Small area estimates of consumption poverty in Croatia: methodological report

1   Introduction

Consumption based poverty, although not as prevalent in European policy circles as the income based at-risk-of-poverty (AROP), is an important measure of the living standards of the Croatian population. Furthermore, consumption is exempt from many of the pitfalls that afflict income measures. First of all, many respondents may be reluctant to report their incomes. Additionally, under the presence of undeclared incomes and employment, consumption is a better measure of welfare since respondents have fewer incentives to underreport.[1]
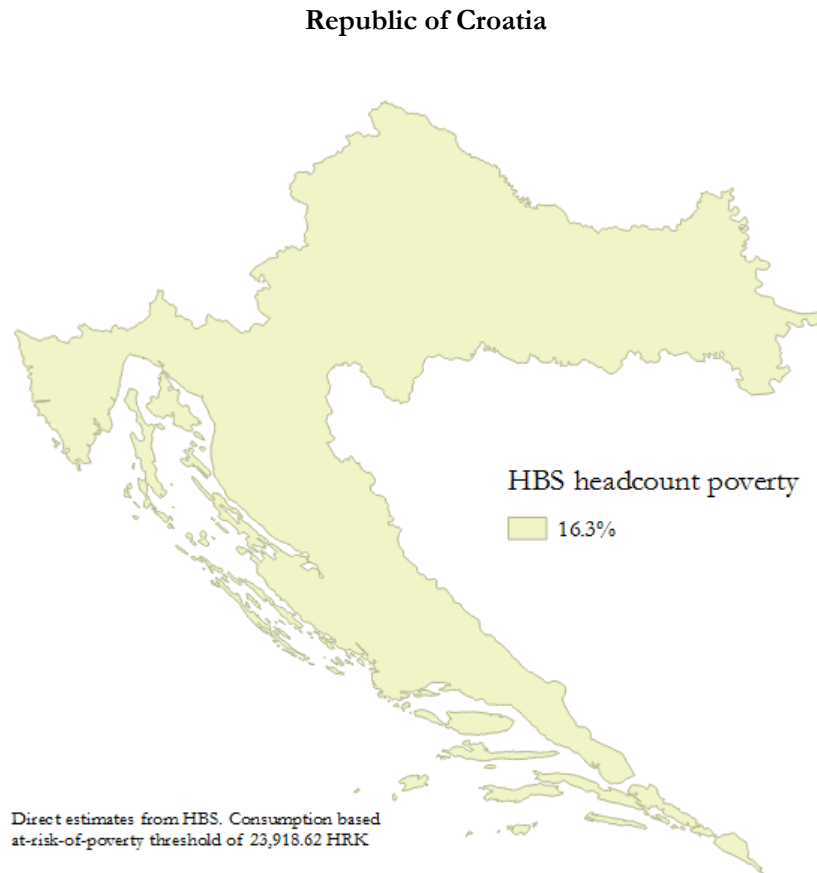
In Croatia the main source for consumption based statistics is The Household Budget Survey (HBS). The HBS is representative at the national level. Using a poverty threshold that is defined in a similar manner as that of the EU-SILC,[2] but based on consumption (23,918.62 HRK) the head count poverty rate for the Republic of Croatia in 2011 was 16.3 percent. Estimated poverty rates in 2011 using the HBS for the three statistical areas were: 10.3 percent for the Northwest, 28.1 percent for the Central and Eastern area, and 12.6 percent for the Adriatic area. Using the NUTS-2 classification of the Republic of Croatia the estimated poverty rate for Continental Croatia for 2011 was 18.0 percent, while for Adriatic Croatia it was 12.6 percent. However, unlike the EU-SILC, the HBS is not representative below the national level. This implies that although the HBS can be used to obtain rates at lower geographical levels, it is not recommended to do so because the sample size is not sufficient for precise estimates.

Geographical levels at which direct estimates lack the required precision are referred to as small areas (Guadarrama et al., 2015). Small area estimation (SAE) methods are those which seek to overcome the lack of precision. SAE methods achieve this by incorporating data sources with larger coverage. Such as Census data, in order to obtain welfare measures at levels at which the HBS is not representative. In practice household survey data provides a reasonable measure of welfare but does not have the necessary coverage, while census data has the necessary coverage its welfare measures are not as detailed as those of household surveys.

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[1] Baric and Williams (2013) mention that the undeclared economy in Croatia is second only to Bulgaria in the EU, and that it is highly concentrated in certain sectors. Among these sectors, agriculture is one of the main ones.
[2] European Union Statistics on Income and Living Conditions Survey (EU-SILC). The AROP is defined as 60 percent of the median household equivalized income.

Figure 1: HBS 2011 poverty at level of representativeness

Republic of Croatia

HBS headcount poverty

☐ 16.3%

Direct estimates from HBS. Consumption based
at-risk-of-poverty threshold of 23,918.62 HRK

The Census of Population, Households and Dwellings of 2011 for the Republic of Croatia when combined with the 2011 HBS facilitates the estimation of welfare for all households in the Census. This makes obtaining poverty rates for areas below those of the HBS's representativeness possible. The small area estimation methodology used to obtain the estimates follows the one proposed by Elbers, Lanjouw, and Lanjouw (ELL) (2003).[3] The methodology is perhaps the most widely used for small area estimation, and has been applied to develop poverty maps in numerous countries across the globe. Through the application of the analysis, predicted poverty rates at the NUTS-2,[4] NUTS-3,[5] as well as at the LAU-2[6] levels are obtained.

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[3] The methodology is implemented via the World Bank developed software PovMap (accessed on August 1, 2016)
[4] Presently there are 2 spatial units under the NUTS 2 level, Adriatic and Continental Croatia. At the time of the 2011 HBS there were three statistical areas in Croatia: Northwest, Central and Eastern, and Adriatic Croatia.
[5] There are currently 21 spatial units at NUTS-3 level (Counties) in Croatia
[6] There are 556 Local Administrative Units at level 2 (LAU 2). In Croatia LAU-2 level corresponds to municipalities and cities. Additionally, for the purposes of the analysis, the city of Zagreb is sub-divided into 19 districts.

2   Modeling approach

The ELL method is conducted in 2 stages. The first stage consists in fitting a welfare model using the 2011 HBS data via ordinary least squares (OLS), and correcting for various shortcomings of this approach to arrive at generalized least squares estimates (GLS). It should be noted that the variables included in the welfare model of the 2011 HBS must be restricted to those variables that are also found on the 2011 Census. This allows us to generate the welfare distribution for any sub-population in the 2011 Census, conditional on the sub-population's observed characteristics (ELL, 2002).

After correcting for shortcomings, the estimated regression parameters, standard errors, and variance components from the HBS provide the necessary inputs for the second phase of the analysis. The second stage of the poverty mapping exercise consists in using the estimated parameters from the first stage, and applying these to the 2011 Census data in order to predict welfare at the household level. Finally, the predicted welfare measure is converted into a poverty indicator which is then aggregated in order to predict poverty measures at the desired level of aggregation (NUTS2, NUTS3, or LAU2).

Before fitting the welfare model, a comparison between the observable household characteristics from the HBS and the census is necessary. The purpose of the comparison is to ensure that variables have similar distributions, and that these have similar definitions across data sources. Because the exercise consists in predicting welfare in the census data using parameters obtained from HBS observed characteristics it is imperative that the observed characteristics across surveys are comparable.

The next step in the ELL methodology consists in estimating a log adult equivalized household consumption model which is estimated via *OLS*. The transformation to log consumption is done because consumption tends to not be symmetrically distributed (graph 1), taking the logarithm of consumption is done to make the data more symmetrical.

