leads to higher per-child costs and this too could be reflected in the coefficient.

Now that we have the c-density calculated for each municipality, and the unit costs for PPP (column 5), we can calculate the costs weighted by the c-coefficient for each municipality in the last column of Table 14. These are our estimates of the per child costs of PPP for each municipality. As we can see the costs are the highest in municipalities of Savnik and Pluzine (€333 per child), followed by Kolasin (€332 per child), and the lowest in Tivat (€266.50 per child).

Table 14. Calculating the ‘c-density’ and costs of PPP across municipalities in Montenegro

Municipality	Population density (pop/km ²)	Top-up	‘c-density’	Unit cost (€)	Unit cost × (1+c-density/100) (€)
Andrijevica	18	287	23.8	266.5	329.9
Bar	70	235	19.5	266.5	318.5
Berane	47	258	21.4	266.5	323.5
Bijelo Polje	50	255	21.2	266.5	323.0
Budva	158	147	12.2	266.5	299.0
Cetinje	18	287	23.8	266.5	329.9
Danilovgrad	37	268	22.3	266.5	325.9
Herceg Novi	131	174	14.5	266.5	305.1
Kolasin	9	296	24.6	266.5	332.1
Kotor	67	238	19.8	266.5	319.3
Mojkovac	23	282	23.4	266.5	328.9
Niksic	35	270	22.4	266.5	326.2
Plav	27	278	23.1	266.5	328.1
Pljevlja (& Zabljak)*	19	286	23.8	266.5	329.9
Pluzine	4	301	25.0	266.5	333.1
Podgorica	129	176	14.6	266.5	305.4
Rozaje	53	252	20.9	266.5	322.2
Savnik	4	301	25.0	266.5	333.1
Tivat	305	0	0.0	266.5	266.5
Ulcinj	78	227	18.9	266.5	316.9
Simple mean:					319.8

* We have calculated (weighted) average density for these two municipalities.

SOURCE: MONSTAT data on population density, primary data and our calculations.

5.2 COSTS OF UNIVERSAL COVERAGE OF CHILDREN AGE 3–6 WITH THE PRESCHOOL PREPARATORY PROGRAMME

As already explained in the beginning of this chapter, our goal is to estimate the costs of achieving universal PPP coverage:

- for children over 5 years of age in 2016,
- for children over 4 years of age in 2018, and
- for all children older than 3 in 2020.

This assumes introducing universal PPP coverage for children over 5 in 2015, for children over 4 in 2017 and for children over 3 in 2019. Now we will estimate the total costs of achieving universal coverage of PPP in Montenegro.

In the previous section we introduced a formula that we will use to calculate the total costs of PPP. In this formula we have already estimated the Norm and c-coefficient, and we only need the number of children (p) in order to calculate the total expected costs (Exp). We have estimated the number of children in Montenegro, both overall and for each municipality, for the period 2015–2020 following the analysis and procedures that are explained in Annex II. Following the

plan for the introduction of PPP that was outlined in the previous paragraph⁴⁵ and multiplying the costs per child calculated in Table 14 with the number of children that should be attending PPP in order to ensure full coverage of children that are not currently included in PSE, we get the total PPP costs presented in Table 15.

⁴⁵ All children above 5 years of age (i.e. one year away from starting school) will attend PPP in 2015 and 2016, all children above 4 will attend PPP in 2017 and 2018, and all children above 3 years of age will attend PPP in 2019 and 2020.

Table 15. Total recurrent costs of preschool preparatory programmes for Montenegro, 2015-2020, in € at 2012 constant prices

Municipality	2015	2016	2017	2018	2019	2020
Andrijevica	15,052	17,031	30,715	27,955	37,073	35,278
Bar	155,869	156,176	314,629	332,121	512,060	523,087
Berane	140,643	133,808	265,511	244,915	350,811	338,310
Bijelo Polje	195,535	179,928	335,270	327,161	509,129	499,518
Budva	73,801	76,701	112,756	114,587	204,190	207,805
Cetinje	45,021	49,235	87,387	93,573	147,199	150,962
Danilovgrad	57,116	61,044	99,150	92,236	152,121	152,501
Herceg Novi	83,466	94,256	178,897	174,401	265,618	264,824
Kolasin	23,961	24,080	45,285	46,181	74,763	75,878
Kotor	36,556	50,870	149,286	154,141	245,718	253,608
Mojkovac	26,488	21,025	46,855	46,004	68,819	68,485
Niksic	252,103	252,935	503,256	493,645	767,292	765,860
Plav	45,772	46,785	86,645	70,504	98,131	90,301
Pljevlja (and Zabljak)	86,775	88,285	150,538	139,034	185,328	171,812
Pluzine	7,111	6,854	10,747	9,094	12,349	10,549
Podgorica	735,466	745,150	1,463,974	1,466,000	2,237,205	2,243,353
Rozaje	130,273	134,271	232,838	211,320	323,521	315,901
Savnik	5,267	6,931	9,140	11,966	19,356	19,943
Tivat	45,421	52,327	89,148	84,871	139,138	141,918
Ulcinj	67,788	72,970	126,670	119,910	187,686	184,734
Total:	2,229,483	2,270,663	4,338,697	4,259,619	6,537,507	6,514,630

SOURCE: Our calculations.

Since our primary data and original costs are provided in 2012 prices, we have expressed all future costs and revenues in this analysis in 2012 constant prices, thus making them directly comparable across the years and allowing us to perform other data manipulations without thinking about the deflators.

Table 15 shows the costs of PPP, more precisely, the costs of coverage with PPP of those children that are not already attending PSE. As we can see from Table 15 the additional costs that need to be secured for PPP amount to €1 million when only one generation is included in PPP education, and up to around €3.4

million when all three generations are to be included in PPP education. When analysing the data from this table, one should bear in mind that, unlike in the table that follows, we have zero costs in several municipalities over several years. The reason is that we already have a high rate of coverage of children aged 3–6 with PSE in these municipalities (see Table 3) and the coverage of over-5-year-olds in some municipalities is even higher than 100%⁴⁶. In these instances, instead of having a negative number of children we have assigned it a zero value.

⁴⁶ This means that children from the other municipalities attend PSE in these municipalities.

Table 16. Recurrent costs of PPP for the children who are not already attending PSE, 2012–2015, in € at 2012 constant prices

Municipality	2015	2016	2017	2018	2019	2020
Andrijevic	12,052	14,031	24,531	22,244	29,888	28,441
Bar	96,566	95,362	184,445	196,292	326,656	333,691
Berane	107,517	101,875	191,404	175,512	257,673	248,491
Bijelo Polje	94,413	86,610	204,787	199,570	353,650	346,974
Budva	4,628	13,159	17,115	0	25,708	26,163
Cetinje	15,339	18,004	7,956	18,036	33,879	34,745
Danilovgrad	25,683	32,327	50,479	45,693	88,504	88,725
Herceg Novi	0	8,127	9,355	7,763	43,290	43,160
Kolasin	8,160	8,720	17,442	17,837	36,621	37,167
Kotor	0	0	17,088	12,015	61,200	63,045
Mojkovac	15,693	10,725	28,316	27,715	45,495	45,274
Niksic	102,927	107,124	277,535	270,847	487,858	486,947
Plav	27,111	29,527	57,145	45,486	67,128	61,772
Pljevlja (and Zabljak)	50,229	53,726	89,106	82,127	116,066	107,602
Pluzine	5,098	5,120	8,632	7,287	10,351	8,843
Podgorica	264,623	275,601	553,610	553,931	1,025,107	1,027,924
Rozaje	122,396	126,962	212,923	192,795	296,548	289,563
Savnik	5,039	6,693	7,238	9,697	15,572	16,045
Tivat	0	1,456	0	1,308	18,059	18,398
Ulcinj	31,767	38,975	73,928	69,283	122,685	120,755
Total:	989,243	1,034,122	2,033,033	1,955,438	3,461,938	3,433,725

SOURCE: Our calculations.

While Table 15 presents the costs of covering with PPP education children who are not already included in PSE, cost calculations presented in Table 16 are of a purely theoretical nature and show what would have been the costs of PPP education if all the children of the appropriate age in Montenegro (those over 5, over 4 and over 3 years old in 2015, 2017 and 2019, respectively) were to attend it. However, some of those children are already attending primary PSE programmes (full-day and half-day, see Table 6). Therefore, we should not expect them to attend the PPP as well. Instead, and bearing in mind the aim of the Montenegrin PSE principle of fairness, we will provide the PPP teaching to these children within their primary programmes. Since PPP education for these children would be performed within their existing primary programmes, this will not incur any additional increase of the recurrent costs. Nevertheless, here in Table 16 we are calculating these total PPP costs because we assume that they are to be provided, for free, to all children, regardless of whether they are or are not already attending PSE⁴⁷.

The results from Table 16 show that having all children who are one year away from starting school attend universal PPP would cost around €2.2 million (€2.23 million in 2015 and €2.27 million in 2016). In 2017 the costs rise to about €4.3 million (€4.34 million and €4.26 million in 2017 and 2018, respectively) as we include one more generation – those who are two years away from starting school – in universal PPP requirement. Finally, the costs rise to around €6.6 million (€6.54 million and €6.51 million in 2019 and 2020, respectively) due to the fact that we now have all three generations of preschool children covered by PPP.

47 Later we use this fact in programming PSE costs.

5.3 SUMMARY OF THE CHAPTER

The currently implemented short programme in Montenegro lasts only two hours and for child development reasons we need to develop a preschool preparatory programme (PPP) that lasts for three hours, that should last a minimum of 10 months per year and five days a week, so that each child receives 600 hours per year of preschool education. In this chapter we first calculate the costs of providing PPP per child by municipality:

- First of all, the unit cost of PPP was estimated to be one quarter of a full-day cost, which is €266.50 per child annually.
- We use this unit cost to calculate individual PPP costs for all municipalities, following the approach applied in van Ravens (2010) and using methodology proposed by UNDP.
- In this methodology the c-coefficient (or ‘c-density’) is used as a weight on unit cost in order to account for regional differences. Based on population sparseness, it allows for additional costs that may be spent on organizing transport for children to and from the PSI or for organizing teachers that could go to them. This additional amount of costs is also meant to cover the extra costs of having to deal with a small group size.
- Following approach applied in Macedonia in Ravens (2010), we construct a c-coefficient that allows the costs to rise by 25% for the municipality with the lowest population density (Savnik) compared to the municipality with the highest density (Tivat) for which there is no increase in cost (c=0).

- The resulting costs are the highest in municipalities of Savnik and Pluzine (€333 per child), followed by Kolasin (€332 per child), and the lowest in Tivat (€266.50 per child). The average cost of PPP per child is now around €320.

when all three generations are to attend universal PPP education.

Our goal in this chapter is to estimate the costs of achieving universal PPP coverage, which assumes introducing universal PPP coverage for children over 5 in 2015, for children over 4 in 2017 and for children over 3 in 2019. Following the plan for the introduction of PPP and multiplying the costs per child calculated with UNDP's formula with the number of children attending PPP and estimated following the procedure described in Annex II, we get the total PPP costs. The results show that:

Having all children who are one year away from starting school attend universal PPP would cost around €2.2 million (2015 and 2016);

In 2017 the costs rise to about €4.3 million as we include one more generation in universal PPP requirement.

Finally, in 2019 the PPP costs rise to around €6.6 million due to the fact that now we have all three generations of preschool children covered by PPP.

However, some of these children already attend PSE primary programmes (full-day or half-day). Therefore, we should not expect them to attend the PPP as well. Bearing in mind the aim of the Montenegrin PSE principle of fairness, we will provide PPP teaching to these children within their primary programmes. The actual additional costs of PSE come from covering only those children who do not already attend the primary preschool educational programmes. These costs amount to around €1 million when only one generation is covered by PPP requirement, to around €3.4 million



6. PROGRAMMING COSTS OF PRESCHOOL EDUCATION IN MONTENEGRO

Based on the costs estimated in chapter 4 of this study, the number of children in PSI and their composition explained in chapter 3 and the planned introduction of PPP with universal coverage as explained in chapter 5, in this chapter we will programme the total recurrent costs of preschool education in Montenegro for the period 2015–2020. This will be performed based on the following **assumptions**:

- All children who are already attending primary PSE programmes will continue attending these. In effect, this assumption in terms of our estimations means that there is the same rate of coverage of children by primary PSE programmes (these are the rates of coverage of children by crèche and kindergarten that are presented in Table 3);
- The structure of children attending primary PSE programmes is the same over the period 2015–2020 compared to the structure we observed in 2012. This implies the following: the composition of children who attend full-day and half-day primary programmes remains the same; the composition of children across crèches and kindergartens remains the same; and the composition of children with regard to age groups in kindergartens is the same;
- The preschool preparatory programme (PPP) that lasts for three hours is free for all children, including those who already attend primary programmes (i.e. those who already attend a full-day or half-day kindergarten) for whom the educational content of the PPP will be taught within their primary programmes;
- Preschool education is free for all children from vulnerable groups, including: children whose families are beneficiaries of social benefits, children with special educational

needs and children that need additional support due to specific social, linguistic and cultural characteristics;

- Looking from the child development aspect, it is a priority to ensure that the educational content provides PPP education to all children, especially those who are not already included in PSEs. Providing free service and attracting children from vulnerable groups is equally a priority;
- The total budget for PSE is fixed as a percentage of GDP (i.e. no new government spending will be demanded) at 0.38%, which is the current share of the PSE budget out of GDP.

Bearing in mind these principles, we will try to find out how much more financing will be needed to provide for the additional PPP costs. As we have seen in section 4.4 which deals with PSI revenues, currently state PSIs get most of their revenue from the budget (80%) and the parents (20%, see Table 11 and Table 12). Therefore, after exhausting the PSE budget, we will assess the possibility of allocating the rest of the costs to the parents, as well. We will address different costing scenarios bearing in mind the principles and goals of PSE in Montenegro and the legal framework presented in the second chapter.

6.1 TOTAL RECURRENT COSTS OF PRESCHOOL EDUCATION IN MONTENEGRO FOR THE PERIOD 2015–2020

The total (recurrent) costs of preschool education in Montenegro in our calculation should now be comprised of the primary programmes' costs for the children who already attend PSE plus the costs of

the newly introduced PPP educational programme for those children who do not already attend kindergarten. The total costs calculated in this manner, and expressed across municipalities, are provided in Table 17.

Since the costs presented in Table 17 are made up of the recurrent costs of the primary programmes and the recurrent costs of the PPPs, these are presented at the bottom of Table 17. As already explained, these costs are calculated in 2012 current prices and are therefore comparable across years. As we can see from the results, **even by 2019 when they are the highest, the costs of providing PPP to all the currently excluded children (about 50%) are only 17% of the overall preschool costs.** In rough figures, this means that 15,000 children from primary programmes generate 83% of total PSE costs, while an additional 10,000 children could be covered by just 17% of the total costs.

The total primary programmes' costs were calculated based on the 2012-measured recurrent primary programmes' costs (those calculated in section 4.3, step 1), but allowing for a slightly varying number of children (since we have assumed the structure and rate of coverage with the primary programmes to be the same, the number of children within PSI varies with the population size).

Please bear in mind that we have used only state PSIs for measuring this, as has already been discussed. Our analysis in section 4.4 shows that private PSIs did not provide data on their revenues, except for one. Furthermore, in section 4.2 we find that there is a striking difference between the cost levels and cost composition when comparing state and private PSIs (see Table 10). Some of this dissimilarity, as we previously discussed, was due to the small size of private PSIs, but we also found that

the costs of employees (i.e. employee salaries) seemed to be quite low. For all these reasons, our cost planning takes into account only state PSIs. Normally, and as already provided by LPSE, private PSIs should be allowed to take part in the provision of the PPP educational programme, but we cannot expect that their effect would be significantly higher than it has been so far (see discussion on number of children attending private PSIs in section 3.1) in such a short a period of time.

