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The Geographic Determinants of Poverty in Albania

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Abstract

To better understand the geographic determinants of poverty in Albania, this article proposes a methodology similar to that developed by Ravallion and Wodon (1999). Our methodology's main contribution resides within how we utilize the entirety of a household's joint distribution of demographic characteristics as opposed to averages when simulating regional poverty levels.

Keywords: Poverty, Albania

JEL Codes: I31, I32

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1 Introduction

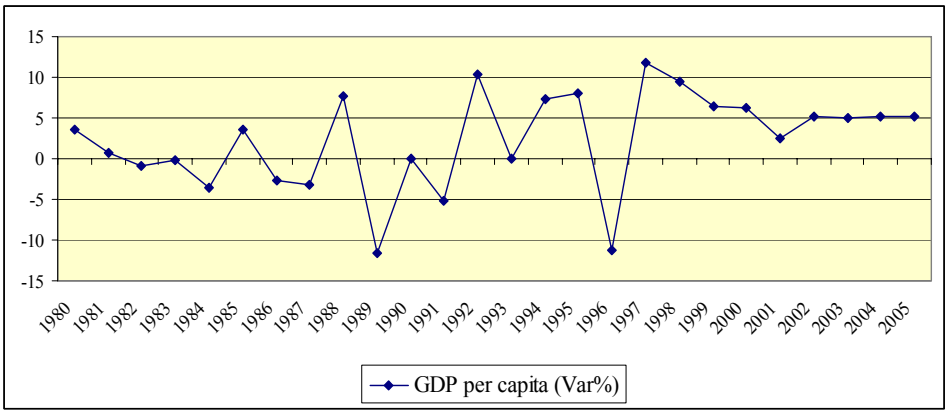
Fagernäs (2004) and Khan (2005) consider that the renewal and abundance of works regarding poverty analysis is without a doubt a direct consequence of the various programs put forth by the World Bank (WB) and the International Monetary Fund (IMF) at the end of the 90's to reduce debt in less developed countries. These programs required the preparation of Poverty Reduction Strategy Papers (PRSP). Moreover, the Millennium Development Goals (MDGs) set by the United Nations in their strategic development strategy must also have contributed to the surge in research in this domain. This environment requires involved countries to present a rigorous analysis of their poverty reduction strategies. To accomplish this, multidimensional research must be done. One of these dimensions is to recognize whether geographic location is an important cause of poverty.

To our knowledge, there is no country where the geographic dispersion of poverty is homogenous. This is why some countries put in place politics that target regions where the incidence of poverty is high. To justify such policies, it would be useful to know whether the region itself is a determining factor of poverty or whether the joint distribution of demographic characteristics is to blame. This problematic has already been addressed for Bangladesh by Ravallion and Wodon (1999). In their work, the authors first estimate an econometric income model. They then proceed to use this model and average demographic household characteristics to simulate poverty indices for various regions. In our article, we propose a methodology similar to that of Ravallion and Wodon (1999) to better understand the geographic determinants of poverty in Albania. Our methodology's main contribution resides within how we use the entirety of a household's joint distribution of demographic characteristics as opposed to averages when simulating regional poverty levels. The paper is structured as follows. In the following section, we present a brief portrait of Albania. The third section contains our econometric model that evaluates Albanian living standards. The fourth section contains the results of poverty analysis done with our econometric model. The final section is a brief conclusion.

2 A Picture of Albania[4]

A Balkan country sharing boarders with Greece and Macedonia, Albania is currently home to a little over three million people. Albania's recent past has been turbulent to say the least. In the early 90's, the fall of the Communist party that had been in power for 46 years left the country in economic, political and social turmoil. Consequently, a recession quickly ensued. Since then, the economy has known good growth with an average real GDP growth of 4.3% between 1990 and 2001. There was however a strong recession between 1996-1997 due essentially to the crash of pyramid schemes which affected those with small investments (Jarvis, 2000). The great number of Kosovan refugees in 1999 along with the events of September 11th also slowed growth which has, since 2002 stabilized around 5%. It's worth noting however that in 2005, Albania posted the lowest per capita GDP of all the occidental Balkan countries (2,518 USD in current dollars). The evolutions of per capita GDP between 1980 and 2005 can be seen in Figure 1.