Figure 2: Adult equivalized consumption and natural logarithm of adult equivalized consumption
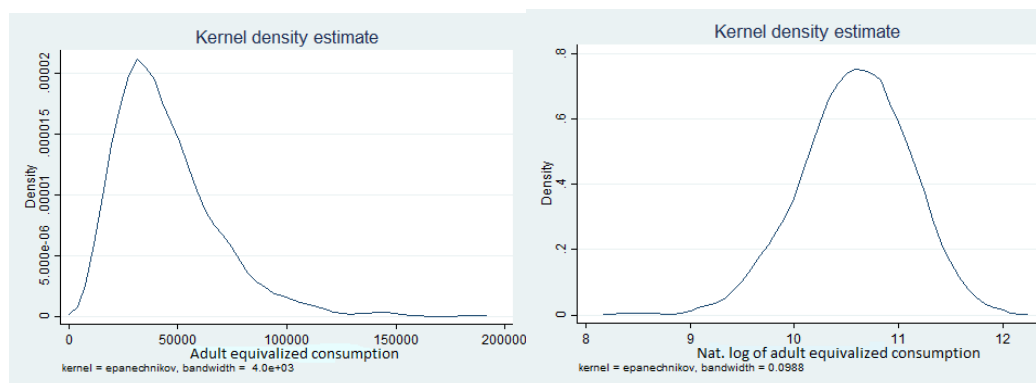
The household consumption model is:

$$ln \, y_{ch} = X'_{ch} \beta + u_{ch} \qquad (1)$$

where y_{ch} is the adult equivalized consumption of household h in locality[7] c, X_{ch} are the household and locality characteristics, and u_{ch} is the residual. In the specified model the outcomes of households within a same municipality are usually not independent from one another and the following specification is used to account for this:

$$u_{ch} = \eta_c + \varepsilon_{ch} \qquad (2)$$

where η and ε are assumed to have mean zero and to be independent from each other. Households in the same municipality share the same η, and it is expected that $E[u_{ch}^2] = \sigma_\eta^2 + \sigma_\varepsilon^2$, the larger the variance of η the less precise the estimates of welfare will be when the spatial correlation of the residuals is ignored.

The estimation of σ_η^2 and σ_ε^2 can be done using the ELL (2003) decomposition method, or utilizing Henderson's method III (Henderson, 1953). In the case where the variance of the household specific error, σ_ε^2, is assumed to vary across households a parametric form of heteroscedasticity is assumed and modeled as:

$$ln \left[\frac{\hat{\varepsilon}_{ch}^2}{A - \hat{\varepsilon}_{ch}^2} \right] = Z'_{ch} \alpha + r_{ch} \qquad (3)$$

where $A = 1.05 \max(\hat{\varepsilon}_{ch}^2)$. [8] Making use of these estimated parameters it is possible to obtain an estimate for $\sigma_{\varepsilon,ch}^2$. The existence of the variance parameters require a re-estimation of the welfare model given that the *OLS* assumptions are unlikely to hold. The variance covariance matrix utilized for the GLS estimates is household cluster specific, and where the interrelatedness between households within a cluster is also allowed.[9]

Once GLS estimates are obtained it is possible to move on to the second stage of the exercise. Small area estimates of welfare (and standard errors) are obtained by applying the parameter and error estimates from the survey to the census data. In order to do this we must simulate welfare. Since poverty indices are based on non-linear forms of log adult equivalized consumption, simulations are ideally suited for obtaining estimates of these measures. A value of log adult equivalized consumption $\tilde{y}_{ch}$ for each household is simulated making use of the β, η, and the ε parameters from the first stage, where each simulation r is equal to:

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[7] Localities in the Croatian case are LAU-2, municipalities, cities, and districts of Zagreb
[8] For a more detailed description, interested readers should refer to Elbers, Lanjouw and Lanjouw (2003) as well as Van der Weide (2014)
[9] For details on the structure of the variance covariance matrix refer to Van der Weide (2014).

$$\tilde{y}^r{}_{ch} = exp(X'{}_{ch}\tilde{\beta}^r + \tilde{\eta}^r_c + \tilde{\varepsilon}^r_{ch}) \qquad (4)$$

For each simulation a set of $\tilde{\beta}^r$ are drawn from bootstrapped versions of the HBS sample.[10] On the other hand for the location and household disturbance terms we obtain their variance parameters, $\left(\sigma^2_{\varepsilon,ch}\right)^r$ and $\left(\sigma^2_\eta\right)^r$, from the rth bootstrapped version of the HBS. $\tilde{\eta}^r_c$ and $\tilde{\varepsilon}^r_{ch}$ are thus drawn from a normal distribution assuming mean zero and variances equal to $\left(\sigma^2_{\varepsilon,ch}\right)^r$ and $\left(\sigma^2_\eta\right)^r$, respectively. If we define $f(\tilde{y}^r{}_{ch})$ as a function that maps the estimated consumption measure to a poverty measure such as the at-risk of poverty head-count-rate (FGT 0) then the estimated mean poverty rate for a locality c is equal to:

$$FGT0_c = \frac{1}{R}\sum_{r=1}^{R}\sum_{h=1}^{H} f(\tilde{y}^r{}_{ch})w_{ch} \qquad (5)$$

where w_{ch} is the population expansion factor (number of household members in household h divided by the total population of the Republic of Croatia in the census).

An alternative for the estimation of η is to use the information from the survey, Empirical-Best estimation (EB). The best estimate available to us of η, for a particular locality is that which comes from the survey $(\ln y_{ch} - X'_{ch}\beta = u_{ch})$. Therefore making use of this information the estimates for the municipalities, cities, and districts of Zagreb that are present in the HBS are tighter since more information is included into their drawing. For all localities that are not present in the survey the use of EB makes no difference, since for these localities there is no additional information and thus their data generation process is assumed to be normal with mean zero and variance $\left(\sigma^2_\eta\right)^r$.

Within the estimated measures there are three main sources of error: model error, error due to the disturbances, and error due to computation. These three sources of error, as noted by ELL (2003) are not correlated.

The error in the welfare measure within a locality due to the disturbance arises as a result of unobserved components of consumption within a particular location. The smaller the population of the targeted municipality, city, or district of Zagreb the larger this error will be, and thus limits the degree of disaggregation possible. The exact point at which this becomes unacceptable depends on how well the model fits the data.

The model error depends entirely on the properties of the first stage estimators it is independent from the population size of the municipality, city, or district of Zagreb. Within a given location the magnitude of this

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[10] An alternative option is to draw the η from a multivariate normal distribution $\beta \sim N(\beta_{gls}, vcov(\beta_{gls}))$

error component will also depend on how different the X variables are in that location from those of the HBS data.

Finally, computation error is due to the method used for computation. This error can be made as small as needed depending on the computational resources at hand. Because often simulations are a finite number, the larger the number of simulations, the smaller the error due to computation will be.

3   Data description

The poverty mapping analysis requires two sources of data. In this instance the Croatian Household Budget Survey (HBS) for 2011, and the Census of Population, Households and Dwellings of 2011 for the Republic of Croatia. The HBS for 2011 is an ideal household survey for the SAE analysis because it corresponds to the 2011 calendar year, and thus are for the same time period as the census.

Small area estimation is done under the assumption that the same underlying population is being captured by the survey and the census. This last assumption will be valid if both datasets are from the same time frame. Nevertheless, the inclusion or the use of datasets that are from differing time periods, or if the survey is not representative of the population, will break down this assumption. This last remark is more salient in instances where there have been considerable shocks in between the collection of the survey and the collection of the census (Bedi et al. 2007).

3.1   HBS 2011 – Croatia

The Household Budget Survey conducted by the Croatian Bureau of Statistics is collected over 12 months, corresponding to the calendar year. The survey collects data on the socio-economic characteristics of Croatian private households, along with household consumption, and income. The data collected is used to update the weights of the national consumer price index and the measurement of household consumption, as well as for the needs of national accounts.

The 2011 HBS uses the 2001 Census as a sampling frame. The survey is performed as a two-stage sample, where 10 dwellings were selected from 416 segments (groups of neighboring enumeration areas). Consequently, 4,160 dwellings occupied by households were selected. From these households, 2,335 were successfully interviewed.

