DISCOVERING THE EFFECT OF EDUCATION ON POVERTY REDUCTION USING EMPIRICAL ANALYSIS: THE CASE OF ALBANIA

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Abstract

Albania is a country in Western Balkan region that for a long time have been under development process. The country engaged to meet the Millennium Development Goals and in terms of poverty and education has prepared strategies to achieve goals. However, the latest figures show that objectives of poverty reduction are unlikely to be achieved in the near future. In terms of education the country has undertaken some reforms but the results are not what were expected to be. The figures show that poverty and education remain again key challenges for the country. The overall objective of the paper is the investigation of the relationship between education and poverty in Albania. Concretely, the main aim of this study is testing the hypothesis that the effect of education differ between different segments of population. In this paper empirical techniques for impact assessment are used. The study will provide quantitative and qualitative findings, which will make it possible to provide more complete and clearer effects. It is also intended to compare the findings of the study with existing policies with the final aim of making recommendations for efficient education policies that can be pursued to improve the lives of the poor strata.

Keywords: Education, Human Capital, Poverty Reduction, Quantile Regression, Albania

INTRODUCTION

Albania engaged to reach Millennium Development Goals in 2015 and it is engaged continuously in reforming the education sector, especially, increasing/ improving of access in high education. This was expected to be accompanied with the increase of incomes and as the

result of it with low levels of poverty, but despite the fact that country has had positive economic growth, during the global financial crises, the last data show that poverty is increased, and this is a big concern. The fraction of the population whose real per capita monthly consumption is below poverty line is increased from 12.5% in 2008 to 14.3% in 2012 and data show that a big number of families have a consumer level close to poverty border line. Poor families are characterized from a low level of education and as the result of this are faced with a higher risk of being unemployed. In contrary to the expectations, public investment in education and the increase of school attendance level was not accompanied with decrease of poverty levels as it was expected to be. For this reason, it is intended to analyze the relationship between these variables.

General objective of this study is investigation of correlation between education and poverty in Albania, being based on Living Standards Measurement Survey (LSMS) 2012 data. Concretely, the main aim of this study is testing the hypotheses that the effect of education differ between different segments of population, especially between the poor strata and the rich strata of population within our country.

LITERATURE REVIEW

Human capital is widely accepted as one of the most important definers of economic performance, poverty and its dynamics (Sultan and Waheed, 2011; Fu et al., 2007; Savvides and Stengos, 2009). According to Tilak (1994), theory of human capital stress the role of education equipping the individuals with knowledge and abilities that in a direct way increase the productivity, increasing at the same time their possibilities in labor market. For this reason it is believed that individuals tend to invest in education expecting huge amounts of incomes in the future (Schultz, 1961; Becker, 1964). Using the equation of Mincer salary (1974), many empirical studies have found many positive returns and have confirmed its role in decreasing the level and risk of poverty (Psacharopoulos, 1994; Psacharopoulos and Patrinos, 2004).

A considerable number of studies have investigate the factors that affect poverty of families in the countries under development process and those with low incomes (Oyugi, 2000; Geda et al., 2005; Andersson et al., 2006; Bruck et al., 2007; Bogale and Korf, 2009; Khan, 2008; Pfau and Giang, 2009; Garza-Rodriguez, 2011). Results of empirical studies confirm theoretical expectations that education is a very important definer of life standard and of being poor and gives an important contribution to reduce poverty (Sumarto et al., 2007; Andersson et al., 2006; Njong, 2010, Awan et al., 2011; Janjua and Kamal, 2011). Education can help families to fill the basic needs of life such are water and hygiene, to use possibilities for health service and housing and to increase the life standards (Tilak, 1999; Jefrrey and Basu, 1996). Studies

done based on family level suggest that an increase of the school attending level reduce the probability of being poor (Njong, 2010). Researches also showed that poverty levels are higher among family units with a lower level of education or among them without education at all (Achia et al., 2010; Bruck et al., 2007; Chaudry et al., 2010, Tilak, 2005). Results of the models evaluated in quantile used by Gounder and Xing (2012) showed that the effect of education on income varies among individuals with low incomes and those with high incomes.