Figure 1 : Evolution of *per capita* GDP (1980 – 2005)



Source: IMF *World Economic Outlook* (WEO)

Before its political transition, the agricultural sector represented more then 35% of the GDP, employed over 50% of the workforce and consisted of about 40% of its exports. Today, the GDP's structure by economic activity is as follows: 24 % agriculture, 24.9% services, 13% industry, 12.1% transport and communications and 8.1% construction. Even with these levels

[4] This section based on data from various sources such as the Albanian Institute of Statistics and the Albania Poverty Assessment published by the World Bank (2003).

growth, Albania is still one of Europe's poorest countries. An important informal economy coupled with an insufficient communications and electrical infrastructures are among the many hurdles Albania faces as an emerging economy (CIA, World Fact Book). Furthermore, Albania is considered a small country exporting essentially agricultural products yet is a big importer of machinery, manufactured products, food goods, textiles and chemical products. This situation deteriorates its current account balance which represents 23.2% of the GDP, this after an increase of 41.5% between 2004 and 2005.

When looking at its population and its poverty levels, Albania has just been publishing official results since the beginning of the 90's even without complete data which was made available in 2002. The *Living standards measurement survey* (LSMS), initiated in 2002, allowed information on household spending as well as living conditions to be collected. A comprehensive picture of poverty could then be drawn from this data. Using an absolute poverty line which was calculated with Ravallion and Bidani's (1997) basic needs approach; about a quarter of Albanian households are living under the poverty line. When looking at inequality, even though Albania is poorly classed in terms of its position on the human development index (HDI) for South-Eastern Europe (72/177 in 2005), it is still classed among the countries with the lowest levels of inequality when considering consumption expenditure as can be seen in Table 1.

Table 1 : Inequality in income or consumption

				Share of income or consumption (%)				
HDI rank / 177	**Countries**	**Survey year**		**Poorest 10%**	**Poorest 20%**	**Richest 20%**	**Richest 10%**	**Gini index**
High human development								
26	Slovenia	1998	a	3.6	9.1	35.7	21.4	28.4
45	Croatia	2001	b	3.4	8.3	39.6	24.5	29.0
Medium human development								
59	Macedonia, TFYR	1998	b	3.3	8.4	36.7	22.1	28.2
68	Bosnia and Herzegovina	2001	b	3.9	9.5	35.8	21.4	26.2
72	Albania	2002	b	3.8	9.1	37.4	22.4	28.2

Note: Because the underlying household surveys differ in method and in the type of data collected, the distribution data are not strictly comparable across countries.
a. Survey based on income.
b. Survey based on consumption.
Source: World Bank. 2005. Correspondence on income distribution data. Washington, D.C. April.

3 Modeling Living Standards in Albania

Current literature suggests many methods for modeling the determinants of poverty. Therefore, there is no consensus when it comes to selecting a specific model. One method, known as a *probit* or *logit* model, estimates the probability that a household is poor or not given its characteristics and other variables making up its socioeconomic environment. Some researchers have also made use of *ordered multinomial logit* models to estimate the probability of being extremely poor, poor or non poor. One of the first applications of this discrete regression model which is now commonly used[5] was by Bardhan (1984). In the report published by the World Bank (2003), its authors used a dichotomous approach utilizing a *probit* model which was applied to rural and urban zones to better understand the specificities of poverty in these two regions. Their results clearly show that there are regional differences of poverty which they explain is due to specific household characteristics for each region.

