

DOES UNEARNED INCOME IMPACT LABOR MARKET ACTIVITY?
ANALYZING THE EFFECT OF REMITTANCES AND SOCIAL TRANSFERS ON EMPLOYMENT
DECISIONS IN BULGARIA

A Thesis
submitted to the Faculty of the
Graduate School of Arts & Sciences
at Georgetown University
in partial fulfillment of the requirements for the
degree of
Master of Public Policy
in the Georgetown Public Policy Institute

By

Michael Spangler, B.A.

Washington, DC
April 18, 2007

DOES UNEARNED INCOME IMPACT LABOR MARKET ACTIVITY?
ANALYZING THE EFFECT OF REMITTANCES AND SOCIAL TRANSFERS ON EMPLOYMENT
DECISIONS IN BULGARIA

Michael Spangler, B.A.

Thesis Advisor: Dr. Robert Bednarzik

ABSTRACT

This paper explores the effects on employment outcomes of unearned income (i.e., remittances and social transfer payments) in Bulgaria. Since the late 1980's, Bulgaria has been transitioning from a socialist, command style economy to one based on democracy and free market principles. As a result, Bulgaria has been plagued by high and persistent unemployment rates, not dissimilar to the experience of other transition economies. In addition, Bulgaria's employment rate is well below the European Union average, which it joined in January 2007. While the lack of employment opportunities is partially responsible, the empirical evidence presented in this paper shows that unearned income does create a disincentive to work. However, the disincentive effect is not driven by social transfer payments, but remittances. In addition, it is clear that there are discriminatory practices in the labor market as evidenced by the extremely low employment rates for all age groups of the Roma population. Gender inequality is also problematic, but to a lesser extent. Government intervention in the form of legislation is necessary to overcome these obstacles.

I would like to thank my thesis advisor, Dr. Robert Bednarzik, for all the guidance and support he provided over the past two semesters; to the staff and faculty at the Georgetown Public Policy Institute; and to my parents. I would especially like to thank my wife, Rita, for her constant support, encouragement and understanding.

TABLE OF CONTENTS

Chapter 1. Introduction.....	1
Bulgaria’s transition to democratic governance and a market economy.....	3
Chapter 2. Theory and Literature.....	7
Chapter 3. Determinants of the Bulgarian Labor Market.....	11
Chapter 4. Hypothesis, Empirical Methodology, and Data.....	16
Hypothesis and Methodology	16
Data and Limitations	19
Chapter 5. Regression Analysis	21
Impact of household and individual characteristics	23
Conclusions.....	27
Policy Implications.....	29
References.....	33
Appendix A	36

Chapter 1. Introduction

Though never officially part of the Soviet Empire, Bulgaria was for much of the twentieth century a communist nation. Nonetheless, the collapse of the Soviet Union in 1989 affected not only the former Soviet Socialist Republics (SSR),¹ but many other nations that fell within the sphere of communist and Soviet influence. Since that time, Bulgaria has been transitioning from a politically and economically socialist nation to a democratic, market-oriented one, and is now on the verge of joining one the most powerful alliances in the world—the European Union.

The process of economic transition over the past 15 years has been difficult for most transition countries, but it has been especially cumbersome on the Bulgarian labor force, as reflected by the persistently high unemployment rates Bulgaria has experienced since transition began (see Table 1 below for unemployment rates). Although a large part of the problem can undoubtedly be attributed to an insufficient demand for labor, empirical evidence suggests that excessively high wage expectations of unemployed Bulgarians may also hinder positive employment outcomes, which may be attributed to unearned income (**Rutkowski, 1999; Sahn, Younger, & Meyerhoefer, 2002**).

¹ Union republics included the Armenian SSR, Azerbaijan SSR, Byelorussian SSR, Estonian SSR, Georgian SSR, Kazakh SSR, Kyrgyz SSR, Latvian SSR, Lithuanian SSR, Moldavian SSR, Russian SFSR, Tajik SSR, Turkmen SSR, Ukrainian SSR, and Uzbek SSR.

Two major sources of unearned income are social transfers and remittances, both of which play an important role in reducing poverty in developing, emerging, and transition economies. Research has shown, however, that social transfers tend to decrease labor market participation, and that receiving remittances has similar effects (**Sahn et al., 2002; Zachariah et al., 2001**). While previous studies have considered various relationships between social protection programs, remittances, and labor market transitions, to this author's knowledge, little research has considered the concept of unearned income, and no studies have focused specifically on its effect on employment decisions. Moreover, studies analyzing labor market behavior tend to focus on the determinants of unemployment or labor market transitions (e.g., moving from unemployed to employed, unemployed to inactive, and so forth) rather than employment. This paper seeks to fill this gap.

The purpose of this paper is to determine whether employment status is indeed a function of unearned income, and if so, to what extent. To this end, the paper will analyze the effect on individual employment decisions of remittance inflows and total income from various forms of governmental cash transfers. Bulgarian social assistance programs (as structured in 2001) considered in the current analysis include pensions (State Old Age Pension, Survivor's Pension, Disability Pensions, and private

pensions²), maternity and childcare benefits, individual in-kind social benefits, family allowance benefits (family allowances and birth grant), and unemployment benefits.³

Bulgaria's transition to democratic governance and a market economy

Communist rule in Bulgaria dates back to the 1940's with the founding of the Bulgarian Communist Party (BCP) in 1944 and the Dimitriov Constitution in 1947.

With respect to the labor market and the economy, the constitution guaranteed employment for all citizens and made provisions for a planned national economy.

Bulgaria functioned under this system for the next forty years, until the mid- to late-1980's when the economic inefficiencies created by the planned economy compelled the government to initiate economic and social reform.

In 1991, economic and social reforms became much more aggressive, catalyzed by declining support for the BCP (which had since changed its name to the Bulgarian Socialist Party) and the ratification of a new constitution. Foremost, much of the economy was privatized and liberalized, the implications of which extended deep into the labor market in the form of mass unemployment. It is clear, however, that Bulgaria

² Although private pensions are not provided by the government they are included in the present analysis because they can be considered as a form of non-wage unearned income.

