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COST – BENEFIT ANALYSIS OF IMPLEMENTATION OF INDEX FOR INCLUSION IN THE EDUCATION SYSTEM OF REPUBLIC OF SERBIA



Cost-Benefit Analysis of Implementation of Index for Inclusion in the Education System of Republic of Serbia

Funded by Save the Children UK

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The opinions expressed and arguments employed herein do not necessarily reflect the official views of the Save the Children UK April 2009 Belgrade, Serbia

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EXECUTIVE SUMMARY

Integration of "Index for Inclusion" in elementary schools in Serbia should result in cost effective solving the problems of marginalized groups. In order to test that presumption in practice, pilot schools in municipalities of Subotica and Serbia implemented the "Index for Inclusion". This paper shows that relatively low costs per capita invested into the elementary education of members of marginalized groups could cut the budget cost in future; bearing in mind that finishing of elementary school significantly reduces probability of poverty of member of marginalized groups.

Analysis in paper is based on following presumptions:

- All schools in Serbia will adopt and implement proposed inclusive education models.
- The study takes into consideration key economic and social trends
- The study takes into consideration government financing of education and public welfare
- The cost will be estimated on bases of the cost needed to run inclusive classes in school with approximately 500 pupils, which is near the average in Serbia.

Paper gives estimation of financial justification for integration of "Index for Inclusion" in regular school methodology for annual programme development and its application in Serbia. It presents basic elements of "Index for Inclusion" good practices with special emphasizes on municipalities Subotica and Pirot. Further paper shows per capita cost in schools in two abovementioned municipalities. Preschool institutions were not analyzed bearing in mind that local self-governments significantly participate in their funding.

Paper compares schools with implemented "Index for Inclusion" with other schools, and tries to estimate benefits of implemented "Index for Inclusion". Finally paper presents projections of long-term benefits and cost of implementation of "Index for Inclusion" in elementary education in Serbia.

In order to achieve the goals of cost-benefit analysis paper estimates the short term (3 to 5 years) and long term (5 to 15 years) social rate of return and gives projection of overall social benefit for the state and society through reduced social services costs, increased employment rate and tax revenues.

INTRODUCTION

Inclusion has developed from a long history of educational innovation and represents school improvement on many levels for all students For example, Ballard's (1997) definition of inclusive education embodies a number of factors: education needs to be non-discriminatory in terms of disability, culture and gender; it involves all students in a community with no exceptions; students should have equal rights to access the culturally valued curriculum as full-time members of age appropriate regular classrooms; and there should be an emphasis on diversity rather than assimilation.

Above all, it is about a philosophy of acceptance where all people are valued and treated with respect. Indeed, this same author has argued that inclusion is unending, so that there is no such thing as an inclusive school. According to this notion, all schools can continue to develop greater inclusion, whatever their current state is. More recent understandings of inclusive schooling have described a process which fosters participation by all pupils and staff as a base for future school development. This is because the introduction of inclusive policies and the ever increasingly diverse learning needs have forced school staff to change their approach to organization of students, models of support, teaching staff roles, and approaches to teaching and the curriculum. Because inclusion can be understood as a process rather than the pot of gold at the end of the rainbow, there are strong links to school and staff development and processes for managing change.

The Index for Inclusion is designed to support schools in a process of inclusive school development and was developed in Britain at the Centre for Studies in Inclusive Education (CSIE) in collaboration with the University of Manchester and University of Christ Church College Canterbury. The Index provides a framework for school review and development on three dimensions: school culture, policy, and practice. "It is important to remember that the dimensions overlap: developments in school cultures require the formulation of policies and the implementation of practice".

Each dimension of the Index is divided into a number of indicators. Indicators are divided into the set of questions which stimulate thinking about inclusive character of school in all three dimensions (culture, politics and practice). The intent is threefold: 1) establish existing knowledge, and understandings about culture, policy and practice in the school, 2) consider priority areas for school and teacher development, 3) manage and document the process of change.

This paper analysis the costs of implementation Index for inclusion in two pilot municipalities in Serbia and make projections of costs and benefits in the case of implementation in all schools in Republic of Serbia. Main focus of this study is inclusion of Roma population, bearing in mind that they are the biggest marginalized group in Serbia, which members in most of cases are significantly less educated than rest of population, and in some cases without or with incomplete elementary education.

1. THEORETICAL ANALYSIS OF THE PROBLEM

1.1 Target group Analysis

There are serious constraints to access to education for Roma¹ evident in low enrolment rates for Roma children. Overall educational enrolment among Roma is low, consistently from pre-school to higher education, while segregated schooling persists.

Many Roma children do not go to school. 35% of Roma children (ages 7-20) are not enrolled at all, compared to a rate of 2% for the general population. In 2006, the Roma net enrolment rate for primary schooling was 72.2% against 98.5% for the general population. Large differences prevail also for secondary education, with secondary school net enrolment rate for Roma being $16.7\%^2$, compared to $67\%^3$ for non-Roma.

While schooling is free of charge in Serbia, the main reason cited among Roma for not sending children to school is a lack of financial means. Going to school is associated with not insignificant costs for school equipment such as textbooks and notebooks, but also clothes, footwear and other similar costs. Further, that pre-school institutions and primary schools are often not in the vicinity of Roma settlements, and families therefore incur significant transport costs for children going to school. There is also misperception that it is also costly in terms of foregone revenue that children may generate through work, begging or other activities.

Access barriers to education for Roma children begin with pre-schools. International evidence suggests that children who attended early childhood development or pre-school programs on average tend to fare better in primary school than those who do not. However, in Serbia only 7 percent of Roma children (age 3 to 7) residing in settlements attend pre-school comparing to almost 34 percent for the general population.⁴ Low level of Roma children covered by preschool programs reduces enrolment of Roma children in elementary schools.

In particular, pre-schooling can promote a child's learning ability and motivation. Pre-

¹ Target group in this analysis is Roma population in pilot municipalities, although IfI is designed for all excluded groups (Roma children, children with special needs, children from internal displaced families, refugees, children from low income families etc.)

² Antić (2005), Roma and Right to Health Care in Serbia, Minority Rights Center, Belgrade

³ Republički zavod za statistiku - www.statserb.sr.gov.rs

⁴ Bodewig C. i Sethil A. (2005) *Poverty, Social Exclusion and Ethnicity in Serbia and Montenegro: The Case of the Roma*, World Bank: Washington

schooling has an impact on socializing children, which can be important especially for children from socially excluded groups. Roma respondents stated most often that sending children to pre-school would be too expensive. While pre-school attendance has so far been fee-based, the level of attendance fee is dependent on household income and social welfare beneficiaries have access to free pre-schooling. Mainly because they receive income support, only 41% of Roma survey respondents stated that they were paying for pre-schooling as opposed to 89% among the general population, while the main expenses for pre-schooling among Roma was half that of the general population.⁵

Pervasive non-registration of Roma households works against school enrolment of Roma children. While primary school attendance is compulsory from the age of 7, non-registration of many Roma households prevents enforcement for Roma children. Because many Roma families have no residence records and Roma children no birth certificates, municipal authorities often have no full knowledge of how many Roma children reside in the municipality.