However, the loss of information regarding households who's income is superior to the poverty line (homogeneity of the non poor) or yet the loss of information brought on by the creation of income based categories as well as the arbitrary choice of an absolute poverty line are all subject to criticism when using this discrete approach (Appleton, 2001; Datt and *al*.,2004). Confronted to these limitations, some researchers prefer another approach which consists of regressing a household's (i) consumption expenditure or income (y_i), on its characteristics , x_i :

$$ln\, y_i = \beta' x_i + \varepsilon_i \,, \qquad (1)$$

ε_i being a random normally distributed error term with an average of 0. In our case, we regress the log of *per capita* consumption. We consider that this variable's distribution will be closer to that of a normal distribution then if left unchanged (Appleton, 2001). Moreover, there is most likely a non linear relation between consumption and the explanatory variables. It is also quite frequent to transform these variables into logarithmic form (Canagarajah and *al*., 2003).

Appleton (2001) presents an empirical comparison of these two methods and concludes that for Uganda, there was no substantial difference between these approaches. Meanwhile, other works propose numerous theoretical arguments that seem to favor the continuous method as

[5] The reader can consult Datt and *al.* (2004) and Fissuh and *al.* (2004) for a list of applications.

opposed to the discrete method[6]. This is the case for Glewwe (1991), Mukherjee and Benson (2003), Datt, Simler, Mukherjee and Dava (2004). Consequently, this is the theoretical foundation on which we have based our model for this work.

Finally, we must decide whether it is better to utilize income or consumption expenditure data. It is well known that consumption expenditure data is an imperfect living standards indicator but it is also recognized that this type of data adequately captures a household's welfare for the specific basket of goods to which they have access. Another argument in favor of consumption expenditure is that it fluctuates less then income and as a result is a better long term indicator, making reference to the permanent income hypothesis. Furthermore, the World Bank report on poverty in Albania (2003) indicates that given the rural and informal nature of this country, « *income is not readily and accurately measurable, income-based measures will provide distorted estimates of poverty* ». Consequently, as a result of these theoretical and empirical arguments, we have opted to use *per capita* consumption expenditure data to assess poverty levels throughout our study.

3.1 The model

For our model, we have opted for a linear regression of the logarithm of *per captia* consumption expenditure on explanatory variables to establish the determinants of poverty in Albania. Thus, the observed expenditure vector for N individuals is, $y = (y_1; y_1;...; y_N)$. We regress the linear model (1) where x_i is a vector of a household's (i) socio-demographic characteristics.

These socio-demographical variables used for the regression are defined as follows: *hhsize* represents the size of the surveyed household. Regional variables such as *rural*, *Tirana*, *urban* (other than Tirana), *coastal*, *central* and *mountain* indicate where the surveyed household resides. *Sec1_1* indicates whether the head of the household works in the primary sector or not. *Sec1_2* indicates whether the head works in the public sector and *Sec1_3* indicates whether the head works in the secondary sector. The interpretation of *Sec2_1* to *Sec2_3* is identical to that of *Sec1_x* stated earlier except that it indicates whether the second income generating individual

[6] We should note that some authors do not agree to this methedology ; they argue that this linear approach supposes the strong hypotheses that a high income level implies a higher utility. (Cf. Fissuh and *al*., 2004).

works in the corresponding sector. Migration was captured using *Migration* which is a dichotomous variable that indicates whether the household head has ever considered migrating. Highest education level achieved is represented by *Educ 1* (primary school completed) to *Educ 7* (post-university studies completed). *Educnow* indicates whether the surveyed individual is currently attending school or not. *Health* indicates whether the individual surveyed finds it difficult paying for family health care. Lower values indicate a greater difficulty to pay for health care. *Illness* indicates how many years the surveyed individual has been living with an illness or a disability. *Land* represents the surface area of farming (agricultural or livestock) land the surveyed individual owns. *Livestock old* and *Livestock young* indicate how many heads of old and young livestock is owned by the individual. And finally, *Estimated price old* and *Estimated price young* represent the log of the estimated worth of either old or young livestock owned by the individual.

To illustrate the methodology presented thus far, we use the "*2002 LSMS survey*" of Albania which was constructed by the "Albanian Institute of Statistics" along with technical help provided by the World Bank. The 2002 survey is the first chapter of and expected five and offers a multitude of information on Albanian household living standards which allow for the analysis of various dimensions of poverty whether they be income based or not. The survey is comprised of 3,600 households which were *"stratified in four regions, which roughly reflect a partition of the country along agro-ecological as well as socio-economic lines"* (World Bank, 2003). These zones are Tirana (the capital and major city), Coastal, Central and Mountain.