The Republic of Croatia does not currently have any poverty measures based on consumption. As a consequence, the same methodology applied to the EU-SILC is used but in this instance on consumption.

More explicitly, the at-risk-of-poverty threshold is defined as 60 percent of the median household equivalized consumption.

3.2 Census of Population, Households and Dwellings 2011, Population by Sex and Age

The 2011 Census for Croatia was provided by the Croatian Bureau of Statistics.[11] The census includes key information on demographics of the household, education, labor force status, economic activity, occupation type, and labor status in the main job. Along with these characteristics, the census also has information on the type of dwelling, the status of the dwelling, number of rooms in the dwelling, living area of the dwelling, and the construction year.

3.3 Variable comparison between HBS and Census

Because small area methods require an estimation of a welfare model in the first stage which will then be applied to the census it is necessary that the choice of correlates matches across surveys. This not only requires variables to be similar, but requires that these have similar distributions. The selection of candidate variable is done in a two stage process:

1. Comparison of questionnaires between the 2011 HBS and the 2011 Census. The comparison yields a first set of candidate variables for the estimation. Candidate variables must come from similar questions.
2. Comparison of the distribution of the candidate variables across datasets. The comparison is undertaken at the level of the Republic of Croatia and at the statistical region level. The comparability of the variables across surveys ensures that the welfare model from the 2011 HBS can be applied to the 2011 Census such that reliable consumption estimates for the population can be derived.

Making use of all variables that meet the above criteria, several welfare models are estimated via *OLS*. Unlike most of econometrics, the purpose of the model is not to find any causal relationships but to find a model that best reflects the consumption level of a household. The adult equivalized consumption of a household is assumed to be a function of the number of household members present in the household, and the age composition of the household members. Additionally, consumption is assumed to be a function of the marital status of individuals aged 15 and over, their level of education, their occupation, and the sector in which they are employed in. In addition, and while likely not a determinant of consumption, we include a

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[11] Access to the Census, as well as the HBS was provided in the Croatian Bureaus of Statistics' saferoom with excluded direct identifiers for individuals.

variable which reports the area of the dwelling in square meters. This variable is expected to have reasonable correlation with welfare. Finally, the use of location means of household level variables are included.[12] This is done in order to explain the variation in welfare due to location as much as possible and thus improve precision of the welfare estimates.

Table 1 contains a listing of the candidate variables for use in the model. Given that the sampling frame for the 2011 HBS is the previous Census (Census of Population, Households and Dwellings 2001) it is not unexpected that the first moments of the HBS and Census are somewhat different. On population demographics, the differences between the two are slight, but on labor characteristics differences do arise. For example, the HBS contains a larger share individuals living in households where one of the household members is involved in agriculture, mining or fishing.

Table 1: Population weighted candidate variable means in Census 2011 and HBS-2011

Variable name	Census 2011	HBS-2011
Male share of population	0.483	0.466
Age [0,5)	0.050	0.036
Age [5,15)	0.103	0.093
Age [15,30)	0.186	0.190
Age [30,65)	0.486	0.480
Age [65+)	0.174	0.202
Household size (Share of individuals living in household type)		
Households size of 1	0.088	0.084
Households size of 2	0.183	0.222
Households size of 3	0.202	0.180
Households size of 4	0.248	0.223
Households size of 5	0.143	0.156
Households size of 6	0.076	0.077
Household size of 7 or more	0.060	0.057
Occupation (15+) (Share of individuals in households with at least one member)		
Manager	0.051	0.034
Professionals	0.150	0.110
Technicians	0.182	0.137
Clerical support	0.129	0.130
Service and sales	0.223	0.194
Skilled agriculture	0.041	0.086
Craft and trade	0.153	0.170

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[12] This is recommended by ELL (2003) as one method to decrease the variance of η since it includes more information at the cluster level. Variable means at the municipal level are included and come from the Census. These are the share of households in the municipality, city, or district of Zagreb that were built between 1900 and 1940, share of household that have air conditioning, and the proportion of households that have never moved out of their municipality, city, or district of Zagreb.

Machine operators	0.112	0.100
Elementary occupations	0.091	0.078
Labor status, age 15-64 (Share of individuals in households with at least one member who is:)		
Employed	0.742	0.706
Retired	0.497	0.541
Student	0.220	0.250
Disabled	0.038	0.032
Other	0.749	0.762
Industry, age 15-64 (Share of individuals in households with at least one member)		
Agriculture, mining, and fishing	0.065	0.123
Manufacturing	0.189	0.158
Services and Sales	0.630	0.593
Share of members with education in HH (age 15-64)		
Primary education	0.086	0.092
Lower secondary	0.199	0.230
Upper secondary	0.547	0.557
Tertiary education	0.169	0.121
Dwelling characteristics		
Square meters	87.542	91.485

The final choice of variables for the model is not only dependent upon how well the variables match up, but on how well they explain the variation of consumption. As the numbers on Table 1 illustrate, the two datasets match up reasonably well. The age groups, proportion of males, and household size are very close to one another, at the statistical area level the variables are less comparable with one another (Table 1A). This is expected given that the 2011 HBS's level of representation is only national.

Given that the differences that arise are not considerable (save for the primary sector) all of the variables are valid candidates for the welfare model to be estimated in the next stage. Variables that are highly correlated are not included simultaneously. Keeping this in mind the selected model is the one which maximizes the adjusted R-squared of the model, but at the same time conform to prior beliefs of how should the variable be related to consumption.

4   Model results

The initial welfare model corresponding to equation (1) is presented in column 1 of Table 2. The adjusted R-Squared for the model is (0.60) reflecting that the chosen model explains the variation on adult equivalized consumption well. In addition to the variables present in both the 2011 Census and 2011 HBS, variable

means for municipalities are obtained from the Census and introduced to the model; these variables are introduced to improve precision by reducing the unexplained variation in adult equivalized consumption due to location. The same is done at the NUTS-3 level. With the inclusion of these variables the ratio of the variance of η over the model's MSE is 0.097. Without the inclusion of the regional means, the variance of η over the model's MSE was considerably larger (greater than 0.16). The variance of the location effect is preferred to be small, this will result in more precise estimates once the parameters are applied to the Census when predicting consumption.

As noted in section 2, it is likely that consumption levels within a location are highly correlated and as a consequence $E[u_{ch}u_{ci}|X] \neq 0$. Additionally, error terms will likely have differing variances across observations ($E[u_{ch}^2|X] \neq \sigma^2$). Due to these issues the model is re-estimated using Generalized Least Squares (GLS). The results for the GLS fitted model are presented in column 2 of Table 2.[13]

Adult equivalized consumption is positively correlated to household size. The omitted group is households with 7 or more individuals. Furthermore, adult equivalized consumption is negatively correlated to greater proportion of young children in the household, as opposed to individuals between 15 and 65. A higher proportion of elderly household members is also negatively related to consumption.

Education is also significantly related to consumption. The omitted group is the proportion of working age household members who have upper-secondary education. As expected, a higher share of more educated working age members is positively and significantly related to adult equivalized consumption. Also correlated to consumption is the presence of employed individuals, additionally most of the labor variables included are significantly correlated to adult equivalized consumption.

Location and location variable means are also correlated to adult equivalized consumption. Consumption is negatively correlated to being located in the Central and Eastern statistical region of Croatia as opposed to being in the Adriatic. On the other hand residing in the Northwest statistical region is positively and significantly correlated to adult equivalized consumption. The Continental NUTS-2 region is made up of the Northwest and the Central Eastern statistical regions. The opposite signs for the two statistical regions, present evidence of an existing difference within the Continental NUTS-2 spatial unit.

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[13] The alpha model (equation 3) corresponding to the GLS are presented in Table 2A.