The second component of the total recurrent costs presented in Table 17 is the cost of PPP for children who are not currently included in PSE. These costs we have already discussed and analysed in the previous chapter and presented in detail (for each municipality) in Table 16.

The total recurrent costs of PSE range from less than €18 million in 2015 to more than €20 million in 2020. The component of primary programmes' costs is slightly less than €17 million throughout this period, while PPP costs rise from about €1 million in 2015 to around €3.5 million in 2020.

Table 17. Total recurrent costs of PSE in Montenegro, with provision of universal PPP coverage, 2015–2020, in € at 2012 constant prices

Municipality	2015	2016	2017	2018	2019	2020
Andrijevica	54,063	56,043	64,407	60,336	66,212	63,807
Bar	975,537	994,867	1,104,618	1,153,119	1,298,562	1,327,789
Berane	545,786	519,099	590,645	543,038	607,091	579,280
Bijelo Polje	831,909	779,029	879,027	859,850	1,018,383	999,624
Budva	1,186,604	1,153,427	1,119,355	1,095,582	1,190,453	1,211,394
Cetinje	783,307	811,112	813,876	862,730	891,338	912,716
Danilovgrad	327,796	313,223	313,411	298,067	353,090	354,121
Herceg Novi	1,048,852	1,064,856	1,042,880	1,024,490	1,057,846	1,054,023
Kolasin	267,011	265,541	274,702	278,737	303,754	307,601
Kotor	991,029	1,083,411	1,152,803	1,181,730	1,249,263	1,290,878
Mojkovac	168,470	159,885	178,622	176,940	193,830	193,146
Niksic	2,123,401	2,107,717	2,265,980	2,245,746	2,472,698	2,469,319
Plav	190,812	179,119	190,869	155,602	168,835	152,590
Pljevlja and Zabljak	485,878	460,020	455,551	417,777	420,061	384,461
Pluzine	66,725	64,190	64,927	60,831	62,012	58,058
Podgorica	6,663,843	6,670,993	6,931,993	6,949,110	7,443,878	7,467,736
Rozaje	400,363	396,667	475,141	447,237	551,682	541,843
Savnik	36,867	39,024	39,263	44,092	50,729	51,669
Tivat	482,099	474,824	455,014	455,081	495,096	509,508
Ulcinj	322,548	317,780	339,436	325,263	381,309	375,048
Total, of which:	17,952,900	17,910,829	18,752,521	18,635,358	20,276,121	20,304,610
<i>Primary programme costs</i>	<i>16,963,657</i>	<i>16,876,707</i>	<i>16,719,488</i>	<i>16,679,920</i>	<i>16,814,183</i>	<i>16,870,884</i>
PPP for the others	989,243	1,034,122	2,033,033	1,955,438	3,461,938	3,433,725

SOURCE: Our calculations.

6.2 CHILDREN FROM VULNERABLE GROUPS AND CHILDREN WHOSE FAMILIES ARE ON SOCIAL WELFARE

As explained in the previous section, the total (recurrent) PSE costs presented in Table 17 include PPP costs as well as costs of PSE for children from vulnerable groups and children whose parents are beneficiaries of social welfare scheme (hereinafter: vulnerable children). PSE should be provided for both of these categories for free, in accordance with the principles outlined in LPSE (see section 2.2 of this study). PPP is a priority because it has a multiplicative effect on child development, especially for children from less affluent and less educated families and for vulnerable children who otherwise would not attend PSE. Furthermore, PSE in any form is free for vulnerable children (see chapter 2 for a legal explanation) since one of the principles on which PSE in Montenegro is based is inclusion of the most vulnerable groups of children. We estimated PPP costs in the previous chapter, and now we will estimate the costs of PSE for vulnerable children so that both of these can be excluded from the costs payable by the parents.

The number of vulnerable children was estimated according to the explanation in Annex II. The number of vulnerable children that were attending PSE in 2012 was provided by PSIs in answer to the questions we had in our questionnaire. Using this information we have estimated the number of children from vulnerable groups that will be attending primary PSE programmes in the period 2015–2020. Multiplying that number by unit costs for the particular PSE programme gave us the total costs for vulnerable children for the period 2015–2020. This is presented in Table 18. Please bear in mind that a

separate three-hour PPP educational programme is free for all children, and hence also for vulnerable children. Therefore, those costs (presented in Table 16) have not been included in the estimates presented in Table 18.

As we can see from Table 18, the costs seem to be more or less evenly spread across the observed period and amount to around €860,000 per annum. Since all children aged 3–6, according to our plan, are to be covered by the PPP, all vulnerable children will be included as well. Knowing that this programme is anyhow for free, and that the costs of PPP for all the children that currently do not attend PSE have already been calculated (in Table 16), there is no need to allocate additional resources (other than those from Table 18) for vulnerable children.

In order to provide incentives for children from the RE population who are not already included in PSE to attend PPP and to provide additional developmental support to those children, we have included a snack in our three-hour PPP and have provided additional costs to cover transport to and from the PSI, as already explained in the previous chapter.

Table 18. Costs of PSE for children from vulnerable groups, 2015-2020, in € at 2012 constant prices

Municipality	2015	2016	2017	2018	2019	2020
Bar	65,999	67,150	68,582	70,645	71,855	73,347
Berane	32,959	31,823	30,775	29,258	28,206	27,136
Bijelo Polje	82,592	80,088	78,205	76,598	76,191	74,706
Budva	9,594	9,677	9,659	9,636	10,054	10,226
Cetinje	63,633	65,201	66,535	69,538	70,793	72,524
Danilovgrad	39,138	38,500	37,358	36,708	37,547	37,640
Herceg Novi	38,575	38,678	38,214	37,866	37,779	37,666
Kolasin	15,161	15,286	15,399	15,646	16,002	16,234
Kotor	14,290	15,023	15,578	16,001	16,359	16,852
Mojkovac	21,954	21,380	21,488	21,302	21,142	21,039
Niksic	131,349	130,786	129,990	129,115	129,581	129,338
Plav	20,806	19,430	17,777	15,611	14,452	13,129
Pljevlja and Zabljak	25,232	23,497	21,549	19,904	18,231	16,710
Pluzine	2,803	2,506	2,162	1,820	1,570	1,261
Podgorica	218,475	218,649	218,536	219,057	219,706	220,307
Rozaje	20,292	19,700	18,872	18,021	17,879	17,441
Tivat	49,008	49,183	48,929	49,374	50,663	51,635
Ulcinj	18,132	17,831	17,237	16,779	16,759	16,488
Total:	869,991	864,388	856,843	852,879	854,770	853,680

SOURCE: Primary data and our calculations.

6.3 COSTS AND BUDGET ALLOCATIONS FOR PRESCHOOL EDUCATION IN MONTENEGRO FOR THE PERIOD 2015–2020

In Table 19 we compare recurrent costs of PSE and budget allocations for PSE in Montenegro for the period 2015–2020. Our goal is to make sure that the available budget first covers the priority costs: the PSE costs of children from vulnerable groups and those whose families are beneficiaries of social welfare, as well as the costs of PPP that provide for free three hours of preschool education that is equally accessible to all children in Montenegro.

In the first row we present total (recurrent) PSE costs that we already estimated in Table 17 (total recurrent costs of state PSIs) and discussed in section 6.1 above. These costs contain both our priority costs: PPP costs for all children in Montenegro, which are presented in the second row of Table 19 (we have already analysed these costs in Table 15), and the costs of PSE within the primary programmes for ‘vulnerable children’ that we have presented in the third row of Table 19 (as listed in Table 18 in the previous section of this chapter). These services will be provided to all children in these groups for free, so we deduct these costs from the total costs in the first row of our table to get the ‘remaining costs’.

Table 19. Total recurrent costs of PSE and the PSE government budget allocations, Montenegro, 2015–2020, in € at 2012 constant prices

	2015	2016	2017	2018	2019	2020
Total PSE costs, of which:	17,952,900	17,910,829	18,752,521	18,635,358	20,276,121	20,304,610
PPP costs	2,229,483	2,270,663	4,338,697	4,259,619	6,537,507	6,514,630
Vulnerable children's PSE (less PPP)*	804,370	799,679	735,686	732,668	696,057	695,327
DIFFERENCE: Total costs - PPP costs - remaining vulnerable children's PSE costs (1)	14,919,047	14,840,487	13,678,138	13,643,071	13,042,557	13,094,653
GDP estimate	3,476,185,796	3,559,231,875	3,652,376,973	3,752,050,341	3,854,443,794	3,959,631,565
PSE budget as share of GDP	0.38%	0.38%	0.38%	0.38%	0.38%	0.38%
PSE budget	13,209,506	13,525,081	13,879,032	14,257,791	14,646,886	15,046,600
PSE budget, of which:	13,209,506	13,525,081	13,879,032	14,257,791	14,646,886	15,046,600
PPP costs	2,229,483	2,270,663	4,338,697	4,259,619	6,537,507	6,514,630
Vulnerable children's costs n.i.e.**	804,370	799,679	735,686	732,668	696,057	695,327
DIFFERENCE: PSE budget - PPP costs - vulnerable children's PSE costs (2)	10,175,653	10,454,739	8,804,649	9,265,504	7,413,322	7,836,643
Remaining PSE budget (1)	10,175,653	10,454,739	8,804,649	9,265,504	7,413,322	7,836,643
Remaining PSE costs (2):	14,919,047	14,840,487	13,678,138	13,643,071	13,042,557	13,094,653
DIFFERENCE: Remaining PSE budget - remaining PSE costs (1) - (2)	-4,743,394	-4,385,748	-4,873,489	-4,377,566	-5,629,234	-5,258,010

*There is an overlap between vulnerable children costs and the costs for providing PPP education within the primary programmes. The results presented here have been deducted for the said amount. ** not included elsewhere

SOURCE: Our calculations.

Our PSE budget is expressed in terms of Montenegro's GDP. So, in order to estimate the PSE budget for period 2015–2020, we use projected GDP for the same period. GDP estimates for 2015–2020 were made using the official (and IMF projections) projected GDP real growth rates. The GDP values presented in the fifth row of Table 19 were recalculated using the official data and expressed in 2012 current prices, as is the case with all the other information provided in Table 19. We have assumed that the share of GDP spent on PSE (0.38%) remains the same as it is now. Controlling for inflation we used percentage growth of GDP under constant prices and applied those percentages starting from 2012 (as a base year) when our survey took place. Since 2018 was the last year for which the GDP real growth rate forecast was available on the IMF web site, we decided to use that (last) percentage as an estimate for GDP growth rates for 2019 and 2020.

Based on these assumptions we have also estimated the size of the PSE budget for the same period in the seventh row of Table 19. In the following set of rows in Table 19 we deduct PPP costs and the costs of vulnerable children's PSE from the total budget⁴⁸ since these programmes are to be provided for free to the children they are applied to. The result is 'remaining budget' comparable to 'remaining costs' we calculated at the top of this table.

Finally, the difference between the 'remaining budget' and the 'remaining costs' is calculated in the last row of Table 19. This is the amount of financing necessary to cover all recurrent costs of PSE in Montenegro while providing free PPP education to all children within the targeted age groups. We can see that the costs that cannot be covered by the current size of the PSE budget ranging from €4.4 million to €5.6

48 This is the same amount as we have previously deducted from the total PSE costs in the first set of rows in this table.

million annually, which mainly depends on the number of generations that the universal PPP applies to and their coverage by the primary PSE programmes. Expressed in terms of total costs, the state would, in the observed period, cover around 75% of the total PSE costs, while around 25% (from around 23.5% to around 27.8%) of the estimated recurrent PSE costs would still need to be financed.

6.4 COSTING SCENARIOS FOR PRESCHOOL EDUCATION IN MONTENEGRO FOR 2015–2020

In this section we will discuss possible costing scenarios for financing PSE in Montenegro for the period 2015–2020. As we explained in the previous section, we need to find financing for the difference between the 'remaining budget' and the 'remaining costs', that we have calculated in the last row of Table 19.

Currently parents pay the food costs of their children⁴⁹, an amount of €40 per month for the full-day primary programme and €20 per month for the half-day primary programme, which has been redefined to €1.80 and €0.90 per day on days that the child actually attends the PSI. The latter policy solution does not seem to be efficient, as it seems that revenue realization is in some cases prohibitively low, as is shown in our analysis provided in Annex III.

The analysis in Annex III shows that, while the average attendance rate is above 80%⁵⁰, as we should expect⁵¹, the

49 A detailed explanation is provided in section 4.4.

50 This was also measured in our survey, as explained in Annex III.

51 An attendance rate that is lower than that would seriously undermine the positive effects of preschool education, and hence the main goal of introduction of the PPP with universal coverage in the first place.

payments from parents were made for an attendance that varies from as low as 42 days per year (the PSI in Plav) to 181 days per year (the PSI in Pluzine). The average value (simple mean) is 107 days per year, meaning that the parents on average pay for food for 107 days per year and that would imply that an average child attends PSE only 107 day per year. The total number of working days in Montenegrin PSIs was estimated to be between 221 (simple mean) and 238 (weighted mean), which is slightly more than 10 months a year. This gives us an average attendance rate below 50% ($107/221=48\%$)! Since this is not the case, as we established that the average attendance rate is higher than 80%, it follows that the actual realization rate of parents' contributions is too low.

With such revenue realization, it is not possible to make commitments for future policy measures. We suggest that this policy – whereby parents pay for the days their children show up at the PSI – be amended. The possible solutions could range from having the parents' contribution be paid once the child is enrolled, regardless of whether the child attends the PSI on a particular day or not, to allowing non-payment (of 50% or less of the daily fee) if the child is not able to attend the PSI for more than one week and with a doctor's written approval. Allowing for a fixed amount to be paid each month and a variable amount depending on child's actual attendance would be less preferable because it would encounter the same problem of non-realization of revenues.

Different costing scenarios regarding the amount payable by the parents are presented in Table 20. They all provide for the additional funding necessary to cover all the projected costs of PSE over the period 2015–2020, with slight variations. The calculations were made based on assumption that parents pay for PSE for

10 months in a year and that the payments are made in monthly instalments.

Group A scenarios: The same fees for kindergarten and crèche

In the group A scenarios we are assuming that parents pay full fees (or the price of the PSE for parents) every month, and that the same fees should be paid for crèche and kindergarten. **Scenario A1 shows that the total costs of the proposed PSE programmes for 2015–2020 could be financed by charging the parents the monthly fees of €38 per month for the full-day primary programmes and €19 per month for the half-day programmes.** In the last row of the scenario we provide the amount of funds that remain after financing all the costs, that is the difference between total revenues and total costs of PSE ('the result'). This row is presented in bold. **In scenario A1 we see that our result (the difference between revenues and costs) is almost always positive, even above €1 million in 2016 and 2018.** These additional funds should be used to finance the education of additional teachers, as well as other PSE needs, but also to redeem any negative result that may come out in the next few years (such as in 2019). Nevertheless, in this scenario we have too many additional funds created in the first years, so we will improve this scenario in the following step.

Since our PPP increases coverage of children in 2015 (all children who are one year away from starting school), in 2017 (all children who are two years away from starting school) and in 2019 (all children who are three years away from starting school), also the total costs of our PSE rise in these years. Therefore, it makes sense to increase the price of PSE that the parents pay (fees payable) in those particular years. This we model **in scenario A2, where monthly fees for**

the full-day primary programme are proposed to be €34 and €17 for the full-day and half-day programmes in 2015 and 2016, €36 and €18 for the full-day and half-day programmes in 2017 and 2018, and €38 and €19 in 2019 and 2020. This scenario is certainly superior to the previous as it allows for lower fees that the parents would have to pay for PSE and, consequently, less additional funds created in the last row (in fact, less than half compared to scenario A1).

