EXPECTED LONG-TERM BUDGETARY BENEFITS TO ROMA EDUCATION IN BULGARIA

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Dimitar Chobanov, Institute for Market Economics

Svetla Kostadinova, Institute for Market Economics

Georgi Angelov, Open Society Institute

Corresponding author: Dimitar Chobanov, chobanov@ime.bg

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Non technical summary

This analysis estimates the expected long-term benefits to investing into Roma education in Bulgaria. By budget benefits we envisage the direct financial benefits to the education to the national budget. The basic perception is that investing extra money into Roma education would pay off even in fiscal terms. In order to be successful, investments should take place in early childhood. Successful investments are also expensive, but if it is done the right way, such investments compensate the costs in terms of extra tax benefits in the future. This study looks at the expected budgetary benefits of a successful investment. However, *it does not deal with how to achieve success*.

When considering the results of this study one should bear in mind that investing into one child education will have long-term benefits not only for the child itself, but to the entire society. We anticipate the benefits to the society from such an investment in a narrow sense – the fiscal benefits to the budget in the form of more payments (social security contributions, personal income tax, indirect taxes) and less transfers from the budget to citizens (welfare payments, public employment programs, unemployment benefits and costs of incarceration). The overall effect of investment in education is expected to be *net budgetary benefits*. These budgetary benefits are equivalent to return of investment in education and in such way can be viewed as return similar to various financial investments. Respectively, the idea is to consider the government as an investor that anticipates returns from an investment project called *Investing in Roma children education.*

We estimate the net budget benefit from investment in education that enables young Roma to complete basic, secondary and higher education. We assume that without the investment she/he would complete 4 grades or 8 grades with certain probability. Benefits of the secondary education are the weighted average of the benefits of secondary and higher education, where the weights are the probability that young Roma who has a basic education gets a secondary and then higher education. After that, we estimate the probability that a person with given level of education and given age is in the particular state of the labor market. Our study considers five statuses on the labor market: full time employed, registered unemployed, registered welfare recipient, registered participant in subsidized employment, and prisoner.

The analysis is based on national estimates adjusted for Roma differences because of lack of enough data for the Roma population characteristics in Bulgaria. The latest census (2001) gives limited scope of data concerning Roma community. Therefore, we use the available data and try to estimate the missing figures by adjusting national data. For the estimation of

Roma figures we used the fraction of Roma in specific state, the educational distribution and the fraction of Roma in population.

According to the calculations, the more education, the more a person contributes to the government budget. If we take into account the expected contributions for a representative Roma and subtract the government investment in his/her education, *the net benefits from education amount to more than EUR 82 thousand* (present value, 2007 prices). The benefits are almost twice as higher for Roma achieving higher education and a more than a third lower for Roma having secondary education only. Still, in both cases the investment in Roma education yields significant long-term benefits for the national budget.

Our analysis shows that benefits for the budget would come from increased government revenues from *personal income tax* and *social security contributions* on earned income and from *indirect taxes on consumption*.

Our check of the sensitiveness of results to the key parameters (discount rate, the growth rate of nominal education spending, nominal wage growth, and Roma employment and wage adjustment ratios) shows that the investment in Roma education should be successful. Fiscal benefits are more sensitive to the change of the discount rate. But even the worst case when the discount rate is 8% leads to over *EUR 36 thousand* net gains for the state budget.

If we combine the change in the determinants in the worst scenario when the discount rate is 10%, the growth rate of wages is only 4% and the growth rate of educational spending is 12%, then there is still small net positive benefit for the budget. This "stress" test shows that the investment would be successful even in unfavorable environment in the country.

The present value of the net budget benefits from education in one Roma child is more than EUR 82 thousand. For example, if investment is made in the education of 10 000 Roma children now, this would lead to net budget benefits of more than **EUR 822 million**. Respectfully, if investment in the education of 30 000 Roma children is made now, it would lead to more than **EUR 2.468 billion** net budget benefits**.**

Introduction

Official statistical data on Bulgarian Roma shows lower education status in comparison to non-Roma Bulgarians. It is not surprisingly that fewer Roma graduate from secondary or higher school given the various socio-economic factors, typical for Roma population in Bulgaria – higher unemployment, bad living conditions, higher birth rates, etc. The last

census of 2001 shows[1] that for the people aged 20 and above approximately 14.88% of all Roma are illiterate compared to 1.76% for the entire population; roughly half of Roma have basic education (88.03% for entire Bulgarian population) and 6.7% of Roma have secondary education (60.75% for entire population). Higher education is obtained by 17% of the entire Bulgarian population which is incomparable to Roma numbers (0.24%).

Different surveys show that access to basic education for Roma children is relatively easy, but it is the quality of teaching and school segregation that leads to higher than normal drop-out rates. The lack of quality education at lower education levels creates entrance barriers later in a child's school career. All these have negative impacts on probabilities of Roma pupils to be enrolled in Universities that otherwise are nearly accessible to all ethnic groups in the country.

In this study we estimate the net budget benefit from investment in education that enables young Roma to complete basic, secondary and higher education. We assume that without the investment she/he would complete 4 grades or 8 grades with certain probability. By budgetary benefits we mean the direct financial benefits to the national budget. The logic is the following: if we invest in education of today's children, we would have benefits for the *entire* society in the future.

Unlike many European countries, Bulgarian education system does not require maturity exam in the secondary education. Otherwise stated, completion of secondary education is not the major impediment for Bulgarian Roma to continue in the University. The key to a higher education is the good quality of secondary schools and additional preparation for University entry exams. However, in our study we do not consider how one achieves that goal, what the costs are, or what may be the most effective strategy. Our study simply tries to estimate what the budgetary benefits this investment may yield if it is successful.

In our study we consider budgetary benefits as increased payments by Roma population with higher education in the future in the form of personal income tax, social security contributions and indirect taxes that we include in the analysis with positive sign, reduced with receipts from welfare programs, receipts from unemployment insurance and costs for the state of staying in prison. The increased budget contributions, paid by Roma and decreased transfers from the state budget will make up overall positive result in the form of net budgetary benefits. We assume these benefits as effect of investment in education and therefore they can be seen as return of investments from education.