Low enrolment in education is compounded by poor educational attainments and outcomes for Roma in comparison to general population. One of the reasons is that nearly half of Roma households in Serbia speak only Romani. Lack of knowledge of Serbian is a likely key predictor of deeper poverty among Roma compared to other marginalized groups.⁶ Inability to speak Serbian language severely limits labor market opportunities and increases the poverty of Roma population.

Roma children fare worse in school performance compared to their non-Roma peers. There are significant differences in performances in all subjects. One of the key causes is previously mentioned lack of knowledge of Serbian. However, it is also important mention that Roma children do not attend school because of the absence of clear support for their schooling in their families.

Special schooling remains a key feature of Roma education. These schools, aimed at children with special needs, follow simpler curricula than regular schools. The reasons for being assigned to special schools are rarely transparent and correct, while one key likely reason may

⁵ Mihajlović (2004) Needs Assessment Study for the Roma Education Fund - Serbia, Belgrade

⁶ Bodewig C. i Sethil A. (2005) *Poverty, Social Exclusion and Ethnicity in Serbia and Montenegro: The Case of the Roma,* World Bank: Washington

be a less than proficient command of the Serbian language among some Roma children. Education of Roma children in special schools is the example of systematic segregation of this population from the very beginning of education.

Bearing in mind that educational system does not break virtuous circle of Roma poverty, it could be reasonable concluded that obstacles in education and poor results of education will result in future social exclusion and poverty of Roma children. Acquired degree and results are closely connected with future employment and opportunities on labor market. Lover level of education significantly reduces future chances in labor market.

There are significant differences in labor force participation, employment and unemployment outcomes between settlement Roma and general population households in Serbia. Although the labor force participation rates for general population and settlement Roma in Serbia appear similar, significantly fewer Roma in older age participate in the labor market and are in employment, labor force participation and employment rates among young Roma aged 15-24 are higher than for the general population.⁷ This is driven by comparatively low school enrolment for Roma children and youth, who are often engaged in various income-generating activity rather than attending class. The Roma male employment rate is only slightly below that of the general population (66.8% compared to 69.9%). However, the female Roma employment rate of 34.5% is significantly lower than that the rate of 54% for non-Roma.⁸

Despite this variation in participation and employment, Roma face consistently higher unemployment rates across all age cohorts and all educational outcomes. However, the discrepancy is lower for individuals with continuing education. Roma men, who reach a Gymnasium-level of higher degree, fare significantly better than their less educated peers in comparison to non-Roma.

1.2. Inclusive Education and Anti-Discrimination Project in the Western Balkans – Equal Opportunities for Roma Children

Pooling experience and results from previous local projects and based on recommendations from research that identified the priority of providing education for Roma children, SCUK

⁷ Antić (2005), Roma and Right to Health Care in Serbia, Minority Rights Center, Belgrade

⁸ Mihajlović (2004) Needs Assessment Study for the Roma Education Fund - Serbia, Belgrade

SEE launched its first regional project in SEE – *Inclusive Education and Anti-Discrimination in the Western Balkans* – *Equal Opportunities for Roma Children (2005-2008).* The project aims at introducing a comprehensive model and a common methodology for educational inclusion, involving actively all stakeholders through capacity building, awareness raising and direct work with children and the community.⁹

The overall goal of the project is to improve the inclusion of Roma/RAE minorities' children in mainstream education in the targeted locations in Bosnia and Herzegovina, Montenegro, Serbia and Kosovo. More specifically, the project purpose is to pilot, develop and then to disseminate a model of inclusive education for Roma children in the project countries, based on the introduction of the *Index for Inclusion* methodology and through partnership with and capacity building of key stakeholders.

This project is funded by the British Foreign and Commonwealth Office and Save the Children UK. Additional funds have been received from the European Commission (for activities implemented in Bosnia and Herzegovina) and the Government of Luxembourg (for activities implemented in Serbia). Project was also harmonized with other initiatives in region, for example, the Roma Inclusion Decade.

The project model builds on cultural similarities and common historical and political heritage with a view to a common European future towards which the Western Balkans are striving. It addresses the shared problems of Roma communities like prejudice, exclusion and segregation in education inherited from a common past. The project model is an example of a successful practice in achieving immediate and lasting changes in children's lives and sustainability of results through involving all stakeholders and duty bearers at all levels.

The building blocks of Save the Children's model are a methodology for mainstream educational inclusion of Roma children based on the *Index for Inclusion* and a number of dimensions of change in children's lives used by SCUK. The *Index for Inclusion* methodology offers tools for self-review and changing cultures, policies and practices at school level. Index for Inclusion is also an advocacy tool for influencing decisions and ensuring relevant duty bearers and policy makers hear all voices. Drawing on the *Index for Inclusion* to help guide schools through a process of inclusive development, barriers to

⁹ Koleva, D. (2008) A guide for models of good practice in regional project-based work on inclusion of Roma children in pre-primary and primary education, Save the Children UK, Belgrade

learning and participation of Roma children are identified, priorities for development are determined and school development plans are drafted and put into practice to help build supportive environment which fosters high achievement for Roma students. This methodology encourages the involvement of all education practitioners, school management, education institutions, children and their parents as well as the community. Building on identified priorities for educational inclusion of Roma children, development plans are implemented and reviewed in pre-primary and primary school settings using the *Index* materials.

2. IMPLEMENTATION OF INDEX FOR INCLUSION (IFI)

2.1. Characteristics of Roma Population in Pilot Municipalities Subotica and Pirot

Save the children research conducted during the implementation the project shows some of the basic characteristics of Roma population in municipalities Subotica and Pirot.

Overall status of households in Subotica and Pirot is substantially different¹⁰ – in the municipality of Pirot all household are permanently settled, however in Subotica almost one half is temporary located there, and 39% of families in Subotica are refuges.

Educational structure of households in Subotica and Pirot is also significantly different. Detailed analysis shows that differences in educational level are correlated with differences in status of households (permanently or temporary settled): about one thirds of heads of refuge households does not have education, and almost one half of heads of households from suburbs in Subotica have not finished at least one year of elementary school.