We will try to improve this result further in scenarios A3 and A4 that allow for varying fees across municipalities. Fees could be made to differ for municipalities that have lower levels of development, those that have lower rates of coverage of children by PSE, or some other criterion that is of interest to the policymaker. Since in our case lower coverage rates are closely related to the level of development of a municipality, we will use this criterion based on the analysis we presented in Table 3. This table separates municipalities into three groups: high-enrolment municipalities, medium-enrolment municipalities and low-enrolment municipalities.

The first group, high-enrolment municipalities, includes the following five municipalities: Budva, Tivat, Kotor, Herceg Novi and Cetinje. We will allow the parental payments in these municipalities to be 20% higher than the median of the appropriate scenario (we multiply the median fees by a factor of 1.2). The next group, medium-enrolment municipalities, consists of the following nine (or 10 if we count Zabljak separately) municipalities: Podgorica, Kolasin, Danilovgrad, Bar, Pljevlja with Zabljak, Niksic, Mojkovac, Ulcinj and Plav. Parents in these municipalities should pay the normal, median fee as provided by the appropriate scenario. Finally, parents in the six low-enrolment municipalities of Bijelo Polje, Berane, Savnik, Andrijevica,

Pluzine and Rozaje should pay fees 20% lower than the median, that is, the costs for the parents would be calculated by multiplying the median fees by a factor of 0.8⁵².

In scenario A3 we propose a median fee of €34 per month for the full-day and €17 per month for the half-day programme. This is the amount payable by parents in the medium-enrolment municipalities and our median fee. For high-enrolment municipalities the amount payable by parents would be calculated by multiplying the median fee by a factor of 1.2, which is $34 \times 1.2 = €41$ for a child in the full-day, or $17 \times 1.2 = €20.50$ for a child in the half-day primary programme, per month. For low-enrolment municipalities the amount payable by parents would be $34 \times 0.8 = €27$ for a child in the full-day, or $17 \times 0.8 = €13.50$ for a child in the half-day primary programme per month. The result is similar to that in scenario A2, except that in scenario A3 we will be lacking more finance in 2019 and 2020.

Judging the scenarios by those having the smallest difference between total revenues and total costs, by far the superior result so far would be achieved in scenario A4 where we vary the fees by the level of enrolment in municipalities, as well as by the years where we increase coverage⁵³. Since in this scenario the amount of fees payable by the parents varies by year, it will be explained by three values: the first and the lowest one corresponds to 2015 and 2016; the second value, higher than the previous one, is the amount of fees payable by the parents in 2017 and 2018;

52 It is also possible to increase the fees by only 10% in municipalities with a high enrolment rate, or decrease the fee by 10% in low-enrolment municipalities. The existing scenarios would again be applicable, but the results would be more volatile.

53 As in scenario A3, fees payable by parents in municipalities with lower and higher enrolment are calculated by multiplying the median fees by factors of 0.8 and 1.2, respectively.

the third and the highest value is the fee payable by the parents in 2019 and 2020. The assumption of scenario A4 is that the average (median) fee would be €32, €34 and €36 per month per child for the full-day and €16, €17 and €18 per month for the half-day programme. This fee would be payable by the parents in municipalities with the average enrolment rate of children in PSE⁵⁴. In scenario A4, the fees payable by the parents in municipalities with a high enrolment rate⁵⁵ would amount to €38, €41 and €43 for a child in the full-day and €19, €20.50 and €21.50 for a child in the half-day PSE programme. The fees payable by parents in municipalities with a lower PSE enrolment rate⁵⁶ would be €26, €27 and €29 monthly for a child in the full-day and €13, €13.50 and €14.50 monthly for a child in the half-day primary PSE programme. Scenario A4 allows for higher variations of fees by municipalities (and years) and at the same time result has a smaller difference between total revenues and costs compared to the previous scenario, as illustrated by the last row of that scenario in Table 20.

Group B scenarios: Higher fees for crèche than for kindergarten

Group B scenarios propose that the crèche should be more expensive than the kindergarten. This seems very reasonable for two basic reasons. First of all, crèche costs are undoubtedly higher than the costs of kindergarten, as discussed in section 4.3 in chapter 4. Secondly, universal PPP coverage of 3–6-year-old children is a priority for developmental reasons and hence is to be provided free-

of-charge to all 3–6-year-old children, even those who go to kindergarten. Since PPP education for 3–6-year-old children is free, these three hours of out of nine or five hours that primary programmes last should be free also. Therefore the price of primary programmes should be lower for 3–6-year-old children to reflect these three hours of universal service. While very interesting, scenario B does not give a superior result compared to the one already obtained in scenario A4.

Scenario B1 proposes that the fee payable by the parents should be €40 and €20 per month for the full-day and half-day primary programmes in crèche, and €34 and €17 per month in kindergarten. According to this scenario the result (the difference between revenues and costs) stays positive until 2019, when it goes into minus (the result is a shortfall over half a million Euros in 2019 and a shortfall of almost €200,000 in 2020). This shortage in 2019 and 2020 is rectified in scenario B2, where the fees for crèche remain €40 and €20 per month (for the full-day and half-day programmes, respectively), while the fees for kindergarten are increased to €36 and €18 per month (from €34 and €16 in scenario B1). Scenario B2 does not result in such a high lack of financing as scenario B1. There is a €350,000 shortfall in 2019 that could easily be replaced by extras realized in the previous years. The negative side of this scenario is that these positive results (the extra funds realized) in the previous years are quite high – almost €1 million in 2016 and 2018. This shows inefficient resource allocation.

A combination of these two scenarios seems to be a better solution. Since scenario B2 has higher fees and generates too many superfluous resources in 2015–2018, in this period we could have the fees the same as in scenario B1 (€40 and €20 per month in the crèche and €34 and €17 in the kindergarten) which generates half the

54 Municipalities that comprise this group are: Podgorica, Kolasin, Danilovgrad, Bar, Pljevlja and Zabljak, Niksic, Mojkovac, Ulcinj and Plav.

55 These are: Budva, Tivat, Kotor, Herceg Novi and Cetinje.

56 Those are the following municipalities: Bijelo Polje, Berane, Savnik, Andrijevica, Pluzine and Rozaje.

excess of the scenario B2 for the period 2015–2018. Since scenario B1 generates a large shortfall in the period 2019–2020, in this period we could administer higher fees, at the amount of €36 and €18 per month for the full-day and half-day in kindergarten, as in scenario B2.

Scenarios B3 and B4 allow for the parental contribution to vary across the municipalities, depending on the municipality grouping by rate of PSE coverage (see Table 3). In scenario B3 the average fees (median) payable by the parents from municipalities with an average PSE enrolment rate⁵⁷ is €40 and €20 per month per child for the full-day and half-day PSE programme in the crèche and €34 and €17 in the kindergarten. The fees payable in the high-enrolment municipalities⁵⁸ would amount to⁵⁹ €48 and €24 per month in the full-day and half-day crèche and €41 and €20.50 monthly for the kindergarten. In low-enrolment municipalities⁶⁰ the fees should amount to 80% of the median fee, which is €32 and €16 per month for the full-day and half-day PSE programmes in the crèche and €27 and €13.50 in the kindergarten. The result (difference between revenues and costs) in this scenario is identical to the one we realized in B2, while scenario B2 is easier to administer because there is no need to apply varying prices across municipalities. The advantage of scenario B3 is that it allows for the amount of fees payable be more equitably distributed across municipalities – it is higher in the more developed municipalities that have higher enrolment rates and lower in less developed municipalities that have a lower rate of coverage of children by PSE. The

other disadvantage of this scenario is that the price (the fees payable) is significantly higher than the €40 and €20 limit in municipalities with high PSE enrolment rates.

It is also possible to increase or decrease the fees by only 10% instead of 20%. In that case the result, as measured by the difference between revenues and costs, under the assumptions of scenario B3 would be more like the result realized in scenario B1, that is, it would be positive (almost €800,000 in 2016 and 2018) and negative in 2019 and 2020 (by a total amount of half a million Euros).

Scenario B4 presumes that the fees differ by municipalities, by calendar year and are different for crèche and kindergarten. Since in this scenario the amount of fees payable by parents varies by year, it will be explained by three values: the first and the lowest one corresponds to 2015 and 2016; the second value, higher than the previous one, is the amount of fees payable by the parents in 2017 and 2018; the third and the highest value is the amount of fees payable by the parents in 2019 and 2020. According to this scenario, the median fees are €38, €39 and €40 monthly for the full-day and €19, €19.50 and €20 monthly for the half-day crèche, while for the full-day kindergarten the median fees are €32, €34 and €36 per month and €16, €17 and €18 for the half-day kindergarten. Fees payable by parents in high-enrolment municipalities would be: €46, €47 and €48 for the full-day crèche; €23, €23.50 and €24 for the half-day crèche; €38, €41 and €43 for the full-day kindergarten; and €19, €20.50 and €21.50 per month for the half-day kindergarten. The monthly fees payable by parents in low-enrolment municipalities according to this scenario would be: €30, €31 and €32 for the full-day crèche; €15, €15.50 and €16 for the half-day crèche; €26, €27 and €29 for the full-day kindergarten; and €13, €13.50 and

57 See fn. 54 and a detailed explanation for distribution of municipalities by groups is provided in section 3.2.

58 See fn. 55.

59 We assume that the fees here are 20% higher than the median.

60 See fn. 56.

€14.50 for the half-day kindergarten. This scenario seems to have the lowest total result, i.e. difference between revenues and costs and from that aspect it is superior to the other scenarios within this group. Its disadvantage is that the fees vary across the three criteria making them more difficult to administer.

As we can see from Table 20, most of the scenarios within groups A and B propose a parental contribution that is not higher than €40 per month for the full-day and €20 per month for the half-day primary programmes⁶¹, which was the reference value of what parents are supposed to pay now. The last row in each scenario, which is presented in bold, gives the amount of funds that remains after all the costs have been accounted for. We can see that this difference is mostly positive, allowing the additional funds to be used for financing additional costs such as providing education for the teachers (especially new teachers), in particular for PPP training, but also to help overcome negative results that appear in some years (2019 in particular).

Group C scenarios: Fees payable by parents are realized in 80% of the cases

Finally, the group C scenarios propose that parents pay fees only 80% of the time. The reason we chose 80% is that, according to our research that we explained in Annex III, the average attendance rate is above 80%. Furthermore, as already mentioned in this section, if the attendance rate were lower than that, it would seriously undermine the main purpose of introducing PPP education that all the children can take.

61 That is, the amount of fees payable in the high-enrolment municipalities is higher than this amount, while the median remains at the level that is not higher than €40 or €20. This caveat applies only to scenarios A3, A4, B3 and B4.

In fact, children that would not attend at least 80% of the PPP classes could be at a disadvantage compared to their peers in their future education. In these scenarios our monthly fees would have to rise above the €40 and €20 level, as we can see from our table.

From the first of these scenarios, scenario C1, we can see that if the parents were to pay just 80% of the daily fees⁶², the maximum monthly fee in our previous scenarios, €40 and €20 per month, would not be enough to cover the proposed costs of PSE. **In fact, it would take fees of €46 and €23 per month (for full-day and half-day programmes respectively), as proposed by scenario C2**, to finance the proposed PSE programmes for the period 2015–2020. This is opposed to just €38 and €19 per month that would suffice if parents were to pay for each of the 10 months that a child attends the primary PSE programmes, as evidenced by scenario A1. Therefore, we can conclude that lowering the rate of fee payment realization from 100% to 80% caused an increase in the amount of monthly fees payable by the parents from €38 to €46 for the full-day, and from €19 to €23 for the half-day programmes (an increase of about 17% in the amount of the fees payable by parents).

Scenario C3 provides for different fees for crèche and kindergarten. Under the assumption of the group C scenarios that the realization of fees payable by the parents is 80%, the monthly fees would now have to be €50 and €25 for the full-day and half-day crèche and €45 and €22.50 for the kindergarten. In the similar scenario where parents pay the full school fees each month (scenario B1), we could achieve a similar result with €40 and €20 per month for the full-day and half-day crèche and

62 This could happen if the average attendance rate were 80% and the PSIs were able to realize payments for all the other days.

€34 and €17 for the kindergarten (or €36 and €18 in scenario B2). To conclude, due to lower fee payment realization (of 80% as opposed to 100% as in scenarios A and B), the amount of fees payable by parents would be about 20% higher.

Scenario C4 allows for an increase in the fees that the parents pay over the years: it would be €42 (in 2015 and 2016), €44 (in 2017 and 2018) and €46 (in 2019 and 2020) for the full-day programme, and €21, €22 and €23 for the half-day programme. Similarly in scenario A2 where parents pay full monthly fees, the same results would be realized with monthly fees of €34, €36 and €38 for the full-day and €17, €18 and €19 for the half-day programmes (scenario A2). Compared to scenario A2, scenario C4 realizes a similar result, but the monthly fees are about 17% higher.

In scenario C5 the fees vary by municipality, depending on the enrolment group (high-, medium- and low-enrolment municipalities)⁶³. **The median fee needs to be €44 and €22 per month if parents were to pay 80% of the total monthly fees (see scenario C5).** This fee is as much as 23% higher compared to €34 and €17 per month if the full payments are realized (in scenario A3).

Scenario C6 also varies the price of PSE for parents depending on the enrolment group of a particular municipality, as in scenario C5, but also varies the fees across the years. **The parents are supposed to pay €40, €42 and €44 per month for the full-day and €20, €21 and €22 for the half-day programmes, with the fee modification applied in 2015, 2017 and 2019.** If the full fees were payable by parents, then under the same assumption, the fees payable by the parents would be €32, €34 and €36 for the full-day and €16, €17 and €18 for the half-day programmes (scenario A4).

The fees payable by the parents are about 20% higher than the fees that would be paid if the fees were realized in 100% of the cases, as in scenario A4.

In short, in the group C scenarios, where it is allowed for the parental contribution to be realized in 80% of the cases, the resulting fees charged to the parents are around 20% higher than the fees that would be charged in scenarios A and B, where fees are charged regardless of whether the child attends the PSE on a particular day or not.

⁶³ See Table 3 and a detailed explanation in section 3.2.