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[1] National Statistical Institute, Bulgaria. All numbers in the following paragraph are from the Census 2001 data.

In our analysis we checked the sensitivity of the results by changing some of the key parameters. The results show that the investment in Roma education should be successful. Even in the worst scenario of all determinants, there is still small net positive benefit for the budget.

It should be noted however that the purpose of the analysis is to simply estimate the potential budgetary benefits and the causal effect of different channels. Therefore, the numbers in the study should be views as rough estimates.

Background

Bulgarian statistics gives us limited possibilities to make thorough historical analysis back in time regarding educational attainment of the population. This is especially true for the Roma population.

The total population at the end of 2006 is 7 679 290[2] and is declining over the last decade. The number of Roma according to last census in 2001 is 370 908 or 4.7% of total population. However, experts guess that the real number is between 600 000 and 800 000 people.

For the period 1992 – 2001 the population from the Bulgarian ethnic group has declined by 8.4% (616 000 people); the same trend is for Turks ethnic group and other groups, except for Roma population that increased by 18.4% (58 000 people) according to official statistics.

The educational attainment in the country for the last 60 years shows significant change of patterns. The share of people with uncompleted primary education has dropped more than six times reaching 7.9% of total population in 2001.

Over the period, population with primary and lower education decreased by 4.49% annually which raised the share of people with secondary and higher education. Having in mind that Bulgaria demographic situation is characterized by overall birth decrease, emigration and aging, this trend can be attributed to the shift of more people with lower education to the age group of 64 and over. However, Roma figures for this group are still very high reaching 18.3% in 2001.

The other significant development is increasing the share of people with secondary education (from 2.7% in 1934 to 42.3% in 2001) that corresponds to the national policy towards increasing the attendance rate over the years.

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[2] National Statistical Institute, Bulgaria (www.nsi.bg). All numbers in the chapter are from the NSI.

National figures for people with higher education also show fast development - from 0.7% in 1934 to 9.6% in 2001. Overall, approximately 97% of total population is Bulgarians, followed by Turks (1.2%) and Roma (1.16%). The Roma however still lag behind the national average for people with secondary and higher education and the difference is more than ten times.

The school attendance is a good indicator of education quality of different ethnic groups. Roma registered steady improvement in primary education attendance – from 55% in 1995 to 71% in 2001. Secondary education attendance of Roma pupils also showed positive trend, however not enough to go close to national average (46%) in 2001 (6%). The negative tendency of pre-primary attendance rate in 1995-1997 period was overcome and in 2001 we witness slight increase reaching 16%. However, Roma is still the ethnic group with lowest attendance in the three ethnic biggest groups of the population.

The Hungarian study

The current study is based on a report made by Kertesi and Kézdi in Hungary.[3] In their paper Kertesi and Kézdi estimated the expected long-term budgetary benefits to investing into Roma education in Hungary. This study didn't deal with how to achieve success, but only with what will be the costs and benefits of achieving it.

Also, the Kertesi and Kézdi report is focused on the budgetary effects only and not on the bigger effects on the society as a whole. The idea of the report is to measure the effects of additional Roma education *as if* it was an investment project with the government as investor. The additional education means completing secondary education – because this is the educational level that many Hungarian Roma fail to achieve.

According to Kertesi and Kézdi benchmark estimate, the present value of the future benefits of investment in education is positive at about EUR 70,000 relative to the value the government would collect on the representative person in case if she had not continued her studies after the primary school. Overwhelmingly, the benefits would come from increased government revenues, from personal income tax and employer/employee contributions after earned income. Savings on unemployment insurance, welfare benefits and public employment projects are negligible, and savings on incarceration costs are also small. Larger value added tax benefits on consumption are also sizable.

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[3] Gábor Kertesi, Gábor Kézdi (2006), *Expected Long-term Budgetary Benefits to Roma Education in Hungary*, Roma Education Fund

Conceptual framework

We estimate the net budget benefit from investment in education that enables young Roma to complete basic, secondary and higher education. We assume that without the investment she/he would complete 4 grades or 8 grades with certain probability.

Assessment of benefits of an investment, which come in different periods of time, requires finding their value at particular moment. Thus one has to estimate discounted present value of these payments during the time of the investment. We assume that the starting age is 4.

We consider several ways by which the individual contributes or receives funds from the state budget. The sum of lifetime contributions is actually the returns of investment in education and should be discounted to the initial moment.

$$Y = \Sigma_{t=0}^{T} Y_{sjt}/(1+r)^t$$

where r denotes discount rate, Y_{sjt} is the cash flow in year t.
Total benefits for the budget are the sum of all particular accounts.

There are five educational categories that are taken into account.

- Without any education;

- Primary education;

- Basic education;

- Secondary education;

- Higher education.

Benefits of the secondary education are the weighted average of the benefits of secondary and higher education, where the weights are the probability that young Roma who has a basic education gets a secondary and then higher education.

The following accounts are considered:

1. Personal income tax from registered employment;

2. Social security contributions after registered employment paid by employer or employee – payments into pay as you go pension system, health insurance, unemployment insurance, maternity insurance, labor accident and occupational disease fund, guaranteed claims for workers in case of default of the employer;

3. Receipts from unemployment insurance;

4. Receipts from welfare programs;

5. Participation in projects for subsidized employment;

6. Indirect taxes including value added tax, excise duties and custom duties;

7. Costs for staying in prison.

Accounts 1, 2 and 6 have a positive sign while the other are subtracted.

As a result of a successful investment Roma would spend more years in basic and secondary school and, eventually, would complete higher education. This means that additional money should be spent on Roma education. We apply the same probabilities for making such additional spending like the case of getting additional education. Actually we estimate the marginal cost for extra education and include it into overall account.

Our purpose is to calculate the impact of additional education of Roma with at least 4 grade. The dropouts before forth grade are excluded from the study.