³ Including unemployment benefits in an analysis of labor market outcomes would seem counterintuitive, since, by definition, an individual receiving such benefits would be classified as unemployed. However, several individuals in the dataset report receiving both unemployment benefits and income. Therefore, unemployment benefits are considered in the analysis.

was not a unique case, as the majority of former socialist states experienced high and persistent rates of unemployment throughout the transition years. In 2001, ten of the 21 former Socialist States in Table 1 experienced double-digit unemployment rates.⁴

Table 1: Unemployment Rates of Former Socialist States from 1991-2001

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<i>Central & South-East Europe</i>											
Poland	--	--	14.0	14.4	13.3	12.3	11.2	10.5	13.9	16.1	18.2
Czech Rep.	4.1	2.6	3.5	3.2	2.9	3.5	5.2	7.5	9.4	8.8	8.9
Slovakia	--	--	--	13.7	13.1	11.3	11.8	12.5	16.2	18.6	19.2
Hungary	--	9.8	11.9	10.7	10.2	9.9	8.7	7.8	7.0	6.4	5.7
Romania	--	--	--	8.2	8.0	6.7	6.0	6.3	6.8	7.1	6.6
Bulgaria	11.1	15.3	16.4	12.8	11.1	12.5	13.7	12.2	16.0	17.9	17.3
<i>Baltics</i>											
Estonia	1.5	3.7	6.6	7.6	9.7	9.9	9.6	9.8	12.2	13.6	12.6
Latvia	--	--	--	--	--	20.6	15.1	14.1	14.3	14.4	13.1
Lithuania	--	--	--	17.4	17.1	16.4	14.1	13.2	14.6	16.4	17.4
<i>Commonwealth of Independent States</i>											
Armenia*	--	1.8	5.3	6.6	6.7	9.3	10.8	9.4	11.2	11.7	10.4
Azer.*	0.1	0.2	0.5	0.7	0.8	0.9	1.0	1.1	1.2	1.2	1.3
Belarus*	0.1	0.5	1.4	2.1	2.9	4.0	2.8	2.3	2.1	2.1	2.3
Georgia	--	--	--	--	--	--	--	14.5	13.8	10.8	11.0
Kazakh.+	--	--	--	7.5	11.0	13.0	13.0	13.1	13.5	12.8	10.4
Kyrgyz.	0.0	--	--	3.1	4.4	6.0	4.3	--	--	--	--
Moldova	--	--	--	--	--	--	--	--	11.1	8.5	7.3
Russia	--	5.2	5.9	8.1	9.5	9.7	11.8	13.3	12.6	9.8	8.9
Tajik.*	--	0.4	1.2	1.7	2.0	2.6	2.7	--	--	--	--
Turkmen.	2.0	--	--	--	--	--	--	--	--	--	--
Ukraine	--	--	--	--	5.6	7.6	8.9	11.3	11.6	11.6	10.9
Uzbek.*	--	0.2	0.4	0.4	0.4	--	--	--	--	--	--

Source: LABORSTA (International Labor Organization), Aslund (2002)

Labor force survey; *Employment office records; +Official estimates

⁴ Azerbaijan, Belarus, Kyrgyzstan, and Uzbekistan have had the lowest unemployment rates; however, these countries are also considered to be less democratic than the others (i.e., more socialistic). As such, many of the state-owned enterprises have not yet been privatized, keeping many people employed.

Two major economic factors characteristic of socialist governance contributed to such high unemployment rates. First, state allocation of the factors of production (as opposed to market forces; i.e., the invisible hand) created vast inefficiencies in the economy, as demonstrated by the eventual collapse of the socialist system itself. Because of state policy of guaranteed employment, labor, as well as other production factors, was not just misallocated, but over-allocated. Consequently, when the market was freed from government control, the demand for labor decreased dramatically. This was especially true over the first few years of transition when many state-owned enterprises (SOE's) were privatized, forcing them to make large staffing cuts in order to compete in a market economy.

While immediate unemployment was the result of economic restructuring, the *persistence* of excessively high unemployment rates may be attributed more to fundamental cultural factors associated with socialism. Specifically, Bulgaria's policy of guaranteed employment in effect created a cultural of dependency within society and the workforce. Thus, when the socialist regime ended and the economy became market-based, workers could no longer depend on the state for employment and had to compete with others on the open market. Consequently, many who relied on the government for employment instead received government support in the form of social transfers.

Over the years, dependency on the state for income became part of the culture in Bulgaria. In light of the fact that a large part of the labor force is less than a generation removed from Communist rule, it is reasonable to suppose that this culture persists, which may not only explain why Bulgaria continues to experience exceptionally low employment rates, but may also provide insight as to why unemployed Bulgarians have such excessively high wage expectations (**Rutkowski, 1999; Sahn et al., 2002**). Typically, to be officially classified as unemployed, individuals must be in the process of looking for work; if not, they are considered to be not-in-the-labor-force, or inactive. In light of persistently high unemployment rates, it is evident that many Bulgarians do want to work, but may elect not to do so because they would have to give up certain social transfers.

Chapter 2. Theory and Literature

Studies on the Bulgarian workforce reveal that part of the unemployment problem is attributable to excessively high wage expectations of the unemployed (as well as low wages available in the labor market) (**Rutkowski, 1999; Sahn et al., 2002**). One possible explanation for this outcome may be due to high levels of unearned income, two major sources of which include remittances and social transfers.

A preponderance of evidence suggests that remittance flows have a positive impact on reducing poverty and spurring domestic growth (e.g., **Zachariah et al., 2001; Glytsos, 1993; Funkhouser, 1992; Kugler, 2005**). However, much of the literature on migration indicates that such income lowers the labor market activity of recipient household members in the home country. For example, in analyzing the effects of emigration in El Salvador, **Funkhouser (1992)** found a strong negative relationship between remittances and labor market participation rates of migrant households in El Salvador. **Zachariah et al. (2001)** discovered similar results in Kerala, India, where unemployment for emigrant households was more than double than that for non-migrant households (20.8 percent and 8.1 percent respectively).

As was the case for the micro-level effects of remittances, studies on social assistance indicate that it moves in tandem with joblessness. **Marimon and Zilibotti (1997)**, for example, concluded that countries with higher levels of unemployment

benefits experience higher unemployment rates compared to countries with lower levels of unemployment benefits.⁵ Recent country-level analysis supports this relationship. In a study on rural poverty in Bulgaria, **Sahn et al. (2002)** found a significant negative relationship between pensions and employment. Similarly, **Lelkes & Scharle (2005)** concluded that Hungarian men who received social transfers were more likely to be inactive compared to those who did not. **Sahn et al. (2002)** include both remittances and sources of unearned income in their analysis of rural poverty in Bulgaria, and found statistically significant negative relationships between pensions and employment, and between remittances received and employment. These studies thus suggest that the effects on labor market outcome of social assistance and remittances are similar in nature; that is, they provide a disincentive to work. In general, the literature does support labor economic theory, according to which employment decision are in part a function of non-wage (unearned) income.⁶

Work disincentive effects are always a concern when considering social security policy. In analyzing the effects of Disability Insurance (DI) program on labor supply in the United States, **Chen and Van der Klaauw (2006)** found that “DI

⁵ The model also suggests a positive impact on productivity, since unemployment insurance allows for better skill matching, thereby producing a better allocation of skills to jobs.