Table 20. Costing scenarios for remaining PSE costs payable by parents, 2015–2020, in € at 2012 constant prices

	2015	2016	2017	2018	2019	2020
PSE costs not covered by PSE budget	4,743,394	4,385,748	4,873,489	4,377,566	5,629,234	5,258,010
Estimated number of children*:						
Full-day crèche	3,366	3,396	3,411	3,427	3,443	3,459
Half-day crèche	23	23	22	22	22	22
Full-day kindergarten	10,410	10,305	10,178	10,127	10,225	10,260
Half-day kindergarten	1,292	1,251	1,221	1,198	1,205	1,197
A. EQUAL FEE FOR CRÈCHE AND KINDERGARTEN						
<i>Scenario A. 1: Parents pay €38 and €19 per month for full-day and half-day, respectively</i>						
Full-day total revenue	5,235,008	5,206,577	5,163,757	5,150,373	5,193,697	5,213,219
Half-day total revenue	249,849	241,916	236,332	231,911	233,159	231,640
Total revenues from parents in A.1:	5,484,857	5,448,494	5,400,089	5,382,284	5,426,856	5,444,859
Total revenues – total costs in A.1:	741,464	1,062,746	526,600	1,004,718	-202,378	186,850
<i>Scenario A. 2: Full-day fees are €34, €36 and €38 and half-day fees €17, €18 and €19, fees rise in 2015, 2017 and 2019 respectively</i>						
Full-day total revenue	4,683,955	4,658,516	4,891,980	4,879,301	5,193,697	5,213,219
Half-day total revenue	223,549	216,452	223,894	219,705	233,159	231,640
Total revenues from parents in A.2:	4,907,504	4,874,968	5,115,874	5,099,006	5,426,856	5,444,859
Total revenues – total costs in A.2:	164,110	489,220	242,385	721,440	-202,378	186,850

Scenario A.3: Varying fees across municipalities, depending on the enrolment group, with the median fees of €34 and €17 per month

Full-day total revenue	4,886,961	4,868,362	4,832,004	4,824,515	4,870,963	4,895,075
Half-day total revenue	217,120	210,856	206,223	202,587	203,756	202,691
Total revenues from parents in A.3:	5,104,081	5,079,218	5,038,226	5,027,102	5,074,719	5,097,765
Total revenues – total costs in A.3:	360,688	693,470	164,738	649,536	-554,515	-160,244

Scenario A.4: Varying fees across municipalities, depending on the enrolment group, while the median fee rises over the years (€32, €34 and €36 for full day and €16, €17 and €18 for half-day where fee rises are for 2015, 2017 and 2019, respectively)

Full-day total revenue	4,599,493	4,581,988	4,832,004	4,824,515	5,157,490	5,183,020
Half-day total revenue	204,349	198,453	206,223	202,587	215,741	214,614
Total revenues from parents in A.4:	4,803,841	4,780,440	5,038,226	5,027,102	5,373,232	5,397,634
Total revenues – total costs in A.4:	60,447	394,693	164,738	649,536	-256,003	139,624

B. HIGHER FEES FOR CRÈCHE THAN FOR KINDERGARTEN**Scenario B.1: Crèche fees are €40 and €20 per month (full-day and half-day), kindergarten fees are €34 and €17 per month**

Full-day crèche revenue	1,346,585	1,358,426	1,364,494	1,370,750	1,377,207	1,383,548
Half-day crèche revenue	4,532	4,545	4,498	4,449	4,402	4,354
Full-day kindergarten revenue	3,539,357	3,503,854	3,460,383	3,443,091	3,476,366	3,488,443
Half-day kindergarten revenue	219,697	212,588	207,632	203,718	204,874	203,556
Total revenues from parents in B.1	5,110,172	5,079,414	5,037,007	5,022,007	5,062,849	5,079,902
Total revenues – total costs in B.1:	366,778	693,666	163,519	644,441	-566,385	-178,108

Scenario B.2: Crèche fees are €40 and €20 per month, kindergarten fees are €36 and €18 per month for the full-day and half-day programmes

Full-day crèche revenue	1,346,585	1,358,426	1,364,494	1,370,750	1,377,207	1,383,548
Half-day crèche revenue	4,532	4,545	4,498	4,449	4,402	4,354
Full-day kindergarten revenue	3,747,555	3,709,964	3,663,935	3,645,626	3,680,858	3,693,646
Half-day kindergarten revenue	232,620	225,093	219,846	215,701	216,926	215,530
Total revenues from parents in B.2	5,331,292	5,298,028	5,252,773	5,236,526	5,279,393	5,297,078
Total revenues – total costs in B.2:	587,899	912,280	379,284	858,959	-349,841	39,069

Scenario B.3: Varying fees across municipalities, depending on the enrolment group, crèche median fees are €40 and €20 per month, kindergarten median fees are €34 and €17 per month

Full-day crèche revenue	1,409,060	1,423,174	1,431,081	1,439,203	1,447,503	1,455,698
Half-day crèche revenue	4,532	4,545	4,498	4,449	4,402	4,354
Full-day kindergarten revenue	3,689,260	3,658,664	3,615,585	3,601,192	3,640,586	3,657,731
Half-day kindergarten revenue	213,268	206,993	202,400	198,806	200,014	198,990
Total revenues from parents in B.3	5,316,120	5,293,376	5,253,563	5,243,650	5,292,505	5,316,773
Total revenues – total costs in B.3:	572,726	907,628	380,075	866,083	-336,730	58,763

Scenario B.4: Varying fees across municipalities, depending on the enrolment group, and fees rise: crèche median fees are €38, €39 and €40 per month for the full-day and €19, €19.50 and €20 for the half-day programmes; kindergarten median fees are €32, €34 and €36 per month for the full-day and €16, €17 and €18 for the half-day programmes, where fees rise in 2015, 2017 and 2019, respectively

Full-day crèche revenue	1,338,607	1,352,016	1,395,304	1,403,222	1,447,503	1,455,698
Half-day crèche revenue	4,306	4,318	4,385	4,337	4,402	4,354
Full-day kindergarten revenue	3,472,244	3,443,448	3,615,585	3,601,192	3,854,738	3,872,892
Half-day kindergarten revenue	200,723	194,816	202,400	198,806	211,780	210,695

Total revenues from parents in B.4	5,015,880	4,994,598	5,217,674	5,207,558	5,518,422	5,543,639
Total revenues – total costs in B.4:	272,486	608,851	344,185	829,992	-110,812	285,629
C. ATTENDANCE RATE OF 80% AND PARENTAL PAYMENTS FOR 80% OF DAYS						
Scenario C.1: Crèche and kindergarten fees are €40 and €20 per month for the full-day and half-day primary programmes						
Full-day total revenue	4,408,428	4,384,486	4,348,427	4,337,156	4,373,640	4,390,079
Half-day total revenue	210,399	203,719	199,017	195,293	196,344	195,066
Total revenues from parents in C.1	4,618,827	4,588,205	4,547,443	4,532,450	4,569,984	4,585,145
Total revenues – total costs in C.1:	-124,567	202,458	-326,045	154,883	-1,059,250	-672,865
Scenario C.2: Crèche and kindergarten fees are €46 and €23 per month for the full-day and half-day primary programmes						
Full-day total revenue	5,069,692	5,042,159	5,000,691	4,987,730	5,029,686	5,048,591
Half-day total revenue	241,959	234,277	228,869	224,587	225,796	224,325
Total revenues from parents in C.2	5,311,651	5,276,436	5,229,560	5,212,317	5,255,482	5,272,917
Total revenues – total costs in C.2:	568,258	890,688	356,071	834,751	-373,753	14,907
Scenario C.3: Crèche fees are €50 and €25 per month (full-day and half-day), kindergarten fees are €45 and €22.50 per month						
Full-day crèche revenue	1,346,585	1,358,426	1,364,494	1,370,750	1,377,207	1,383,548
Half-day crèche revenue	4,532	4,545	4,498	4,449	4,402	4,354
Full-day kindergarten revenue	3,747,555	3,709,964	3,663,935	3,645,626	3,680,858	3,693,646
Half-day kindergarten revenue	232,620	225,093	219,846	215,701	216,926	215,530
Total revenues from parents in C.3	5,331,292	5,298,028	5,252,773	5,236,526	5,279,393	5,297,078
Total revenues – total costs in C.3:	587,899	912,280	379,284	858,959	-349,841	39,069

Scenario C.4: Full-day fees are €42, €44 and half-day fees are €21, €22 and €23 per month, fees rise in 2015, 2017 and 2019 respectively						
Full-day total revenue	4,628,849	4,603,710	4,783,269	4,770,872	5,029,686	5,048,591
Half-day total revenue	220,919	213,905	218,918	214,823	225,796	224,325
Total revenues from parents in C.4:	4,849,769	4,817,615	5,002,188	4,985,695	5,255,482	5,272,917
Total revenues – total costs in C.4:	106,375	431,868	128,699	608,128	-373,753	14,907
Scenario C.5: Varying fees across municipalities, depending on the enrolment group, with the median fee of €44 and €22 per month						
Full-day total revenue	5,059,442	5,040,187	5,002,545	4,994,791	5,042,880	5,067,842
Half-day total revenue	224,784	218,298	213,501	209,738	210,947	209,844
Total revenues from parents in C.5:	5,284,225	5,258,484	5,216,046	5,204,529	5,253,827	5,277,686
Total revenues – total costs in C.5:	540,832	872,737	342,557	826,963	-375,408	19,677
Scenario C.6: Varying fees across municipalities, depending on the enrolment group, while the median fee rises over the years (€40, €42 and €44 for the full-day and €20, €21 and €22 for the half-day programmes where fee increases occur in 2015, 2017 and 2019, respectively)						
Full-day total revenue	4,599,493	4,581,988	4,775,156	4,767,756	5,042,880	5,067,842
Half-day total revenue	204,349	158,762	203,797	200,204	210,947	209,844
Total revenues from parents in C.6:	4,803,841	4,740,750	4,978,953	4,967,960	5,253,827	5,277,686
Total revenues – total costs in C.6:	60,447	355,002	105,464	590,393	-375,408	19,677

* These are children from the primary programmes minus children from the vulnerable children groups since they do not pay for PSE costs.

SOURCE: Our calculations.

6.5 SUMMARY OF THE CHAPTER

In this chapter we programme the total recurrent costs of PSE in Montenegro and construct scenarios for financing them for the period 2015–2020. This we performed based on the following assumptions:

- All children who are already attending primary PSE programmes will continue attending these;
- The structure of children attending primary PSE programmes is the same over the period 2015–2020 compared to the structure we observed in 2012;
- The preschool preparatory programme (PPP) that lasts for three hours is free for all children, including those who already attend primary programmes for whom the educational contents of PPP will be taught within their primary programmes;
- Preschool education is free for all children from vulnerable groups, including: children whose families are beneficiaries of social benefits, children with special needs and children facing difficulties due to social, linguistic and cultural obstacles;
- The priority is to provide PPP education, while the primary programmes are secondary, viewed from the aspect of child development. Providing free service and attracting children from vulnerable groups are equal priorities;
- The total budget for PSE is fixed as a percentage of GDP (that is, no new government spending will be demanded) at 0.38%, which is the current share of PSE budget out of GDP.

We find that total recurrent costs of PSE range from less than €18 million in 2015 to more than €20 million in 2020. The

component of primary programmes' costs is slightly less than €17 million throughout this period, while PPP costs rise from about €1 million in 2015 to around €3.5 million in 2020.

We calculate the amount of financing necessary to cover all recurrent costs of PSE in Montenegro, while at the same time covering the costs of free PPP education for all children within the target age groups. The costs that cannot be covered by the current size of PSE budget range from €4.4 million to €5.6 million annually (around 25% of the total costs), mainly depending on the number of generations that the universal PPP applies to and their coverage by the primary PSE programmes.

Parents could finance the difference between the PSE costs and revenues coming from the state budget. Currently parents pay the food costs of their children at an amount of €40 per month for the full-day primary programme and €20 per month for the half-day primary programmes, which has been redefined to €1.80 and €0.90 per day on the days that the child actually attends the PSI. The latter policy solution does not seem to be efficient, as it seems that revenue realization is in some cases prohibitively low. While the average attendance rate is not lower than 80%, the average attendance rate as measured by fee realization from parents is below 50% and in some cases it is as low as 19%.

With such revenue realization, it is not possible to make commitments for future policy measures. We strongly suggest that this policy – whereby the parents pay for the days their children show up at the PSI – be amended. The possible solutions could range from strictly demanding that the parental contribution be paid once the child is enrolled, regardless of whether he/

she attends the PSI on a particular day or not, to allowing non-payment (of 50% or less of daily fee) if the child is not able to attend the PSI for more than one week and only with a doctor's written approval. Allowing for a fixed amount to be paid each month and a variable amount depending on the child's actual attendance would be less preferable because it would face the same problem of non-realization of revenues.

Various scenarios regarding modes of calculating PSI fees payable by the parents were developed.

- The scenarios have been divided in three groups: A, B and C. While group C scenarios allow for the fee payment be realized in 80% of the cases, the scenarios in groups A and B assume full fee payment realization. Scenario group A assumes that the same fees are payable for crèche and kindergarten, while the concrete scenarios can be summed up as follows:
- Scenario A1 shows that the total costs of the proposed PSE programmes for 2015–2020 could be financed by charging monthly fees of €38 for the full-day primary programmes and €19 for the half-day programmes. With these fee levels, revenues are almost always higher than costs, by even more than €1 million in 2016 and 2018;
- In scenario A2 we propose that the monthly fees for primary programmes should be €34 and €17 for the full-day and half-day programme in 2015 and 2016, €36 and €18 in 2017 and 2018, and €38 and €19 in 2019 and 2020. This scenario is better than the previous one as it enables parents to pay lower fees and hence leads to 50% less superfluous resources;

- In scenario A3 we propose that the average value (median) of the monthly fee should be €34 for the full-day and €17 for the half-day programme in municipalities with an average enrolment rate⁶⁴. In high-enrolment municipalities, fees payable by the parents are calculated by multiplying the average (median) fees by a factor of 1.2, which gives €41 for the full-day and €20.50 for the half-day programme per child. In low-enrolment municipalities the fees payable by the parents would be 80% of the median fee and would amount to €27 for the full-day and €13.50 for the half-day programme monthly per child. The result (the difference between revenues and costs) in this scenario is similar to the result in scenario A2, except that scenario A3 lacks substantial resources in 2019 and 2020;
- The assumption of scenario A4 is that the average monthly fee (the median) payable by parents would amount to €32 and €16 for the full-day and half-day programmes in 2015 and 2016, €34 and €17 in 2017 and 2018, and €36 and €18 in 2019 and 2020. This fee would be payable by parents in municipalities with average PSE enrolment rates. Parents in high-enrolment municipalities would be charged a fee that is 20% higher, while parents in low-enrolment municipalities would be charged a fee 20% lower. Out of all group A scenarios this scenario (A4) provides for revenues that differ the least from the total costs.

Group B scenarios assume that the crèche fees are higher than the kindergarten fees.

⁶⁴ According to the analysis provided in section 3.2.

We have proposed four scenarios in this groups that give the following results:

- Scenario B1 proposes that the monthly fee payable by the parents be €40 and €20 for full day and half-day crèche, and €34 and €17 in kindergarten. According to this scenario the result (the difference between revenues and costs) is positive until 2019, while it becomes negative (minus half a million Euros in 2019 and almost €200,000 in 2020);
- Scenario B2 assumes that the monthly fee payable by the parents is €40 and €20 for the full-day and half-day crèche, and €36 and €18 for kindergarten. This provides a result that is almost always positive, except in 2019 when there is about €350,000 shortage that could be easily covered by significant extras realized in the previous years;
- In scenario B3 the average monthly fee (median) payable by the parents in the municipalities with the average PSE enrolment rates is €40 and €20 for the full-day and half-day crèche and €34 and €17 for the full-day and half-day primary programme in kindergarten. The fees are 20% higher in high-enrolment municipalities and 20% lower in low-enrolment municipalities. The result obtained in this scenario is almost identical to the one in scenario B2;
- Scenario B4 assumes different fees across municipalities, crèche and kindergarten, and the calendar year. In this scenario the average monthly fees (the median), payable by the parents in municipalities with average PSE enrolment rates, would amount to: €38 and €19 for the full-day and half-day crèche and €32 and €16 for kindergarten in 2015 and 2016;

€39 and €19.50 in crèche and €34 and €17 in kindergarten in 2017 and 2018; and €40 and €20 in crèche and €36 and €18 in kindergarten in 2019 and 2020. Again, the fees would be 20% higher in high-enrolment municipalities and 20% lower in low-enrolment municipalities. Out of all group B scenarios, scenario B4 provides for the lowest differences between revenues and costs.

Group C scenarios allow for parents paying fees in only 80% of the cases. This results in the 20% increase of the amount of the fees payable by the parents, as exhibited by all the group C scenarios. Scenario C1 shows that with a fee of €40 and €20 we would accrue significant shortfalls, while scenario C2 shows that the lowest fee that could cover all PSE costs would be €46 and €23, if we assume the same fees for crèche and kindergarten throughout the period 2015–2020.

If we assume different costs for crèche and kindergarten they would have to be €50 and €25 for the full-day and half-day crèche and €45 and €22.50 for the full-day and half-day kindergarten, as evidenced by scenario C3.