Anyway, based on review done up to know of the existing literature, there are no evidences about the effect of education on poverty in Albania. Up to now studies have been concentrated on finding out the factors which define the consumer level and not in evaluation of education effect. According to Audet et al. (2006) and WB (2007), education is an important definer of poverty in Albania. Furthermore, in these researches have been used surveys which include the whole delivery range of incomes/consume supposing that all family units have the same behavior in high and small percentages, an issue that has more possibility not to be true.
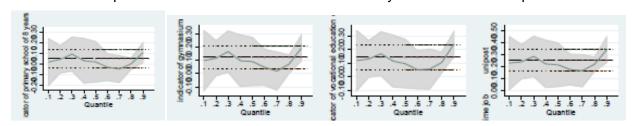
METHODOLOGY

The data that are used in this study based on the forth LSMS conducted in 2012, a survey of INSTAT (Institute of Statistics) in collaboration with World Bank where 6671 households were included in the analysis. The main objective of LSMS is to collect information, in order to make possible measuring of family wellness and identification of factors which define it. Wellness is measured through consume aggregate, providing information on spreading level of poverty in Albania country. A household is considered as poor if its per capita consumption expenditure falls below poverty line which has been estimated equal to 4,891 ALL (Albanian Lek) per capita per month. Wide diapason of the modules and questions of LSMS allow getting a considerable amount of information for the assessment of quantitative education effect through the use of econometric techniques.

This research will analyze the impact of education in the per capita consumption expenditure using all representative data for the family unit levels in Albania. Despite the fact that on the focus of the research is the education effect, other factors will be used in the empirical analyze as checking variables, in order to avoid displacement issue as the result of variables which are not included in this model. A considerable number of control variables were included in the models. These included regional controls for three strata of the LSMS 2012 with Tirana being the reference category, and urban location dummy (rural is the reference category), a vector of characteristics of the head of the household such as age, marital status, gender, a vector of household characteristics such as number of children, adults, household size (and its square), dependency ratio (and its square), number of full-time employed

members, an indicator of health status as proxies by the presence of a household member suffering from a chronic disease, an indicator of a significant shock suffered from the household in the last 5 years and a proxy of household's wealth as measured by the possession of a car. Finally, another control variable was the percentage of migrants at the community level, as a measure of migration spillovers. The variables of interest, the human capital variables, included dummies of education level of the household head. They are a dummy of primary education (8-9 years), a dummy of gymnasium high school, a dummy of vocational education and a dummy of university or post-graduate diploma, with the reference category being the group with less than 8 years of education diploma. The dependent variable was the natural logarithm of the per capita consumption expenditure. Taking in consideration that the interest of this study is measuring that the effect of education varies among spreading consume, is decided to be used method of quantile regression with categorical depending variables.

RESULTS

The results of the quantile regression estimation are presented in Table 1. Estimation was carried out with 400 bootstrap replications each which estimated the coefficients according to deciles of consumption. 6671 households were included in the analysis, and the R squared of the estimations varied from 0.25-0.30 which can be considered as fairly good figures of R squared for cross-section data. The graph below shows the fluctuations of the effects between deciles of consumption expenditure and their confidence intervals. The straight lines indicate the effect of the Ordinary Least Squares regression.

Graph 1: The Effects of Education Variables by Deciles of Consumption

The results indicate that the control variables have in general the expected signs and statistical significance. With regards to the human capital indicators in the deciles estimation the primary education indicator is significant at the five percent level only in the regression of the last decile. Parameter tests presented in Table 2 indicate that the effect is the same (0) in all the deciles of consumption. The situation is different for the indicator of general high school diploma. Although in all the regressions this variable has the expected positive sign, it is not significant in all the

regressions. It is not significant in the regression of the first decile, but it is significant at the five percent level in the regressions for the second, third and the last deciles. The results indicate that households with heads that have completed general high school have in general 11, 17 and 19 percent higher consumption levels compared to households whose heads have primary school diplomas, respectively. However, statistical tests of parameter equality in every decile indicate that the effect is statistically the same in every decile of consumption, and any difference can be attributed to the actual sample, rather than to the population of the study.

This pattern of results holds for the vocational education dummy, with the exception that its effect is also significant in the 0.8 decile of consumption. In the second decile, a household whose head has vocational education diploma has 13 percent higher levels of consumption compared to households whose heads have primary education, ceteris paribus. In the third decile, this difference is about 17 percent, while in the eighth and ninth decile the effect is 10 and 24 percent, respectively. Again, despite the differences, the statistical tests indicate that there is sufficient evidence to support the view that the effects are statistically equal between consumption deciles.