Differences in education acquired by wives of household heads (mothers) between Subotica and Pirot are even more obvious then differences between heads of households. The level of education of mothers in Pirot is on the same level as the level of education of heads of households. However, in Subotica mother are significantly less educated and 50% of them has no education at all.

Employment statistic is also unfavorable, even with missing data calculated in total number, two thirds of population is unemployed, and employment rate is slightly higher in Pirot. Gender structure of unemployment is the same in both municipalities, almost 90% of mothers are unemployed, and just 2% of then is regularly employed, nevertheless of municipality (Subotica and Pirot)

Rate of missing data (in table 7, appendix 3 are data about households which confirmed that receive social transfers, but they did not told exact amount) shows that significant part of population were not ready to give answer.

Although Roma families in Pirot have less children (in average 1.7 per family, which is average in Serbia), number of children that attend preschool institutions is just 60%.

¹⁰ In the rest of text in section 2.1 term "Household" means "Roma household".

However, in Subotica, the same indicator is just 12%

Small number of Roma children in school for children with special needs in Subotica could be explained by high number of children which do not attend school at all (almost 40%). Contrary to Subotica, just 4% of children in Pirot do not attend the elementary school. The most important causes of leaving elementary school are finance problems and in some cases lack of knowledge of language, especially in Subotica where significant number of internal displaced persons do not speak Serbian.

Just 8% of Roma population in Subotica attend secondary school and none of them attend high school (in Pirot, four Roma enrolled high school).

Data about mother tongues shows higher level of integration of Roma from Pirot compared to Roma from Subotica. Just 3% of all Roma families from Subotica speak Serbian as their first language which results in problems in educational process (dominantly, but not exclusively in school).

2.2. Effects of Implemented Program

Program has been implemented in target municipalities, and comprehensive programs of training have been done in pre-school institutions and in elementary schools. Participants in program of training have been trained by experienced consultants. Schools participated in programs of training by supporting it. Further, partners in the municipalities Subotica and Pirot were active in campaign of increasing awareness of local community about importance of inclusive education and in anti-bias activities.

Elementary schools and pre-school institutions have been supported by adaptation of premises and supported in financing consumables. In this segment of project activities schools and preschools also participated from their own funds.

Pilot municipalities supported project implementation and participated in financing from their budgets. This is indirect proof that municipalities accepted model, and estimated project as useful. Problem is lack of data which exactly illustrating project effects on targeted groups as well as differences between schools where IfI was implemented and other schools.

However, positive effects in pilot municipalities are clear. Pilot school staff is trained for implementation of IfI, and therefore from the point of expertise, they are able to use methods of inclusive education in practice. Other words said, there is difference between pilot schools and other schools in Serbia. Finally, reaching the long-run and permanent positive results demands constant monitoring of implementation of inclusive education methods.

2.3. Methodology of Cost Benefit Analysis of implementation of Index for Inclusion in education system of Republic of Serbia

Methodology used in this study is cost-benefit analysis of implementation of Index for Inclusion on the territory of Republic of Serbia. Lack of exact data about Roma population in Serbia, as well as relatively small sample reduce possibility of using sophisticated and more exact methods of statistic analysis. Bearing in mind abovementioned, methodology of this study is based on set of statistic and mathematic methods that enable analysis of IfI implementation with data available in this moment. Glossary in Appendix 5 explains basic terms like time value of money, correlation etc. In addition, basic data about Roma population are briefly presented in appendix 3.

Developed methodology enables estimation of costs and benefits of Indexed for Inclusion implementation on territory of Republic of Serbia. Costs estimation is based on costs of implementation in pilot municipalities, and those costs are used for estimation of total costs on the whole territory of Republic of Serbia. Estimation of benefits is based on social costs of lack of elementary education of Roma population, mostly the cost of low employability of Roma population. Therefore, the most important benefit is reducing of social costs by increasing the overall level of education of Roma population and consequent increasing of Roma population employability. Finally, it is not possible exactly predict effects of Index for inclusion implementation on increasing the rate of enrolment of Roma population into secondary schools. Therefore, three scenarios are developed (optimistic, neutral and pessimistic) in order of calculating minimal net positive effects.

Basic data about Roma population are necessary in cost-benefit analysis. Some dilemmas about validity of sample consisting of two municipalities, as well as number of Roma exist. Sample consisting of two municipalities is not problem bearing in mind that Roma population is relatively homogenously distributed on the territory of Republic of Serbia, and their share in total population is almost always 1-2%. So, small sample do not limits analysis, although it should not be case for some other ethnic groups in Serbia.

Number of Roma population in Serbia is not clear. Some of the Roma claims themselves as Serbs. Some of the Roma were not covered by census and do not have IDs and basic rights. Although many organizations estimate that number of Roma is higher than official number, for the purpose of serious and statistically valid analysis in this study, official data will be used. In the case that presumption that relatively high number of Roma is not covered by census, positive net effects of Index for Inclusion implementation will be more significant than those estimated in study.

All projections in this paper are conservative and it is probable that ration costs/benefits is in fact more favorable. Therefore, social gains are probably higher then those calculated in study from existing data because of the high number of Roma excluded from social system, as well as low incremental costs of enrolling of new pupils into the primary schools with available capacities.

Bearing in mind problem of lack of available data about results/benefits of project implementation that can be translated into the real indicators of inclusion of marginalized groups (reducing rate of leaving of primary and secondary schools by members of targeted groups or some other specific indicators which clearly shows changes in patterns of behavior and consequently in overall position of those groups members), this analysis mostly use scenarios and minimal results necessary for acquiring net positive effects.

Data provided by Save the Children Belgrade Office are used for the purpose of cost and benefit analysis – publication *A guide for models of good practice in regional project-based work on inclusion of Roma children in pre-primary and primary education;* internal databases of the Save the Children such as *Register of Roma Families in Subotica and Pirot.* Public data about education system of Republic of Serbia are also used, mostly data from databases of Republic Statistic Office and Ministry of Education. Finally, publication about inclusive education and inclusion of Roma are also used. Detailed list of references and bibliography used in analysis is available in Appendix 4.

2.4. Per Capita Costs for Schools where IfI has been Implemented

In analysis of *per capita* cost¹¹ of the implemented IfI, cost *per capita* could be calculated in two different ways:

- per capita cost, if we suppose that the unit of costs is a pupil with problems in inclusion in education system of the Republic of Serbia. In that case the costs are allocated¹² exclusively to the children with problems in inclusion; in our case are allocated to Roma children.
- 2. per capita cost, if we suppose that the unit of costs is not particular pupil with problems in inclusion in educational system of the Republic of Serbia. In that case, costs are allocated to all children, nevertheless they have problems or not.