Table 2: Weighted OLS & GLS estimates for Consumption model: 2011 HBS

Dependent variable: nat. log of adult equivalized consumption	Coeff. WOLS	Coeff. GLS
1 member HH	0.657756***	0.6703497***
2 member HH	0.5682508***	0.5726704***
3 member HH	0.3872635***	0.392421***
4 member HH	0.3024405***	0.3145275***
5 member HH	0.0944874**	0.0993706**
6 member HH	0.0439142	0.0530178
Proportion of members 0-5	-1.314546***	-1.328288***
Proportion of members 5-15	-1.168229***	-1.155703***
Proportion of members 65+	-0.1095453***	-0.1087755***
Proportion with primary. educ	-0.3553012***	-0.3311279***
Proportion with lower sec. educ	-0.246802***	-0.2389933***
Proportion with tertiary educ.	0.2437605***	0.2219014***
Nat. log sq. meters	0.3114771***	0.3235437***
HH has employed individual	0.1730894***	0.1713931***
HH has retired individual	0.0361665**	0.0321034*
HH has an individual studying	0.0775421***	0.0768194***
HH has a disabled individual	-0.2269558***	-0.21946***
Share of members employed in primary sector	0.1149975*	0.1270248***
Mun. mean sq. meters	0.0016187	0.0016375
Mun. share age 0-5	-6.067059**	-6.509447**
Mun. share age 15-30	4.349534***	4.708873***
Mun. share age 65+	2.136054***	2.06719***
Mun. share of hh with OLF members	0.6910303	0.6229632
Mun. share of hh with members working	0.1825433	0.1071528
Mun. share of hh with retired members	-1.58782***	-1.494652***
Mun. share of hh with disabled members	-2.492525***	-2.621557***
Mun. share in the service sector	0.4156449**	0.4598882**
Mun. share hh with water	-0.1154702*	-0.1407213**
Mun. share hh 1940-1965	-0.2543315	-0.3400682
County share with primary education	0.9007497***	0.9031982***
County share of work in manufacturing	-1.005796***	-1.011724***
Northwestern	0.1277064***	0.139278***
Eastern & Central	-0.2086004***	-0.2050913***
Constant	8.105042***	8.082315***
Number of observations	2,329	2,329
Eta-ratio	0.0973	

Adjusted R-squared	0.5998

*, **, *** significant at the 10, 5, 1 percent level respectively. All households which have inconsistent labor information are removed.

5 Poverty results

The coefficients estimated in the previous section provide the necessary inputs in order to estimate the first part of equation 4 ($X'_{ch}\hat{\beta}$) by combining coefficients with the Census variables. The vectors of disturbances for households are unknown, and must be estimated. As mentioned before, the error component is decomposed using ELL's method, and the coefficients, β, are obtained by bootstrapped samples of the 2011 HBS data. The model chosen is the one where η and ε are drawn from a normal distribution, with their respective variance structures. Finally, empirical best methods are chosen since these incorporate more information and are thus expected to provide a better fit. Additionally, empirical best incorporates different variance structures across locations which in many settings may be more believable.[14]

The clustering used for estimations is at the municipal, city, and districts of Zagreb level, the resulting poverty map aggregated to the NUTS-3 level is presented in Figure 3 and the results for municipalities, cities, and the districts of Zagreb are presented in Figure 4. The resulting poverty rates obtained at the statistical region level compared to those of the poverty mapping exercise are presented in Table 3 for the relative line.

Table 3: Poverty rates from HBS and from poverty map exercise

Statistical region	AROP HBS					
	HBS	95% CI		Predicted	95% CI	
Northwestern	**10.3%**	7.6%	13.7%	**11.1%**	9.5%	12.7%
Central & Eastern	**28.1%**	23.5%	33.3%	**30.5%**	28.4%	32.7%
Adriatic	**12.6%**	9.2%	17.0%	**12.6%**	11.0%	14.1%
Republic of Croatia	**16.3%**	14.1%	18.6%	**17.1%**	15.8%	18.5%

Note: Poverty threshold 23,918.62 HRK per adult equivalent

At the statistical area level, the direct estimates for poverty rates obtained from the HBS are not significantly different. However, once again, it is important to note that the 2011 HBS measures of poverty for statistical areas are not statistically representative. The same holds true for the NUTS-2 spatial units, the 2011 HBS is not statistically representative below the national level. The direct estimate of poverty from the 2011 HBS for

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[14] This only applies to municipalities, cities, and districts of Zagreb included in the 2011 HBS.

Continental Croatia is 18.0 percent, and for Adriatic Croatia it is 12.6 percent. The small area estimate of poverty for Continental Croatia is 19.4 percent, while for Adriatic Croatia it is 12.6 percent.

The Central and Eastern area has the highest levels of poverty, the poverty rate is significantly greater than that of the other two areas. The headcount poverty rate for the Central and Eastern area is more than double the level of the other two areas. Poverty ranges from 24.9 to 34.3 percent in the Central and Eastern statistical region. In the Northwest statistical region, poverty ranges between 5.9 (Grad Zagreb) to 23.7 (Varaždinska) percent. In the Adriatic the range is less wide from 9.1 for Primorsko-goranska to 16.9 for Splitsko-dalmatinska. Furthermore, the Adriatic region has the most counties with poverty rates under 15 percent.

In Figure 4, which is at the municipal, city and districts of Zagreb level, it is possible to detect localities that have a somewhat higher poverty level than its surroundings. There are some localities with high poverty rates within the Northwest as well as in the Adriatic. In the Central & Eastern region, on the other hand, there are some regions that are better off than their neighbors. The results of the poverty map suggest an overall spatial clustering of poverty, this is further analyzed in section 6, where basic analysis of the spatial association is undertaken.

Although poverty rates may be low in certain counties, the concentration of the poor may not be the lowest in those counties. Figure 5 presents the density of the poor at the county level. One of the counties with the highest concentration of poor individuals are Osječko-baranjska, this is despite having the lowest poverty headcount in the Central and Eastern statistical area. The county with the highest share of poor individuals is in the Adriatic part of the country, Splitsko-dalmatinska which also happens to be the country with the highest poverty rate in the Adriatic. The city of Zagreb is also home to a considerable amount of Croatia's poor with close to 6.3 percent of the nation's poor calling Zagreb home.

Figure 3: Poverty Map - NUTS-3 poverty headcount

5.9 - 11.6
11.6 - 17.3
17.3 - 22.9
22.9 - 28.6
28.6 - 34.3

Small area estimates. Adult equivalized
consumption poverty. Poverty threshold at
23,918.62 HRK

Figure 4: Poverty Map - poverty headcount for municipalities, cities, and districts of Zagreb