The indicator of university or post-graduate diploma is the only proxy of human capital that is positive and significant in all the decile models. The effect is high at the lower deciles of consumption and decreases for the middle income households. It increases again in the higher deciles and reaches its maximum of 33 percent in the upper decile. These differences however, are not statistically significant as tests indicate that the null hypothesis of parameter equality is not rejected at any conventional level.

CONCLUSION

Millennium Development Goals of the United Nations and poverty reduction strategies recommended by the World Bank are focused on primary education and education of women. It would be misleading to say that growth, development and poverty reduction hinge on the universalizing of primary education. Primary education is the initial threshold of human capital but secondary and higher education will give rise to acceleration and sustenance in economic growth development, and hence poverty reduction. So, educational attainment is one of the key determinants of the poverty and should be considered primarily in implementing poverty reduction programs.

This study aimed at exploring the empirical relationship between education and poverty in Albania and testing that the effect of education differs between different segments of population. The data used for this task are taken from the fourth LSMS conducted in 2012 by national Institute of Statistics in Albania. The results are in accordance with the generally

accepted theory that education is negatively linked with the poverty status. The results in this paper confirmed the expectation of a positive effect of education on consumption per capita thus affecting poverty reduction. However, although education as a variable interest of this study in all regressions has the expected positive sign, it is not significant in all regressions. Statistical tests of equality of coefficients by deciles showed that the effect of education is statistically the same in different deciles of consumption.

One of the expected problems of modeling the effect of education on poverty is the problem of endogeneity, which causes displacement of all the parameters in the model. This fact serves as an incentive for future research in this field to apply methods that control and correct the endogeneity of education.

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APPENDICES

Table 1: Estimation of the Effects by Consumption Deciles

Number of obs =   6671

bootstrap(400) SEs   .10 Pseudo R2 =   0.2535

.20 Pseudo R2 =   0.2654

.30 Pseudo R2 =   0.2747

.40 Pseudo R2 =   0.2789

.50 Pseudo R2 =   0.2831

.60 Pseudo R2 =   0.2853

.70 Pseudo R2 =   0.2858

.80 Pseudo R2 =   0.2886

.90 Pseudo R2 =   0.3006

lrcons	Bootstrap Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	Bootstrap Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
	q10					q60				
mountain	.0551925	.0324056	1.70	0.089	-.0083328 .1187178	-.0959107	.0223327	-4.29	0.000	-.1396899 -.0521315
coastal	-.1172636	.0311848	-3.76	0.000	-.1783958 -.0561313	-.1096013	.0202391	-5.42	0.000	-.1492765 -.0699262
central	-.0368951	.0321987	-1.15	0.252	-.1000148 .0262247	-.0606272	.0197443	-3.07	0.002	-.0993323 -.021922
urban	-.0523235	.0183403	-2.85	0.004	-.0882765 -.0163706	-.0807106	.0117039	-6.90	0.000	-.1036541 -.0577671
marriedhh	-.0236789	0470793	-0.50	0.615	-.1159694 .0686116	-.0211002	.0281148	-0.75	0.453	-.0762142 .0340137
malehh	.0531606	.0446117	1.19	0.233	-.0342926 .1406138	.0425671	.0277525	1.53	0.125	-.0118368 .0969709
agehh	.0125608	.0044569	2.82	0.005	.0038239 .0212978	.0069596	.0032338	2.15	0.031	.0006204 .0132989
agehhsq	-.0001117	.0000378	-2.96	0.003	-.0001859 -.0000376	-.0000708	.0000284	-2.50	0.013	-.0001264 -.0000152
primary8	.0203554	.0975175	0.21	0.835	-.1708102 .2115209	-.0281349	.0683595	-0.41	0.681	-.1621414 .1058716
gymnazium	.0977832	.0963066	1.02	0.310	-.0910087 .286575	.0469125	.0691733	0.68	0.498	-.0886894 .1825144
vocational	.1180301	.1002527	1.18	0.239	-.0784973 .3145576	.0499329	.0705076	0.71	0.479	-.0882847 .1881505
unipost	.2293473	.0977386	2.35	0.019	.0377482 .4209463	.1756351	.0692728	2.54	0.011	.0398382 .311432
acthhsize	-.2924337	.0332967	-8.78	0.000	-.3577059 -.2271616	-.2958266	.0198733	-14.89	0.000	-.3347847 -.2568685
acthhsizesq	.0148529	.002546	5.83	0.000	.0098619 .019844	.0203146	.0015864	12.81	0.000	.0172047 .0234245
adults	-.022356	.0219777	-1.02	0.309	-.0654394 .0207275	-.0572389	.0149261	-3.83	0.000	-.0864988 -.027979
children	-.0444331	.0252566	-1.76	0.079	-.0939441 .0050778	-.0983313	.0180327	-5.45	0.000	-.1336812 -.0629814
ftemp	.0357348	.0106911	3.34	0.001	.0147768 .0566928	.0324126	.0083425	3.89	0.000	.0160586 .0487666