⁶ Labor supply decisions are also based on the substitution effect, which is typically measured by wage income. According to the substitution effect, as wages increase, leisure becomes more expensive and people tend to work more. Conversely, when wages fall, leisure becomes cheaper, resulting in a reduction in hours worked.

decreases labor supply by approximately 16 to 20 hours per month and participation by 6 to 12 percentage points” (p. 30). The authors concluded, however, that these effects are modest given that most individuals would not have worked in the absence of the program. **Rutkowski’s (1999)** study, however, found evidence contradicting the disincentive effect of job search associated with receiving unemployment benefits, finding no differences in job search intensity between those who receive benefits as those Bulgarians who are not eligible. The author attributes the diminished disincentive effect to the rigorous eligibility conditions and low benefit levels of the Bulgarian unemployment benefit system. According to the Organisation for Economic Co-operation and Development (OECD) *Employment Outlook* (2005), activation strategies (e.g., programs that require the use of employment services) can effectively promote job seeking if program requirements are not overbearing (p. 176).

Empirical evidence suggests that wealth has a negative influence on labor market decisions. One reason why this may occur is that individuals who have an adequate source of wealth holdings are able to finance unemployment spells (**Gruber, 2001**), which reduces job search incentive and prolonging unemployment stints. **Bloemen’s (2002)** labor market transitions model provides evidence in support of this conclusion. Using the estimation results to calculate elasticities of transition probabilities with respect to wealth, the author finds a negative relationship between

the level of wealth and the probability of transitioning from non-employment to employment. Specifically, a ten percent increase in the level of wealth is associated with a 0.73 percent reduction in the probability of transitioning into employment. Albeit small, **Bloemen & Stancanelli's (2001)** study also revealed that wealth has a negative impact on employment probability.

Finally, individual skill level and characteristics tend to influence labor market outcomes. For instance, in Bulgaria, **Sahn et al. (2002)** found that, overall, education increases the likelihood of being in the labor market, and that higher levels of education not only reduce inactivity, but increase the probability of working (p. 12). **Rutkowski's (1999)** study on Bulgaria concluded that youth are more likely to be unemployed compared to other age groups, and that married persons are more likely to be working compared to those who are single. **Sahn et al.** nor **Rutkowski** found significant differences between men and women. Nonetheless, many countries do experience a gender gap in labor market participation rates.

Chapter 3. Determinants of the Bulgarian Labor Market

As seen from Table 1 above, high unemployment rates have plagued Bulgaria since the beginning of transition in 1990. In 2001 the employment picture in Bulgaria was bleak: the unemployment rate was extremely high at 23 percent and a large percentage of working age individuals were not in the labor force (31 percent), leaving less than half of the workforce employed (Table 2).⁷ Overall, The Bulgarian employment rate of 45.2 percent for the working age population was substantially lower than the European Union average of 64 percent.

Table 2: Workforce Status (age 16-64) in Bulgaria, 2001

Workforce Status	Number	Rate
Unemployment	1,196	23.4
Employment	2,314	45.2
Inactive	1,607	31.4
Total	5,117	100.0

Source: BIHS 2001

Employment rates in Bulgaria differ greatly depending on age, gender, and ethnicity. As seen in Table 3, the likelihood of working is highest among 25-54 year old workers at 59 percent. This age group is almost three times as likely to be working compared to youth (age 16-24) and older workers (age 55-64) (21 percent and 20 percent, respectively). Overall, males are more likely to be working than females; for

⁷ There is a discrepancy between the unemployment rates in Tables 1 and 2, which may be due to sample selection. However, differences in reported unemployment rates are not uncommon.

males, the employment rate is approximately six percentage points higher than that for females (48.6 percent and 42 percent, respectively). A difference that is relatively consistent for both the Roma and non-Roma population. The most alarming statistic shown in the Table is the difference in the employment rates between Roma and non-Roma, with the former being approximately 35 percentage points fewer than the latter. The extremely low rates of employment for the Roma population – only 15 percent – are not at all surprising given that they are considered by many to be a marginalized group, and often face discrimination.⁸

Table 3: Employment Rates by Gender and Ethnicity in Bulgaria, 2001

Characteristic	Employment Rate		
	Total	Roma	Non-Roma
Total	45.2	15.1	50.1
16-24 years	21.1	6.1	25.0
25-54	59.8	20.1	66.3
55-64	19.9	6.1	20.7
Male	48.6	18.5	53.5
Female	42.0	11.6	46.9

Source: BIHS 2001

The relationship between education attainment and labor force status in Bulgaria is pronounced, especially for those with secondary education or higher. As seen from Table 4 below, persons with less than secondary schooling are much less likely to be employed and more likely to be unemployed as compared to those who

⁸ See U.S. Department of State, *Country Report on Human Rights Practices for 2001: Bulgaria*.

have completed secondary schooling or higher. For example, the lowest jobless rate was among those with the highest levels of education.

Table 4: Percent Distribution of Bulgarian Working-Age Population by Labor Force Status and Education Level, 2001

Employment Status	Education Level				
	No education	Primary	Middle	Secondary	University & Higher
Unemployed	33	32	35	21	11
Employed	8	14	23	52	69
Inactive	56	54	42	27	20
Total	100	100	100	100	100

Note: Some totals may not add to 100 percent due to rounding.

Source: BIHS 2001

In general, Bulgarians seem to have some sense of the importance of education, as a large percentage of the working-age population remained in school as follows:

<i>Education Level</i>	<i>Rate</i>
No education	1.7 percent
Primary	4.2 percent
Middle school	24.5 percent
Secondary school.....	51.5 percent
University and higher.....	18.1 percent

Table 5 lists income by type, as well as the average amount received per person per month. As expected, the per-person average of wage income exceeds remittances received and social transfers. However, the per-person average of earned income was only slightly higher than unearned income (remittances and social security).

Table 5: Monthly Income in Leva by Source for Sample, 2001

Type of Income	Amount	Number	Average (per person)
Remittances	82,652	711	116.25
Social Transfers	127,197	1,865	68.20
Wage Income	277,024	1,408	196.75

Note: Unemployment benefits not included in social transfers

Source: BIHS 2001

Relationships between various types of social transfers and whether or not the individual is employed are presented in Table 6. The top row charts the association between working and whether or not an individual receives social benefits. Not surprisingly, coefficients are negative, meaning that those who receive social benefits are less likely to be working. When looking at actual amounts received (bottom row), some correlations turn positive, but the relationships between variables are much weaker as a whole. For the most part, then, it appears that the monetary value of the transfer has some impact on employment outcomes. However, the preliminary evidence does not contradict the literature on benefits, according to which the duration of benefits creates larger disincentive effects than the level of the benefit (e.g., **Lalive et al., 2006**).