From the first perspective, the respective costs *per capita* for the municipalities of Subotica and Pirot in one year were:¹³

Subotica = 15,950 EUR/ 352 = 45.31 EUR annually or 3.77 EUR monthly Pirot = 11,147 EUR / 425 = 26.22 EUR annually or 2.19 EUR monthly Both municipalities = 27.097 EUR / 777 = 34.87 EUR annually or 2.91 EUR monthly

From the second perspective, the respective costs per capita for the municipalities of Subotica and Pirot in one year were:

Subotica = 15,950 EUR / 5,202 = 3.07 EUR annually or 0.25 EUR monthly Pirot = 11,147 EUR / 5,480 = 2.03 EUR annually or 0.17 EUR monthly Both municipalities = 27,097 EUR / 10,682 = 2.54 EUR annually or 0.21 EUR monthly

However, except relatively low cost per capita, this data does not give deeper insight into the effects of Index for Inclusion implementation. Therefore, it is important to calculate cost per capita in Serbian elementary education and compare extra cost of introducing the IfI in

¹¹ Costs allocated to one individual, in this case pupil.

¹² Allocation is dominant term in cost behavior literature.

¹³ All calculations in 2.2 have been done according the date provided from Save the Children. In this stage of analysis preschool and elementary school pupils are covered. Numbers in numerator are given in Appendix 1 (costs of project activities), and numbers in denominator are given in Appendix 2 (beneficiaries of project activities)

education system and its implementation.

All costs of elementary educations are not covered from budget of Republic Serbia, but in all parts of Serbia the same costs are covered from budget, and therefore it is estimated that government expenditures for elementary education are relevant and more important, reliable data. Further, another important presumption is that there is no significant difference in average number of pupils per school, bearing in mind that implementation of any education project results in some portion of fixed costs per school, instead per pupil. In order of making analysis more accurate, in the rest of the paper only elementary education will be analyzed because of the fact that preschool education was not obligatory in the time of project preparation, and today only one year is obligatory and therefore real effects/cost could be hardly calculated. Finally, implementation of IfI, means higher costs in the first year of implementation and relatively lower costs later on.

2.5. Per Capita Costs in Schools where the Program has not been implemented

According to the publicly available data of Statistic Bureau of the Republic of Serbia, total number of the pupils in 2006 was 610,078; total costs were 38,815,642,000 RSD or 462,090,976.19 EUR ¹⁴. Therefore the average cost per capita in elementary education in Republic of Serbia was

462,090,976.19 EUR / 610,078 = 757.43 EUR *per capita* or 63.12 EUR monthly *per capita*

In order of analyzing the incremental $\cos t^{15}$ of the first year of IfI implementation in Subotica and Pirot, data about total costs will be divided into two groups according to the tables presented in Appendix 1 – costs of elementary education and costs of preschools institutions. Costs which are not specifically allocated to preschools or elementary education, for example costs of increasing the awareness of local communities about, will be allocated in the same

¹⁴ Average exchange rate RSD/GBP in 2006 was 1 GBP = 123 RSD. Average exchange rate RSD/EUR in 2006 was 1 EUR = 84 RSD. Average exchange rate is calculated as weighted average of exchange rate GBP/RSD and EUR/RSD on the beginning of every week in 2006. for the purpose of analysis GBP are denominated in EUR using prevailing exchange rate during project implementation 1 GBP = 1,1 EUR.

¹⁵ Incremental cost is cost of additional unit, activity, product etc. In this case it is cost resulted from implementation of IfI.

portion existing between explicitly allocated costs. Schools for the pupils with special needs will be included into the group of elementary education.

In municipality of Pirot 6.239 EUR were allocated to elementary education to 405 direct beneficiaries and 4,930 direct and indirect beneficiaries. Same data for municipality of Subotica is 6.633 EUR, which was allocated to elementary education to 259 direct beneficiaries and 1,332 direct and indirect beneficiaries. Table 1 shows relevant costs *per capita* for elementary education in municipalities Pirot and Subotica:

 Table 1 - Annual cost of implementation of inclusive education in elementary schools

 per capita (in euros)

	Cost of elementary education	Total number of beneficiaries	Cost <i>per capita</i> of IfI implementation
Pirot	6,239	4,930	1.26
Subotica	6,633	1,332	4.97
Total:	12,872	6,262	2.05

Consequently, monthly cost per capita in both pilot municipalities is:

12,872 EUR / 6,262 = 2.05 EUR per capita or 0.17 EUR per capita monthly

In the rest of the text costs per capita shall include all pupils in elementary education instead of Roma population. The most important reason is the fact that all people in one country enjoy benefits of significant reducing the rate of people without finished elementary school. Further, benefits of inclusion Roma and other marginalized groups in all flows of society will be enjoyed by all citizens in Serbia.

Finally, ratio cost of IfI *per capita*/cost of elementary education *per capita* shows incremental cost of introduction the IfI in first year. Elementary education cost *per capita* is still calculated in section 2.5 and it is 757.43 EUR,

2.05 EUR / 757.43 EUR = 0.27%

Other words said the first year of introduction of IfI in elementary education in Serbia will increase the costs of elementary education for 0.27%. This means that it is necessary invest

less then one third of euro cent to every euro invested in elementary education. In the case of implementation of IfI in all elementary schools in Republic of Serbia, costs of elementary education in the first year of implementation will be increased for

462,090,976.19 × 0.0027 = 1,250,658.81 EUR annualy

Finally, it is interesting check share of costs of introducing of inclusive education in annual increase of elementary education budget. If the annual growth of elementary education budget is 4.5% or other words said 10% less then projected growth of GDP, then:

 Table 2. Share of costs of introducing of inclusive education in annual increase of elementary education budget (in euros)

	Annual cost	Annual growth (4.5%)
Costs of elementary education	462,090,976.19	20,794,093.93
Costs of IfI introduction	1,250,658.81	

therefore, share of IfI in total increase of elementary education budget is:

1,250,658.81/20,794,093.93 = 6.01%

In other words, just 6.01% of annual increase of elementary education budget should be allocated to project of introducing the IfI. Therefore, it is not necessary reduce other costs of elementary education, but rather use some amount of regular annual increase of elementary education budget.