If we were to allow the monthly fees to vary across years, they should amount to €42 and €21 for the full-day and half-day programmes in 2015 and 2016, €44 and €22 in 2017 and 2018 and €46 and €23 in 2019 and 2020, as proposed by scenario C4. Scenario C5 allows the fees to differ across the municipalities and shows that the median monthly fee should now amount to €44 and €22. In scenario C6 parents are charged €40, €42 and €44 monthly for the full-day and €20, €21 and €22 for the half-day programmes, where the fee changes are applied in 2015, 2017 and 2019, respectively.

One of the main findings of this chapter is that the additional PPP costs, even in 2019 when they are the highest, comprise only 17% of the total PSE costs. From this we may conclude that, for the child development and wider socio-economic benefits of the society, it is more efficient to invest in further development of PPP and achieve universal coverage than it is to invest in the primary programmes.



7. INITIAL INVESTMENT

In the previous two chapters (chapters 5 and 6) we discussed the introduction of a three-hour preschool preparatory programme (PPP) with universal coverage and the related recurrent costs, while in the preceding two chapters (3 and 4) we discussed the current situation in preschool education (PSE) in Montenegro. This chapter will, in effect, be a synthesis of these four chapters, while filling the gaps to connect them together. While chapters 5 and 6 deal with the recurrent costs of introducing PPP, there is no mention of capital costs, that is, we dealt with all the costs except for the actual premises where these additional educational programmes would be held. Chapters 3 and 4, among other information on the current situation in Montenegrin PSE, provide us with evidence about the use of the existing capacity. Using that information, as well as some other data that we collected in our research (both primary and secondary), we will discuss the availability of premises for implementing the PPP so as to achieve universal coverage of children of the appropriate ages.

7.1 NEEDS ANALYSIS

First of all, we should establish the number of children for whom we need to provide additional space in Montenegrin PSIs. Since our proposed PSE programme changes assume a similar structure in primary programmes and that all additional children will be covered by PPP, this leads to the question as to how many (new) children are to take PPP. Since our goal is universal coverage, the number of children who should take PPP would be all those children who are not already included in PSE and who are one year away from starting school in 2015 and 2016, then two years away from starting school in 2017 and 2018, and three years away from starting school in 2019 and 2020. This information is provided in Table 21.

Furthermore, from our analysis in section 3.3 and the results we presented in Table 5, we know that some of the PSIs are operating above full capacity, while some have extra spaces. This information, already available in Table 5, is reproduced in the last column of Table 21. In this column, negative values mean that there are extra spaces available in that PSI, bearing in mind the legal standard on the number of children per group. That is, in the currently existing groups there are extra spaces (both room and teachers) for the number of children shown in the last column of Table 21 if that number is negative. In contrast, if the number in this column is positive it denotes the number of children who are in the PSI but, bearing in mind the legal standard of the group size, are supernumerary. That is to say, in that case we would need additional spaces (rooms and teachers) for the number of children shown. The last column gives data for 2012, but it is applicable, with minor deviations⁶⁵, throughout the period 2015–2020. That is to say, this value is a good estimate of the spaces needed, or the resources unused, in primary programmes throughout the observed period 2015–2020.

⁶⁵ This is due to the same structure of the children in the primary programmes throughout 2015–2020.

Table 21. Number of spaces needed for children who should enrol in PPP in Montenegro in order to achieve universal coverage and to fulfil current primary programme needs, ages 3–6, 2015–2020, number of children

PSI in Municipality	Number of spaces needed for (a three-hour) PPP						Number of spaces needed for primary programmes
	2015	2016	2017	2018	2019	2020	
Andrijevica	37	43	74	67	91	86	-23
Bar	303	299	579	616	1,026	1,048	154
Berane	332	315	592	542	796	768	116
Bijelo Polje	292	268	634	618	1,095	1,074	129
Budva	15	44	57	0	86	87	231
Cetinje	46	55	24	55	103	105	151
Danilovgrad	79	99	155	140	272	272	77
Herceg Novi	0	27	31	25	142	141	368
Kolasin	25	26	53	54	110	112	31
Kotor	0	0	54	38	192	197	117
Mojkovac	48	33	86	84	138	138	-17
Niksic	316	328	851	830	1,496	1,493	-101
Plav	83	90	174	139	205	188	59
Pljevlja (+ Zabljak)	152	163	270	249	352	326	114
Pluzine	15	15	26	22	31	27	-5
Podgorica	866	902	1,813	1,814	3,357	3,366	1,844
Rozaje	380	394	661	598	920	899	25
Savnik	15	20	22	29	47	48	-7
Tivat	0	5	0	5	68	69	97
Ulcinj	100	123	233	219	387	381	16
Total:	3,105	3,250	6,388	6,145	10,912	10,826	3,376

SOURCE: Primary data and our calculations.

As we can see from the results, we need to create a total of 3,100 to 3,200 spaces for a three-hour PPP for children who are one year away from starting school in 2015 and 2016, twice that many (6,400 and 6,100) spaces for children who are one or two years away from starting

school in 2017 and 2018, and almost 11,000 spaces for children who are above 3 years old, that is those who are one, two or three years away from starting school in 2019 and 2020. Further, we need to create an additional 3,400 spaces for primary programmes.

7.2 THE CURRENTLY AVAILABLE RESOURCES

Table 22. Availability of additional resources in PSIs in Montenegro, 2012

PSI in Municipality	Available in primary programmes		Available for a three-hour PPP				
	In existing groups	With additional teachers	Space & teachers	Only space	Only teachers	At what times:	
Andrijevisa	20*	10	20	yes***	-	14:00	17:00
Bar	0	0**	0	100	no	16:00	19:00
Berane	30	0	0	20***	no	13:00	16:00
Bijelo Polje	0	0	0	yes***	no	not provided	
Budva	0	0	0	no	yes	afternoon	
Cetinje	0	yes	yes, no further info			afternoon, poss.morning	
Danilovgrad	50	0	0	yes***	yes	not provided	
Herceg Novi	0	0	120	0	yes	14:30	17:30
Kolasin	0	0	0	50	0	15:00	17:00
Kotor	0	30	0	20***	no	-	18:00
Mojkovac	10	25	25	yes***	-	12:00	15:00
Nikšić	0	0	0	no	yes	afternoon	
Plav	0	0	0	yes	no	12:00	15:00
Pljevlja (& Zabljak)	0	60	70	-	-	15:00	20:15
Pluzine	30	50	30	-	-	morning & afternoon	
Podgorica	0	0	0	1,300	no	16:00	19:00
Rozaje	0	40	0	30***	no	17:00	19:00
Savnik	10	25	0	25***	no	from 15:30, poss. before	
Tivat	0	30	0	81	no	13:00	17:00
Ulcinj	0	0	0	60	no	15:00	18:00

*10 with the current teacher capacity and 10 with increased teacher engagement (from half- to full-day); **They had available space for additional groups only in the afternoon, so we allocated those spaces to PPP; ***For various reasons provided in their other answers, we assume that in these municipalities there is more space available even though their answer to the particular question was negative.

SOURCE: Primary data and our calculations.

The analysis of the currently available and unused resources (space and teachers) in PSIs in Montenegro, by municipality, is provided in Table 22. The data in this table comes from an analysis of primary data provided by PSI from our questionnaire.

The second and third columns of Table 22 provide information on the resources available for primary programmes. The remaining columns provide information on resources available for an additional three-hour PPP. The key information we are looking for here is the availability of space for additional children. In that sense, it is also interesting to see how many spaces may be available in primary programmes, as they can be easily rerouted towards the PPP. Information on the number of teachers available is not of primary importance, because in our cost estimation for PPP courses we include the teachers' salaries⁶⁶. In the last two columns we provide information on the time when such a PPP could be held, according to the information provided by the PSIs.

In constructing this table from primary data our emphasis has been on the availability of space for the PPP. This is why in the appropriate column of Table 22 (the one with the heading 'Only space') we often have entries additionally denoted by '****'. This signifies that, based on all the other relevant answers, we can conclude that there may be more space available within the existing premises. Typically this is due to the fact that a PSI has more space available in the primary programmes, or just has a comment that says that there is more space available in the existing facilities.

66 Just to remind, the only cost not accounted for in our cost calculation is the cost of the premises for performing the PPP, as explained in chapter 4, section 4.3, step I. Anyhow, this chapter deals only with the capital costs.

7.3 MATCHING AVAILABLE SPACES FOR ADDITIONAL CHILDREN WITH THE OBSERVED NEEDS IN PSE IN MONTENEGRO FOR KINDERGARTEN CHILDREN IN PRIMARY PROGRAMMES AND PPP FOR THE PERIOD 2015–2020

Here again we will look only at children aged 3–6, i.e. kindergarten children. First we will analyse the needs and availability of preschool facilities for primary educational programmes within Montenegrin state PSIs. This analysis is provided in Table 23, which uses results from Table 22 and Table 23 to compare needs for additional spaces and availabilities of extra spaces in primary PSE programmes. Columns 2 and 3 of Table 23 with the common heading 'From capacity analysis', provide information on the number of additional spaces needed (column 2) and the number of extra spaces available (column 3) in primary programmes. This result comes from our analysis of the number of children per group in the existing primary programmes and the legal norm for the number of children per group, which was performed in section 3.3 (Table 5) and that we reproduced in the last column of Table 22.

Columns 4 and 5 of Table 23, which share the common heading 'From questionnaire', come from Table 22 (columns 2 and 3 in that table) and provide information on the number of spaces available in a particular municipality within the current groups and teachers (column 4 of Table 23) and the number of spaces that could be available if the PSI were to employ additional teachers (column 5 of Table 23). For the purpose of our analysis – the availability of space – it is irrelevant whether new teachers need to be employed or not. All we need to know here is whether there are available rooms in the current PSIs for additional children.

Table 23. Analysis of needs and extra spaces available in primary PSE programmes in Montenegrin PSIs, by municipality, 2012, number of children aged 3–6

PSIs in municipality	From our analysis		From questionnaire		Additional spaces needed	Extra spaces available
	Needs	Extra space	Currently available	With extra teachers		
Andrijevica	0	23	20	10	0	33
Bar*	154	0	0	0	154	0
Berane	116	0	30	0	86	0
Bijelo Polje	129	0	0	0	129	0
Budva	231	0	0	0	231	0
Cetinje	151	0	0	yes**	n/a	n/a
Danilovgrad	77	0	50	0	27	0
Herceg Novi	368	0	0	0	368	0
Kolasin	31	0	0	0	31	0
Kotor	117	0	0	30	87	0
Mojkovac	0	17	10	25	0	42
Niksic	0	101	0	0	0	101
Plav	59	0	0	0	59	0
Pljevlja (& Zabljak)	114	0	0	60	54	0
Pluzine	0	5	30	50	0	55
Podgorica	1,844	0	0	0	1,844	0
Rozaje	25	0	0	40	0	15
Savnik	0	7	10	25	0	32
Tivat	97	0	0	30	67	0
Ulcinj	16	0	0	0	16	0
Total:					3,153	278

*Bar's PSI had 100 spaces available only in the afternoon, so we have assigned those for PPP; **We know that there is space in existing facilities, but no further information is available.

SOURCE: Our calculations.

The results of the analysis in this section are presented in the sixth and seventh columns of Table 23. The sixth column shows how many children aged 3–6 already attend PSI (kindergarten) over the existing capacity as measured by legal norms, minus the extra spaces available at those PSIs as revealed by our questionnaire. This analysis shows that a total of 3,153 extra spaces are needed in various PSIs, mostly in Podgorica (1,844). Column 7 provides information on spaces available in primary programmes at

particular state PSIs in each municipality. It is calculated using information available in columns 3, 4 and 5 of Table 23. In fact, the information in column 4 should correspond to the information available in column 3, except that the information in column 3 should be more precise. As we can see, there is a total of only 278 spaces available in primary programmes. This information is important since it tells us about the available capacity that could be used for a PPP.

Table 24. Available spaces at Montenegrin PSIs for PPP courses, by municipality, 2012, number of children

PSI in municipality:	From primary programmes		Specifically for PPP		TOTAL
	Extra spaces	No. of shifts	Extra spaces	No. of shifts	
Andrijevica	33	2	20	2	106
Bar*	0	0	100	2	200
Berane**	0	0	20	2	40
Bijelo Polje**	0	0	0	2	0
Budva	0	0	0	0	0
Cetinje**	n/a	n/a	yes**	n/a	n/a
Danilovgrad**	0	0	yes**	n/a	n/a
Herceg Novi	0	0	120	1	120
Kolasin	0	0	50	1	50
Kotor**	0	0	20	1	20
Mojkovac**	42	2	25	1	109
Niksic	101	2	0	1	202
Plav**	0	0	yes**	2	n/a
Pljevlja (& Zabljak)	0	0	70	1	70
Pluzine	55	2	30	3	200
Podgorica	0	0	1,300	1	1,300
Rozaje**	15	2	30	1	60
Savnik**	32	2	25	1	89
Tivat	0	0	81	2	162
Ulcinj	0	0	60	1	60
Total:					2,788

*They had 100 spaces available only in the afternoon, so we have assigned those for PPP

**We know that there is more space in the existing facilities, but no further information is available.

SOURCE: Our calculations.

In the next step we estimate the needs for extra facilities for a PPP educational programme. Table 24 provides consolidated information about the spaces available for children who should attend the three-hour PPP courses. Columns 2 and 3 (common heading 'From primary programmes') provide information on spaces that remain available from primary programmes. Column 2 is a copy of the last column in Table 23. Since we are using spaces available from primary programmes, that last from five to nine hours, this time

can be used for two shifts of a PPP that lasts three hours⁶⁷. That is the information provided in column 3. Column 4 of Table 24 provides information on spaces available explicitly for PPP, according to the answers that PSIs provided in our questionnaire.

This information is a composite of the information provided in columns 4 and 5 of Table 22. Column 5 of Table 24 shows

⁶⁷ As already explained in section 5.1, PPP can be organized both in the morning and in the afternoon.

the number of shifts for which this space is available. This comes from information provided in columns 7 and 8 of Table 22 (keeping in mind that PPP should be provided for three hours and should be over by 19:00). Adding all available spaces, multiplied by the number of shifts,

provides the information on the total number of spaces available for a PPP (the last column), as the result of the analysis in Table 24. As we can see, there are 2,788 spaces available for PPP that are distributed across municipalities; most of them are located in Podgorica (1,300).

Table 25. Additional capacity necessary to administer the PPP programme, by municipality, 2015–2020, number of children

PSI in municipality	Additional spaces needed in a calendar year						Add. capacity needed		
	2015	2016	2017	2018	2019	2020	2015–16	2017–18	2019–20
Andrijevica	0	0	0	0	0	0	0	0	0
Bar**	103	99	379	416	826	848	103	313	431
Berane**	292	275	552	502	756	728	292	259	205
Bijelo Polje**	292	268	634	618	1,095	1,074	292	342	461
Budva	15	44	57	0	86	87	44	13	30
Herceg Novi	0	0	0	0	22	21	0	0	22
Kolasin	0	0	3	4	60	62	0	4	58
Kotor**	0	0	34	18	172	177	0	34	144
Mojkovac**	0	0	0	0	29	29	0	0	29
Niksic	114	126	649	628	1,294	1,291	126	522	645
Pljevlja (& Zabljak)	82	93	200	179	282	256	93	107	82
Pluzine	0	0	0	0	0	0	0	0	0
Podgorica	0	0	513	514	2,057	2,066	0	514	1,552
Rozaje**	320	334	601	538	860	839	334	267	260
Savnik	0	0	0	0	0	0	0	0	0
Tivat	0	0	0	0	0	0	0	0	0
Ulcinj	40	63	173	159	327	321	63	110	154
Total:	1,259	1,303	3,794	3,576	7,866	7,800	1,348	2,485	4,073

*We did not include municipalities of Cetinje, Danilovgrad and Plav in this analysis since we do not know at all what is the capacity available in these municipalities, although we do know that there is additional space available. **There may be more space available in these municipalities, but we cannot confirm this.