3.2 The determinants of poverty in Albania

Table 2 presents the determinants of poverty in Albania[7]. It illustrates that geographical zones are clearly a determinant of consumption expenditures and that households living in Tirana are the least poor group. The mountain region is the most affected by poverty followed by the coastal zone. These results confirm the importance of a geographical dimension of poverty in Albania and the use of evaluating its impact on poverty.

[7] Monte Carlo testing has been performed to insure the robustness of our model.

Table 2 : Regression Results

Variable	Coef. (Std. Err)	
hhsize	-0.143**	(0.007)
coastal	-0.255**	(0.046)
central	-0.358**	(0.048)
mountain	-0.396**	(0.051)
Sec1_1	-0.194**	(0.038)
Sec1_2	0.035	(0.043)
Sec1_3	-0.177**	(0.026)
Sec2_1	-0.06*	(0.032)
Sec2_2	0.183**	(0.093)
Sec2_3	-0.051	(0.036)
rural	-0.078	(0.053)
urban	0.082*	(0.046)
migration	0.023	(0.020)
Educ 1	-0.161**	(0.067)
Educ 2	-0.067*	(0.035)
Educ 3	-0.102**	(0.031)
Educ 4	-0.031	(0.042)
Educ 5	0.06*	(0.035)
Educ 6	0.18**	(0.035)
Educ 7	0.297**	(0.143)
Educ now	-0.156	(0.109)
Health 1	-0.161**	(0.045)
Health 2	-0.068**	(0.041)
Health 3	0.048	(0.038)
Ilness	0.004**	(0.002)
Land	0.021**	(0.006)
Livestock old	0.004**	(0.001)
Livestock young	-0.002	(0.001)
Estimated price old	-0.007	(0.005)
Estimated price young	0.002	(0.003)
_cons	10.233**	(0.123)

* : Significant at 90%; ** : Significant at 95%. The omitted variable within the regional dichotomous is "*Tirana*", for that of education is "*vocational school 2 years*" and for that of health is "*no health care needed*".

Among the other significant variables, we find that the education level of the household's head is a significant factor explaining poverty where lower levels of education indicate higher poverty levels. Household size will also negatively affect household expenditure as does a difficulty accessing health care. Similar results can also be seen when looking at individuals whose principal income comes from either the agricultural or secondary sector. The agricultural sector is essentially in rural zones which explains our result and can be verified for households whose second income is from the agricultural sector. Concerning the secondary sector, our results can be explained due to the fact that this sector is in emergence and the country's infrastructure is out of date. A *contrario*, households with second incomes coming from the public sector, land owners as well as those with older cattle and those living in urban zones would be less poor.

4 Simulated Poverty Indices

In addition, analyzing the determinants of poverty has allowed us to recognize the importance of a household's geographical location as well as other characteristics. In this section, we look at how Albanian poverty would evolve when we control the household's region of residence. To measure poverty levels, we use the Foster, Greer and Thorbecke (FGT) (1984) class of poverty indices.

$$P_\alpha = \sum_{i=1}^{q} \left(\frac{z - y_i}{z} \right)^\alpha \qquad (2)$$

If $\alpha = 0$, the resulting index is the well known and widely used "Headcount". If $\alpha > 0$, not only the incidence but the depth of poverty are considered by the resulting "poverty gap" index. Finally, if $\alpha > 1$, the resulting index is increasingly sensitive to inequality. Thus, we will use these three (P_0, P_1, P_2) indices. The poverty line we have selected for this work was calculated by World Bank and is an adjusted food poverty line that also considers the cost of rent[8].