Variable	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]
dep_rat	.0429882	.0756799	0.57	0.570	.1053686 .191345	.0350923	.0415501	0.84	0.398	.0463593 .1165438
dep_ratsq	-.0517754	.068654	-0.75	0.451	.1863592 .0828084	-.0044595	.041298	-0.11	0.914	.0854168 .0764978
car	.2530161	.0213625	11.84	0.000	.2111388 .2948934	.2934074	.0133046	22.05	0.000	.2673261 .3194886
shock	.0170536	.0206874	0.82	0.410	.0235003 .0576075	.01195	.0138623	0.86	0.389	.0152246 .0391245
chronic	-.0309245	.017108	-1.81	0.071	.0644617 .0026126	-.0259321	.0119823	-2.16	0.030	.0494212 -.002443
psu_migrperc1	.0485938	.019143	2.54	0.011	.0110674 .0861202	.0310188	.0127759	2.43	0.015	.005974 .0560636
_cons	9.190912	.1642949	55.94	0.000	8.868841 9.512982	10.04214	.1147327	87.53	0.000	9.817231 10.26706

q20						**q70**				
mountain	.0130332	.0233815	0.56	0.577	.0328021 .0588685	-.0779246	.0230097	-3.39	0.001	.123031 -.0328181
coastal	-.1307939	.0237529	-5.51	0.000	.1773572 -.0842307	-.1082676	.0200057	-5.41	0.000	.1474853 -.06905
central	-.0423272	.0229446	-1.84	0.065	.087306 .0026515	-.0580729	.0206405	-2.81	0.005	.0985348 -.0176109
urban	-.0530525	.0141674	-3.74	0.000	.0808252 -.0252798	-.0891158	.0142116	-6.27	0.000	.1169751 -.0612565
marriedhh	-.0301879	.0317746	-0.95	0.342	.0924763 .0321004	-.0186005	.0308725	-0.60	0.547	.0791206 .0419195
malehh	.0587387	.0289106	2.03	0.042	.0020647 .1154127	.0373764	.0291452	1.28	0.200	.0197576 .0945104
agehh	.0101281	.0045472	2.23	0.026	.0012142 .019042	.0064728	.0037164	1.74	0.082	.0008126 .0137582
agehhsq	-.0000975	.0000415	-2.35	0.019	.0001788 -.0000162	-.0000649	.0000328	-1.98	0.048	.0001292 -5.17e-07
primary8	.0443862	.0521671	0.85	0.395	.0578781 .1466505	-.0455331	.0593517	-0.77	0.443	.1618814 .0708153
gymnazium	.115842	.0531891	2.18	0.029	.0115743 .2201097	.0187641	.0595176	0.32	0.753	.0979094 .1354376
vocational	.1300874	.0576263	2.26	0.024	.0171214 .2430534	.0554021	.0626432	0.88	0.377	.0673986 .1782028
unipost	.2396463	.0543289	4.41	0.000	.1331443 .3461484	.1661866	.0590519	2.81	0.005	.0504259 .2819473
acthhsize	-.3003163	.0243143	-12.35	0.000	.3479801 -.2526525	-.2881035	.022299	-12.92	0.000	.3318167 -.2443903
acthhsizesq	.0169922	.0019423	8.75	0.000	.0131848 .0207997	.0187324	.0022362	8.38	0.000	.0143488 .0231161
adults	-.0254002	.0176794	-1.44	0.151		-.0519667	.0158337	-3.28	0.001	