■	1.5 - 12.4
■	12.4 - 21.3
■	21.3 - 31.3
■	31.3 - 42.5
■	42.5 - 70.5

Small area estimates. Adult equivalized consumption poverty. Poverty threshold 23,918.62 HRK.
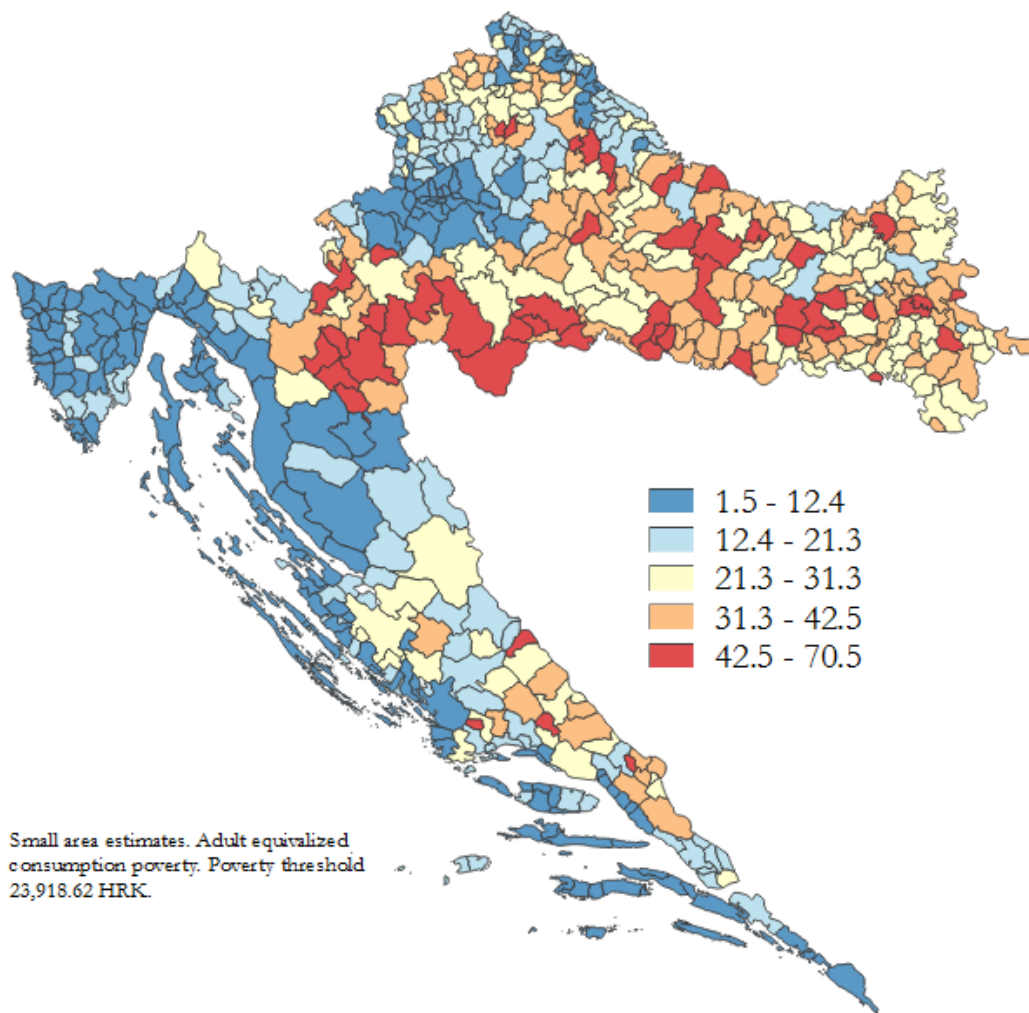
Figure 5: Distribution of the poor by NUTS-3 spatial units

0.8 - 2.7
2.7 - 4.7
4.7 - 6.6
6.6 - 8.6
8.6 - 10.5

Small area estimates. Adult
equivalizes consumption poverty.
Poverty threshold 23,918.62 HRK
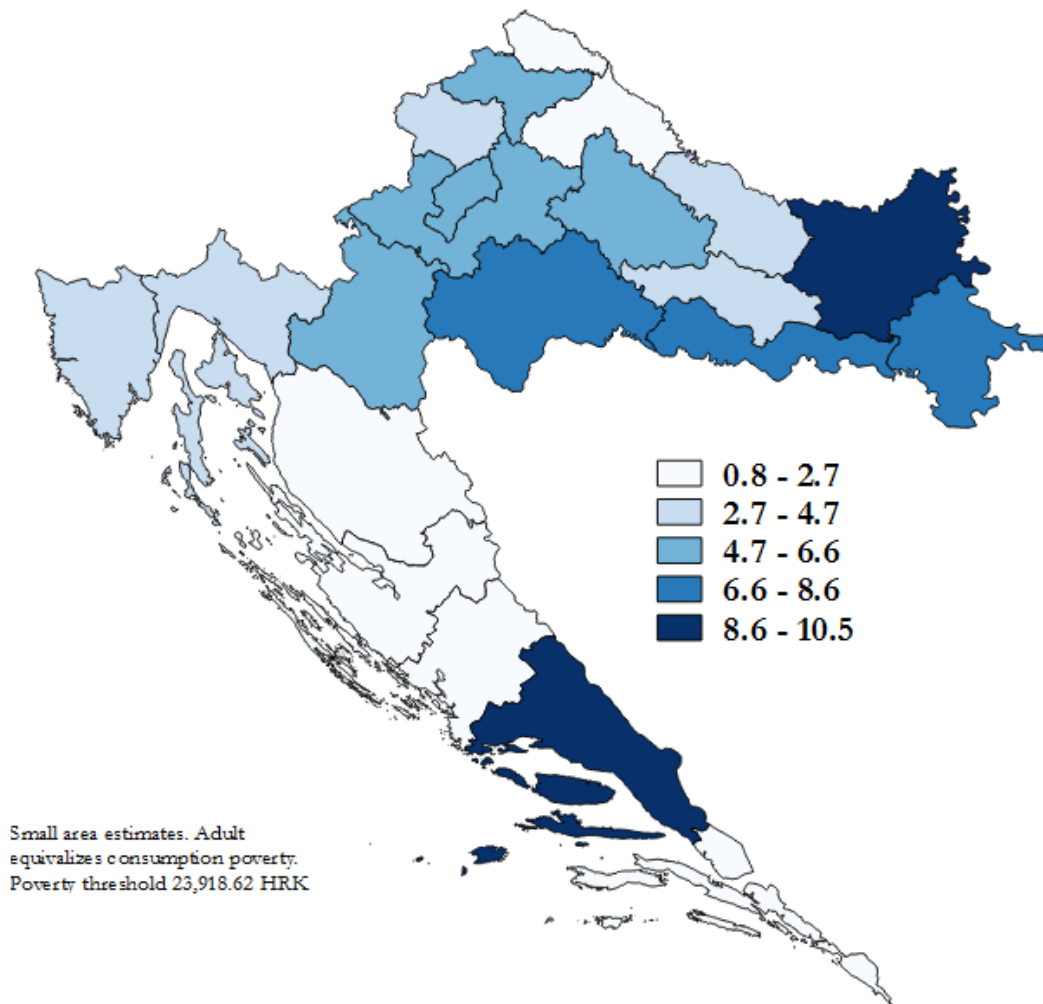
| Statistical Area | HBS direct estimates | | | NUTS-3 (counties) | ELL-EB Model prediction | | |
	AROP	95% CI			Population	AROP	95% CI	
Northwestern	10.3%	7.6%	13.7%	Zagrebačka	311,918	10.9%	8.8%	13.0%
				Krapinsko-zagorska	129,393	17.6%	14.7%	20.4%
				Varaždinska	170,380	23.7%	20.2%	27.2%
				Koprivničko-križevačka	112,540	16.7%	14.5%	18.9%
				Međimurska	110,888	15.0%	12.9%	17.1%
				Grad Zagreb	772,340	5.9%	4.2%	7.6%
Central & Eastern	28.1%	23.5%	33.3%	Sisačko-moslavačka	168,534	31.3%	28.9%	33.7%
				Karlovačka	125,722	34.3%	31.4%	37.2%
				Bjelovarsko-bilogorska	117,420	31.4%	27.5%	35.3%
				Virovitičko-podravska	83,129	30.8%	27.6%	33.9%
				Požeško-slavonska	75,912	32.5%	30.2%	34.7%
				Brodsko-posavska	154,863	33.9%	31.2%	36.6%
				Osječko-baranjska	297,230	24.9%	22.6%	27.2%
				Vukovarsko-srijemska	174,324	32.3%	29.6%	35.0%
Adriatic	12.6%	9.2%	17.0%	Primorsko-goranska	290,446	9.1%	7.4%	10.8%
				Ličko-senjska	49,766	11.8%	9.5%	14.2%
				Zadarska	167,029	10.1%	8.4%	11.8%
				Šibensko-kninska	107,345	14.1%	12.0%	16.1%
				Splitsko-dalmatinska	445,049	16.9%	14.9%	19.0%
				Istarska	204,025	10.2%	8.6%	11.9%
				Dubrovačko-neretvanska	118,707	11.0%	8.8%	13.2%
Republic of Croatia	16.3%	14.1%	18.6%		4,186,960	17.1%	15.8%	18.5%

Note: Poverty line is at 23,918.62 HRK per adult equivalent

6   The use of poverty maps

6.1   Local indicators of spatial association of poverty

Using the poverty map output we seek to determine if there is a pattern to how municipal, city, and districts of Zagreb poverty rates are distributed within Croatia. When analyzing geographical data it is assumed that things that are closer are more related to things that are farther away (Tobler, 1970). This supposes that two municipalities that are closer together will be more alike than municipalities which are farther away.

