**Section I: Research Question & Brief Summary of Methods**

Roma are the largest ethnic minority in Bulgaria, comprising about 10 percent of the population. They are substantially poorer than ethnic Bulgarians and suffer from implicit, if not explicit, discrimination. Despite efforts posed by the European Union, NGOs, and the Bulgarian government, poverty and social isolation has been characteristic of this community.

While there are many explanations and factors for the relative differences between ethnic Bulgarians and Roma, one of the most common sentiments amongst Bulgarians is that welfare payments incentive Roma to stay out of the labor market. I would like to know if this explanation seems at all reasonable by looking to see if Roma systematically have a larger share of their income coming from welfare versus other sources, such as employment or remittances. Or if it is the case that other factors, such as education, seems to have a large effect on difference in employment between Roma and non-Roma.

Otherwise stated, my research questions are the following: What are the differences between Bulgarian Roma and Bulgarian in regards to income, employment, and education? What are the chief explanatory factors for Roma specific differences from the ethnic Bulgarian population?

To investigate the issues and questions addressed above, I use data from a multinational survey conducted in 2011 by the United Nations Development Program (UNDP) on a host of social indicators from Roma and non-Roma living in close proximity to Roma communities in Bulgaria. The aim of this approach was to segregate reported differences, to the greatest extent possible, to ethnic status, rather than geographical difference.

This survey is not representative of the general population. It carries no survey weights nor does it claim to fully document the social difference between ethnic Bulgarians. However, as its main aim is to observe large variations between ethnic Bulgarians and tiny variations within the Roma population, it does manage to collect quite a bit of information from a substantial section of the Roma community.

After answering the more rudimentary questions offered above, I would like to estimate the impact social transfers have on Roma labor force participation in Bulgaria. I will use an approach pioneered by Immanuel Saez to estimate the elasticity of employment and hours worked relative to earned and unearned income.

I will estimate a number of models of the form,

Where is a dummy variable that is equal to 1 if the observation has identified as Roma and 0 if the observation has not identified as Roma; is a vector of variables related to income and employment, such as marital status, education, age, number of children, etc; and will be set equal to Labor Force Participation (LFP), earned income (, and unearned income (.

The information gathered from these models will be used to solve the following equation for the elasticity of labor force participation with respect to income:

Where is equal to the estimated difference between potential earned income & potential unearned for people with certain categories of different characteristics (e.g. married, children, education, sex, etc) and is estimated as the labor force participation of each group.

By solving for the elasticity of LFP with respect to income (earned and unearned), I will be able to estimate the relative effect transfer payments may have on Roma’s decisions to participate in the labor market. I will also estimate this effect for the non-Roma population to see the relative difference in the size of the effect. This will shed some light on the extent to which lower rates of employment amongst Roma are due to transfer payments, remittances, or other factors.

**Section II: Explaining Difference in Rate of Employment**

In looking at the Romanian Roma’s experience, Rat (2005) concludes that given the low-take up rates for transfer programs for those deemed eligible and the low benefit levels it is unreasonable to believe that “welfare dependency” exists amongst Roma. Rat shows that when assuming that labor market decisions are static (i.e. employment, earned income, and other facets of the labor market would be the same with or without state transfers) transfer programs reduce poverty by a mere 6 percentage points among the Roma – decreasing poverty rates from 83 percent of Roma to 76 percent of Roma.

I am curious if Rat’s characterization of the Romanian experience would hold true for the Bulgarian experience. To explore this question I will utilize data from the UN Development Program on socio-economic metrics of Bulgarian Roma from 2011.

Table 1 shows that working age Roma (i.e. ages 15 to 64) experience an employment rate that is 15 percentage points lower for non-Roma. However, it is also the case, as seen in Table 2, that Roma have a lower level of education. For those 25-64, Roma have 4 fewer years of education than non-Roma on average. This begs the question: is education or some other set of factors are culpable for the lower employment status Roma experience? Or are the quotidian opinions of ethnic Bulgarians true: 1) There is some Roma fixed effects and/or 2) Their higher level of income from social transfers is responsible for their lower level of employment and lower income (see Table 4 for income by source for Roma and non-Roma).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1: Employment Status by Sex and Roma Status** | | | | | | | |
|  | | **Male** | | **Female** | | **Total** | |
|  | | **Roma** | **Non-Roma** | **Roma** | **Non-Roma** | **Roma** | **Non-Roma** |
| Employment rate (15-64) | | 42% | 57% | 26% | 52% | 34% | 55% |
| Employment rate (15-24) | | 27% | 28% | 14% | 14% | 20% | 22% |
| Unemployment rate (15-64) | | 35% | 20% | 48% | 19% | 40% | 20% |
| Unemployment rate (15-24) | | 46% | 32% | 64% | 38% | 54% | 33% |
| Activity rate (15-64) | | 64% | 71% | 50% | 64% | 57% | 68% |
| Source UNDP 2011 Roma Survey | |  |  |  |  |  |  |
| **Table 2: Education Status by Sex and Roma Status in Bulgaria** | | | | | | | |
|  | **Male** | | | **Female** | | **Total** | |
|  | **Roma** | | **Non-Roma** | **Roma** | **Non-Roma** | **Roma** | **Non-Roma** |
| Literacy rate (16+) | 90% | | 100% | 84% | 99% | 87% | 99% |
| Literacy rate (16-24) | 91% | | 100% | 88% | 99% | 89% | 99% |
| Average years of education (25-64) | 7.11 | | 11.10 | 6.24 | 11.34 | 6.68 | 11.21 |
| Average years of education (16-24) | 7.53 | | 10.59 | 6.97 | 11.44 | 7.26 | 10.93 |