	Coef.	Std. Err.	t	P>|t|		Coef.	Std. Err.	t	P>|t|	
	.0600575	.0092571				.0830059	-.0209275			
children |	-.0531292	.0200302	-2.65	0.008	-	-.0869595	.018913	-4.60	0.000	-
	.0923948	-.0138635				.1240352	-.0498839			
ftemp |	.0130405	.0110335	1.18	0.237	-	.0379675	.0104401	3.64	0.000	
	.0085888	.0346697				.0175016	.0584333			
dep_rat |	.0332383	.0355822	0.93	0.350	-	.0072656	.0418555	0.17	0.862	-
	.0365143	.1029909				.0747847	.0893159			
dep_ratsq |	-.0628951	.0364318	-1.73	0.084	-	.046935	.0417827	1.12	0.261	-
	.1343132	.0085229				.0349726	.1288426			
car |	.2816787	.0158779	17.74	0.000		3181306	.0179904	17.68	0.000	
	.250553	.3128045				.2828635	.3533976			
shock |	-.014286	.0159974	-0.89	0.372	-	.0164523	.0141055	1.17	0.244	-
	.0456461	.0170741				.011199	.0441035			
chronic |	-.0093178	.0161864	-0.58	0.565	-	-.0281279	.0134706	-2.09	0.037	-
	.0410483	.0224127				.0545346	-.0017212			
psu_migrperc 1 |	.0444241	.0136106	3.26	0.001		.0303561	.0130259	2.33	0.020	
	.017743	.0711052				.0048211	.0558911			
_cons |	9.457983	.1337455	70.72	0.000		10.10977	.1184835	85.33	0.000	
	9.195799	9.720167				9.877504	10.34204			
q30 |						**q80** |				
mountain |	-.0231286	.0241561	-0.96	0.338	-	-.0671768	.0255204	-2.63	0.009	-
	.0704824	.0242251				.1172049	-.0171487			
coastal |	-.1169942	.0254416	-4.60	0.000	-	-.0772568	.0245346	-3.15	0.002	-
	.1668679	-.0671205				.1253525	-.029161			
central |	-.0509115	.0249681	-2.04	0.041	-	-.0468029	.0227469	-2.06	0.040	-
	.0998569	-.0019661				.0913941	-.0022117			
urban |	-.0538977	.0117793	-4.58	0.000	-	-.080065	.0150615	-5.32	0.000	-
	.0769889	-.0308065				.1095904	-.0505396			
marriedhh |	.0025846	.0306112	0.08	0.933	-	-.0120376	.032989	-0.36	0.715	-
	.0574232	.0625925				.0767067	.0526314			
malehh |	.0163748	.0324176	0.51	0.613	-	.0087868	.0317871	0.28	0.782	-
	.0471742	.0799238				.0535262	.0710998			
agehh |	.0067827	.0029618	2.29	0.022		.0059564	.0030957	1.92	0.054	-
	.0009766	.0125889				.0001122	.0120249			
agehhsq |	-.000066	.000027	-2.44	0.015	-	-.000055	.0000281	-1.96	0.050	-
	.0001191	-.000013				.00011	-4.03e-08			
primary8 |	.0941371	.0646489	1.46	0.145	-	.0035329	.0419842	0.08	0.933	-
	.0325955	.2208696				.0787696	.0858353			
gymnazium |	.1655015	.065109	2.54	0.011		.0710323	.0422936	1.68	0.093	-
	.0378669	.293136				.0118768	.1539413			
vocational |	.1682255	.0684794	2.46	0.014		.104144	.0491095	2.12	0.034	
	.0339839	.302467				.0078735	.2004145			
unipost |	.2846917	.0655445	4.34	0.000		.2193019	.0451245	4.86	0.000	
	.1562034	.4131799				.1308433	.3077605			
acthhsize |	-.2851671	.0207001	-13.78	0.000	-	-.3026039	.0243661	-12.42	0.000	-