Graph 1 Share of costs of inclusive education introduction in annual increase of elementary education budget (in euros)



2.6. Short and long term effects of implementation of the IfI in Serbia

Estimation of the impact of Index for inclusion is based on following presumptions:

- Declining linear trend of number of children in age for elementary education in next 15 yeas.
- 5% of GDP growth, and 4.5% of growth of Serbian elementary education budget
- Narrowing of gap between Roma population living standard and living standard of the rest population is connected with finishing of primary school and enrolling the secondary school.
- Costs of current situation are social transfers to Roma population and lost GDP as the consequence of inactivity of active population.
- Dispersion of population in all eight years elementary education is uniform, so the dispersion of Roma population too.

Extra costs of implementation of inclusive education in Serbia are 1,250,658.81 EUR and it is calculated in previous section. With predicted increase in government spending of 4.5% annually the cost of inclusive education in 15^{th} year after this year will be 2,316,151.23 EUR or 1,701,973.83 EUR in average in 15 years period.¹⁶

Voor	Elementary
Ital	education costs
1	1,250,658.81
2	1,306,938.45
3	1,365,750.68
4	1,427,209.46
5	1,491,433.89
6	1,558,548.41
7	1,628,683.09
8	1,701,973.83
9	1,778,562.66
10	1,858,597.98
11	1,942,234.88
12	2,029,635.45
13	2,120,969.05

Table 2 Growth of elementary education costs, 4.5% annually

¹⁶ Annual cost in 15th year is calculated by simple increasing the costs of elementary education for 4.5% annually. Average cost is geometric mean of costs of first and 15^{th} year.

14	2,216,412.66
15	2,316,151.23

Tuble e Comparative data about Roma and total population
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	Roma population	Total population
Number of pupils	108,193	7,498,001
Number of pupils in year 1	15,250	610,078
Share of elementary school pupils in total population	14.1%	8.13%
Number of pupil enrolling secondary schools	318	60,969
Share of pupils enrolling secondary school	16.7%	67%
Number of elementary school pupils in year 15	16,470	576,787

According to the data from Statistic Bureau of the Republic of Serbia total number of people in Republic in Serbia is 7,498,001¹⁷, and Roma population is 108,193, or 1.44%. At the same time number of pupil in elementary schools is 610,078 or 8.13%. Natural increase of population is -0.4% annually.¹⁸ With current dynamics of children in primary schools we can expect approximately 576,787 pupils in elementary schools in year 15.¹⁹ In this moment 67% of pupils enroll secondary school, or $610,078 \times 0.67 = 487,752/8 = 60,969$ pupils annually.²⁰

At the beginning of 15-years period Roma population in the age for elementary school is approximately 15,250, due to fact that Roma population is younger then Serbian average.²¹ In this moment only 16.7% of Roma population enroll secondary education²² or

15,250 x 0.167 = 2,546 / 8 years = 318 pupils annually

¹⁷ Data does not cover territory of Kosovo.

¹⁸ It is not necessary calculate annual rate of increase of number of Roma population, bearing in mind that higher rate (which is highly probable) would additionally support conclusions of this paper and emphasize usefulness of implementation of Index for Inclusion.

¹⁹ Data are calculated according the estimation that population of elementary school pupils will decline 0,4% annually. Way of calculating is methodologically identical to those for elementary education budget increase calculation

calculation ²⁰ Uniform distribution of elementary school pupils in all ages is presumption. Although it is not the case in practice, it makes analysis simpler and do not undermine validity of conclusions. ²¹ Roma population in average is significantly younger than total population. Average age is 27.5 years,

²¹ Roma population in average is significantly younger than total population. Average age is 27.5 years, compared to age of 42 of total population. Therefore age structure of Roma population and share of Roma in the age for elementary school is 14%, compared to 8.13% of total population. Number is approximate, bearing in mind that age contingents of Serbian statistic office does not perfectly fits to elementary education age group of 7-15 years.

²² This does not mean that all Roma finish elementary school and after that majority of them do not succeed to enrol secondary school. Most of Roma leaves the school before eight year of elementary school. However, this does not limit validity of analysis, due to fact that crucial indicator is share of elementary school population which enrols secondary schools.

It is expected that number of Roma population in the years 7-15 will be increased in the next 15 years for at least 8% and total number of Roma at the age of pupils will be 16,470.²³

In order of estimating gap between rate of enrolment into the secondary school between Roma pupils and total population, it will be analyzed potential number of enrolled Roma pupils in the case of the rate of enrolment of Roma pupils equal to rate of enrolment of total population.

	Roma population	Roma population with total population rate of enrolment to secondary school
Total	108,193	108,193
Number of pupils in year 1	15,250	15,250
Share of elementary school pupils in total population	14.1%	14.1%
Number of pupils enrolling secondary school	318	1.277
Percent of pupils enrolling secondary school	16.7%	67%

 Table 4 Comparative indicators of existing enrolment of Roma pupils into the secondary schools and potential enrolment in the case of rate of enrolment of total population

The existing gap in enrolling secondary school is between 318 or 16.7% in Roma population and percentage in general population of 67%. In the population equal to Roma population number of enrolment to secondary school is $15,250 \times 0.67 = 10,218$, or annual number of enrolled pupils is 10,217/8 = 1,277. Other words said, at least 959 of child is almost is convicted to live in poverty because they will not be able to attend secondary school.

 $^{^{23}}$ Data is obtained on the basis of Roma population growth between two censuses, and presumption that birthrate will be similar.



Graph 2 Lower enrolment of Roma population into secondary school compared to total population

In the next 15 years the gap would be higher *ceteris paribus*²⁴ without inclusive education and actions of the Serbian institutions. With current dynamics and growth rate of Roma population of 8% in next 15 years gap will be 1,035 Roma pupils unable to enroll secondary school.

959 x 1.08 = 1,035 Roma pupils unable to enroll secondary school in year 15

and total the gap in 15 years is 14,952 Roma pupils unable to enroll secondary school,

$$\sqrt{959 * 1.035 * 15} = 14,944$$

Roma pupils unable to enroll secondary school in period of 15 years.

The cost of 14,944 of people forced to live on the margins of the society is their inactivity which results in greater probability of unemployment, which is generally 2 times higher then in the average of population²⁵ or other words said 38% of them will be unemployed compared to 19% in general population. With current trends of unemployment reducing in Serbia in 15th

²⁴ If the presumptions of models remain the same.

²⁵ Bodewig C. i Sethil A. (2005) *Poverty, Social Exclusion and Ethnicity in Serbia and Montenegro: The Case of the Roma,* World Bank, Washington. Verovatnoća da će Romi sa osnovnom ili nepotpunom osnovnom školom biti nezaposleni je dva puta veća nego kod ostatka populacije. Na osnovu stope nezaposlenosti u Srbiji izvodi se verovatna stopa nezaposlenosti Roma koji završe osnovnu školu ili imaju nepotpuno osnovnoškolsko obrazovanje

years it is expected that unemployment rate in Serbia will be 8%, and unemployment rate of Roma population with just elementary and incomplete elementary school will be 16%. It means that respective unemployment rates will 13.5% and 27%.²⁶

Other words said, in average 4,035 (0.27 x 14,944) of Roma will unemployed in average which will result in least in loosing the minimal monthly salary of 13,752 RSD in 2008 (143 EUR), which is ceteris paribus approximately 266 EUR in year 15, with predicted dynamics of GDP increase for 5% annually.