Source: Source: UNDP 2011 Roma Survey

**Section III: Data**

Table 3 shows the sample by region and ethnic status. One member of household was interviewed for the survey, but each household member is an individual observation. Therefore, the true number of interviewees is less than the 3610. I have excluded all households that did not identify their ethnic status or identified their ethnic status as Muslim or Turkish for simplicity’s sake.

**Table 3: Sample Size by Region and Ethnic Status**

|  |  |  |
| --- | --- | --- |
| Region | Ethnic Status | Number of Observations |
| north-west | Bulgarian | 227 |
| Roma | 738 |
| north-east | Bulgarian | 162 |
| Roma | 659 |
| south-east | Bulgarian | 228 |
| Roma | 738 |
| south-west | Bulgarian | 187 |
| Roma | 671 |

Figure 1 presents two, overlapping histograms of income in Bulgarian Leva earned in the month prior to being surveyed. For both Roma and ethnic Bulgarians, incomes are concentrated at the bottom of distribution (both histograms are positively skewed). However, as seen in Figure 2, Roma incomes are more concentrated near the bottom of the distribution than ethnic Bulgarians. This is consistent with my exception that Roma will be poorer than the ethnic Bulgarians surveyed.

**Figure 1: Histogram of Income Earned in the Month Prior to UNDP Survey**



*Notes: Observations under the age of 25 have been excluded in attempt to exclude those who are still dependents. I have also excluded those observations who did not report any earned income for the month prior.*

**Table 4: Income Summary Statistics by Ethnic Status for Observations with Positive Values.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Roma | *N* | Mean | SD | Median | Mode |
| Total Income Last Month | 576 | 507.18 | 1090.19 | 320 | 300 |
| Total Average Monthly Income | 485 | 498.62 | 1045.97 | 300 | 300 |
| Employment Income | 307 | 458.78 | 428.28 | 350 | 200 |
| Unemployment Benefits Income | 40 | 120.97 | 75 | 106.5 | 40 |
| Pension Income | 247 | 383.75 | 1418.53 | 200 | 200 |
| Social Assistance Income | 106 | 129.4 | 74.48 | 102.5 | 100 |
| Child Allowance | 291 | 71.52 | 38.63 | 70 | 70 |
| Income from other labor activities than employment | 67 | 139.7 | 122.2 | 100 | 50 |
| Remittances | 66 | 277.8 | 296.28 | 200 | 200 |
| Ethnic Bulgarians | *N* | Mean | SD | Median | Mode |
| Total Income Last Month | 282 | 608.24 | 477.55 | 466 | 400 |
| Total Average Monthly Income | 251 | 586.24 | 439.38 | 450 | 800 |
| Employment Income | 141 | 674.96 | 455.51 | 600 | 600 |
| Unemployment Benefits Income | 10 | 142 | 113.18 | 144 | 40 |
| Pension Income | 186 | 326.26 | 177.1 | 280 | 200 |
| Social Assistance Income | 14 | 219 | 221.1 | 114 | 35 |
| Child Allowance | 42 | 60.95 | 36.93 | 70 | 0 |
| Income from other labor activities than employment | 14 | 366.07 | 905.62 | 105 | 0 |
| Remittances | 4 | 487.5 | 366 | 375 | 0 |
| ***Notes: Statistics for observations with value. No observation has a value equal to 0.*** | | | | | |
|  | | | | | |

Unfortunately, the UNDP survey I am relying upon in this project does not clearly differentiate between whether an individual in the sample did not/refused to report some income from a particular source or whether an individual in the sample does not usually garner income from a particular. For both observations that received no income from the state sponsored child allowance, for instance, and for observations that do receive income from this state transfer program but do not wish to disclose that information, the survey reports that data as missing. This means that when many observations should have a value of zero, the amount of income from particular source is left blank.

Table 4 and Figure 2 provide summary statistics on the average monthly income of those observations that reported positive income in each respective category by income source and ethnic status. As established in the histogram above (Figure 2), the mean monthly income of ethnic Bulgarians is substantially higher than that of Roma. For observations that reported their income, the average Roma earned 100 BGL less than ethnic Bulgarian in the month prior to the survey. This

**Figure 1: Box Plot of Income by Source for Roma and Ethnic Bulgarians**



***Notes: Income in 2011 nominal Bulgarian Leva.***

gap almost double when looking at the difference in mean income from employment, with the average Roma receiving 450 BGL from employment income every month versus 675 BGN for ethnic Bulgarians.