Methodological issues

Estimating Roma figures

Unfortunately, there are not enough data for the Roma population in Bulgaria. The latest census was made in 2001 by the National Statistical Institute and gives limited scope of data concerning Roma community. There are no other detailed surveys. Because of this we use the available data and try to estimate the missing figures by adjusting national data. For the estimation of Roma figures we used the fraction of Roma in specific state, the educational distribution and the fraction of Roma in population.

Discounting

When one should compare flows that happen in different periods a single moment should be taken to which all flows are discounted. In our case we choose the age of 4 as an initial moment for the investment. The discount rate reflects the fact that costs should be financed by loans. The discount rate we use is the yield on 10-year government bonds. Current values are around 5% but if we account for the relatively low interest rates in the Eurozone we think that the 6% is more similar to the long-term yields on these securities. Because all of the flows we calculate are in nominal terms we use the nominal yield on government bonds to discount

them. The purpose of this program should be to become self-financing. The initial expenses should be financed by loans which should be repaid later by the additional budget benefits by the educated and employed Roma.

Based on available data from NSI we assume that the people with less than secondary education earn equal wages irrespective of the cohort they belong to. For persons with secondary education we use the seniority bonuses which were compulsory to the end of 2006 and determine the structure of wages of more qualified people. They give a difference of 0.6% per any year of employment. For the persons with higher education we use the Hungarian distribution of wages according to the age of the person.

For the period of above 40 years there will be a significant growth in nominal wages that are taxed and used for consumption. We assume that the nominal wages will increase by equal rate for all levels of education which is 8% per annum. This assumption is based on the National Statistical Institute data for nominal wage growth since 1998 [4]

Thus the percentage difference between less educated and more educated persons will not change. On the other hand the absolute difference will increase.

The effect of the nominal wage growth is opposite than the effect of the discount rate. The growth of wages is higher than the discount rate which implies that actually the contributions have higher value.

Expected time spent in labor market states

We look at hypothetical individuals who could have the opportunity to continue education after basic education and estimate their contributions to each account. These contributions are paid only if the individual is in a specific state on the labor market. The expected contribution is the expected time spent in the specific state in given year multiplied by the respective value for this state. The expected time spent in a given state is the probability for this state.

We have no data for the probability that an individual would be in some state at any point of the year. We have data for the average shares in different states of labor market in 2006. We assume that these probabilities are good approximations for our purpose.

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[4] The annual average growth has been 8.4% since 1998.

Estimation details

We consider five statuses on the labor market: full time employed, registered unemployed, registered welfare recipient, registered participant in subsidized employment, and prisoner. We estimate the probability that a person with given level of education and given age is in the particular state of the labor market.

Employment probabilities are estimated from the data by NSI for 2006 by age and level of education for individuals between 15 and 64. Such data are available also for unemployment and incarcerated persons.

The estimated probabilities are pointed in the annex.

Personal income tax

The average income per any type of education is taxed by the respective rate taken from the law. The rates are between 20 and 24% depending on the level of the income. We assume that the average effective tax rate that is applied in 2007 would be preserved for the whole period of the study. We also assume that the probability that Roma with secondary education is employed is 15% lower than the national average. Data for Roma with higher education show that there is not such difference in employment rates.

We also assume that the average income of employed Roma is 15% lower than the national average. This could be explained by discrimination towards persons from this ethnic group.

Social insurance contributions

The total rate of social contributions in the state funds in Bulgaria paid by the employer or the employee is 36.7%. This is the sum of pension contributions, healthcare insurance, unemployment insurance, maternity insurance, labor accident and occupational disease fund, guaranteed claims for workers in case of default of the employer. Part of the compulsory payments on pension insurance are collected by the state but are distributed to private pension funds after that.

For calculation of social security contributions we use the same assumptions for 15% lower employment of Roma with secondary and basic education and 15% lower wages for all Roma.

Unemployment benefits, welfare benefits and projects for subsidized employment

We take the average unemployment benefit and multiply it by the probability that a Roma would receive such payments. The situation for the other labor market states is similar. The average numbers are multiplied by the respective probability.

Numbers of unemployed persons are from NSI, number of recipients of welfare benefits and participants in projects for subsidized employment are from the Ministry for Labor and Social Policy.

The monthly payments for participants in projects for subsidized employment are fixed at the amount of the minimum wage. We assume that the minimum wage will increase with the same rate as the average wage which means by 8% per year.

Indirect taxes

We use the data on actual collection of value added tax, excise duties and custom duties. We use actual data for national accounts from NSI and tax revenues from the Ministry of Finance for 2006. As a base we use the consumer spending by households multiplied by the average rate on these indirect taxes. The estimated average tax rate is 26.2%. Our implicit assumption in this case is that the structure of consumption of individuals with different size of income is taxed by equal rate. This also means that no Roma adjustments are necessary.

Incarceration costs

The probability for staying in prison is multiplied by the number of incarcerated persons. Data for the costs for one prisoner are available from the state budget. The number of imprisoned persons is obtained by the NSI data.

Extra schooling costs

The extra costs are due to the longer time of education which means using more teachers, more buildings, equipment and so on. We use the standards per pupil at specific type of school which is determined in the state budget for 2007. Using the number of pupils in any given level and type of school we can estimate the total costs for this given level. Then we find the average cost per pupil by educational level and apply the respective probabilities for being in this state.

In this estimation we also take into account the subsidies for dormitories, costs for scholarships for pupils in secondary education and for students, transportation subsidies.

Results

Benchmark parameters (not estimated but assumed)

Nominal discount rate = 6%

Nominal wage growth rate = 8%

Discounted to age = 4

Roma employment adjustment = -15% (0 for higher education)

Roma wage adjustment = -15%

Table 1: Total net contributions to the budget and net benefits of education

Education level	Contributions, euro
Basic or lower	**-618**
Primary	**26 677**
Secondary	**52 403**
Higher	**166 027**
Net benefits of more education for a representative Roma child	**82 274**

Note: Yearly net contributions to the government budget discounted to age 4, 2007 prices

According to the calculations the more education, the more a person contributes to the government budget. If we take into account the expected contributions for a representative Roma and subtract the government investment in his/her education, the net benefits from education amount to more than 82 thousand euros (present value, 2007 prices).