The average annual loss is:

$\sqrt{143 \times 266} = 209$ EUR monthly per capita

In addition, the average loss per month is 209 EUR or 843,315 EUR monthly for total population of 4,035 unemployed Roma, or 10,119,780 EUR annually for total population of unemployed Roma population

All unemployed are candidates for some kind of social transfer, at least free health insurance (according the laws of Republic of Serbia, unemployed Roma population members enjoys free health insurance) of 12% of salary which is extra 1,214,374 EUR. (10,119,780 x 0.12) annualy.²⁷

Further some other social transfers are highly possible, bearing in mind that Roma families with one employed member are in the most cases qualified for some kind of public welfare. According the existing data²⁸ it is approximately 77 EUR monthly. About one thirds of this transfer are public welfare for the children available to all citizens of Serbia, but specific transfers for adults are about 50.82 EUR (77 x 0.66) monthly or ceterus paribus 94.12 EUR in 15^{th} year, or in average 69,16 EUR.²⁹ Therefore, total amount of these transfers is 3,348,679 EUR annually (69.16 x 4.035 x 12). Lost new value plus social transfer costs are in average

²⁶ Projections of unemployment rate are presented in strategy of development of the Republic of Serbia 2006-2012. Presumption is that unemployment rate of Roma population will decline by same dynamics as unemployment rate of total population. Therefore, if the unemployment rate of total population is reduced for one half, the same will happen with unemployment rate of Roma population.

²⁷ Rate of contribution for health insurance will be the same, as the percentage of gross salary.

²⁸ Data are given in Appendix 3.

²⁹ Same principle used for other variables with constant growth rate of 4.5% annually, as well average for 15 successive years calculated as geometrical mean.

13,456,460 GBP annually. The tax on salaries are excluded from analysis bearing in mind that general intention of the Serbian government is not establish zero taxes on minimal salaries.

It is obvious that average annual cost of Roma population unemployment resulted from their inability to enroll secondary school is ceteris paribus:

Cost of lost of minimal salary:	10,119,780 EUR
Cost of health insurance for unemployed:	1,214,374 EUR
Cost of social transfers:	<u>3,348,679 EUR</u>
Total costs of unemployment:	14,682,833 EUR

Graph 3 Elements of social costs of Roma population unemployment



However, justification of any project is possible only with full understanding o time value of money. Period of investment is eight year, and after that it is necessary wait in average three years for finishing secondary education. Therefore, gains must be discounted by discount rate of 7% (discount rate for government securities)³⁰. Average period between investment and

 $^{^{30}}$ 100 of euros today and 100 euros after one year are not worth same. If the interest rate is 7%, holder of 100 euros today can earn interest of 7euros during one year. Therefore 100 euros today is equal to 107 euros after one year, and therefore it better having 100 euros today. Following the same logic, it is important to know how long one has to wait for the effects of investment – one or eleven years. Therefore, it is necessary discount benefits denominated in monetary units for the time between investment and acquired benefits, bearing in mind that invested money could earn the interest of 7% - interest rate for Serbian government bonds denominated in euros.

first positive effects is 7.87 years.³¹. Therefore, real net present value of the benefits is 60.75% of nominal value³² or 8.919.821 EUR.

It is possible analyze different scenarios of investing in IfI compared to perceptual decreasing of leaving elementary education by Roma population. Average annual cost of implementation of Index for Inclusion is 1.701.974 EUR and it is calculated in section 2.5.

Average annual cost	Positive effects	Decreasing of leaving elementary education	Net effect (NPV) in euros ³³	Rate of return ³⁴
		25%	2,229,955	31.02%
1,701,974	8,919,821	50%	4,459,911	162.04%
		75%	6,689,866	293.06%

Table 5 Overview of effectiveness of investing into IfI

Table 5 shows that investment into the IfI is positive for all scenarios presented above. If the leaving of elementary education is decreased for 25%, rate of return of money invested into IfI will be 31.02%. If the decreasing is 50%, net positive effects of IfI will be 162.04%, and final for the 75% of decreasing rate of return is 293.06%.

Marginal value of net positive effect is decreasing of leaving elementary school for 19.08%³⁵, or other words said, any decreasing of leaving elementary schools higher then 19.08% will result in net positive effects.

³¹ Benefits of investments into the first grade will be acquired after 11 years, benefits from investment in second grade will be acquired after 10 years... and benefits from investment into the eight grade will be acquired after three years. In average lag between investment and benefits is 7.87 years.

³² 14,595,724 EUR is discounted for 7% annually in period of 7.87 years. Final value is 60.75% of value in year 1.

³³ Net effect is decreasing of leaving elementary education which reduces future unemployment.

³⁴ Rate of return is quotient of net present value of benefits and invested money. It could be seen as specific "profit rate".

³⁵ Marginal value is proportional value of quotient of average price of investment into IfI and positive effects.

3. Analysis and interpretation of results and limits in prepration of study

In order of dealing with insufficient data about Roma population in Serbia, all calculations in this analysis were done with great extent of caution. However, bearing in mind that real number of Roma is higher then official, potential effects of introduction of Index for Inclusion are probably more favorable. Key arguments that support this premise are:

- Cost of inclusion is allocated exclusively to Roma population, although there are some other direct beneficiaries from other marginalized groups. Therefore, decreasing of unemployment would be probably more significant. Social costs of exclusion from labor market and social transfer would be also reduced.
- Discount rate of 7% is currently prevailing rate, but further reform in Serbia could result in decreasing the price of capital, and consequently in decreasing of discount rate. Therefore, it is possible that net present value of benefits is higher.
- It is also probable that costs of social transfers for marginalized groups will be increased faster then total budget, bearing in mind that development of economy will result in more transfers to people in need, rather then in transfers to middle class and enterprises. It is also possible that investment in education will growth faster then investments in other industries financed from Serbian budget.

Benefits from integration of Roma population into Serbian society and other intangible benefits could be only arbitrary denominated into monetary units. Inclusion is value per se in this case.