	Coef.	Std. Err.	t	P>|t|		Coef.	Std. Err.	t	P>|t|	
	.3257459	-.2445882				.3503693	-.2548384			
acthhsizesq|	.0160845	.0016714	9.62	0.000		.0212299	.0024956	8.51	0.000	
	.0128079	.019361				.0163378	.0261221			
adults |	-.0317008	.0162525	-1.95	0.051	-	-.0536629	.0175264	-3.06	0.002	-
	.0635609	.0001594				.0880203	-.0193054			
children |	-.0638941	.0177935	-3.59	0.000	-	-.0895456	.020419	-4.39	0.000	-
	.0987751	-.029013				.1295734	-.0495178			
ftemp |	.0146283	.0090625	1.61	0.107	-	.0411718	.0121813	3.38	0.001	
	.0031371	.0323937				.0172925	.065051			
dep_rat |	.0346211	.0279059	1.24	0.215	-	.0157929	.0342383	0.46	0.645	-
	.0200834	.0893257				.0513251	.082911			
dep_ratsq |	-.0394538	.0271178	-1.45	0.146	-	.0606578	.0338531	1.79	0.073	-
	.0926135	.0137058				.0057051	.1270207			
car |	.2922776	.0149756	19.52	0.000		.3392359	.0204202	16.61	0.000	
	.2629206	.3216347				.2992059	.379266			
shock |	-.0048688	.0137026	-0.36	0.722	-	.0091337	.0172459	0.53	0.596	-
	.0317303	.0219927				.0246737	.0429412			
chronic |	-.0068215	.0121305	-0.56	0.574	-	-.0327163	.015842	-2.07	0.039	-
	.0306012	.0169582				.0637717	-.001661			
psu_migrperc 1 |	.0200704	.0148042	1.36	0.175	-	.0042071	.0177924	0.24	0.813	-
	.0089505	.0490913				.0306717	.039086			
_cons |	9.582776	.1027175	93.29	0.000		10.1771	.1017155	100.05	0.000	
	9.381416	9.784135				9.977709	10.3765			
q40 |						**q90** |				
mountain |	-.0802014	.0218594	-3.67	0.000	-	-.0488204	.0289259	-1.69	0.092	-
	.1230528	-.0373501				.1055245	.0078837			
coastal |	-.1239385	.0220304	-5.63	0.000	-	-.0698415	.0258226	-2.70	0.007	-
	.1671252	-.0807518				.120462	-.019221			
central |	-.0719442	.021807	-3.30	0.001	-	.0006233	.0254667	0.02	0.980	-
	.114693	-.0291954				.0492995	.0505461			
urban |	-.081711	.0129462	-6.31	0.000	-	-.0770342	.0144595	-5.33	0.000	-
	.1070897	-.0563324				.1053795	-.0486889			
marriedhh |	-.0098546	.030321	-0.33	0.745	-	-.0074062	.0335826	-0.22	0.825	-
	.0692935	.0495843				.0732389	.0584264			
malehh |	.0434489	.0280765	1.55	0.122	-	-.0378406	.036235	-1.04	0.296	-
	.0115902	.0984879				.1088727	.0331916			
agehh |	.0054033	.0032448	1.67	0.096	-	.0072821	.0036967	1.97	0.049	
	.0009575	.0117641				.0000353	.0145289			
agehhsq |	-.0000537	.0000285	-1.89	0.059	-	-.0000787	.0000321	-2.45	0.014	-
	.0001095	2.07e-06				.0001417	-.0000157			
primary8 |	.0317239	.0859073	0.37	0.712	-	.1072139	.049315	2.17	0.030	
	.136682	.2001298				.0105407	.2038871			
gymnazium |	.0967317	.0870157	1.11	0.266	-	.1908393	.050671	3.77	0.000	
	.073847	.2673104				.0915079	.2901707			
vocational |	.1143389	.0887926	1.29	0.198	-	.239606	.0581693	4.12	0.000	