Table 6: Correlations between Employment and Social Benefits in Bulgaria

	Public Pension	Survivor Benefits	Disability Benefits	Unemp. Benefits	Maternity Benefits	Trans. Benefits	Other In-Kind	Child Allow.
Receiving benefits vs. not receiving	-.308	-.092	-.143	-.404	NA	-.070	-.048	-.148
Amount of benefits (Leva, '000)	.007	.012	-.006	NA	.011	-.001	-.007	.002

Source: BIHS 2001

Chapter 4. Hypothesis, Empirical Methodology, and Data

Hypothesis and Methodology

This study is interested in the effects of unearned income (i.e., remittances and social transfers) on labor market decisions in Bulgaria. The study will test the hypothesis that Bulgarians who receive such income will be less likely to be working compared to non-recipients. The dependent variable is categorical – employed or not employed – which necessitates the use of logistic regression. Thus, a logit model will be used to determine the effects of unearned income on the likelihood (or probability) of being employed.

Since the interest is on labor supply decisions, the model incorporates labor economic theory by including measures of income and substitution effects. According to these effects, as wages increase workers will want to work more until a certain threshold level is reached, beyond which they will work less so as to enjoy the leisure afford by higher income. In line with theory, the income effect is captured by non-wage income (remittances and social transfers received). Normally, labor supply models measure the substitution effect by wages. However, in light of the fact that many of the observations are unemployed, it is not possible to use wages in this study for that purpose. Instead, the model will utilize education as a proxy for wages, as wages typically rise with educational attainment.

Exhibit 1: Description of Variables, Predicted Relationships, Rationale, and Source

	Variable Name	Definition	Source
Y	<i>empl</i>	probability of individual being employed; 1 if employed, 0 if not (either unemployed or non active)	BIHS 2001
β_1	<i>age</i>	age of individual in years	BIHS 2001
β_2	<i>male</i>	gender; 1 if male, 0 if female	BIHS 2001
β_3	<i>educ</i>	highest level of education in years	BIHS 2001
β_4	<i>child</i>	number of children in household	BIHS 2001
β_5	<i>roma</i>	1 if Roma, 0 if non-Roma	BIHS 2001
β_6	<i>urban</i>	location type; 1 if urban, 0 if rural	BIHS 2001
β_7	<i>assets</i>	1 if own assets, 0 if do not own assets	BIHS 2001
β_8	<i>tot_inc</i>	sum of income from primary job, secondary job, and self-employment	BIHS 2001
β_9	<i>remitr1</i>	monthly amount of remittances received	BIHS 2001
β_{10}	<i>tot_ben</i>	monthly amount of social security received (including Public pension, Survivor's pension, Disability pension, Stipend, Transportation benefits, Monthly medical benefits, Child allowance)	BIHS 2001
β_{11}	<i>rec_unemb</i>	1 if receiving unemployment benefits, 0 if not receiving	BIHS 2001
β_{12}	<i>hh_married</i>	1 if household head is married, 0 if single	BIHS 2001

The exact specification for the model is as follows: $\text{logit}(empl = 1|x) = \beta_0 + \beta_1(age) + \beta_2(male) + \beta_3(educ) + \beta_4(child) + \beta_5(roma) + \beta_6(urban) + \beta_7(assets) + \beta_8(tot_inc) + \beta_9(remitr1) + \beta_{10}(tot_ben) + \beta_{11}(rec_unemb) + \beta_{12}(rec_unemb) + \varepsilon$.

$\text{Logit}(empl = 1|x)$ is the probability of being employed, ε is the error term, β_0 is the

constant term (Y-intercept), and $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}$ and β_{12} are the coefficients of respective independent variables.

The main independent variables of interest are remittances received and total social transfers received (Exhibit 1). The model includes variables to control for individual and household characteristics that may influence the probability of working. Variables capturing individual characteristics are age, gender, education, and ethnicity. Household characteristics are captured by the number of individuals less than 16 years of age in the household, whether the household is located in an urban or rural area, household assets, and marital status of the household head. The expected effects of all variables are listed below in Exhibit 2.

Exhibit 2: Description, Prediction, and Rationale of Variables

	Variable	Description	Predicted Relationship	Rationale / Previous Studies
Y	<i>empl</i>	Dichotomous	N/A	N/A
β_1	<i>age</i>	Continuous	Positive	Sahn et al., 2002
β_2	<i>male</i>	Dichotomous	Positive	Sahn et al., 2002
β_3	<i>educ</i>	Continuous	Positive	Theory, Sahn et al. 2002
β_4	<i>child</i>	Continuous	Positive	Sahn et al., 2002
β_5	<i>roma</i>	Dichotomous	Negative	Rutkowski 1999
β_6	<i>urban</i>	Dichotomous	Negative	Rutkowski 1999, Sahn et al., 2002
β_7	<i>assets</i>	Dichotomous	Negative	Theory, Gruber 2001, Bloemen & Stancanelli 2001
β_8	<i>tot_inc</i>	Continuous	Positive	Theory (measures income effect)
β_9	<i>remitr1</i>	Continuous	Negative	Funkhouser 1992; Zachariah et al. 2001
β_{10}	<i>tot_ben</i>	Continuous	Negative	Marion & Zilibotti 1997; Sahn et al. 2002; Lelkes & Scharle 2005
β_{11}	<i>rec_unemb</i>	Dichotomous	Negative	Marion & Zilibotti 1997
β_{12}	<i>hh_married</i>	Dichotomous	Positive	Sahn et al., 2002

Data and Limitations

The data for this study come from the 2001 Bulgaria Integrated Household Survey (BIHS 2001), which is part of the World Bank's Living Standards Measures Study. The database was created by merging different data sets from the BIHS 2001, and includes 5,117 observations.⁹ While the majority of the observations use individuals as the unit, one of the key independent variables, remittances received,

⁹ There were originally 5,118 observations. One observation was eventually dropped from the dataset due to missing data.

provides only household-level data. For analytical purposes, each individual in the household is given the household remittance total. For example, if a household is listed as receiving 50 Levas per month in the remittances received data set, the database allocates 50 Levas per month to each household member. Doing so does present a challenge, however, since the total amount of remittances received are overstated, thereby affecting the accuracy of the effect of remittances on employment decisions and should be considered when interpreting results for policy implications. However, it does not necessarily undermine the results generated by this study, especially to the extent the money is made part of the household budget to purchase food and other household goods.

Missing data for individuals' amount of monthly unemployment payments received also present challenges and limitations. For one, the construction of the social transfers variable is the sum of all monetary receipts from social programs. Because of the missing data, it is not possible to include unemployment payments received. To deal with this problem, a separate indicator variable for unemployment benefits (receiving or not receiving) is included in the model.

Chapter 5. Regression Analysis

The hypothesis tested in this study is that unearned income and working are negatively related. Specifically, the study posits that Bulgarians who receive remittances and social transfers are less likely to be employed compared to those who do not.