Probability of negative net effect is low, bearing in mind that with decreasing of leaving elementary education by Roma pupils for 19.08% positive effects will be acquired. Implementation of Index for Inclusion and devotedness of society in implementation would easily result in net positive effects. Other important fact which distinct IfI and other projects with net positive effects is relatively small amount of investment, which do not demand neither significant increasing of budget expenses or reallocation of existing programs. **Therefore, final conclusion is that IfI is socially acceptable from the financial point of view.**

4. CONCLUSIONS AND RECOMMENDATIONS

Education poverty is key indicator for predicting economic poverty and one of the key starters of intergeneration trap of poverty. Cost-benefit analysis shows that implementation of Index for Inclusion is reliable way for decreasing the poverty.

Analysis shows that implementation of Index for Inclusion is connected with minimal costs, compared to total budget allocated to elementary education, as well as compared to annual increase of budget funds allocated to elementary education. It is necessary invest only 0,27% of total annual costs of elementary education, or 6.01% of annual increase of elementary education budget.

From the point of view of benefits, it is evident that increasing of employability is possible only in the case of increasing of level of education. Increased employability of Roma population eliminates social costs like social transfers, free of charge health insurance for active population, as well as lost of minimal salary. Net present value of average annual amount of those costs is 8,919,821 EUR. On the other hand, costs of implementation of program are 1,701,974 EUR annually, and even small decreasing of leaving of elementary education by Roma population could result in significant effects.

Analysis of costs and benefits obviously shows that implementation of Index for Inclusion is useful for Serbian society. Analysis presented in this paper clearly shows that even in the case of very limited success of IfI, with reducing of leaving of elementary education of just 19.08% there is strong justification for investment in inclusive education. However, it is reasonably start with presumption that implementation of IfI in middle-run will result in significant decreasing of leaving of elementary education by members of marginalized groups and in creation of solid cornerstones for their integration on Serbian society.

This analysis does not offer definitive answers, but rather gives projections based on scenarios of different rate of reducing of leaving of elementary education by Roma pupils. Implementation of Index for Inclusion shows significant net positive effects, even in the case of the worst scenario of 25% reducing of leaving of elementary education

Project of inclusive education is not project exclusively for Roma population and children with special needs. Almost everyone in Serbia will achieve benefits from this approach, and this is true benefit for all. Moreover, although members of marginalized groups in middle-run,

and especially long-run, will experience most of positive effects, it should be emphasized that all members of society will harvest benefits of inclusion of members of marginalized groups on labor market, which will result in lower costs of social transfers and overall development. This is not exclusive issue of calculation – it is rather real obligation of Serbian society to integrate all citizens of Republic of Serbia, and enable them to enjoy their basic human rights.

Analysis of IfI effects is not possible in period of one year. In fact, first year of implementation is reserved for preparation of employees in elementary schools to use new approach. Any kind of decreasing of leaving elementary schools by members of marginalized groups does not mean necessary success or failure of program. It is necessary convince members of targeted groups into sustainability of new approach and devotedness of Serbian institutions in long-term implementation of program.

Briefly, implantation of IfI is way for integration of marginalized groups by creation of opportunities and clear motivation for integration in education system of Republic of Serbia. IfI set the way for reducing unemployment of marginal group's members and breaking of circle of lack of education, unemployment, poverty and marginalization.

APPENDIXES

- A1. Project costs in Subotica and Pirot.
- A2. Beneficiaries of project activities in Subotica and Pirot.
- A3. Overview of Roma population economic and social indicators in Subotica and Pirot
- A4. List of documents and sources consulted
- A5. Glossary

A1. Project costs in Subotica and Pirot

	FCO Serbia budget (GBP)		TOTAL Y1	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06
	Index for Inclusion (IFI)														
SU - IFI	Elementary School IFI training - travel	1431	250							150	100				
SU - IFI	Elementary School IFI training - food & accommodation	1431	560							460	50	50			
SU - IFI	Elementary School IFI training - consultancy fees	1424	1,000							1,000					
SU - IFI	Elementary School IFI training - consumables	1420	190						100	90					
SU partner	Elementary School IFI - school support	1940	1,500						1,000	500					
SU - IFI	Pre-school IFI training - travel	1431	125							125					
SU - IFI	Pre-school IFI training - food & accommodation	1431	275							225	50				
SU - IFI	Pre-school IFI training - consultancy fees	1424	500							500					
SU - IFI	Pre-school IFI training - consumables	1420	100						50	50					
SU partner	Pre-school IFI - preschool support	1940	500						500						
SU-advocacy	IFI - community mobilisation	2347	1,000						250	125	125	125	125	125	125
Total Good Pr	actice models (IFI)		6,000	0	0	0	0	0	1,900	3,225	325	175	125	125	125

	School & preschool support	SC code	TOTAL Y1	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06
School CSU support															
0706/91	CSU premises adaptation - school	1940	3,900				1,950	1,950							
0706/91	CSU consumables - school	1940	630						90	90	90	90	90	90	90
0796/61	Elementary School IFI - school support	1940	1,500						1,500						
Total school support		6,030				1,950	1,950	1,590	90	90	90	90	90	90	
Pre-school CS	SU support														
0706/91	CSU premises adaptation - preschool	1940	800					800							
0706/91	CSU consumables - preschool	1940	210						30	30	30	30	30	30	30
0796/61	Pre-school IFI - preschool support	1940	1,500						1,500						
Total pre-school support		2,510				0	800	1,530	30	30	30	30	30	30	
Total costs (in GBP)		8,540				1,950	2,750	3,120	120	120	120	120	120	120	
TOTAL (GBP)			14,540	.											