The presence of spatial association of headcount poverty is confirmed by a global Moran's I index of 0.19 which is significant at the 1 percent level. Local Moran's I can aide in identifying which localities have a

statistically significant relationship with its neighbors. Spatial autocorrelation makes the identification of high poverty areas (particularly in the Central and Eastern statistical region), as well as low poverty areas (around Zagreb and the surrounding areas of Istarska). Confirming the concentration of poverty in the Central and Eastern statistical area of the country, the map in Figure 7 illustrates a massive hotspot of poverty in the area. These results bring to light the challenges that arise for regional development, and add a new layer to the discussion.

As noted in Section 5 and in Figure 4, there appears to be some spatial clustering in the results from the poverty maps. In fact the Central and Eastern regions seem to be lagging behind the Adriatic and Northwest. Poverty rates in Central and Eastern regions are considerably greater than the rest of the country, and the region appears to be a hotspot for poverty. Furthermore, there appears to be a clear demarcation of low versus high poverty areas. Insofar as determining if there is in fact spatial correlation we rely on Global Moran's I as well as Local Moran's I statistic, and the Getis-Ord Gi, shown in Figure 6 and 7 respectively.

Figure 6 presents the results for the Global and Local Moran's I statistics. The significant (Z-score of 57.8) Global Moran's I of 0.20 suggests that there is spatial autocorrelation. Additionally, the map illustrates regions which are significantly different from their neighbors, and regions which are high-poverty areas and low poverty areas. All colored areas show a significant relationship to their neighbors. Those municipalities marked as "High – High" ("Low-Low") are municipalities where poverty is significantly greater (lower) than the neighborhood's poverty and are greater (lower) than the average poverty among municipalities.

In order to obtain spatial statistics it is necessary to establish a degree of spatial proximity between the municipalities in Croatia. A spatial weights matrix is used, which relies on the row-standardized inverse distances between the center of the municipalities and the surrounding municipalities. This ensures that nearer neighbors have a greater influence on the analyzed outcomes, in this instance poverty rates.

A cluster of high poverty is clearly delineated in the Eastern Central statistical area (Figure 6 and 7). In Zagreb and surrounding areas a cluster of low poverty is highlighted, the same holds true for the north of the Adriatic region. Municipalities marked as low-high outliers and the high-low outliers are particularly of interest. While poverty may be high (low) in particular areas, there are some municipalities that have a significantly lower (higher) level of poverty than its surroundings. These are mostly observed in the Adriatic and Eastern Central areas.

The hot spot analysis in Figure 7, brings to light a demarcation and separation between regions. This was also evident in the results from the OLS and GLS (see Table 2). All three statistical areas are different. Independently from the NUTS-2 classification which aggregates the Northwestern statistical area and the Eastern and Central statistical area, when it comes to welfare these areas are considerably different.

Figure 6: Poverty Map - Spatial association of headcount poverty
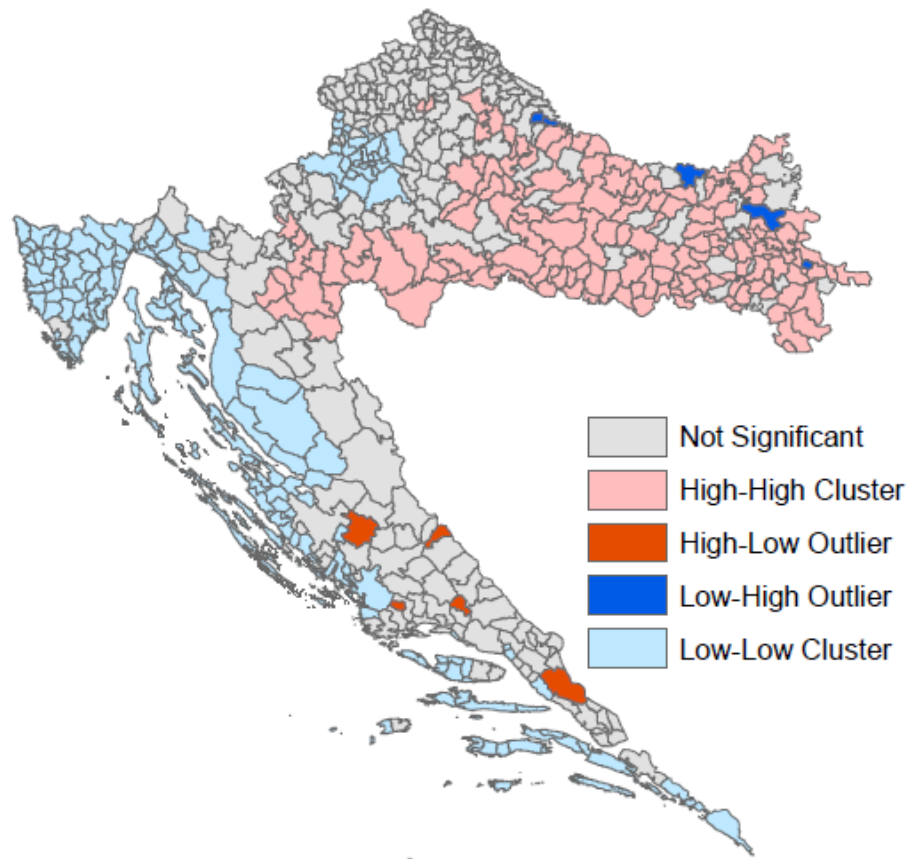
Figure 7: Poverty Map: hot spot analysis (Getis-Ord Gi)
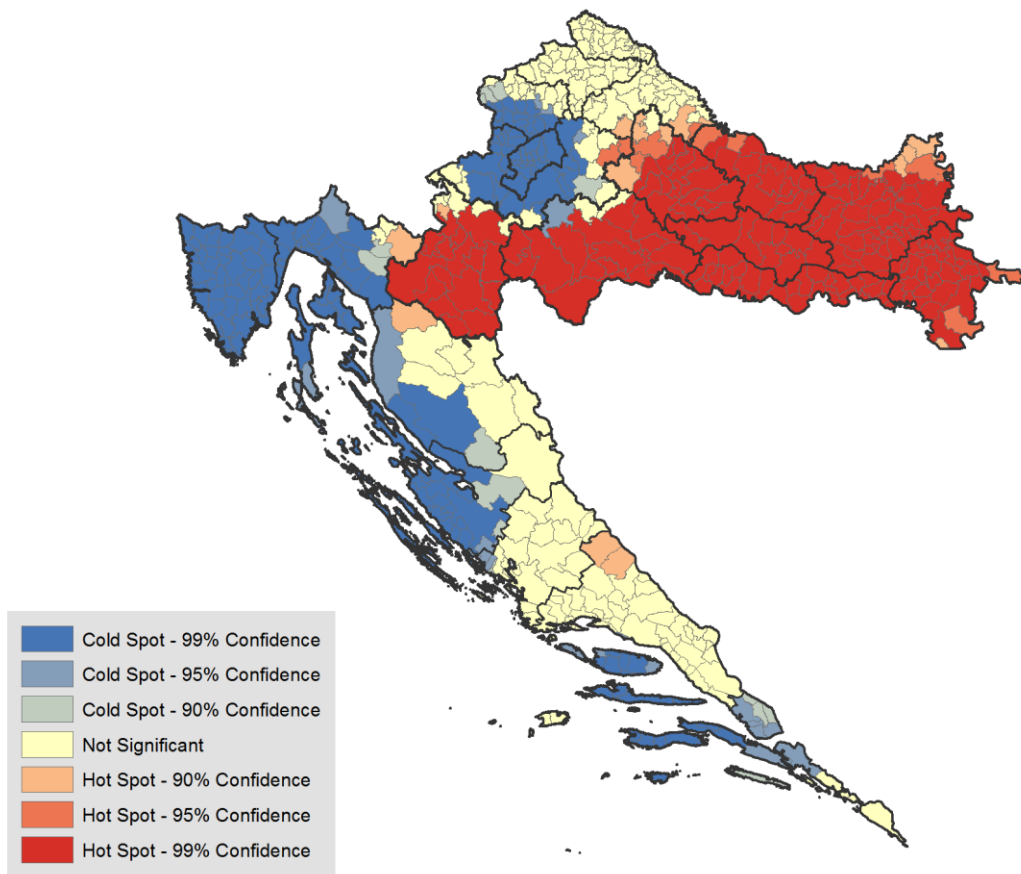
6.2 Using poverty maps to inform the allocation of resources