Interestingly, the state sponsored child allowance is the only source of income in which Roma receive a mean payment greater than ethnic Bulgarians and a median payment that is at least equal to ethnic Bulgarians. For all other categories of income, Roma receive mean and median payments less than their ethnic Bulgarian counterparts.

While incomes may be higher for ethnic Bulgarians, income inequality may be more pronounced for Roma communities. Looking at the standard deviation of average total monthly income or total monthly income from the previous month, we see that incomes have a wider distribution for Roma versus ethnic Bulgarian. The standard deviation of monthly income for Roma is about 1000 BGN, while ethnic Bulgarians have a standard deviation with respect to monthly income that is around half of that. To put this in perspective, around 68 percent of incomes for the ethnic Bulgarian community are between roughly 100 BGN and 1000 BGN, while the analogous figures for the Roma community are 0 BGN and 1500 BGN.

**Table 5: Income Summary Statistics by Ethnic Status for All Observations.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Roma | *N* | Mean | SD | Median | Mode |
| Total Income Last Month | 2806 | 104.11 | 534.43 | 0 | 0 |
| Total Average Monthly Income | 2806 | 86.18 | 473.64 | 0 | 0 |
| Employment Income | 2806 | 50.19 | 201.31 | 0 | 0 |
| Unemployment Benefits Income | 2806 | 1.72 | 16.85 | 0 | 0 |
| Pension Income | 2806 | 33.78 | 433.93 | 0 | 0 |
| Social Assistance Income | 2806 | 4.89 | 28.57 | 0 | 0 |
| Child Allowance | 2806 | 7.42 | 25.1 | 0 | 0 |
| Income from other labor activities than employment | 2806 | 3.34 | 28.4 | 0 | 0 |
| Remittances | 2806 | 6.53 | 61.7 | 0 | 0 |
| Ethnic Bulgarians | *N* | Mean | SD | Median | Mode |
| Total Income Last Month | 804 | 213.34 | 405.16 | 0 | 0 |
| Total Average Monthly Income | 804 | 183.02 | 366.05 | 0 | 0 |
| Employment Income | 804 | 118.37 | 319.59 | 0 | 0 |
| Unemployment Benefits Income | 804 | 1.77 | 19.79 | 0 | 0 |
| Pension Income | 804 | 75.48 | 161.79 | 0 | 0 |
| Social Assistance Income | 804 | 3.81 | 40.16 | 0 | 0 |
| Child Allowance | 804 | 3.18 | 15.93 | 0 | 0 |
| Income from other labor activities than employment | 804 | 6.37 | 124.79 | 0 | 0 |
| Remittances | 804 | 2.43 | 40.97 | 0 | 0 |

I have also included Table 5, above, which displays the same data as the Table 4, however, all income values that are reported to be missing have been replaced with a value of zero. This table serves as the low extreme for the potential range of true incomes by source. This means that children who are dependent on their parents still and mothers who have no interest in disclosing their earned income to a surveyor, are treated as having no income. While this is certainly not true, it is show the lowest possible incomes for those surveyed. It may be important to note that all the relationships between ethnic Bulgarians and Roma persist into the data presented in Table 5, with the exception that Roma have higher mean remittances than ethnic Bulgarians in Table 5.

**Section IV: Discussion**

The data exhibited here clearly shows that there are substantive differences between Roma and ethnic Bulgarians.

Incomes from all sources, except child allowances, are on average greater for ethnic Bulgarians. Both Figures 1 and 2 show that incomes for ethnic Bulgarians are concentrated at higher values than incomes for Roma. Interestingly, as Figure 1 shows, this relationship holds for all income sources including social assistance, but not for child allowances. A priori, one would expect that because of the colloquial talk that Roma usurp benefits and their lower incomes, Roma would receive relatively higher amounts of social assistance than ethnic Bulgarians. It is not surprising that Roma receive, on average, higher incomes from the state’s child allowance program since Roma families are defined by being younger with more children.

Regarding the problem with missing values for income that is equal to zero and not reported: unfortunately, without further analysis there little more I can do to elucidate this issue. It does seem that the broad relationship between Roma and ethnic Bulgarians in terms of incomes from various sources hold true regardless of whether all missing values are treated as equal to zero, as in Table 4, or treated as missing and are thrown out, as in Table 5.

There are number of next steps. One of the most important is to look at the relationship between Roma and ethnic Bulgarians within the smallest geographical areas possible with the 2011 UNDP survey. The current analysis does not fully control for the potential that some of the systematic differences between Roma and ethnic Bulgarians could be the product of the Bulgarians surveyed living in richer regions. While this is not likely the case, since as Table 3 establishes, the survey interviews a pretty even proportion of Roma to ethnic Bulgarians in each geographic regions. But an analysis that does not fully account for potential differences by region may still be biased.

On the question of whether the sample is representative, the answer is clearly no. Since the Bulgarians surveyed are those that live near Roma communities, the ethnic Bulgarians surveyed will be disproportionately rural, poor, old, underemployed, and less educated. Therefore any analysis will not be the final word on any question concerning the nature of and reasons for the social and income difference between Roma and ethnic Bulgarians. However, the analysis can provide general, low-ball answers to questions concerning the reason for the large differences between Roma and ethnic Bulgarians.