	INRESTRICTED	Code	TOTAL Y1 2006/07	Apr-	May-	lun-06	Jul-06	Aug-	Sen-06	Oct-06	Nov-06	Dec-06	lan_07	Feb-07	Mar-07	TOTAL Y2 2007/08
0706/91	Pirot CSU IfI support - school	1940	1.500	00	00	1.500	001-00	00	000-00	001-00	100-00	Dec-00	0011-07	105-07	Mai-07	600
0706/91	Pirot CSU Ifl support - preschool	1940	800			800										300
0706/91	Pirot CSU consumables - school	1940	630						90	90	90	90	90	90	90	0
0706/91	Pirot CSU consumables - preschool	1940	350						50	50	50	50	50	50	50	0
0706/91	Pirot Community mobilisation activities	1940	800	65	65	67	67	67	67	67	67	67	67	67	67	0
	Total Pirot municipality - Ifl support costs (GBP)		4,080	65	65	2,367	67	67	207	207	207	207	207	207	207	900
	RESTRICTED - SECURED (FCO)	Code	TOTAL Y1 2006/07	Apr- 06	May- 06	Jun-06	Jul-06	Aug- 06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	TOTAL Y2 2007/08
2	Travel															
0796/61	Elementary School IFI training - travel	1431	100		50				50							0
0796/61	Pre-school IFI training - travel	1431	100		50				50							0
	Total Travel:		200	0	100	0	0	0	100	0	0	0	0	0	0	0
3	Subsistence and Accommodation:															
0796/61	Elementary School IFI training - food & accommodation	1431	748		374				374							0
0796/61	Pre-school IFI training - food & accommodation	1431	748		374				374							0
	Total Subsistence and Accommodation:		1,496	0	748	0	0	0	748	0	0	0	0	0	0	0
11	Fees (consultancy/training/research)															
0796/61	Elementary School IFI training - trainers fees	2124	0													0
0796/61	Pre-school IFI training - trainers fees	2124	0													0
0796/61	Anti-bias - IFI training - trainers fees	2124	1,128		564				564							0
	Total Fees:		1,128	0	564	0	0	0	564	0	0	0	0	0	0	0
12	Supplies/Support to schools/preschools:															
0796/61	Elementary School IFI - school support	16112	1,500							1,500						1,500
0796/61	Pre-school IFI - preschool support	16113	1,500							1,500						1,500
	TotalSupplies/Support to schools/preschools:		3,000	0	0	0	0	0	0	3,000	0	0	0	0	0	3,000
12	Consumables/Stationary (training/research)															
0796/61	stationary/consumables	1420	115		50					65						0
0796/61	Pre-school IFI training - stationary/consumables	1420	115		50					65						0
	Total Consumables/Stationery:		230	0	100	0	0	0	0	130	0	0	0	0	0	0
TOTAL F	CO Contribution to Serbia (GBP)		6,054	0	1,512	0	0	0	1,412	3,130	0	0	0	0	0	3,000

TOTAL PIROT (GBP)

GBP 10,134

PARTNERS	Location	Roma children - direct	Direct
		beneficiaries	and indirect
			beneficiaries
1. Elementary School "Đuro Salaj"	Subotica	114	570
2. Elementary School "Matko	Subotica	145	762
Vuković"			
3. Preschool "Naša radost"	Subotica	93	3,870
4. Elementary School "Vuk	Pirot	155	1,395
Karadžić"			
5. Elementary School "Sveti Sava"	Pirot	70	1,190
6. Elementary School "8.	Pirot	50	1,400
septembar"			
7. Elementary School "Dušan	Pirot	40	820
Radović"			
8. Elementary and secondary	Pirot	90	125
special school "Mladost"			
9. Preschool "Čika Jova Zmaj"	Pirot	20	550
Total		777	10,682

A2. Beneficiaries of project activities in Subotica and Pirot

A3. Overview of Roma population economic and social indicators in Subotica and Pirot

	Subotica	Pirot
Refuges	197	
Permanently settled	260	261
Temporary settled	52	
No data	9	10
Total	518	271

1. Status of households

2. Education of head of households

	Subotica	Pirot
0 years	247	11
1-4 years	84	28
5-8 years	66	175
Craftsman	7	6
Secondary school	21	42
BA	2	1
No data	76	2

3. Education of mother

	Subotica	Pirot
0 years	122	10
1-4 years	128	14
5-8 years	120	145
Craftsman	13	8
Secondary school	55	66
BA	3	3
No data	77	25

4. Employment of head of household

	Subotica	Pirot
Unemployed	340	159
Temporary employed	60	5
Seasonally employed	11	74
Entrepreneur	23	2
Retired	2	6
No data	82	25

5. Employment of mother

	Subotica	Pirot
Unemployed	446	243
Temporary employed	10	4
Seasonally employed	6	10
Entrepreneur	4	1
Retired	0	2
No data	37	5

6. Public welfare

	Subotica	Pirot
For child and adults	180	55
For adults	70	14
For children	84	87
No data	184	115

7. Amount	of public	welfare
	<i>JP</i>	

	Subotica	Pirot
1.000 - 2.000	22	9
2.100 - 3.000	36	9
3.100 - 4.000	48	3
4.100 - 6.000	62	11
6.100 - 8.000	56	15
8.100 - 14.000	39	18
No data	71	91

8. Number of children

	1	2	3	4	5	6	7	8
Subotica	140	138	101	72	30	21	12	3
Pirot	105	124	32	6	2	3	0	0

9. Age structure of children

	0-3	3-5	5-7	7-14	14-18
Subotica	229	191	173	555	240
Pirot	92	66	48	187	94

10. Attending of preschool institutions

	Subotica	Pirot
Regularly	44	44
Temporary	6	0
For children with special needs	1	0
Do not attend	313	30

11. Attending of elementary school

	Subotica	Pirot
Regularly	349	161
Temporary	22	0
For children with special needs	7	29
For adults	7	6
Do not attend	238	9

12. Attending of secondary school

	Subotica	Pirot
Regularly	13	40
Temporary	1	1
For children with special needs	1	7
Do not attend	162	28

13. Mother tongue

	Subotica	Pirot
Romani	383	22
Romani/Serbian	24	97
Serbian	15	117
Hungarian	18	0
Albanian	9	0

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- 7. Central Bank of REPUBLIC of Serbia www.nbs.rs

A5. Glossary

Net present value – Method of net present value (NPV) in estimation of important project enables analysis of time value of money. Basically, it helps investor to calculate present value in today euros of future net inflow of cash from project. After that, investor is able to compare that amount with amount necessary for conducting the project. If NPV is higher then cost, project is profitable (with presumption that estimated cash flow is realistic).

Net present value can be calculated by using following formula:

$$NPV = \mathbf{CF}_{0} \frac{\mathbf{CF}_{1}}{(1+r)^{1}} + \frac{\mathbf{CF}_{2}}{(1+r)^{2}} + \frac{\mathbf{CF}_{3}}{(1+r)^{3}} + \dots + \frac{\mathbf{CF}_{n}}{(1+r)^{n}}$$

$(CF_x - Cash flow in period x, n - number of periods; r - discount rate)$

When one calculates time value of money in order or calculating present or future value, it is necessary using interest rate, known as discount rate. Choosing of appropriate discount rate is very important step in process.

Rate of return – Quotient between net inflow and net outflow of money, similar to profit rate.

Per capita – per person or some variable per person this is member of analyzed group

Allocate – allot some amount to unit of cost or revenues.

Fixed costs - Costs that are not depended from level of activity

Incremental cost – Cost of additional unit of activity, production etc.

GDP - Gross domestic product, quantity of new created goods in one society

Ceteris paribus - if basic preconditions say the same

Minimal salary – Salary guaranteed by law