	Coef.	Std. Err.	t	P>t		Coef.	Std. Err.	t	P>t	
	.059723	.2884009				.1255755	.3536365			
unipost	.2227247	.0880562	2.53	0.011		.3385211	.0546728	6.19	0.000	
	.0501063	.3953431				.2313449	.4456974			
acthhsize	-.2755858	.0239683	-11.50	0.000	-	-.3094417	.027426	-11.28	0.000	-
	.3225713	-.2286002				.3632054	-.2556779			
acthhsizesq	.0168521	.0022661	7.44	0.000		.0243015	.0029114	8.35	0.000	
	.0124099	.0212942				.0185942	.0300089			
adults	-.0428	.0143265	-2.99	0.003	-	-.0721884	.0174659	-4.13	0.000	-
	.0708847	-.0147154				.1064272	-.0379497			
children	-.0828981	.0160015	-5.18	0.000	-	-.117052	.0205	-5.71	0.000	-
	.1142661	-.05153				.1572386	-.0768653			
ftemp	.0159924	.0103785	1.54	0.123	-	.0336762	.0123115	2.74	0.006	
	.0043528	.0363375				.0095417	.0578106			
dep_rat	.0516293	.038042	1.36	0.175	-	.0397239	.0455642	0.87	0.383	-
	.0229451	.1262038				.0495965	.1290443			
dep_ratsq	-.0374637	.0378511	-0.99	0.322	-	.0325147	.046702	0.70	0.486	-
	.1116641	.0367367				.0590361	.1240655			
car	.2916661	.0164332	17.75	0.000		.3572403	.0173882	20.54	0.000	
	.2594516	.3238805				.3231538	.3913267			
shock	-.0131055	.0174919	-0.75	0.454	-	.0335266	.0243985	1.37	0.169	-
	.0473952	.0211842				.0143022	.0813555			
chronic	-.0221037	.0133626	-1.65	0.098	-	-.0219613	.018846	-1.17	0.244	-
	.0482988	.0040913				.0589056	.014983			
psu_migrperc1	.0297228	.0177835	1.67	0.095	-	.0260249	.0236176	1.10	0.271	-
	.0051386	.0645842				.0202731	.0723229			
_cons	9.789616	.1302958	75.13	0.000		10.27754	.1288037	79.79	0.000	
	9.534194	10.04504				10.02504	10.53003			
q50										
mountain	-.0935812	.0195778	-4.78	0.000	-					
	.1319599	-.0552024								
coastal	-.1186995	.0196247	-6.05	0.000	-					
	.1571703	-.0802287								
central	-.0601585	.0198535	-3.03	0.002	-					
	.0990777	-.0212393								
urban	-.0785004	.012021	-6.53	0.000	-					
	.1020656	-.0549353								
marriedhh	-.0415638	.0336253	-1.24	0.216	-					
	.1074801	.0243525								
malehh	.0572836	.0327688	1.75	0.080	-					
	.0069538	.1215209								
agehh	.0081724	.0030625	2.67	0.008						
	.0021688	.0141759								
agehhsq	-.0000774	.0000266	-2.91	0.004	-					
	.0001295	-.0000252								
primary8	.0214498	.0842174	0.25	0.799	-					

	.1436434	.186543			
gymnazium |	.0905313	.0840419	1.08	0.281	-
	.0742178	.2552804			
vocational |	.0954989	.0846163	1.13	0.259	-
	.0703763	.261374			
unipost |	.2152917	.0845973	2.54	0.011	
	.0494539	.3811295			
acthhsize |	-.2925868	.0213849	-13.68	0.000	-
	.3345081	-.2506655			
acthhsizesq|	.0189922	.0020854	9.11	0.000	
	.0149041	.0230803			
adults |	-.0488864	.0123641	-3.95	0.000	-
	.0731239	-.0246489			
children |	-.0832992	.0145608	-5.72	0.000	-
	.111843	-.0547553			
ftemp |	.0320532	.0084058	3.81	0.000	
	.0155751	.0485313			
dep_rat |	.0453058	.0411902	1.10	0.271	-
	.0354403	.1260519			
dep_ratsq |	-.0160623	.0396812	-0.40	0.686	-
	.0938502	.0617256			
car |	.2995274	.0132946	22.53	0.000	
	.2734657	.325589			
shock |	.0020328	.0135099	0.15	0.880	-
	.0244509	.0285166			
chronic |	-.0211167	.0127729	-1.65	0.098	-
	.0461557	.0039223			
psu_migrperc 1 |	.0267656	.0130456	2.05	0.040	
	.0011921	.0523392			
_cons |	9.849144	.1294306	76.10	0.000	
	9.595418	10.10287			