Logit Estimates of the Impact of Individual and Household Characteristics on Working¹⁰

				No. of observations = 5,117	
				LR chi2(12) = 1509.99	
				Prob > chi2 = 0.0000	
				Pseudo R-sq. = 0.2143	
Log likelihood = -2768.4398					
empl	Odds Ratio	Coef.	Std. Error	z	P> z
age	.99555	-.0044599	.002439	-1.83	0.067#
male	1.449145	.370974	.0659323	5.63	0.000*
educ	1.152823	.1422136	.0083268	17.08	0.000*
child	1.339247	.2921079	.040231	7.26	0.000*
roma	.5155869	-.6624494	.1421913	-4.66	0.000*
urban	1.205	.1864795	.077288	2.41	0.016**
assets	.9763105	-.0239746	.1334568	-0.18	0.857
tot_inc	.9998724	-.0001276	.0003071	-0.42	0.678
remitr1	.9981732	-.0018285	.0004875	-3.75	0.000*
tot_ben	.9996061	-.000393	.0007773	-0.51	0.612
rec_unben	.1402134	-1.96459	.0862195	-22.79	0.000*
hh_married	1.2335	.2098555	.0872067	2.41	0.016**
_cons	--	-.8923018	.228931	-3.90	0.000

*Statistically significant at all conventional alpha levels. **Significant at the .05 level.
#Significant at the .10 level.

¹⁰ Note: The z-scores reported for logistic regression are akin to t-statistics in OLS regression.

Regression results (presented above) add partial evidence that various types of unearned income reduce the incentive to work. On the one hand, receiving remittances lowered the probability of being employed, similar to the conclusions in **Funkhouser's (1992)** and **Zachariah et al.'s (2001)** country-level studies on migration. However, empirical evidence did not find that receiving social transfer payments decreases the likelihood of working. This contradicts the findings of previous research on social assistance, such as **Lelkes and Scharle's (2005)** study on Hungary which found that men receiving social transfers were more likely to be economically inactive compared to non-recipients. A possible reason for this finding may be attributed to the perception of benefit duration. As previously mentioned, the literature suggests that longer duration of benefits increases work disincentive effects. In a way, remittance could be thought of as a social benefit with unlimited duration, while social transfers have an end point.

The one exception was receiving unemployment benefits, which had a strong, negative impact on the probability of working.¹¹ The statistical significance of the variable was expected, since by definition receiving unemployment benefits is contingent on being unemployed. However, the probability of working for Bulgarians receiving unemployment benefits was 16 percent, compared to 57 percent for those not

¹¹ Normally, analyzing the impact of unemployment benefits on labor market activity is done in the context of looking at duration of unemployment stints or movements in the labor market.

receiving benefits, which raises the question of why individuals who are working receive unemployment benefits.¹²

Unemployment benefits aside, the relationship between social transfers and employment presented here is not wholly unsupported. **Rutkowski's (1999)** study on poverty in Bulgaria, for instance, found evidence contradicting the disincentive effect to work of receiving unemployment benefits. One reason that may explain why case studies on Bulgarian labor market behavior do not conform to the general body of literature is that 1) social assistance programs in Bulgaria in 2001 were not well funded and 2) it was simply too difficult for many people to enroll in programs. Therefore, the conditions necessary for the work disincentive effect to occur may not have been present in Bulgaria, which would explain the discrepancies in the results of research focused on Bulgaria as compared to other countries.

Impact of household and individual characteristics

Variables capturing household and individual characteristics are for the most part in line with the literature and labor economic theory. With the exception of household assets, the variables capturing household characteristics – i.e., whether the household is located in an urban or rural area, the number of individuals less than 16 years of age in the household, and marital status of the household head – demonstrate a

¹² See Appendix for discussion on the unemployment benefits variable.

statistically significant relationship with being employed. Consistent with previous research on Bulgaria (e.g., **Sahn et al., 2002**), individuals who live in urban areas, for example, were more likely to be employed compared to those living in rural areas, holding all other factors constant. In particular, the predicted probability of employment of an individual living in an urban area was 43 percent, compared to 39 percent for those living in rural areas. The number of children in the household also had a statistically significant impact on labor market decisions. The probability of an individual being employed rose as the number of children in the household increased, as follows:

<i>Number of Children in the household</i>	<i>Probability of Working</i>
036
144
251
359
466
572
678
783

These results make intuitive sense, given that the larger the family, the more necessary it becomes for individuals in the household to maintain employment, especially given the insufficiency of Bulgaria's social welfare programs.

The marital status of household heads did impact labor market decisions; specifically, married household heads were more likely to be employed compared to those who are single, all else constant.

The one household characteristic that did not have an impact on employment was household assets. According to the regression results, individuals from households possessing assets are just as likely to be employed as those from household without assets. On the surface, this seems to conflict with findings from previous studies on wealth (e.g., **Gruber, 2001; Bloemen 2002; Bloemen & Stancaelli, 2001**), which showed that greater wealth holdings tend to have a negative impact on labor market transitions and employment probability. However, the discrepancy may lie in the fact that the assets variable used in this study is dichotomous (i.e., assets or no assets). Thus, it may well be the case that the value of assets held does have an impact on employment decisions. This would again suggest that duration is an issue. Specifically, the greater the value of assets held, the longer they will last, thereby increasing the likelihood of influencing decision-making with respect to employment.

With the exception of age,¹³ variables capturing individual characteristics were significant, and had the predicted effect on employment (see Exhibit 2). Table 7 shows

¹³ Although the predicted relationship between age and working is positive, the variable is only marginally significant ($p = .069$).

the probability of working based on gender and ethnicity. With respect to gender, males were more likely to be employed than females, which is not surprising given the higher employment rate for males compared to females (see Table 3). The large gap between the probabilities of working for Romas and non-Romas was also not surprising in light of the preliminary evidence presented above (see Table 3). What is important to note here is that even though many of the important influences on working are being held constant, there are still large differences by gender and ethnicity, implying that labor market discrimination could be playing a role; in other words, women and non-Romas may be facing discriminatory practices in the labor market that inhibit them from finding work.

Table 7: Characteristics of the Probability of Working by Gender and Ethnicity (n = 5,117)

Characteristic	Category	Probability
Gender	Male	.47
	Female	.37
Ethnicity	Roma	.29
	Non-Roma	.44

Finally, the effect of education (also used as a proxy for wages to capture the substitution effect) on the probability of working was positive and highly significant

($z = 17.08, p < .000$), supporting evidence previously presented in this study suggesting that Bulgarians seem to understand the importance of education. The increase in the probability of working rose with schools as follows:

<i>Years of Education</i>	<i>Probability of Working</i>
0-5	$.11 < p < .20$
6-10	$.20 < p < .35$
11-15	$.35 < p < .52$
16-20	$.52 < p < .68$
21-24	$.68 < p < .79$

Clearly, for Bulgarians the higher the level of education achieved, the much greater the likelihood that that person is working. Conversely, low levels of educational attainment seem to greatly limit employment possibilities.