In this section the results from the poverty map are used in order to determine how poverty can be reduced by targeting poverty at different geographical levels. The simulation is taken from Elbers et al. (2006) and illustrates the benefit of having welfare information for small administrative units when attempting to reduce national poverty measures.

In order to proceed with the simulation all municipalities are ranked by their poverty severity index, the same is done by ranking NUTS-3 spatial units, and NUTS-2 spatial units. Additionally, assume a total budget of 1.64 billion HRK (0.5 percent of Croatian GDP in 2011) is allocated across the country's poor. This is the transferrable amount to each individual in the priority regions, until the budget is exhausted.

The simulated transfer is independent of the individual's status, everyone within the priority regions will receive the same amount. When the transfer is assumed to be done uniformly across the country, the amount transferred to each individual is the close to 390 HRK. When transferring at lower levels of aggregation, the amount transferred to each individual is equal to the budget over the number of poor individuals in the country. Therefore, every individual within the locality receives an equal amount of money regardless of his/her poverty status. If the funds run out before all in the locality receive the same amount, the remaining budget is split evenly amongst the individuals within that locality. Finally, it is assumed that the entire transfer will be devoted to household consumption.

Since for the poverty maps 100 simulations have been performed we have 100 vectors of consumption for each household. For each of these vectors the transfer amount is added to the household's adult equivalized consumption, irrespective if the household is poor in that particular simulation or not. The ranking of locations is done on the final results of severity from the poverty maps, i.e. the mean of the severity rate for each locality for all simulations. This type of targeting is referred to as "naïve" by Elbers et al. (2006). Since the ranking is done on the final results, the transfer in each simulation is also independent on the location's ranking within that particular simulation.

Table 5 presents the results from the simulations and the different national poverty measures obtained when targeting is done at different geographical levels. By making use of the results from the small area estimates exercise, the gains to be had by targeting poverty at smaller geographical levels is evident. When targeting at lower geographical levels, poverty alleviation is considerably improved. For example if we target poverty at LAU 2 as opposed to NUTS 1, the poverty alleviation rate is more than 1.6 times the alleviation rate achieved by the transfer at the NUTS 1 level. Considering that this is just a blanket transfer to all individuals within a poor locality, if this were coupled with a means tested targeting mechanism the gains would be considerably greater. As such poverty maps in this instance provide additional information which could be of considerable use for policy makers when allocating resources.

Table 5: Poverty alleviation by level of targeting

Transfer level	Headcount	Gap	Severity

NUTS-1 (baseline)	1.00	1.00	1.00
NUTS-2	1.05	1.10	1.14
NUTS-3	1.50	1.66	1.70
Municipalities, cities, and districts of Zagreb	1.59	1.89	2.03

Note: Transfer is 1.64 billion HRK (0.5% of GDP)

7 Concluding remarks

Direct poverty estimates from the HBS are only reliable at the national level. This complicates the analysis of poverty at more disaggregated levels since the reliability of direct estimates are questionable. Data from the Census of Population, Households and Dwellings 2011 coupled with small area estimation techniques aide policy makers in overcoming the lack of precision at lower geographical levels. The results from the poverty mapping exercise, coupled with spatial analysis reveal the heterogeneity of poverty in Croatia.

Results from spatial analysis reveal that there is a cluster of high poverty in the Central and Eastern statistical region of Croatia. There is a clear poverty demarcation in the country, where the Central and Eastern part of the country is clearly doing worse than the rest of the country. Results also reveal that while the Continental NUTS-2 spatial unit, may seem poorer than the Adriatic, the result is mainly driven by the aggregation of the two statistical regions (Northwest, and the Central and Eastern statistical regions).

The results of consumption poverty are likely to better reflect long term welfare of a family and its members than household income. By making use of the results of the consumption poverty map the policy relevance of the exercise is presented. The use of the poverty map in order to assist in the guidance of resource allocation can help policy makers achieve considerable gains in poverty reduction. Additionally, the visual format of the maps is simple to understand which makes it easy for the population at large to take notice of where their community stands compared to the rest of the country. Moreover, because the maps are based on established data sets, these are objective. As a consequence the maps may help prevent subjective decision making. Given the mentioned uses of the poverty maps these are valuable component of the policy maker's tool kit when trying to decide where limited funds can be distributed among the population which needs assistance.

8   References

Baric, M., & Williams, C. (2015). Tackling the undeclared economy in Croatia. South-Eastern Europe Journal of Economics, 11(1).

Bedi, T., Coudouel, A., & Simler, K. (Eds.). (2007). More than a pretty picture: using poverty maps to design better policies and interventions. World Bank Publications.

Elbers, C., Lanjouw, J. O., & Lanjouw, P. (2002). Micro-level estimation of welfare. World Bank Policy Research Working Paper, (2911)

Elbers, C., Lanjouw, J. O., & Lanjouw, P. (2003). Micro–level estimation of poverty and inequality. Econometrica, 71(1), 355-364.

Elbers, C., Fujii, T., Lanjouw, P., Özler, B., & Yin, W. (2007). Poverty alleviation through geographic targeting: How much does disaggregation help?. Journal of Development Economics, 83(1), 198-213.

Guadarrama, M., Molina, I., & Rao, J. N. K. (2016). A Comparison of Small Area Estimation Methods for Poverty Mapping. STATISTICS IN TRANSITION new series and SURVEY METHODOLOGY, 41.

Tobler, W. R. (1970). A computer movie simulating urban growth in the Detroit region. Economic geography, 46(sup1), 234-240.

Van der Weide, R. (2014). GLS estimation and empirical bayes prediction for linear mixed models with Heteroskedasticity and sampling weights: a background study for the POVMAP project. World Bank Policy Research Working Paper, (7028).

9   Appendix

9.1   Mathematical appendix

The discussion below presents the methodology detailed by ELL (2002 and 2003). Interested reader should refer to these documents for the full discussion.