The benefits are almost twice higher for Roma achieving higher education and a more than a third lower for Roma having secondary education only. Still, in both cases the investment in Roma education yields significant long-term benefits for the national budget.

Overwhelmingly, the benefits for the budget would come from increased government revenues from personal income tax and social security contributions on earned income and from indirect taxes on consumption. Thus, if the wage and employment status of Roma improves and the Roma adjustment factor decreases, the benefits for the budget would be even higher.

Sensitivity analysis

The robustness of results should be checked by changing some of the key parameters. These are: discount rate, the growth rate of nominal education spending, nominal wage growth, and Roma employment and wage adjustment ratios.

Results from the sensitivity analysis show that the investment in Roma education should be successful. Fiscal benefits are more sensitive to the change of the discount rate. But even the worst case when the discount rate is 8% leads to over EUR 36 thousand net gain for the state budget. Even when the discount rate doubles to 12% there are still benefits from the program.

The other factor that influences much the results is the growth rate of nominal wages. The size of the impact is the opposite of the change in discount rate. If the nominal wage growth is 4% per year which is the worst case scenario for an economy like Bulgarian, then there is a net benefit for the state budget of over EUR 15 thousand per educated Roma person.

The other factor that determines the result of the analysis is the discrimination on the labour market to the Roma in terms of lower wages and lower possibility for employment. We assume that a Roma would receive 15% lower wage at the same level of educational attainment and experience. The worst case scenario here is if Roma is paid 25% less money for his/her work. The results show that there is enough room for such an investment irrespective to the discrimination.

The impact of lower employment is the similar but does not affect the final conclusion.

Another assumption that was tested was about the growth rate of educational spending. Its impact is relatively small and even there is a large inflation of these costs (the growth rate doubles in comparison to the baseline scenario) there would not be significant change in the results.

If we combine the change in the determinants in the worst scenario when the discount rate is 10%, the growth rate of wages is only 4% and the growth rate of educational spending is 12%, then there is still small net positive benefit (EUR 1 565 per person) for the budget. This "stress" test shows that the investment would be successful even in unfavorable environment in the country.

Table 2: Sensitivity analysis: discount rate

Discount rate	4%	5%	6%	7%	8%	12%
Net fiscal benefits (EUR)	187 307	123 454	82 274	55 407	37 676	8 685

Table 3: Sensitivity analysis: educational spending

Educational spending nominal growth	6%	7%	8%	9%	10%
Net fiscal benefits (EUR)	83 128	82 727	82 274	81 761	81 180

Table 4: Sensitivity analysis: wage growth

Nominal wage growth	4%	6%	7%	8%	9%	10%
Net fiscal benefits (EUR)	15 850	36 822	55 156	82 274	122 578	182 738

Table 5: Sensitivity analysis: Roma wages

Lower wage for Roma	0%	10%	15%	20%	25%
Net fiscal benefits (EUR)	101 132	88 548	82 274	76 030	69 806

Table 6: Sensitivity analysis: Roma employment

| Lower employment for Roma	0%	10%	15%	20%	25%
Net fiscal benefits (EUR)	87 022	83 857	82 274	77 253	72 231

ANEXES

Educational statistics

### Figure 1: Population by ethnic group (Census data)
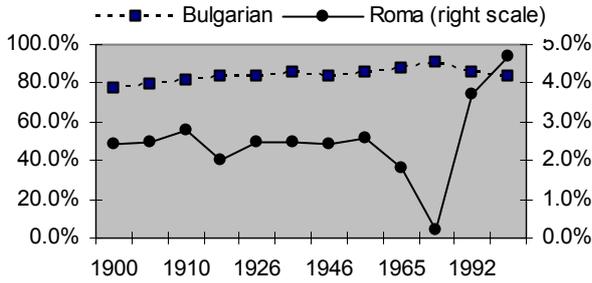
Source: NSI
Note: Census 1985 did not included data on ethnic groups

### Figure 2: Population by age and education according to Census data
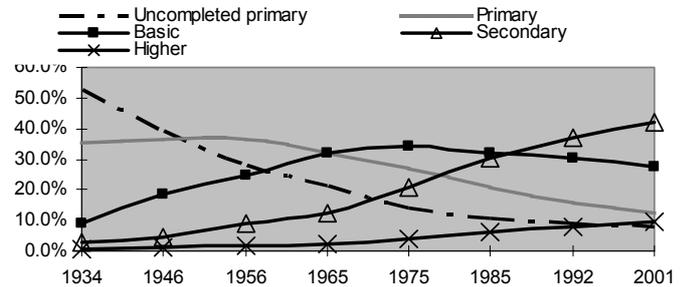
Source: NSI

### Figure 3: Population (age 7 and above) by ethnic group, age and education (2001 Census)
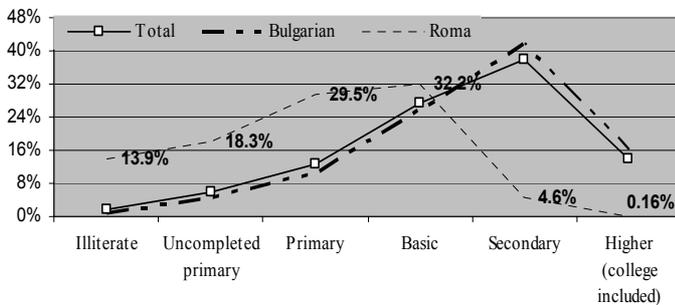

Source: NSI

Figure 4: School attendance by Roma (%)
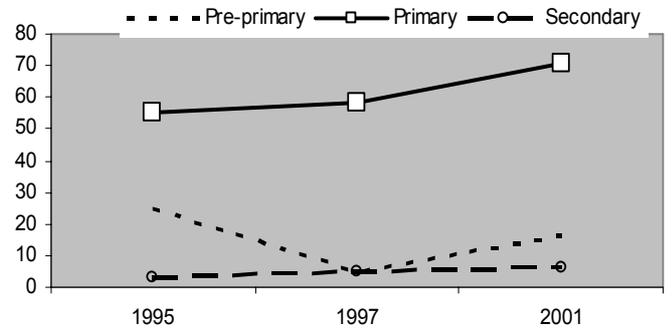
Source: NSI