SOURCE: Our calculations.

In Table 25 we compare the number of spaces available for PPP with the needs for PPP across municipalities, over the programming period (2015–2020).

Columns 2–6 provide information on number of spaces available for children who are to attend PPP education. The last three columns provide summary information on

additional spaces that need to be created, by municipality, in 2015, 2017 and 2019, respectively (these are the years when we increase coverage of children by PPP by adding a new generation). The numbers in these three columns signify the additional

capacity that needs to be created. The entry for 2017–18, for example, provides information on the number of spaces that needs to be created in 2017, under the assumption that the need for 2015–16 have already been fulfilled.

Table 26. Capital investment needs – number of additional spaces that need to be created in Montenegro for fulfilment of PSE needs, by municipality, 2015–2020

Municipality	2015	2016	2017	2018	2019	2020
Andrijevisa	0	0	0	0	0	0
Bar*	206	204	344	362	567	578
Berane*	232	223	362	337	464	450
Bijelo Polje*	275	263	446	438	676	666
Budva	239	253	260	231	274	275
Herceg Novi	308	321	323	321	379	379
Kolasin	18	19	32	33	61	62
Kotor*	77	77	104	96	173	176
Mojkovac*	0	0	0	0	15	14
Niksic	57	63	324	314	647	645
Pljevlja (& Zabljak)	95	100	154	143	195	182
Pluzine	0	0	0	0	0	0
Podgorica	1,627	1,645	2,100	2,101	2,872	2,877
Rozaje*	160	167	300	269	430	419
Savnik*	0	0	0	0	0	0
Tivat	0	0	0	0	20	21
Ulcinj	36	48	103	95	180	177
Total:	3,330	3,384	4,852	4,741	6,953	6,920

*We did not include municipalities of Cetinje, Danilovgrad and Plav in this analysis since we do not know at all what is the capacity available in these municipalities, although we do know that there is additional space available.**There may be more space available in these municipalities, but we cannot confirm that.

SOURCE: Our calculations.

Finally, Table 26 is a composite of Table 25 and Table 24. It gives information on additional capacity that needs to be provided for both primary programmes and PPP for the period 2015–2020. Please bear in mind that the PPP can be administered both in the morning and in the afternoon, so in this table, where we present the extra capacity that needs to be provided for both primary programmes and PPPs, we have

counted only half of the necessary capacity for PPP as presented in Table 25. This additional capacity can be provided either in the existing facilities, where possible (check the PSIs denoted with *), by looking for spaces available in primary schools or other government buildings, and finally by building additional space within the existing PSIs or by creating new ones. To our knowledge, the Montenegrin government

is well aware of these needs and is already building new capacities in some of the municipalities, while having plans to build more in some other municipalities.

7.4 SUMMARY OF THE CHAPTER

By estimating the costs of 'initial investment', i.e. capital costs, this chapter provides a synthesis of the previous four chapters, while filling the gap (capital costs) necessary to connect them together. The summary of this chapter and main findings are as follows:

- First, in our 'needs analysis' we establish that we need to create a total of 3,100 to 3,200 spaces for a three-hour PPP for children who are one year away from starting school in 2015 and 2016, twice as many (6,400 and 6,100) spaces for children who are one or two years away from starting school in 2017 and 2018, and almost 11,000 spaces for children who are more than 3 years old, that is those who are one, two or three years away from starting school, in 2019 and 2020. Beyond this, we need to create additional 3,400 spaces for primary programmes;
- Secondly, we analyse the availability of unused resources, in particular space, by municipality, based on the primary data provided in our questionnaire. We look separately at the extra spaces available for primary programmes, and those available for the three-hour PPP educational programme, by each municipality;
- We match the needs with the availability of space for additional children, to define the total capital investment needs. This, the so-called 'initial investment' needs, is defined for all educational programmes, including PPP with universal coverage for period 2015–2020;
- Regarding primary programmes, the analysis shows that a total of 3,153

extra spaces are needed in various PSIs, mostly in Podgorica (1,844), while there is a total of only 278 spaces available in the other PSIs. We assume that this number will be relatively steady over the period 2015–2020, i.e. that there will be no significant change in the structure of children and their PSE coverage;

- The number of spaces that should be created for PPP educational programme grows over the period 2015–2020, as the total number of children that should be covered grows from one generation in 2015, when the needs are above 1,250, to three generations in 2019, when the additional spaces that need to be created amount to above 7,800. Since the PPP can be performed at least twice a day (since it lasts for three hours), the actual capacity that is needed is half the number of spaces.
- The total number of spaces (both for primary and PPP educational programmes) needed in 2015 is about 3,300 and it grows to almost 7,000 spaces needed in 2019 and 2020.
- Most of this space is actually necessary to overcome the over-crowdedness in the primary programmes within some PSIs (around 3,100 spaces throughout the observed period) while the rest is for PPP that has a growing demand from just a few hundred spaces in 2015 to almost 4,000 additional spaces that are needed in 2019.

This additional capacity can be provided within the existing facilities, where possible, or by looking for spaces available in primary schools or other government buildings, or, finally, by building additional space within the existing PSIs or by creating new ones. To our knowledge, the Montenegrin government is well aware of these needs and is already building new capacity on some of the municipalities, while having plans to build more in some other municipalities.



8. CONCLUSIONS AND RECOMMENDATIONS

Conclusion 1: Coverage of children with preschool education (PSE) varies from rather high in the southern region to very low in the northern region.

The analysis of the strategic and the regulatory framework of PSE in Montenegro shows that the governing and regulatory bodies in Montenegro recognize the importance of PSE for child development, while a good programming basis for further expansion of PSE already exists in the relevant regulatory and strategic documents. While the current rate of coverage of children age 3–6 years (the target group of this study) with PSE at the country level (Montenegro) is 52%, the rate of coverage varies very widely across municipalities. In the group of municipalities with high rates of coverage of children with PSE, which is mainly comprised of southern municipalities, 88% of children age 3–6 attend PSE, while in the group of municipalities with low rates of PSE coverage, that is predominantly comprised of northern municipalities, only one-quarter (27%) of children attend PSE. Numerous preschool education institutions (PSIs) in the southern and central regions in Montenegro operate above capacity, with group sizes that far exceed their legally prescribed norms, while numerous PSIs in the northern region operate far below their capacity. The Strategy for Early and Preschool Education (2010–2015), hereinafter: ‘the Strategy’, identifies the lack of space in current PSIs as the main limiting factor to achieving higher coverage of children by PSE in the southern municipalities. On the other hand, in the northern municipalities where coverage is exceptionally low, the main limiting factor to achieving higher PSE coverage is the geographical dispersion and the distance from an educational unit. (The Government of Montenegro, 2010). The municipalities with low coverage of

children by PSE are also characterized by a low Development Index. In the Strategy it is also noted that a significant percentage of parents still think that it is better for their child to stay at home than to attend a PSI, failing to understand the real benefit of PSE for their child in this stage of their development (The Government of Montenegro, 2010).

Recommendation 1: Ensure greater access to PSE and be engaged in increasing awareness about the importance of PSE for child development.

In this respect, the group of municipalities with the lowest enrolment rate is a special challenge and it is necessary give them preferential treatment in the preparation of strategies for full coverage of children. In the Strategy the conclusion was that, in these municipalities it is necessary to consider innovative models of services and work. The Law on Preschool Education (LPSE) envisages the establishment of Interactive Services (IS) to help to address some of the needs of children and families in remote rural areas. It seems to us that IS, as an existing modality that is not yet being significantly utilized, could be an important instrument for increasing the PSE coverage rate. IS could help to increase the scope of delivery of PSE services (as is the case with mobile kindergartens that operate in many countries). However, without systemic efforts to increase the awareness of parents about the benefits and importance of PSE it will not be possible to achieve universal PSE coverage of children in Montenegro. IS could also be used to spread awareness about the importance of PSE (for example, among parents in the northern region, in order to motivate them to send their children to shorter programmes once they are created, even if one of the parents or

grandparents is at home and is able to take care of them). Furthermore, in order to increase awareness, a general public campaign could be launched, with the goal of explaining to parents the benefits of PSE. All of the above would be crucial to the realization of the main objective of this study and that is to ensure universal coverage of preschool children by the preschool preparatory programme (PPP).

Conclusion 2: Budget allocations for PSE are rather low, below the average for OECD countries.

In 2012 the share of total budget allocated for PSE was 0.38% of GDP in Montenegro. This is a much lower percentage compared to the one in Serbia, which allocates 0.43% of its GDP for PSE budget, and especially compared to OECD countries that, on average, allocate 0.5% of their GDP for financing PSE.

Recommendation 2: Increase PSE budget.

Bearing in mind how crucial and strong the positive effects that PSE with universal coverage would have on the future socio-economic development of Montenegro are, the share of state budget allocated for PSE could be increased.

Conclusion 3: Low rate of realization of revenue from parents.

Parents currently pay the cost of food for their children amounting to €40 per month for the full-day primary programme, or €20 for the half-day primary programme. However, in reality the situation is different, since parents pay a daily fee and only for the days when their children actually attend PSI, that is, €1.85 for each

day of attendance. This latter solution does not seem effective since the revenue realization in some municipalities is unacceptably low. With such revenue realization it is not possible to commit to any future policy measures.

Recommendation 3: Amend the parental participation fee payment policy.

We recommend amending the policy according to which parents pay daily fees only for the days when their children actually show up at the PSI. Alternative solutions could range from one where parents would agree to pay a monthly fee at the moment of enrolment at the PSI, regardless of whether the child attends the PSI on a particular day or not, to a solution whereby the parents would be allowed not to pay (50% or less of the daily fee) if their child cannot attend the PSI for more than a week, with a written note from the doctor. The latter solution that allows for payment of a fixed amount each month and an additional amount that varies depending on the child's attendance would be less preferable, as it could again give rise to the same issue of low revenue realization.

Conclusion 4: The short programme, although implemented quite rarely, holds great potential for increasing the PSE coverage of children in Montenegro.

The Law on Preschool Education (LPSE) provides for existence of a "shorter programme" which "can include continuous or periodic activities that can be organized once or several times a week for up to four hours" (LPSE, Art. 16.1) and it provides for PPP as a special form of short programme for children from 5 years old up to school age who are not covered by the primary programme, in order to better prepare

them for primary school (LPSE, Art. 16.2). The current short programme that is organized in Montenegro lasts for two hours a day. This programme covers only 130 children whose age is one year under the primary school starting age, and is provided only in two public PSIs.

Recommendation 4: Introduction of a short, three-hour long programme, which is adjusted to children's developmental needs in all PSIs in Montenegro.

It is necessary to develop a three-hour preschool preparatory programme (PPP) which is more appropriate, in order to achieve the necessary developmental effects. This requirement is in compliance with LPSE: since PPP is a shorter programme (LPSE, Art. 16.2), and a shorter programme should last between three and four hours (LPSE, Art. 13), this means that PPP could last 3–4 hours. If we want to be efficient and effective in achieving goals related to child development, **this three-hour programme should last at least 10 months, five days a week, so that each child receives 600 hours a year of PSE.** Also, extending the coverage of PPP to children from 3 years old to school age, would have a far greater developmental effect, especially when children from backgrounds with low socio-economic status are concerned. For this reason, if we want to achieve universal coverage, **PPP would have to be free of charge.** Another thing that we consider important is that our PPP should provide a **snack for all children.** This would make the programme attractive to disadvantaged groups who otherwise would not send their children to PPP. Providing the food, particularly in case of children from vulnerable groups, would have an additional developmental effect, if some basic food which children do not have in their diet is included.

Conclusion 5: The cost of introducing PPP is just a fraction of the total cost of PSE.

The purpose of this research was to estimate the cost of full coverage of children age 3–6 by PSE, primarily the cost of introduction of PPP for children age 3–6. The study estimates the cost of introducing PPP, so that the initial coverage in 2015 would include all children aged 5 years up to school age, then in 2017 it would include all children aged 4 years or more and finally, in 2019 all children older than 3 would be provided with PPP education. If we were to fully implement this programme, Montenegro would achieve full PSE coverage of children aged 3–6 years by the year 2020.

The analysis estimates that the total current costs of primary education which would have to be covered to ensure full coverage in the period from 2015 to 2020 would range from €18 million in 2015 to more than €20 million in 2020. While the costs of primary programmes are steadily below €17 million throughout the period, the costs of PPP rise: they start at about €1 million in 2015 and rise to around €3.5 million in 2020. **Therefore, the cost of introduction of PPP with universal coverage would account for 6% of the total cost of PSE in 2015, and 17% in 2019, which is just a fraction of the total costs during the entire implementation period.**

Recommendation 5: Invest in further development of PPP for children age 3–6 years.

Cost analysis shows that it would be more cost-effective to invest in further development of PPP with universal coverage than in primary programmes. We have previously explained that PPP, in the form of a short programme, could suit the developmental needs of children if it lasted

for three hours per day, five days per week and 10 months per year. So, further in our analysis we considered the financing options for achieving full PSE coverage, mainly through introducing PPP to children who are not already attending PSE. In all our financing scenarios PPP education would be provided for free to all children (including those already attending primary programmes to whom the educational content of PPP will be passed on within their primary programmes), while in most of the scenarios the fees payable by the parents for children attending primary programmes are not significantly different to the ones payable today. This is possible, but only if the collection of payments is significantly more efficient, as explained in Conclusion 3 and Recommendation 3.

Conclusion 6: About one-quarter of the cost of implementing universal PSE coverage in Montenegro would remain unmet by the existing budget, and would be financed from the fees paid by parents for children attending primary programmes.

Costs which were not covered by the budget for PSE ranged from €4.4 million to €5.6 million annually for the period 2015–2020. These costs mainly depended on the number of generations to which PPP relates, and their coverage by primary PSE programmes. **Expressed relative to the total costs, the state would have to cover around 75% of costs, while 25% of the total estimated costs of PSE (varying from 24% to 28% across the years) remain that need a source of financing. These costs would be financed from fees payable by the parents whose children attend primary programmes, while PPP would be free for all children, both those attending primary programme, and those attending the three-hour PPP.**

Recommendation 6: Possible PSE financing scenarios in Montenegro

As previously indicated, the unmet costs of financing PSE would be obtained from the fees payable by the parents whose children attend primary programmes, while PPP would be free of charge. However, these extra costs can be collected from parents in various ways. Currently, parents pay around €40 per month, which has been used as a reference value to calculate the amount that parents should pay in the future for primary programmes. The study offers various scenarios (distributions of fees) to cover the costs of introducing universal PSE. Our initial assumption is that the fee collection rate is 100%, but it is not currently being achieved. We considered the following choices (“scenarios”):

- Should the fees for kindergarten and crèche be the same or should they be higher for crèche, since crèche costs are higher than kindergarten costs (as there are more staff and fewer children per group)?
- Should the fees stay the same during the period over which PPP is introduced from 2015 to 2020 or should they increase in 2017 and 2019?
- Should the fees be the same in all municipalities, or lower in municipalities with lower coverage (mainly less developed municipalities in the north), and higher in municipalities with higher coverage (mainly more developed municipalities in the south)? We chose to test a scenario with 20% lower fees in municipalities with lower coverage, and 20% higher fees in municipalities with higher coverage, each compared to the fees paid by parents in municipalities with medium coverage.
- Finally, we considered a realistic situation of a low collection rate of fees from parents, so we created two

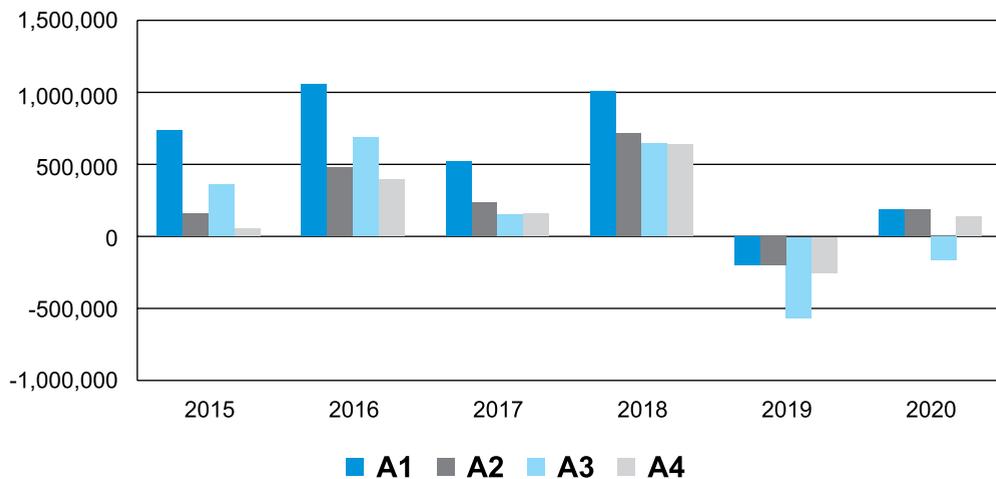
variants of the scenarios: one with 100% fee collection and another with only 80% fee collection.