Table 2: Parameter Tests

,test [q10=q20=q30]: primary8

(1) [q10]primary8 - [q20]primary8 = 0

(2) [q10]primary8 - [q30]primary8 = 0

F(2, 6647) =   0.65

Prob > F =   0.5213

. test [q10=q20=q30=q40=q50=q60]: primary8

(1) [q10]primary8 - [q20]primary8 = 0

(2) [q10]primary8 - [q30]primary8 = 0

(3) [q10]primary8 - [q40]primary8 = 0

(4) [q10]primary8 - [q50]primary8 = 0

(5) [q10]primary8 - [q60]primary8 = 0

F(5, 6647) =   0.90

Prob > F =   0.4792

. test [q10=q20=q30=q40=q50=q60]: vocational

(1) [q10]vocational - [q20]vocational = 0

(2) [q10]vocational - [q30]vocational = 0

(3) [q10]vocational - [q40]vocational = 0

(4) [q10]vocational - [q50]vocational = 0

(5) [q10]vocational - [q60]vocational = 0

F(5, 6647) =   0.67

Prob > F =   0.6447

. test [q10=q20=q30=q40=q50=q60]: gymnazium

(1) [q10]gymnazium - [q20]gymnazium = 0

(2) [q10]gymnazium - [q30]gymnazium = 0

(3) [q10]gymnazium - [q40]gymnazium = 0

(4) [q10]gymnazium - [q50]gymnazium = 0

(5) [q10]gymnazium - [q60]gymnazium = 0

F(5, 6647) =   0.89

Prob > F =   0.4874

. test [q10=q20=q30=q40=q50=q60]: unipost

(1) [q10]unipost - [q20]unipost = 0

(2) [q10]unipost - [q30]unipost = 0

(3) [q10]unipost - [q40]unipost = 0

(4) [q10]unipost - [q50]unipost = 0

(5) [q10]unipost - [q60]unipost = 0

F(5, 6647) =   0.71;   Prob > F =   0.6149

. test [q10=q20=q30=q40=q50=q60=q70=q80=q90]: vocational

(1) [q10]vocational - [q20]vocational = 0
(2) [q10]vocational - [q30]vocational = 0
(3) [q10]vocational - [q40]vocational = 0
(4) [q10]vocational - [q50]vocational = 0
(5) [q10]vocational - [q60]vocational = 0
(6) [q10]vocational - [q70]vocational = 0
(7) [q10]vocational - [q80]vocational = 0
(8) [q10]vocational - [q90]vocational = 0

F(8, 6647) =   1.63
Prob > F =   0.1105

. test [q10=q20=q30=q40=q50=q60=q70=q80=q90]: primary8

(1) [q10]primary8 - [q20]primary8 = 0
(2) [q10]primary8 - [q30]primary8 = 0
(3) [q10]primary8 - [q40]primary8 = 0
(4) [q10]primary8 - [q50]primary8 = 0
(5) [q10]primary8 - [q60]primary8 = 0
(6) [q10]primary8 - [q70]primary8 = 0
(7) [q10]primary8 - [q80]primary8 = 0
(8) [q10]primary8 - [q90]primary8 = 0

F(8, 6647) =   1.46
Prob > F =   0.1679

. test [q10=q20=q30=q40=q50=q60=q70=q80=q90]: gymnazium

(1) [q10]gymnazium - [q20]gymnazium = 0
(2) [q10]gymnazium - [q30]gymnazium = 0
(3) [q10]gymnazium - [q40]gymnazium = 0
(4) [q10]gymnazium - [q50]gymnazium = 0
(5) [q10]gymnazium - [q60]gymnazium = 0
(6) [q10]gymnazium - [q70]gymnazium = 0
(7) [q10]gymnazium - [q80]gymnazium = 0
(8) [q10]gymnazium - [q90]gymnazium = 0

F(8, 6647) = 1.75

Prob > F = 0.0825

. test [q10=q20=q30=q40=q50=q60=q70=q80=q90]: unipost

(1) [q10]unipost - [q20]unipost = 0

(2) [q10]unipost - [q30]unipost = 0

(3) [q10]unipost - [q40]unipost = 0

(4) [q10]unipost - [q50]unipost = 0

(5) [q10]unipost - [q60]unipost = 0

(6) [q10]unipost - [q70]unipost = 0

(7) [q10]unipost - [q80]unipost = 0

(8) [q10]unipost - [q90]unipost = 0

F(8, 6647) = 1.51

Prob > F = 0.1468