Conclusions

There are several conclusions to draw from the empirical evidence presented in this paper. First, with respect to the main variables of interest, social transfer payments do not seem to lessen the likelihood of working, contrary to previous research. Again, this may have more to do with the structure of the social assistance system in Bulgaria than the receipt of the transfers themselves. Another possibility, as **Heller and Keller**

(2001) point out in their paper on transition countries and reforms in the social sector, was that transitioning countries could not meet the growing demand for social benefits due to a diminished revenue base as a result of lower economic activity (p. 7). On the other hand, regression results support the hypothesis that Bulgarians who receive remittances are less likely to be working compared to those who do not. To a certain degree, then, this paper does lend evidence that non-wage income and the likelihood of working move in opposite directions.

Second, household characteristics appear to have a significant impact on labor market decisions. For one, Bulgarians from larger families are more likely to work compared to those who come from smaller families. As seen in the previous section, the probability of working rises rapidly as the number of children in the household increases. Albeit a relatively small difference, households located in rural areas are less likely to be employed compared to those located in urban areas; in particular, there is a four-percentage point difference in the probability of being employed between individuals from rural and urban areas.

Individual characteristics play an equally important (if not greater) role as household characteristics in determining labor market activity. For instance, education is a very good predictor of employment, as those with university or higher are about six to seven times more likely to be working compared to individuals with less than a

sixth grade education (see page 27). The impact of gender and ethnicity on employment is equally as strong. According to the data, Romas are much less likely to be working compared to non-Romas, as are females compared to males, which suggests that discrimination against women and Romas in the labor market appears to be a major problem.

Policy Implications

Governments continuously face the challenge of how best to protect those individuals experiencing economic hardships without creating employment disincentives. Understanding what drives employment outcomes can help policymakers make better decisions when creating or reforming social protection programs. For example, if unemployment is simply due to a lack of opportunity (i.e., insufficient demand for labor), then governments should strive to ensure adequate sources of social protection for those who cannot find employment. On the other hand, if the demand for labor is not the underlying factor contributing to unemployment, but disincentive effects attributed to unearned income, then it is essential to reform social security structures so as to minimize employment disincentives, as preliminary evidence indicates. Naturally, the selection of reform programs must take into account country-specific conditions (e.g., Vodopivec, 2006).

The evidence presented in this paper suggests that social transfer payments did not create work disincentive effects in Bulgaria in 2001. This should not come as a great surprise, however, given the underdeveloped nature of social welfare systems in many transitioning countries (**Heller & Keller, 2001**). There is much evidence in the literature that the duration of benefits plays an important role in determining disincentive effects. In light of evidence found in other country-level studies (**e.g., Lelkes & Scharle, 2005; Chen & Van der Klaauw, 2006**), the Bulgarian government must consider the possibility of work disincentive effects occurring as the country continues to improve its social sector and overall living conditions. A good place to start would be to look at various activation strategies, which tend to help offset work disincentives.¹⁴

Much of literature indicates that remittances help to mitigate poverty and increase domestic demand, which would suggest that governments should encourage and facilitate the flow of migrant income back into the home country. Nonetheless, policy concerning remittances does merit careful consideration, especially if such income creates employment disincentives in recipient households in which individuals could be in the labor market.

¹⁴ See *OECD Employment Outlook (2005)* for a discussion on the impact of Labor Market Programs and Activation Strategies on employment outcomes.

In 2001, remittance inflows did decrease the likelihood of working for Bulgarians. However, considering that only a small percentage of those surveyed in the data received remittances (14 percent), it does not appear that any major policy changes are warranted, unless changes are focused on increasing incentives to foster a greater inflow of remittances.

In light of the outcomes of the regressions, it is clear that the Bulgarian government must address discriminatory practices in the labor market against Romas and females in the labor market. As seen in the preliminary evidence presented above, the employment rates for Romas for all age groups are appallingly low (see page 12). It is well documented that the Roma population are discriminated against in many aspects of life. While the government cannot force the general population to cease such practices, it does have the power (and obligation) to create legislation to protect Romas from discriminatory hiring practices so that they have the same opportunities to earn a living as the rest of the population. Although discrimination is not as severe with respect to gender, the government can work towards creating greater opportunities for women in the labor market as well.

Education is clearly an important determinant in labor market activity in Bulgaria. In 2001, the average level of education for working-age population was

approximately 12 years. According to the results of this analysis, the probability of working increases rapidly beyond secondary schooling. Therefore, the Bulgarian government should encourage and try to facilitate higher education, be it more traditional type of study (i.e., university programs), or more specialized training.

Finally, the government should develop programs aimed at young people, given that youth (ages 16-24) employment rates were far below those of adults (ages 25-54). Many countries in the European Union (EU) have faced this problem and have implemented programs to improve the plight of younger workers. As a new Member, Bulgaria has a variety of experiences and resources at its disposal to improve employment opportunities for its youth population.

Although there is much work left to be done, Bulgaria has undertaken many social reforms in preparation for accession into the EU. A major benefit of Bulgaria's transition experience is the appropriate measures to take when reforming social policy. Since several former socialist countries have yet to undergo extensive economic, social, and political reform, this study on Bulgaria may help to discern successful from unsuccessful social reforms.

References

- Aslund, A. (2002). *Building Capitalism: The Transformation of the Former Soviet Bloc*. Cambridge: Cambridge University Press.
- Bloemen, H. G. (2002). The relation between wealth and labour market transitions: An empirical study for the Netherlands. *Journal of Applied Econometrics*, (17)3, 249-268.
- Bloemen, H. G. & Stancanelli, E. G. F. (2001). Individual wealth, reservation wages, and transitions into employment. *Journal of Labor Economics*, 19(2), 400-439.
- Chen, S. & van der Klaauw, W. (2006). The work disincentive effects of the disability insurance program in the 1990s. *CES Discussion Paper No. 06-05*. Retrieved December 2, 2006 from <http://www.ces.census.gov/index.php/ces/1.00/cespapers?limit=20>
- Funkhouser, E. (1992). Mass emigration, remittances and economic adjustment: The case of El Salvador in the 1980s. In G. Borjas & R. Freeman (Eds.), *Migration and the Workforce: Economic Consequences for the United States*. Chicago, IL: University of Chicago Press.
- Glytsos, N. P. (1993). Measuring the income effects of migrant remittances: A methodological approach applied to Greece. *Economic Development and Cultural Change*, 42(1), 131-168.