### Figure 5: Net enrolment rates of the population in the educational system by age groups
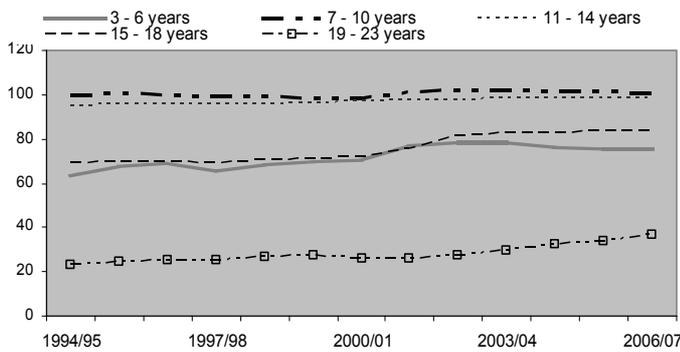
Source: NSI

### Figure 6: Pupils and students by level of international standard classification of education (ISCED - 97)
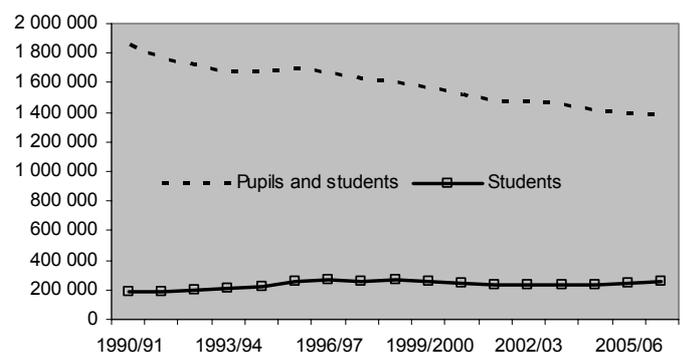
Source: NSI

### Figure 7: Students in tertiary education
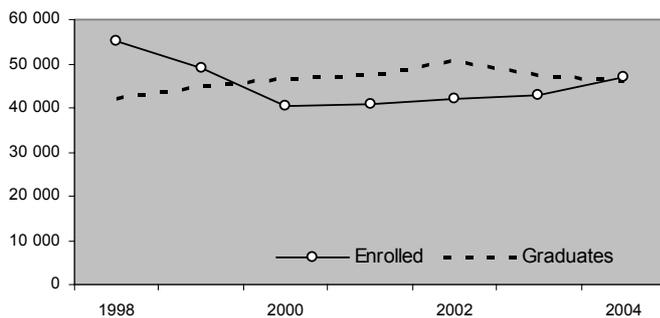
Source: NSI

Figure 8: Group net enrolment rates by levels of ISCED - 97
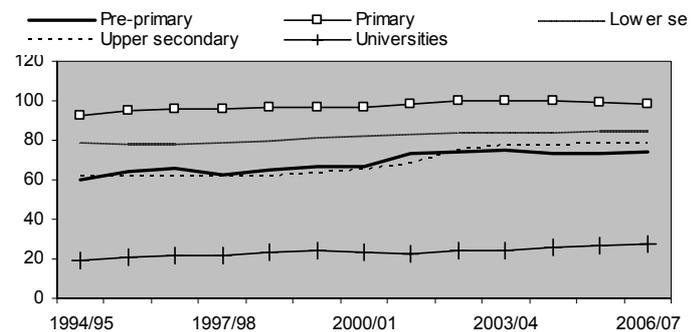

Source: NSI

Labour market statistic

Figure 9: Population of 15-64 years old of age with <u>primary or lower education</u> and labour status, IV quarter 2006
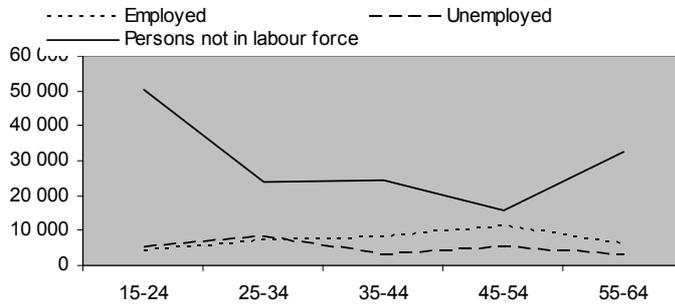

Source: NSI

Figure 10: Population of 15-64 years old of age with <u>lower secondary education</u> and labour status, IV quarter 2006
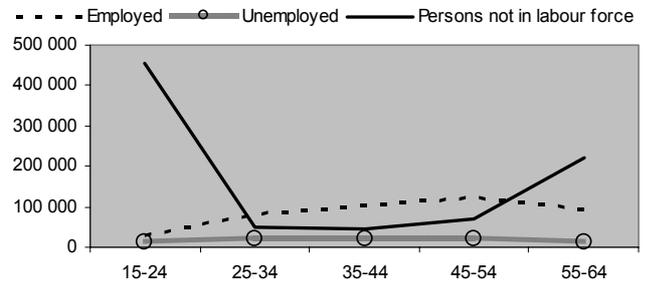
Source: NSI

Figure 11: Population of 15-64 years old of age with <u>upper secondary education</u> and labour status, IV quarter 2006
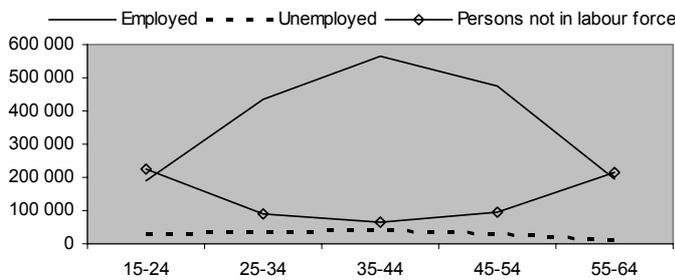
Source: NSI