First, we make use of *per capita* total expenditure to establish a geographic profile of poverty. Table 3 contains estimations for FGT indexes as well as their standard errors for the four different geographic regions of Albania. Albania is essentially a mountainous region with large valleys. The remainder of the country is comprised of coastal plains that are not favorable

[8] For more information regarding the calculation of the poverty line used in this work "*povline1*", please refer to World Bank (2003) p. 11.

for agriculture due to their marshy nature. More fertile lands can be found near the capital Tirana. Results indicate that the mountain region is the poorest region with more then 47% of its population under the poverty line whereas households in Tirana are the least poor followed by those living in the coastal region. These results are consistent with all three poverty indices.

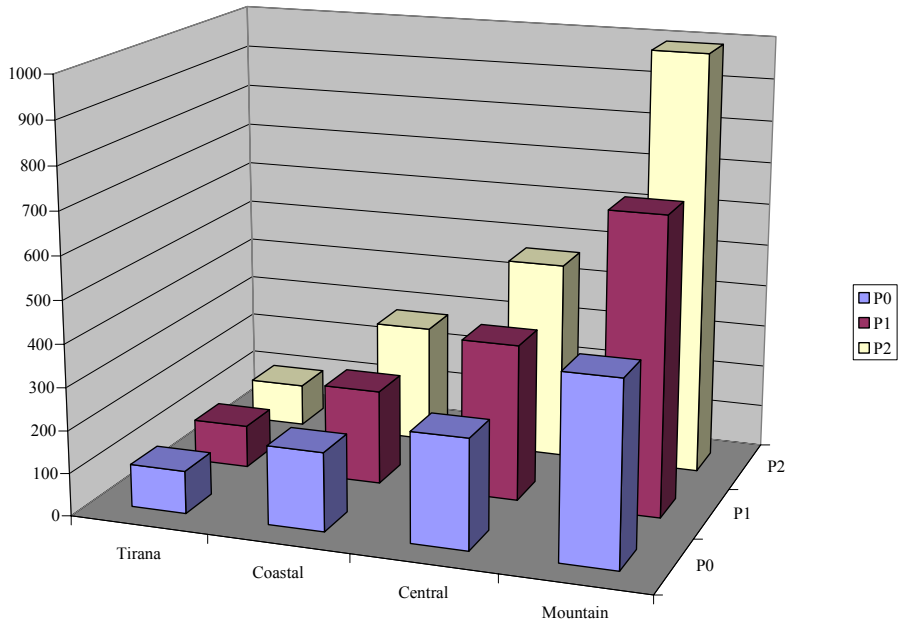
Table 3 : Estimated FGT indices

Indices	Region	Estimate	Std. Err.
P_0	Tirana	0.1115	0.0226
	Coastal	0.2051	0.0238
	Central	0.2855	0.0324
	Mountain	0.4752	0.0328
P_1	Tirana	0.0189	0.0048
	Coastal	0.0419	0.0074
	Central	0.0693	0.0099
	Mountain	0.1314	0.0136
P_2	Tirana	0.0050	0.0015
	Coastal	0.0140	0.0036
	Central	0.0234	0.0038
	Mountain	0.0496	0.0073

Source: Authors own estimation using 2002 LSMS survey of Albania.

To better show the regional dimension of poverty, Figure 2 presents the percentage of FGT indices observed in the various regions when compared to the indices observed in Tirana. We note that when the index varies from $\alpha = 0$, à $\alpha = 1$, à $\alpha = 2$, the distance in percentage compared to Tirana seems more important. This indicates that the mountain region for example not only has a greater incidence of poverty but the depth of poverty and its inequality is also greater then in Tirana.

Figure 2 : Percentage of FGT indexes compared to Tirana



Source: Authors own estimation using 2002 LSMS survey of Albania.

We can now draw from the previous regression the following vector, $\hat{y} = \left(\hat{y}_1 ; \hat{y}_2 ;...; \hat{y}_N\right)$ which is defined as $\hat{y}_i = \hat{\beta}' x_i$, the estimated expenditure vector. Table 4 presents the simulated FGT indices drawn from this estimated vector.