- Gruber, J. (2001). The wealth of the unemployed. *Industrial and Labor Relations Review*, 55(1), 79-94.
- Heller, P. & Keller, C. (2001). Social Sector Reform in Transition Countries. *IMF Working Paper WP/01/35*.
- Kugler, M. (2005). Migrant remittances, human capital formation and job creation externalities in Columbia. *Borradores de Economia*, No. 002263, Banco de la República. Retrieved October 12, 2006 from <http://ideas.repec.org/p/col/001043/002463.html>
- Lalive, R., Van Ours, J., & Zweimueller, J. (2006). How Changes in Financial Incentives Affect the Duration of Unemployment. *Review of Economic Studies*, 73(4), 1009-1038.
- Lekles, O. & Scharle, A. (2004). Low participation among older men and the disincentive effects of social transfers: The case of Hungary. (A. Scharle, Trans.). In T. Kolosi, I. G. Tóth, & G. Vukovich (Eds.), *Social Report 2004* (233-247). Budapest: TÁRKI.
- Marimon, R. & Zilibotti (1997). Unemployment vs. Mismatch of Talents: Reconsidering Unemployment Benefits. *NBER Working Paper No. 6038*.
- Organisation for Economic Co-operation and Development. (2005). *Employment Outlook*, Paris, France.

- Rutkowski, J. J. (1999). Labor Markets and Poverty in Bulgaria. A background paper prepared for the Bulgaria Poverty Assessment study of the World Bank.
- Sahn, D. E., Younger, S. D. & Meyerhoefer, C. (2002). Rural poverty in Bulgaria: Characteristics and trends. *CFNPP Working Paper No. 132*. Retrieved October 5, 2006 from <http://www.cfnpp.cornell.edu/info/workpap.html>
- U.S. Department of State (2002). *Country Report on Human Rights Practices for 2001: Bulgaria*. Retrieved January 20, 2007, from <http://www.state.gov/g/drl/rls/hrrpt/2001/eur/8238.htm>
- Vodopivec, M. (2006). Choosing a system of unemployment income support: Guidelines for developing and transition countries. *The World Bank Research Observer*, 21(1), 49-89.
- Zachariah, K. C., Mathew, E. T. & Irudaya Rajan, S. (2001). Social, economic and demographic consequences of migration on Kerala. *International Migration*, 39(2), 43-68.

Appendix A

1. Model Specification

Much research on labor market decisions include a marital status variable. For this study, a marital status variable was not available for each individual observation in the dataset, nor was it possible to create one. However, there was a variable indicating the marital status of household heads. Two regressions were run to determine whether or not to include the variable. The first specification and corresponding results are presented in the body of the paper. The regression without the marital status variable is specified as follows: $\text{logit}(empl = 1|x) = \beta_0 + \beta_1(age) + \beta_2(male) + \beta_3(educ) + \beta_4(child) + \beta_5(roma) + \beta_6(urban) + \beta_7(assets) + \beta_8(tot_inc) + \beta_9(remitr1) + \beta_{10}(tot_ben) + \beta_{11}(rec_unemb) + \varepsilon$.

Logit Estimates of the Impact of Individual and Household Characteristics on Working (marital status of household head not included):

No. of observations = 5,117					
LR chi2(11) = 1504.18					
Prob > chi2 = 0.0000					
Pseudo R-sq. = 0.2135					
Log likelihood = -2771.3422					
empl	Odds Ratio	Coef.	Std. Error	z	P> z
age	.9955741	.0044358	.0024375	-1.82	0.069#
male	1.461927	.3797555	.0658032	5.77	0.000*
educ	1.152517	.1419486	.0082119	17.08	0.000*
child	1.355568	.3042204	.0399036	7.62	0.000*
roma	.5125829	-.6682929	.1422503	-4.70	0.000*
urban	1.201896	.1839007	.0772541	2.38	0.017**
assets	1.003844	.0038362	.1327794	0.03	0.977
tot_inc	.9998983	-.0001017	.0003064	-0.33	0.740
remitr1	.9981142	-.0018876	.0004885	-3.86	0.000*
tot_ben	.9996627	-.0003373	.0007760	-0.43	0.664
rec_unben	.1402916	-1.964032	.0861934	-22.79	0.000*
_cons	--	-.9478221	.2276072	-4.16	0.000

*Significant at all conventional alpha levels. **Significant at the .05 level. #Significant at the .10 level.

Comparing the results of this regression with those from the model including the marital status variable, the addition of marital status of the household head was statistically significant and had little impact on the other coefficients.

The same analysis was performed for the unemployment benefits indicator variable. The specification for this model is as follows: $\text{logit}(empl = 1|x) = \beta_0 + \beta_1(age) + \beta_2(male) + \beta_3(educ) + \beta_4(child) + \beta_5(roma) + \beta_6(urban) + \beta_7(assets) + \beta_8(tot_inc) + \beta_9(remitr1) + \beta_{10}(tot_ben) + \beta_{11}(hh_married) + \epsilon$.

Logit Estimates of the Impact of Individual and Household Characteristics on Working (unemployment benefits indicator variable not included):

No. of observations = 5,117					
LR chi2(11) = 884.38					
Prob > chi2 = 0.0000					
Pseudo R-sq. = 0.1255					
Log likelihood = -3081.2444					
empl	Odds Ratio	Coef.	Std. Error	z	P> z
age	1.003574	.0035671	.0023106	1.54	0.123
male	1.325669	.2819173	.0615122	4.58	0.000*
educ	1.155502	.1445347	.0078359	18.45	0.000*
child	1.23061	.20751	.0369031	5.62	0.000*
roma	.3387608	-1.082461	.1310463	-8.26	0.000*
urban	1.40783	.3420495	.0719763	4.75	0.000*
assets	.9873902	-.01269	.1249192	-0.10	0.919
tot_inc	.9999686	-.0000314	.0002796	-0.11	0.910
remitr1	.9984743	-.0015269	.0004730	-3.23	0.001*
tot_ben	1.000016	.0000164	.0007289	0.02	0.982
hh_married	1.220608	.1993491	.0823376	2.42	0.015*
_cons	--	-2.67351	.2032018	-13.16	0.000

*Significant at all conventional alpha levels.

As seen from the results above, omitting the unemployment benefits variable from the regression had little impact on social benefits and remittances, but did alter some of the other variables. However, the differences were not significant.

Linktests were run for the models to determine correct model specification.