The scenarios are divided in three groups: A, B and C. Scenarios A and B assume that all parents pay the fees, while scenario C assumes that only 80% of parents actually pay the fees. The efficiency of each scenario was estimated by calculating the financial amounts they would generate in each year of implementation (from 2015 to 2020), ensuring that the total income per year is sufficient to cover the costs of introducing PPP while not putting a substantial burden on parents. The incomes and costs for each scenario are shown in Figures 8, 9 and 10.

Group A scenarios stipulate the same fees for both kindergarten and crèche

(Figure 8). **Scenario A1** shows that the costs of the PSE programmes could be financed with fees of €38 for the full-day programmes and €19 for the half-day programmes in all municipalities over the entire period from 2015 to 2020. However, this scenario shows a surplus in the first years of implementation. **Scenario A2** introduces a gradual increase in the fees from 2015. The fees are €34 for a full-day and €17 for a half-day programme until 2020, after which the fees would rise to €38 and €19 respectively. This scenario is better than scenario A1 because it stipulates a lower fee for the PSE programme and generates a 50% lower surplus in the early years. Since no unnecessary funds are collected, this scenario is more efficient than the previous one.

Figure 8. Cost scenarios, group A, in € at 2012 constant prices.



Note: The amounts shown represent the surplus or deficit of each scenario per year. A positive figure (surplus) indicates that income is greater than costs, and a negative figure (deficit), indicates that the income fails to meet the total costs of the programme. A1: baseline scenario; A2: increasing fees over time; A3: differentiated fees by municipality type; A4: fees differentiated both over time and by municipality

Scenario A3 considers the enrolment rate by municipality. Municipalities with medium-level coverage would charge fees of €34 for the full-day and €17 for the half-day programme, while municipalities with high coverage would charge a 20% higher fee, and municipalities with low coverage would charge a 20% lower fee. This scenario generates a financial deficit in the final years of implementation.

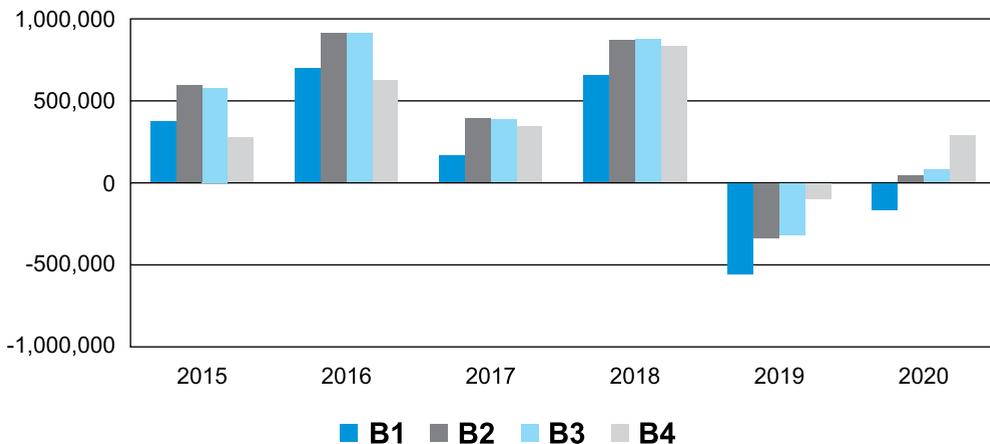
Scenario A4 combines scenarios A2 and A3 with different prices across municipalities depending on coverage as well as a gradual increase in the fees from 2015 to 2020. In this scenario, the total income generated is closer to the total costs incurred than in any of the other scenarios.

Group B scenarios assume that crèche is more expensive than kindergarten (Figure 9). We have tested four scenarios in this category, and the results are as follows: **Scenario B1** assumes that parents pay €40 and €20 per month for a full-day and a half-

day programme in crèche, and €34 and €17 per month in kindergarten. However, this scenario generates a considerable deficit in the final two years of implementation.

Scenario B2 assumes somewhat larger fees for kindergarten (€36 and €18 per month), which achieves a better balance between income and costs. **Scenario B3** assumes kindergarten fees of €34 and €17, with differences introduced depending on coverage in each municipality. This scenario gives a very similar result to that in the scenario B2. **Scenario B4** assumes that different fees are charged by different municipalities, depending on the enrolment rate, that different fees apply for kindergarten and for crèche, and that fees increase over time. This scenario **shows the least discrepancy between income and costs, but may be more difficult to implement since the fees vary according to the different factors involved (i.e. by municipality and by year of implementation).**

Figure 9. Cost scenarios, group B, in € at 2012 constant prices.

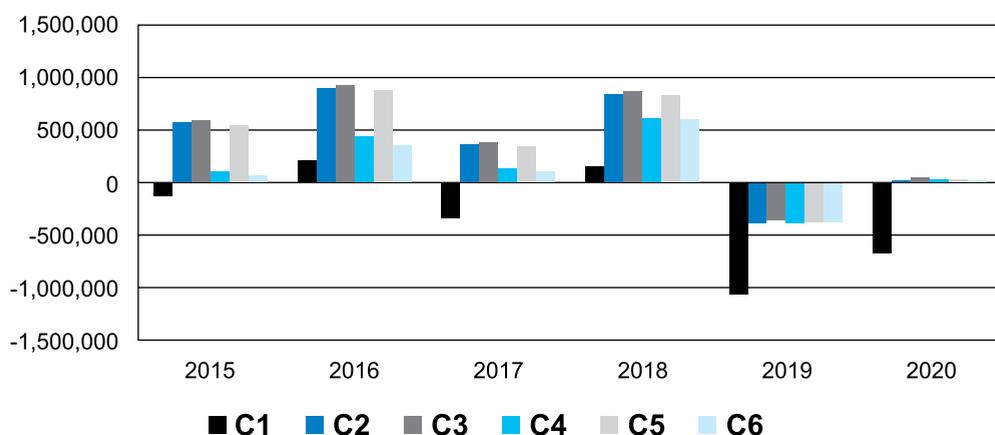


Note: The amounts shown represent the surplus or deficit of each scenario per year. A positive figure (surplus) indicates that income is greater than costs, and a negative figure (deficit), indicates that the income fails to meet the total costs of the programme. Group B scenarios differ from group A in that different fees are charged for crèche and kindergarten. B1: baseline scenario; B2: increasing fees over time; B3: differentiated fees by municipality type; B4: fees differentiated both over time and by municipality

Group C scenarios assume that some parents do not pay the fees for their children who attend PSE (Figure 10). We assume that only 80% of parents pay the fee and that the monthly fee correspondingly increases by 20%. **Scenario C1** shows that the full costs of PSE could not be covered if the fees that are charged are €40 for the full-day and €20 for the half-day programme. **Scenario C2** shows that the fees would need to be charged at a rate of €46 for the full-day and €23 for the half-day programme, in

order to finance the PSE programmes over the period 2015–2020. **Scenario C3** shows that differentiated fees would need to be €50 and €25 for the full-day and half-day programmes in crèche, and €45 and €22.50 in kindergarten, which would represent an enormous increase in the fees. **Scenario C4** assumes an increase in the fees over time, while scenario C5 assumes that fees vary depending on coverage in municipalities. Scenario C6 combines scenarios C4 and C5.

Figure 10. Cost scenarios, group C, in € at 2012 constant prices.



Note: The amounts shown represent the surplus or deficit of each scenario per year. A positive figure (surplus) indicates that income is greater than costs, and a negative figure (deficit), indicates that the income fails to meet the total costs of the programme. C1: baseline scenario; C2: baseline scenario with full cost coverage; C3: baseline scenario with full cost coverage and differentiated fees between crèche and kindergarten; C4: increasing fees over time; C5: differentiated fees by municipality type; C6: fees differentiated both over time and by municipality

Analysis shows that, in regard to the discrepancy between income and expenses, the programmes with changing fees over the year are more efficient:

- Among group A scenarios, A4 shows the least discrepancy between total income and total costs, followed by scenario A2
- Among group B scenarios, B4 shows the least discrepancy between total income and total costs, which makes it the most efficient scenario
- Among group C scenarios, C4 and C6 show the least discrepancy between total income and total costs.

Table 27. Stipulated fees that should be paid by parents for full-day programmes for selected scenarios, in € at 2012 constant prices

			2015	2017	2019
<i>Fees for scenario A2</i>					
			34	36	38
<i>Fees for scenario A4</i>					
Group of municipalities	High coverage		38	41	43
	Average coverage		32	34	36
	Low coverage		26	27	29
<i>Fees for scenario B4</i>					
Group of municipalities	High coverage	crèche	46	47	48
		kindergarten	38	41	43
	Average coverage	crèche	38	39	40
		kindergarten	32	34	36
	Low coverage	crèche	30	31	32
		kindergarten	26	27	29
<i>Fees for scenario C4</i>					
			42	44	46
<i>Fees for scenario C6</i>					
Group of municipalities	High coverage		48	50	53
	Average coverage		40	42	44
	Low coverage		32	34	35

*Blue indicates that fees are higher than the current ones that parents pay for the full-day programme, or €40 a month, while fees that are lower or the same as current ones are coloured red.

When opting for a particular scenario, in addition to consideration of the discrepancy between income and costs, attention should be paid also to other priorities and to the main policy aim of introducing universal coverage of PSE. One of the basic issues is the fees that parents are expected to pay. In this sense, group C

scenarios are least acceptable because, as shown in the Table 27, a fee collection rate of 80% implies an increase in the fees of about 20% in order to cover the costs. **Scenario C2 shows that the lowest fee that could cover the expenses of PSE, given a fee collection rate of 80%, would be €46 and €23, compared to**

€38 and €19 with a fee collection rate of 100%. As we can see, with a lower fee collection rate, the amount of fees payable has to be considerably higher and would surely impose a heavy burden on parents. It is clear that **the fee collection rate has a strong effect on the level of fees that should be paid by parents in order to cover the costs of providing the service – the lower the fee collection rate, the higher the fee that must be charged to the parents who do pay the fees.** It is therefore strongly recommended that the charging system is changed in order to ensure that **all** parents pay the required fee.

The analysis suggests that the most efficient scenarios, and the ones most acceptable to parents financially, are scenarios A4, A2 and B4. Nevertheless, the choice of the fee schedule actually adopted should correspond to the complete set of policy priorities of the government.

Conclusion 7: Additional capacity is required to achieve full coverage of PSE. Extra capacity should be provided to existing facilities and new PPP facilities for children age 3–6 should be constructed, in order to prevent overload of the primary programmes.

About 3,300 additional places (for primary programmes and PPP) are needed for 2015 and about 7,000 additional places will be needed by 2019 and 2020. More facilities and additional capacity are therefore necessary in order to avoid having an excessive number of children in primary programme groups in some PSIs (if legal norms regarding the number of children in groups are observed, about 3,100 children would not have a place in the existing PSI, of whom 1,700 live in

Podgorica). Additional facilities are also needed to meet the increasing demand for PPP, from a few hundred places in 2015 to almost 4,000 additional places in 2019.

Recommendation 7: Providing new capacity does not necessarily imply building new facilities.

It is necessary to provide additional capacity (more places for children) in order to ensure universal coverage of children in PPP. Given that PPP lasts only three hours a day, teaching could be organized in at least two (possibly even three) shifts per day. This organization is considered in the assessment of the necessary number of places. This would also reduce the need for additional PPP capacity compared to the case of primary programmes, which usually last five to nine hours (half-day or full-day programmes) and cannot be organized in two shifts. Additional capacity could be provided in the current buildings where possible (our research has shown that some PSIs have spare capacity), in elementary schools or in other state-owned buildings, or they could be constructed within the existing PSIs or as completely new buildings. The Government of Montenegro is aware of these requirements and new facilities are already being built in some municipalities, and there are plans to construct new buildings in other municipalities.

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ANNEX I

DATA SOURCES, THE APPLIED METHODOLOGY AND ITS LIMITATIONS

The purpose of this study was to develop different costing scenarios that could provide for universal coverage of children of varying ages by preschool education (PSE) in Montenegro and for varying contributions of parents in financing the PSE. At the same time, the study was supposed to provide an overall picture of the state of the PSE sector in Montenegro. In order to achieve the goals proposed in the Terms of Reference, we used a wide range of primary and secondary data, and various methods of analysis.

Secondary data

In the analysis performed in the study we used both primary and secondary data. Most relevant for our study was the data we obtained from the Ministry of Education of Montenegro (ME). The second most important source of secondary data was the Statistical Office of Montenegro (MONSTAT). Then, we used World Bank (WB) data, International Monetary Fund (IMF) data as well as data available from the Ministry of Labour and Social Welfare of Montenegro (MLSW) and the Ministry of Finance of Montenegro. After analysing the available secondary data, a plan was made on how to collect all the other necessary data through a primary research.

Primary data

In order to estimate the costs of providing universal PSE, it was necessary first to

estimate the total costs of various PSE programmes per child according to the current situation. In order to gather the data relevant for that purpose, but also to collect the data that we would need to perform other tasks outlined in our Terms of Reference, we performed two pieces of primary research in the form of surveys. The sampling units in both cases were preschool education institutions (PSIs) in Montenegro.

The first survey

The first survey was performed in the period 15 December 2013–21 January 2014. This survey encompassed:

- All existing state PSIs (21 of them): one for each municipality (except for Zabljak which is covered by the Pljevlja state PSI) and two for Podgorica. This is not a sample, but a census; and
- six out of the 14 existing private PSIs, where the PSIs were chosen based on the convenience sampling.

Due to the fact that the state PSIs cover the vast majority of children that attend PSE, the total error of our sample is minimal. Out of the 15,304 children covered by our sample, less than 1.5% attend a private PSI. We have included six out of the total 14 private PSIs in our study. These six private PSIs have, on average, 36 children. If we take this as a proxy for the size of the other eight private PSIs that were not included in our sample, this gives a total number of 288 children possibly not included (8×36). We round it up to a generous 300 (because we can afford it) and calculate the estimate of the total number of children that attend PSE in Montenegro to be 15,604 children ($15,304 + 300$). This gives us an estimate of less than 2% of children not included in our sample ($300/15,604$). Since we

are covering the vast majority of our population in our sample, we can make viable conclusions about the population with the maximum confidence level.

The second survey

Since the data on the payments by parents for food costs showed significant deviation from the amounts we expected, and since these payments were crucial to our primary task – programming the costs of preschool education where the preschool preparatory programme is envisaged to include all children above 3 years of age – we performed an additional survey to recheck the data originally obtained. Another reason for performing the second survey, which is in fact connected to the first one, was to find out about the actual attendance rates and food costs.