Figure 12: Population of 15-64 years old of age with <u>tertiary education</u> and labour status, IV quarter 2006


Source: NSI

Table 7: Persons not in labour force by reasons for inactivity, 2006

|	Persons who want to work	Persons who do not want to work	Total
Persons not in labour force (i.e. pensioners)	-	-	1 813 000
Person in school, training	12 200	591 800	604 000
People with illness, disability	11 100	229 200	240 300
People with personal reasons or family responsibilities	33 600	208 300	241 900

Source: NSI, Employment and unemployment, basic data, 4/2006

Figure 13: Average Annual Wages and Salaries of the Employees under Labour Contract by Economic Activity Groupings (leva)
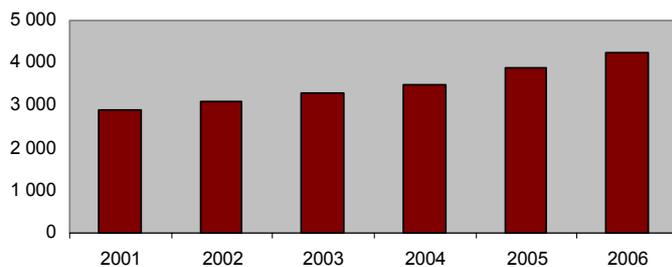
Source: NSI

Figure 14: Average Annual Wages and Salaries of the Employees under Labour Contract by Economic Activity Groupings (leva)
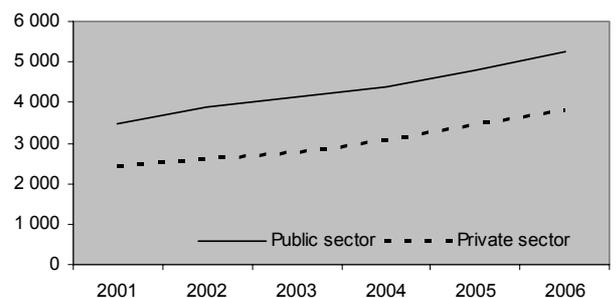
Source: NSI

Labour market probabilities and wages

Figure 15: Probability of full-time employment, national
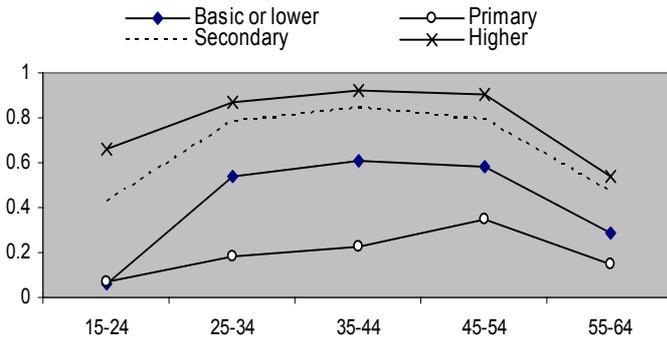

**Figure 16: Probability of registered unemployed, national**
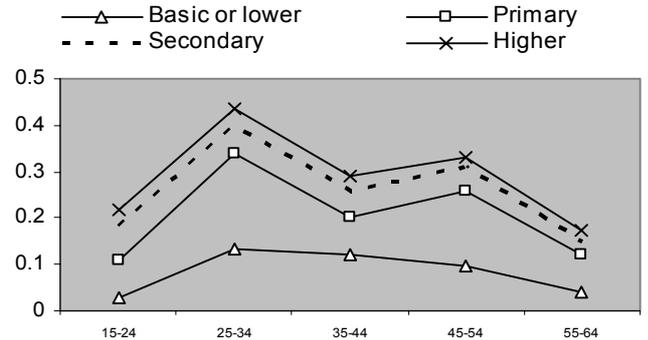
Figure 17: Probability of welfare receipt, national
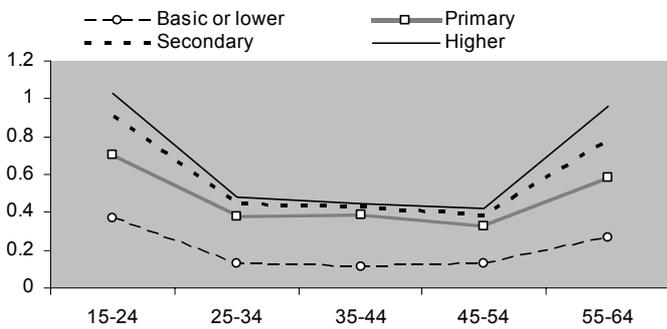
Figure 18: Probability of incarceration, national
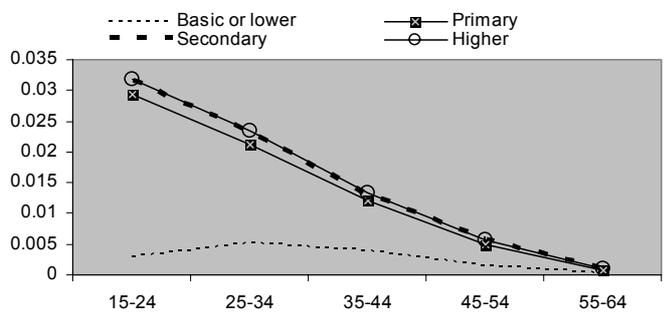
Figure 19: Average gross earnings, national
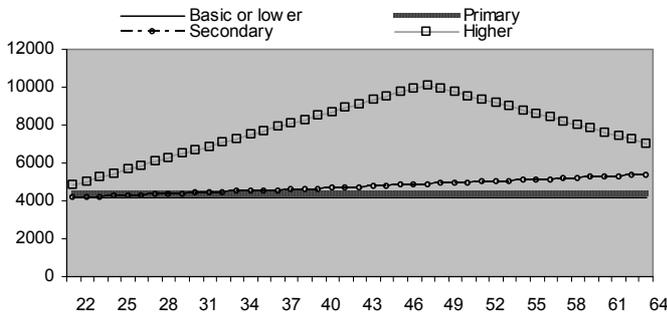
Figure 20: Average gross earnings, Roma
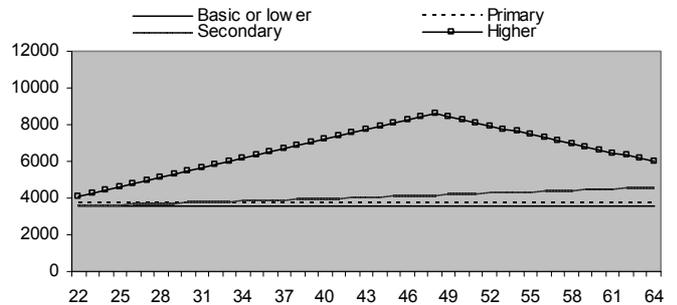
Table 8: Labour market probabilities by education, age 15-64