Linktest for Specification without marital status variable:

No. of observations = 5,117
LR chi2(10) = 1,505.61
Prob > chi2 = 0.0000
Pseudo R-sq. = 0.2137
Log likelihood = -2770.6268

empl	Coef.	Std. Error	z	P> z
_hat	1.020309	.0360356	28.31	0.000
_hatsq	.0263821	.0219281	1.20	0.229
_cons	-.0273597	.0399429	-0.68	0.493

Linktest for Specification including marital status variable:

No. of observations = 5,117
LR chi2(10) = 1,511.24
Prob > chi2 = 0.0000
Pseudo R-sq. = 0.2145
Log likelihood = -2767.8154

empl	Coef.	Std. Error	z	P> z
_hat	1.018707	.0358741	28.40	0.000
_hatsq	.0245606	.0218613	1.12	0.261
_cons	-.0255723	.0399675	-0.64	0.522

Linktest for Specification omitting unemployment benefits variable:

No. of observations = 5,117
LR chi2(10) = 884.47
Prob > chi2 = 0.0000
Pseudo R-sq. = 0.1255
Log likelihood = -3081.1975

empl	Coef.	Std. Error	z	P> z
_hat	.9944065	.0358741	23.31	0.000
_hatsq	-.0096448	.0315629	-.31	0.760
_cons	-.0255723	.0358744	.15	0.878

The coefficient on the variable *_hatsq* for all models ($z = 1.20$, $p = 0.229$, $z = 1.12$, $p = 0.261$, and $z = -.31$, $p = 0.76$, respectively) is not statistically significant, indicating that the models are correctly specified. The final specification used in this paper includes both the household head marital status variable and the indicator variable for unemployment benefits. The decision to include the marital status for household heads was based off previous studies. Including the unemployment benefits indicator variable in the analysis was done so as to incorporate as much of Bulgaria's social welfare system as possible.

2. Heteroscedasticity

Two tests were run to check for heteroscedasticity. First, the specification was run using robust standard errors (see results below). Since little change was observed between regressions run with normal standard errors and robust standard errors, regressions with normal standard errors are used in the study.

Specification Using Robust Standard Errors:

Log likelihood = -2768.4398

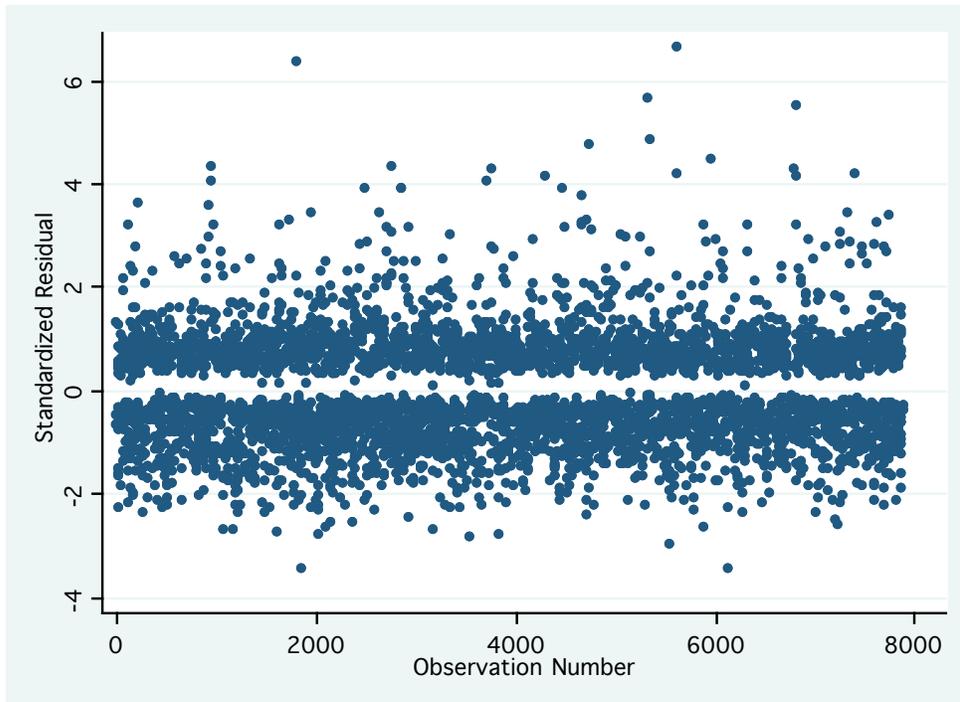
No. of observations = 5,117
Wald chi2(12) = 952.41
Prob > chi2 = 0.0000
Pseudo R-sq. = 0.2143

empl	Odds Ratio	Coef.	Robust Std. Error	z	P> z
age	.99555	-.0044599	.0025932	-1.72	0.085
male	1.449145	.370974	.0658194	5.64	0.000*
educ	1.152823	.1422136	.0084236	16.88	0.000*
child	1.339247	.2921079	.0384206	7.60	0.000*
roma	.5155869	-.6624494	.1443665	-4.59	0.000*
urban	1.205	.1864795	.0761182	2.45	0.014**
assets	.9763105	-.0239746	.1335365	-0.18	0.858
tot_inc	.9998724	-.0001276	.0002998	-0.43	0.670
remitr1	.9981732	-.0018285	.0004767	-3.84	0.000*
tot_ben	.9996061	-.000393	.0007648	-0.52	0.606
rec_unben	.1402134	-1.96459	.0883828	-22.23	0.000*
hh_married	.8107014	-.2098555	.0866780	-2.42	0.015**
cons	--	-1.844105	.221979	-8.31	0.000

*Statistically significant at all conventional alpha levels. **Statistically significant at the .05 level

Second, Pearson (or standardized) residuals were plotted against the predicted values of the dependent variable. With the exception of a few observations, most residuals are small, indicating homoscedasticity. In addition, observations appear to be randomly distributed, indicating no sample selection problems.

Figure 1A: Pearson Residuals vs. Predicted Values of Dependent Variable



3. Multicollinearity

A series of pairwise correlations were run to test for multicollinearity. In general, variables are considered to be multicollinear when correlations exceed 0.7. As seen in Table 1A below, no two sets of variables have correlations above .5, indicating no issues of multicollinearity.

Table 1A: Correlation Coefficients

	empl	age	male	educ	child	roma	urban	assets	tot_inc	remitrl	tot_ben	rec_unemb	hh_married
empl	1												
age	.022	1											
male	-.066	.021	1										
educ	.368	-.005	-.032	1									
child	-.055	-.225	.018	-.223	1								
roma	-.244	-.174	-.003	-.462	.441	1							
urban	.188	-.034	.015	.365	-.161	-.237	1						
assets	.014	.144	-.014	.016	-.081	-.070	-.079	1					
tot_inc	.000	-.015	.018	.006	-.001	.007	-.003	-.020	1				
remitrl	-.001	-.086	.001	.096	.007	-.076	.088	-.130	-.010	1			
tot_ben	.008	.001	.001	.001	-.005	-.037	.036	-.001	-.213	.016	1		
rec_unemb	-.404	-.189	-.032	-.252	.219	.345	-.191	-.030	-.003	-.037	-.028	1	
hh_married	-.030	.010	.050	.027	-.136	-.042	.050	-.084	-.027	.057	-.014	-.025	1