The second survey was performed only at state PSIs. Since the main issue was regarding the revenues (payments by parents for food costs), interviewing private PSIs was not relevant (their data on revenues was not found to be relevant to our cost programming purposes). Again, we included all PSIs in this survey, so we did not use a sample, but a census. Hence, there is no need to justify the representativeness of the sample or of the viability of the information obtained.

The second survey was performed during the period 10–25 May 2014. The results of the second survey did not differ significantly from the first one, which confirmed our original findings.

The applied methodology and its limitations

In the data analysis we have used the methodology listed below, which has limitations that will be explained.

Descriptive statistics and charts

We find that the measures of central tendency are the most useful ones in describing a typical value in the population. Other than using the median in a few cases, in our analysis we mostly operated with the simple mean and a weighted mean. The difference between these two comes from the fact that the simple mean does not take into account the existing differences of the units analysed (typically the size), while a weighted mean does. In other words the simple mean gives equal importance to all the values, while a weighted mean gives more weight to the units that are greater in size (e.g. a PSI that has more children). In order to get as much information as possible from our data, we often used both of these measures.

The main limitation inherent to both the weighted and simple mean is that they are sensitive to outliers. Therefore in some parts of the report we have used the median, as a measure of central tendency immune to outliers.

Measures of dispersion, such as the standard deviation and coefficient of variation were used to describe the stability of the calculated indicators (means). The standard deviation measures the amount of variation from the simple mean. A low standard deviation indicates that the data points tend to be very close to the mean; a high standard deviation indicates that the data points are spread out over a large range of values. A limitation inherent to standard deviation is that it depends on the overall level of the observed variable (e.g. the higher the simple mean of a particular variable is, the more volatile it is). For that reason, in those situations where we were to compare variables of a different overall level, we used the coefficient of variation. The coefficient of variation is defined as the ratio of the standard deviation to the mean, to control for the influence of the variable level.

Regression analysis

Regression analysis was used to estimate unit cost and to assess the children-specific group growth dynamic. The key

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{n-1} X_{n-1} + \beta_n X_n.$$

The main components of the regression model are regression coefficients ($\beta_1, \beta_2, \dots, \beta_n$) which can be defined as the average change in the dependent variable while varying the appropriate explanatory variable by 1 (while keeping the other explanatory variables constant).

The appropriate measure of how well the data points fit a statistical model is the coefficient of determination or R squared. It can be defined as a proportion of the variation of dependent variable explained

idea of regression analysis is to describe the relationship between the variable of interest (the dependent variable, Y) and explanatory variables (X_1, X_2, \dots, X_n):

by the statistical model. A limitation inherent to regression analysis is that it is sensitive to outliers. Therefore the usual remedy for this is to repeat the analysis excluding outliers at the cost of shrinking the information base.

The UNDP formula

The formula proposed by UNDP to be used for estimating the costs of preschool education programme is as follows:

$$Exp_i = c_i \times Norm \times P_i,$$

where:

Exp_i – total costs to the government from PSE programmes

c_i – factor or coefficient to take into account special circumstances (transport costs)

$Norm$ – or unit price, is what needs to be paid per child, in normal circumstances

p_i – population, total number of children to be covered

i – indicates the observed municipality.

In this methodology the c-coefficient (or 'c-density') is used as a weight for unit cost in order to account for regional differences. Based on population sparseness, it allows for additional costs that may be spent on organizing transport for children to and from the PSI or for organizing teachers that could go to them, etc. It is also used to account for small group sizes in remote rural areas, which are less cost-efficient.

The main limitation to this methodology is due to the assumption that all the relevant differences between municipalities are reflected in population density and therefore in the c-coefficient as a function of population density.

ANNEX II

ESTIMATING THE NUMBER OF CHILDREN IN MONTENEGRO FOR THE PERIOD 2015–2020, IN TOTAL AND BY MUNICIPALITY, AS WELL AS THE NUMBER OF CHILDREN FROM VARIOUS VULNERABLE GROUPS

In order to estimate the number of children 0–6 years old, by age, we used MONSTAT data: the number of newborns in each calendar year (this data is available on the MONSTAT site for all generations born during the period 2005–2012) and the number of children recorded in the 2011 census. In our estimation we assumed that there was no migration or mortality during the estimation period. This means that, for example, the total number of newborns in 2011 (i.e. number of children age 0) is equal to the number of 1-year-olds in 2012.

In order to make our calculations in chapter 5 of this study, we needed to estimate the number of 0–6-year-old children, for each year of age and for each municipality in Montenegro. This means we had to estimate the number of newborns from 2013–2019 (e.g. children born in 2014 will be 6 years old in 2020) for each municipality in Montenegro. We estimated this figure using regression analysis. We ran a separate regression analysis of the historical data for 2005–2012 on the number of newborns for each municipality.

There is no data on the total number of children with disabilities¹. However, from our questionnaire we do have this data but only for the number of children with disabilities who currently attend PSE and it is this data that we have been using in our cost estimation. Since we are assuming universal coverage of children by PPP, this implies also full coverage of children with disabilities.

There is a database on the number of families that are beneficiaries of social welfare. This data is available on the site of the Ministry of Labour and Social Welfare (MLSW, 2013). From the number of families we can estimate the number of children age 0–6 from those families.

In order to estimate the total number of RE children we used both the specific RE population census from 2008 and the latest Montenegro-wide census from 2011. The total number of RE children is primarily based on the data obtained from the 2008 RE census. This is the latest census of the RE populations in their settlements that is available for Montenegro, which is the only sure way to get most of the RE population. The data from the Montenegrin 2011 Census shows a lower number of the RE population (it probably did not include all Roma settlements), but this data is more detailed and structured (by year of age and by municipality). So, in order to estimate the number of RE children age 0–6 in 2015–2020, we used information available from the 2011 Census which gives us a better idea about the structure of these children.

¹ See article at <http://www.portalanalitika.me/drustvo/vijesti/95629-u-crnoj-gori-bez-tanog-broja-djece-sa-invaliditetom-.html>

ANNEX III

PAYMENT OF FOOD COSTS BY PARENTS

Since the data on the payments by parents for food costs showed significant deviation from the amounts we expected, and since these payments were crucial to our primary task – programming the costs of preschool education where the preschool preparatory programme is envisaged to include all children above 3 years of age – we have performed an additional piece of primary research² to recheck the data originally obtained. The results of the second piece of primary research did not differ significantly from the first one. Their analysis and the issues that forced us to recheck our original findings will be analysed here.

The total amount of funds received by PSIs from parents paying for their children's food is provided in Table 27 in column 2 also denoted by (1). Before proceeding further we have to find out how many months (or days) per year the Montenegrin PSIs are open. According to our analysis of the answers provided in our questionnaire, the number of days per year that the state PSIs were working amounts to a simple average of 221 and a weighted average of 238 days³ per year. Even though this aggregates to somewhere above 10 months per year, we will approximate it to be only 10 months, i.e. we will say that an average child may attend **the primary PSE programmes for 10 months a year**. Furthermore, in our second questionnaire

we asked about the average attendance rates of children in particular state PSIs. The answers⁴ varied between up to 80% and 100%⁵. So, we will estimate that, on average, **the attendance rate is 80%**.

According to our original information, the parents in 2012 were financing the food costs of their children in primary programmes at an amount of €40 per month for the full-day primary programmes and €20 per month for the half-day primary programmes (in crèche and in kindergarten). So, returning to Table 27, we will now look at column 3. It shows the revenue that PSIs in adequate municipalities would have if the parents were paying €40 per month for the full-day and €20 per month for the half-day programmes, for 10 months per year. For this calculation we have used only the number of children who were attending PSIs in primary programmes, but who were not from vulnerable groups or from families that are recipients of family welfare. The total annual amount the PSIs would receive then in each municipality is provided in column 3 of Table 27. As we can see, these values are substantially higher (compared to the revenues actually received from the parents and that are represented in column 2. The difference between these two, expressed in absolute terms, is provided in the fourth column and we can see that it varies from almost –€860,000 in Podgorica to –€1,560 in Pluzina (the simple mean is around –€135,574).

These absolute terms, however, may be quite misleading as Podgorica with its two PSIs has by far the most children⁶, so we have calculated the difference also in

2 The second piece of primary research (survey) was performed only at state PSIs. Since the main issue was payments by parents for food costs, interviewing private PSIs was not relevant.

3 In calculating the weighted average we have used the number of children that attend the particular PSI as the weights.

4 This was a question with closed answers, with five possible responses: up to 20%, up to 40%, up to 60%, up to 80% and up to 100%.

5 No PSIs gave an answer that their attendance rate was up to 60% or below that.

6 The total number of children whose parents were financing their food in PSI was 14,158, and 5,848 (41%) of them were in the Municipality of Podgorica.

percentage terms in column 5 of Table 27. Now we can say that on average (simple mean) actual financing amounted to 48% of the revenues the PSIs would receive if the parents were to pay for food costs of €40 and €20 per month for the full-day and half-day programmes, respectively, for 10 months per year. This average value is not a good representative because the individual values vary significantly, from the maximum of 81% in the Municipality of Pluzine to just 19% in Plav's state PSI. Also, as we expected, Podgorica no longer shows the highest difference between actual and potential revenues – the parents' revenue realization in Podgorica is far above the average, at 62%.

After our second meeting with the ME where we presented the first draft of our study with the results of our first primary research (survey), after discussing these issues we were informed that parents actually did not pay €40 and €20 per month for food, but instead they paid €1.80 per day for the full-day and €0.90 for the half-day programme, but only on the days when their child actually showed up at the PSI⁷. This suggested use of the attendance rate to estimate the future revenues from the parents. Therefore, we performed an additional survey where we inquired in more detail about the attendance rates, the dates on which PSIs and their particular units were open, rechecked the amount received from the parents as well as the number of children whose parents are not liable for paying for food costs.

As we explained above, according to the answers provided in the second survey we estimated that the average attendance rate is higher than 80%. So, in column 6 of Table 27 we have calculated the revenue

that PSIs would have received if the children were attending the kindergarten 10 months per year, with an attendance rate of 80%. In the following column, column 7 we have calculated the difference between these potential revenues from the parents and the ones they actually received in absolute terms, while column 8 presents the actual revenues expressed as a share of these potential revenues, expressed in percentage terms.

The results show that even with an 80% attendance rate there is a pronounced difference between the potential and actual revenues received from the parents. In absolute terms this difference, albeit smaller (the simple mean is about –€75,000), varies from €120 in the case of Pluzine where it is actually higher than the actual revenues implying that the attendance rate was higher than 80%, to around –€400,000 in the case of Podgorica. In the latter case the high difference is mainly due to having the highest proportion of children in this municipality (41%), as proved when we express the difference between actual and potential revenue from the parents in relative terms, where we calculate the actual revenue as a percentage of the potential revenue, in column 7 of Table 27.

As we can see from column 7, on average the actual revenue received from the parents amounts to 60% of the revenue the PSI would have received if the parents were to pay for food 10 months a year, €1.80 per day for the full-day and €0.90 per day for the half-day programme and with an attendance rate of 80%.

⁷ This amounts to around €40 per month for the full-day and €20 per month for the half-day programme, should the child go to the PSI every day of the month.

Table 27. Revenue from the fees paid by parents, actual and potential, 2012

PSIs in municipality:	Actual revenue from parents		Potential revenue if paid for 10 months a year		Potential revenue, 10 months and 80% attendance		Average no. of days per year that parents actually pay for food	
	(1)	(2)	(1) - (2)	(1) / (2)	€	Actual - potential, €		Actual compared to potential, %
Bar	186,500	275,800	-89,300	68%	220,640	-34,140	85%	150
Berane	60,238	196,000	-135,762	31%	156,800	-96,562	38%	68
Bijelo Polje	77,193	201,400	-124,207	38%	161,120	-83,927	48%	85
Budva	225,593	360,000	-134,407	63%	288,000	-62,407	78%	139
Cetinje	98,240	190,800	-92,560	51%	152,640	-54,400	64%	114
Danilovgrad	70,320	115,000	-44,680	61%	92,000	-21,680	76%	136
Herceg Novi	148,702	412,000	-263,298	36%	329,600	-180,898	45%	80
Kolasin	17,809	60,400	-42,591	29%	48,320	-30,511	37%	66
Kotor	163,727	310,600	-146,873	53%	248,480	-84,753	66%	117
Mojkovac	11,527	26,000	-14,473	44%	20,800	-9,273	55%	99
Niksic	232,639	392,800	-160,161	59%	314,240	-81,601	74%	132
Plav	13,232	69,800	-56,568	19%	55,840	-42,608	24%	42
Pljevlja	69,958	172,000	-102,042	41%	137,600	-67,642	51%	90
Pluzine	6,840	8,400	-1,560	81%	6,720	120	102%	181
Podgorica	1,428,278	2,285,800	-857,522	62%	1,828,640	-400,362	78%	139
Rozaje	11,382	40,400	-29,018	28%	32,320	-20,938	35%	63
Tivat	106,635	206,600	-99,965	52%	165,280	-58,645	65%	115
Ulcinj	48,252	93,600	-45,348	52%	74,880	-26,628	64%	115
Average:				48%			60%	107
Max:			-1,560	81%		120	102%	181
Min:			-857,522	19%		-400,362	24%	42

SOURCE: Primary data and our calculations.

This is unexpectedly low revenue realization and we find it even after we take into account the lowest possible attendance rates that the data would allow.

Furthermore, this average is quite volatile, ranging from 102% in case of Pluzine's PSI to just 24% in case of Plav's PSI. The result from Pluzine, where actual revenue is 102% of the potential revenue indicates that our assumption that the attendance rate is 80% is an overestimate, i.e. the actual attendance rate is higher. The minimum result, proving that the actual revenues from the parents are only 24% of the revenues that Plav's PSI would receive if the parents paid for each day that the child showed up at the PSI and the attendance rate was 80% (estimated by directors of PSIs).

Finally, in order to analyse this data even further, in the last column of Table 27 we calculate for how many days the parents pay for the average child who is not a member of a vulnerable group or whose families are not recipients of social welfare. We have calculated this number of days by dividing the total amount received from the parents by PSI for financing food costs, by the daily amount payable (€1.80 and €0.90 for the full- and half-day programmes, respectively) multiplied by the actual number of children who are officially enrolled in the full-day and half-day programmes in that PSI. This gave us the number of days that parents, on average, actually paid for. These are the values presented in the last column of Table 27.

The data presented shows that, according to the data provided by the PSI, parents of an average child in Montenegrin PSIs pay for 107 days per year (simple mean). However, we already calculated that there were 221 working days for Montenegrin PSIs (simple mean), while the attendance rate is 80% (at most). These 107 days of

the average parents daily food payment amounts to about 48% of the total number of working days, or 60% when an attendance rate of 80% is accounted for. This is in line with the other results we had already obtained in our analysis.

Furthermore, in Plav an average child paid for only 42 days per year PSI attendance, which is totally in line with the previous results of 19% and 24% realized revenue from parents in this municipality. The second lowest result is that of Rozaje's PSI where parents pay, on average, for only 63 days of annual attendance. The next in line are the PSIs in the municipalities of Kolasin and Berane that, with an average annual paid attendance of 68 and 85 days, all realize less than 30% (or 38%) of the revenue that the PSIs would have received had the food costs been payable throughout the year (or had they been payable for the minimum observed attendance rate of 80%).

Throughout this exercise we can see an uncommonly high difference between the amount paid by parents and the amount that should have been paid by parents, and this difference we will call the non-payment rate.

All in all, we can conclude that the amount payable by parents is far below the revenues that would have been received bearing in mind the official enrolment and attendance rate, i.e. the non-payment rate is extremely high. We can only conclude that the payment of services on a daily basis is not at all efficient, allowing for high non-payment rates, and should be abandoned and replaced by a more efficient (and more common approach) where the food should be payable per month of attendance and not per day. Redefining the payment mode should be one of the policy priorities for Montenegro.