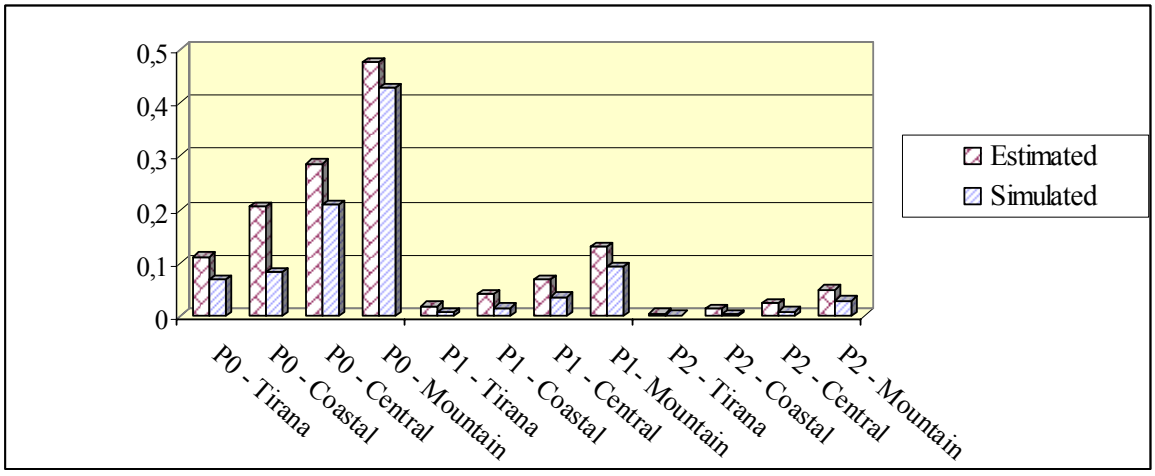
Table 4: Simulated FGT indices

Indices	Region	Simulated
P_0	Tirana	0.0696
	Coastal	0.0832
	Central	0.2084
	Mountain	0.4271
P_1	Tirana	0.0080
	Coastal	0.0159
	Central	0.0358
	Mountain	0.0929
P_2	Tirana	0.0019
	Coastal	0.0045
	Central	0.0088
	Mountain	0.0299

Source: Authors own estimation using 2002 LSMS survey of Albania.

We can note that even though the order of poverty levels between regions is maintained, the levels of simulated poverty are lower then those of our estimated poverty. Figure 3 shows that the difference between estimated and simulated poverty indices is greater in both the Coastal and Capital (Tirana) regions.

Figure 3: Simulated versus estimated FGT



Source: Authors own estimation using 2002 LSMS survey of Albania.

Audet, Boccanfuso and Makdissi (2006) explain this result as follows. When using an econometric model to simulate poverty indices, one estimates the horizontal inequality segment of an economic system which corresponds to the models error term. Seeing how Audet et *al*. (2006) note that mere chance can explain almost as much inequality in Albania then can the differences between the levels of individual dotation of production factors, this could explain the difference between estimated and simulated poverty levels.

With our econometric model, we now wish to answer the following question: what would be the level of poverty in one region if its inhabitants would have the joint distribution of demographic characteristics of another region. Table 5 presents the P_0 indices simulated for the various regions. We note that there is a regional bias towards Tirana when compared to both Coastal and Central regions. As a result, the incidence of poverty would be less important in Tirana if its population had the joint distribution of demographic characteristics of the Coastal or Central regions. Essentially, Tirana would see its incidence of poverty diminish by 57% if its population had the joint distribution of demographic characteristics of the Coastal region and by 63% if its characteristics would be those of the Central region. These results indicate that even if

the populations of these two regions have demographic characteristics that favor lower poverty levels in Tirana, the incidence of poverty is greater in their respective locations due to the significant regional dimension of poverty.

Our results show that not only does the incidence of Coastal household poverty increase when we bestow them with the joint distribution of demographic characteristics of other regions including Tirana, but we also see the opposite of these effects when taking into account households living in the Mountain region whom undergo a reduction to the incidence of poverty.