NATIONAL	Full-time employed	Registered UI recipients	Incarcerated	Proxy for welfare recipients	TOTAL
Basic or lower education	0.175	0.117	0.038	0.284	0.613
Primary education	0.317	0.065	0.007	0.248	0.637
Secondary education	0.690	0.054	0.004	0.103	0.850
Higher education	0.825	0.029	0.001	0.058	0.913
TOTAL	**0.598**	**0.055**	**0.005**	**0.139**	**0.797**

Table 9: Gross annual earnings (data as of October 2002)

Education	Employees	Total
	Number	Leva
Primary or lower	13 377	2 975
Lower secondary	163 434	2 795

Source: NSI

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Table 10: Data sources and calculation methods for expenditures on unemployment benefits, prison, social benefits and public employment projects

|	Elements	Description	Source
Unemployment insurance	Probability for unemployment	Probability for unemployment by education and age is calculated using data for the population by age and education and data for unemployment by age and education.	National Statistical Institute, *Employment and unemployment – basic data*, 4, 2006
	Unemployment insurance	The average benefit of 135 leva per month is used.	
	Roma	No changes.	
Prison	Probability	Probability for conviction by age and education is adjusted to receive probability for imprisonment.	National Statistical Institute 2007 Government Budget Report, publications in the media
	Expenditures per prisoner	Data for total prison expenditures devided by the number of prisoners is used.	
	Roma	No changes.	
Public employment projects	Probability	No data available. We assume no people with secondary or higher education participates in such projects, because of the nature of the work. We estimate average probability using data for number of people participating and the total number of people with the respective education.	National Statistical Institute, Ministry of Labour Report for 2006
	Expenditure	As the program is designed, we use data for the minimum wage and add the social security benefits.	
	Roma	We adjust the data by 50% for the higher roma probability of participating.	
Social benefits	Probability	No data available. We use proxy – the percentage of people out of labour force by age and education decreased by the number of students, disabled and personal reasons.	National Statistical Institute, *Employment and unemployment – basic data*, 4, 2006
	Expenditure	The total expenditures devided by the total number of people in our proxy.	
	Roma	No changes.	

Table 11: Data sources and calculation methods for benefits

	Elements	Description	Source
Social security tax	National	The 2007 social security tax of 36.7% is applied to the expected wage. The distribution of the tax burden between employer and employee is 65:35. The social security tax covers pension, health, disability, childcare, unemployment. The expected wages were calculated using data for wages by education and assumption for the distribution by age.	Social Security Code, Budget Law; National Statistical Institute
	Roma	The expected wage and employment probabilities is assumed to be 15% lower for some levels of educational attainment.	
Personal income tax	National	The 2007 tax rates are applied to the expected income after social security tax. Based on recent experience, it is assumed that the effective income tax rate will be relatively stable and will not change with the increase of wages.	Law on taxes on the incomes of physical persons
	Roma	The expected wage and employment probabilities is assumed to be 15% lower for some levels of educational attainment.	
Indirect taxes	National	The budget revenues from Value-added tax, customs duties and excises are devided by the total consumption expenditures in the economy. The resulting average tax rate is applied to the net wage.	Data from National Statistical Institute; Ministry of Finance
	Roma	No changes to the national average.	

Table 12: Data sources and calculation methods for educational expenses

	Elements	Description	Source
Extra primary education	National	The four unified national standards for financing general education (for different sized municipalities) are decided by the government. These were weighted by the number of students to achieve the national average which is 845.7 leva per student per year.	Decree 926 of the Bulgarian Government, December 2006
	Roma	No changes to the national average	
Extra secondary education	National, technical schools, scholarships, dormitory	The four unified national standards for financing general education (for different sized municipalities) are decided by the government. These were weighted by the number of students to achieve the national average which is 845.7 leva. In addition, the special schools (so-called technical schools) receive higher financing - 941 leva per student on average. The two numbers were weighted by the number of students in different schools and the scholarship and dormitory expenditures were also added. The average cost is 903.4 leva per student per year.	Decree 926 of the Bulgarian Government, December 2006
	Roma	No changes to the national average	
Higher education	Subsidy for teaching, capital expenditures, dormitory, sport bases, additional subsidies for universities, subsidies for transportation	Subsidy for teaching - 282 million leva, Equipment - 12 million, dormitory - 6 million, sport bases - 6 million, additional subsidy - 0.5 million, transport subsidy - 5.6 million. **All expenditures were added and divided to the number of students (258 692) reaching an average expenditure per student of 1204.5 leva per year.**	Decree 20 of the Bulgarian Government on the execution of the state budget for 2007, February 2007
	Roma	No changes to the national average	

Budget statistics

Figure 21: Paid social security contributions by level of education, Bulgarian Roma
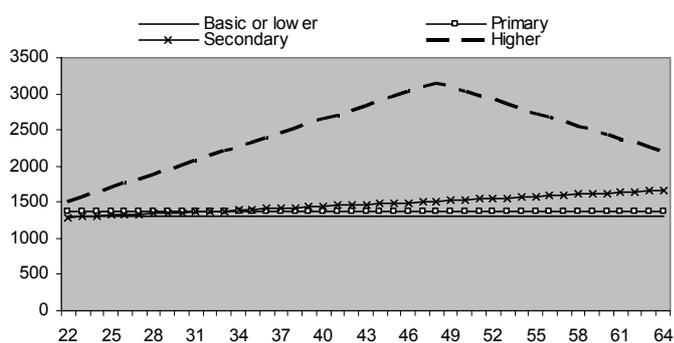
Figure 22: Paid personal income tax by level of education, Bulgarian Roma
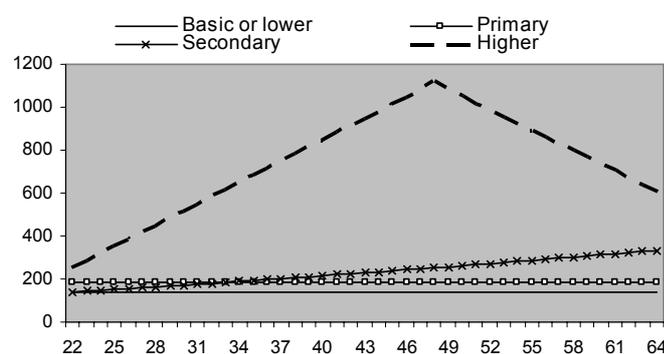
Figure 23: Paid indirect taxes by level of education, Bulgarian Roma
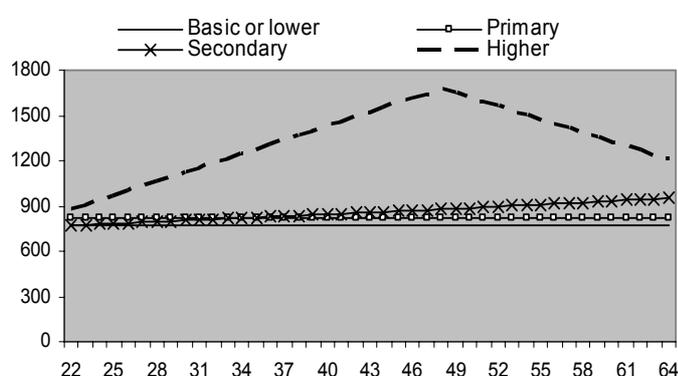
Figure 24: Net budget payments, Bulgarian Roma, Discounted to year 4
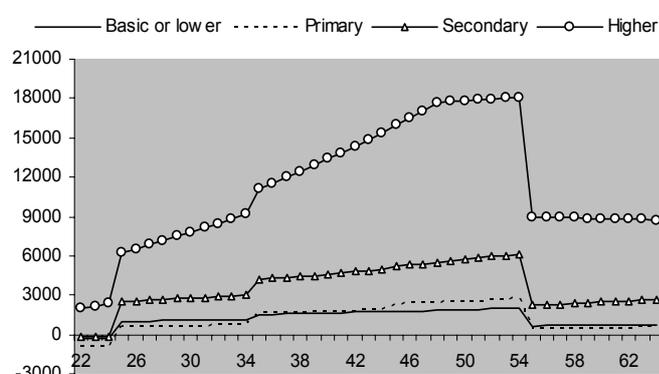
Table 13: Budget financing from the state for delegated activities in education according to common standards - General schools (2007)

Distribution of municipalities, according to geographic location	Number of children	Standard (Money per child), in leva	Total (' 000 leva)
First group	312 575	796	248 809.7
Second group	140 852	849	119 583.3
Third group	176 135	894	157 464.7
Fourth group	58 496	958	56 039.2
TOTAL	**688 058**	**-**	**581 896.9**
Expenditure per one pupil from IV to VIII grade (leva)			**845.71**

Source: Decree 926 of the Bulgarian Government, December 2006

Table 14: Budget financing from the state for delegated activities in education according to common standards - Vocational schools and professional schools (2007)

	Number of children	Standard (Money per child), in leva	Total (' 000 leva)
Transport	477	1 328	633.5
Agriculture	736	1 276	939.1
Engineering, electronics, metallurgy, woodworking, chemistry, geology and mining	2 231	973	2 170.8
Food processing, industry and construction	2 323	966	2 244.0
Hotels, restaurants and tourism	3 037	906	2 751.5
Pedagogy, economics and management	3 161	797	2 519.3
TOTAL	**11 965**	**6 246**	**11 258.2**
Expenditure per one pupil in vocational schools (leva)			**940.93**

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Source: Decree 926 of the Bulgarian Government, December 2006

Table 15: Budget financing from the state for delegated activities in education according to common standards - Other (2007)

	Number of children	Standard (Money per child), in leva	Total (' 000 leva)
Dormitory	10 471	850.0	8 900,4
Homes for up-bringing and education of children deprived of parental care (I-XIII grade)	177	3 716.0	657,7
Scholarships	52 934	199,8	10 576,3

Source: Decree 926 of the Bulgarian Government, December 2006

Table 16: Expenditures for students in Sofia

	Total (' 000 leva)
Subsidy for teaching	282 000.0
Capital expenditures	12 000.0
Dormitory	6 000.0
Sport bases	6 000.0
Sofia University subsidy	500.0
Subsidies for transportation in Sofia (students only)	5 590.1
Total expenditures for students	312 090.1
Expenditure per student (leva)	**1 204.5**

Source: Appendix № 1 to art. 5 of the State Budget Act 2007, own calculations

Table 17: GPD by final consumption expenditure (' 000 leva at current prices)

	2000	2001	2002	2003	2004
Final consumption expenditure	23 291 456	25 818 421	28 070 129	30 314 471	33 000 616
Individual consumption	20 687 832	23 009 108	24 822 904	26 845 988	29 136 368
Household final consumption expenditure	18 396 111	20 511 303	22 099 077	23 590 377	25 730 927
GDP	26 752 833	29 709 210	32 335 083	34 546 642	38 008 406

Source: NSI

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