Table 5: **Simulated P_0 using the joint distribution of demographic characteristic of other regions**

	Joint Distribution	Tirana	Coastal	Central	Mountain
P_0	**Tirana**	0.0696	0.1732	0.2567	0.291
		-	*108.17%*	*23.18%*	*-31.87%*
	Coastal	0.0301	0.0832	0.1636	0.1813
		-56.75%	-	*-21.50%*	*-57.55%*
	Central	0.0259	0.14	0.2084	0.2346
		-62.79%	*68.27%*	-	*-45.07%*
	Mountain	0.0925	0.2766	0.3878	0.4271
		32.90%	*232.45%*	*86.08%*	-

Source: Authors own estimation using 2002 LSMS survey of Albania.

Table 6 replicates the same process for the indices P_1 and P_2 . Once again, we note that for both P_1 and P_2 the incidence of poverty would be lower in Tirana if this region had the joint distribution of demographic characteristics of either the Coastal or Central region. The reduction of P_1 indices in Tirana would be along the lines of 40% with the joint distribution of demographic characteristics of the Coastal region and 65% with characteristics of the Central region. For the P_2 indices, the reductions would be respectively of 47% and 74%.

Table 6: **Simulated P_1 and P_2 using the joint distribution of demographic characteristic of other regions**

	Joint Distribution	Tirana	Coastal	Central	Mountain
P_1	**Tirana**	0.008	0.032	0.0498	0.058
		-	*101.26%*	*39.11%*	*-37.57%*
	Coastal	0.0048	0.0159	0.0264	0.0319
		-40.00%	-	*-26.26%*	*-65.66%*
	Central	0.0028	0.0203	0.0358	0.0425
		-65.00%	*27.67%*	-	*-54.25%*
	Mountain	0.015	0.0536	0.0809	0.0929
		87.50%	*237.11%*	*125.98%*	-
P_2	**Tirana**	0.0019	0.0088	0.0147	0.0176
		-	*95.56%*	*67.05%*	*-41.14%*
	Coastal	0.001	0.0045	0.0076	0.0091
		-47.37%	-	*-13.64%*	*-69.57%*
	Central	0.0005	0.0044	0.0088	0.011
		-73.68%	*-2.22%*	-	*-63.21%*
	Mountain	0.0044	0.0159	0.0254	0.0299
		131.58%	*253.33%*	*188.64%*	-

Source: Authors own estimation using 2002 LSMS survey of Albania.

As seen previously, when those living in the Mountain region are imposed the joint distribution of demographic characteristics of other regions, they experience a reduction of poverty levels for both these indices which also increases in intensity as the parameter of poverty aversion grows larger. For example, if this region's population had the joint distribution of demographic characteristics of the Coastal region, there would be a reduction of 58% to the incidence of poverty, 66% of P_1 and 70% of P_2.

What general conclusions can be drawn from these simulations? To begin with, policies directed specifically to the Coastal and Central regions would reduce poverty. This reduction would be doubled if aimed at the Mountain region. If we refer again to Table 5 and Table 6, this region is the poorest regardless of the joint distribution of demographic characteristics used. Moreover, keeping our attention on the same tables, we note that this region also has the least favorable joint distribution of demographic characteristics. To better fight poverty in the

Mountain region, regional policies coupled with policies that would modify this population's demographic characteristics would be necessary.

5 Conclusion

This article studies the determinants of poverty in Albania while paying close attention to the geographical determinants of poverty. Tools such as econometric modeling were used to better understand the demographic determinants that influence *per capita* household consumption. This model was then used to carry out simulations to better understand which aspects explain the regional differences in observed poverty. Results show that both the Coastal and Central region's of Albania which harbor higher levels of poverty can only be explained by a geographic bias seeing how both their joint distributions of demographic characteristics are more advantageous then that of Tirana. The mountain region has a strong regional bias along with the least favorable joint distribution of demographic characteristics.

To better increase our understanding of poverty in Albania and help policy makers in designing pro-poor policies, further research is needed. For example, future research could study the impact of various transfer and taxation policies on poverty and how these impacts are felt in the different regions of Albania.

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