From the estimation of equation 1 we obtain the residuals $\hat{u}_{ch}$, and by defining $\hat{u}_{c.}$ as the weighted average of $\hat{u}_{ch}$ for a specific cluster we can obtain $\hat{e}_{ch}$:

$$\hat{u}_{ch} = \hat{u}_{c.} + (\hat{u}_{ch} - \hat{u}_{c.}) = \hat{\eta}_c + \hat{e}_{ch}$$

The variance of the location effect (η_c) is given by:

$$\hat{\sigma}_\eta^2 = \max\left(\frac{\sum_c w_c(u_{c.} - u_{..})^2 - \sum_c w_c(1 - w_c)\hat{\tau}_c^2}{\sum_c w_c(1 - w_c)}; 0\right)$$

where $u_{..} = \sum_c w_c u_{c.}$ (where the w_c represents the cluster's weight) and:

$$\hat{\tau}_c^2 = \frac{\sum_h (e_{ch} - e_{c.})^2}{n_c(n_c - 1)}$$

where $e_{c.} = \frac{\sum_h e_{ch}}{n_c}$ (n_c is the number of households in the cluster). The parametric from of heteroscedasticity is presented as:

$$\sigma_{e_{ch}}^2 = \left[\frac{A \exp^{Z'_{bh}\alpha} + B}{1 + \exp^{Z'_{bh}\alpha}}\right]$$

This is simplified by setting $B = 0$ and $A = 1.05\max(e_{ch}^2)$, which leads to the simpler form that can be estimated via regular OLS:

$$\ln\left[\frac{e_{ch}^2}{A - e_{ch}^2}\right] = Z'_{ch}\alpha + r_{ch}$$

By defining $B = \exp(Z_{ch}\alpha)$ and using the delta method the household specific variance for e_{ch} is equal to:

$$\hat{\sigma}_{e,ch}^2 \approx \left[\frac{AB}{1 + B}\right] + \frac{1}{2}\widehat{Var}(r)\left[\frac{AB(1 - B)}{(1 + B)^3}\right]$$

The use of σ_η^2 and σ_ε^2 allows us to get the variance covariance matrix used for the OLS estimates:

$$\hat{\Omega}_c = \begin{pmatrix} \hat{\sigma}_\eta^2 + \hat{\sigma}_{e,ch}^2 & \hat{\sigma}_\eta^2 & \cdots & \hat{\sigma}_\eta^2 \\ \hat{\sigma}_\eta^2 & \hat{\sigma}_\eta^2 + \hat{\sigma}_{e,ch}^2 & \cdots & \hat{\sigma}_\eta^2 \\ \vdots & \vdots & \ddots & \vdots \\ \hat{\sigma}_\eta^2 & \hat{\sigma}_\eta^2 & \cdots & \hat{\sigma}_\eta^2 + \hat{\sigma}_{e,ch}^2 \end{pmatrix}$$

$$\Rightarrow \hat{\Omega} = \begin{pmatrix} \hat{\Omega}_1 & 0 & \cdots & 0 \\ 0 & \hat{\Omega}_2 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & \hat{\Omega}_C \end{pmatrix}$$

The estimates for the GLS detailed by ELL (2003) are:

$$\hat{\beta}_{GLS} = (X'W\Omega^{-1}X)^{-1}X'W\Omega^{-1}Y$$

and

$$Var\left(\hat{\beta}_{GLS}\right) = (X'W\Omega^{-1}X)^{-1}\left(X'W\Omega^{-1}WX\right)(X'W\Omega^{-1}X)^{-1}$$

In response to criticisms of the methodology an extensive revision was made to the methods, including the addition of empirical best estimation, by Van der Weide (2014). For a detailed discussion on the EB approach and the other changes implemented readers are guided towards Van der Weide (2014).

The revisions include an improved GLS estimator:

$$\hat{\beta}_{GLS} = \left(X'\hat{\Omega}^{-1}X\right)^{-1}X'\hat{\Omega}^{-1}Y$$

and a new variance covariance matrix:

$$var\left[\hat{\beta}_{GLS}\right] = \left(X'\hat{\Omega}^{-1}X\right)^{-1}\left(X'\hat{\Omega}^{-1}\hat{V}\hat{\Omega}^{-1}X\right)\left(X'\hat{\Omega}^{-1}X\right)^{-1}$$

These are the estimates used for the second stage of the estimation (detailed in the methods section).

9.2   Poverty mapping software

One of the most common small area methods used for poverty mapping was proposed by Elbers, Lanjouw, and Lanjouw (2003). This methodology has been widely adopted by the World Bank and has been applied in

numerous poverty maps conducted by the institution. In its efforts to make the implementation of the ELL methodology as simple as possible, the World Bank created a software package that could be easily used by anyone. The software, PovMap (Zhao, 2006), has proven to be an invaluable resource for the World Bank as well as for many statistical agencies seeking to create their own poverty maps. The software is freely available and has a graphical user interface which simplifies its use.

Poverty map results produced in this document have all made use of the PovMap software. The PovMap software can be downloaded, free of charge, at http://iresearch.worldbank.org/PovMap/PovMap2/.

9.3   Additional tables and graphs

Table 1A: Population weighted candidate variable means in Census and HBS at the Statistical Area levels

	Northwest		Central & Eastern		Adriatic	
Variable name	**Census**	**HBS-2011**	**Census**	**HBS-2011**	**Census**	**HBS-2011**
Male	0.4777	0.4730	0.4843	0.4698	0.4873	0.4552
Age [0,5)	0.0515	0.0384	0.0476	0.0367	0.0483	0.0321
Age [5,15)	0.1021	0.0811	0.1082	0.1023	0.0992	0.0971
Age [15,30)	0.1872	0.2079	0.1897	0.1804	0.1817	0.1770
Age [30,65)	0.4937	0.4772	0.4764	0.4852	0.4899	0.4794
Age [65+)	0.1655	0.1954	0.1782	0.1953	0.1810	0.2143
Household size (Share of individuals living in household type)						
Households size of 1	0.086	0.076	0.086	0.083	0.088	0.094
Households size of 2	0.175	0.198	0.181	0.234	0.195	0.239
Households size of 3	0.200	0.196	0.189	0.154	0.215	0.185
Households size of 4	0.243	0.227	0.237	0.226	0.260	0.217
Households size of 5	0.144	0.177	0.154	0.153	0.133	0.133
Households size of 6	0.083	0.070	0.085	0.091	0.061	0.074
Household size of 7 or more	0.070	0.056	0.067	0.057	0.047	0.059
Occupation (15+) (Share of individuals in households with at least one member)						
Manager	0.066	0.036	0.031	0.028	0.052	0.038
Professionals	0.188	0.134	0.107	0.063	0.145	0.124
Technicians	0.214	0.161	0.140	0.090	0.183	0.150
Clerical support	0.150	0.170	0.103	0.082	0.127	0.125
Service and sales	0.220	0.196	0.192	0.139	0.254	0.240

Skilled agriculture	0.035	0.085	0.064	0.138	0.025	0.042
Craft and trade	0.169	0.198	0.145	0.136	0.140	0.166
Machine operators	0.122	0.121	0.118	0.103	0.093	0.074
Elementary occs.	0.090	0.074	0.103	0.088	0.081	0.073
Labor status, age 15-64 (Share of individuals in households with at least one member)						
Employed	0.793	0.759	0.689	0.629	0.732	0.714
Retired	0.497	0.554	0.515	0.548	0.492	0.520
Student	0.223	0.270	0.220	0.236	0.221	0.240
Disabled	0.036	0.031	0.052	0.035	0.030	0.031
Other	0.727	0.755	0.794	0.782	0.745	0.752
Industry, age 15-64 (Share of individuals in households with at least one member)						
Agriculture, mining, and fishing	0.052	0.123	0.112	0.185	0.041	0.067
Manufacturing	0.225	0.207	0.191	0.156	0.147	0.104
Services and Sales	0.684	0.656	0.532	0.447	0.655	0.652
Share of members with education in HH (age 15-64)						
Primary education	0.075	0.065	0.107	0.123	0.081	0.094
Lower secondary	0.184	0.235	0.263	0.298	0.162	0.165
Upper secondary	0.536	0.559	0.521	0.516	0.578	0.591
Tertiary education	0.206	0.141	0.110	0.063	0.179	0.149
Dwelling characteristics						
Square meters	90.711	92.227	92.523	96.095	83.187	86.506

Table A2: Alpha model

	Coeff.	Std Err.
HH dependency ratio	-0.2946722	0.18568
Age of oldest member	0.0104073**	0.004439
Constant	-4.937768***	0.24085
Adj. R2	0.0019	
Observations	2,229	

Figure A1: Municipal, City, and districts of Zagreb poverty estimates and 95% confidence intervals
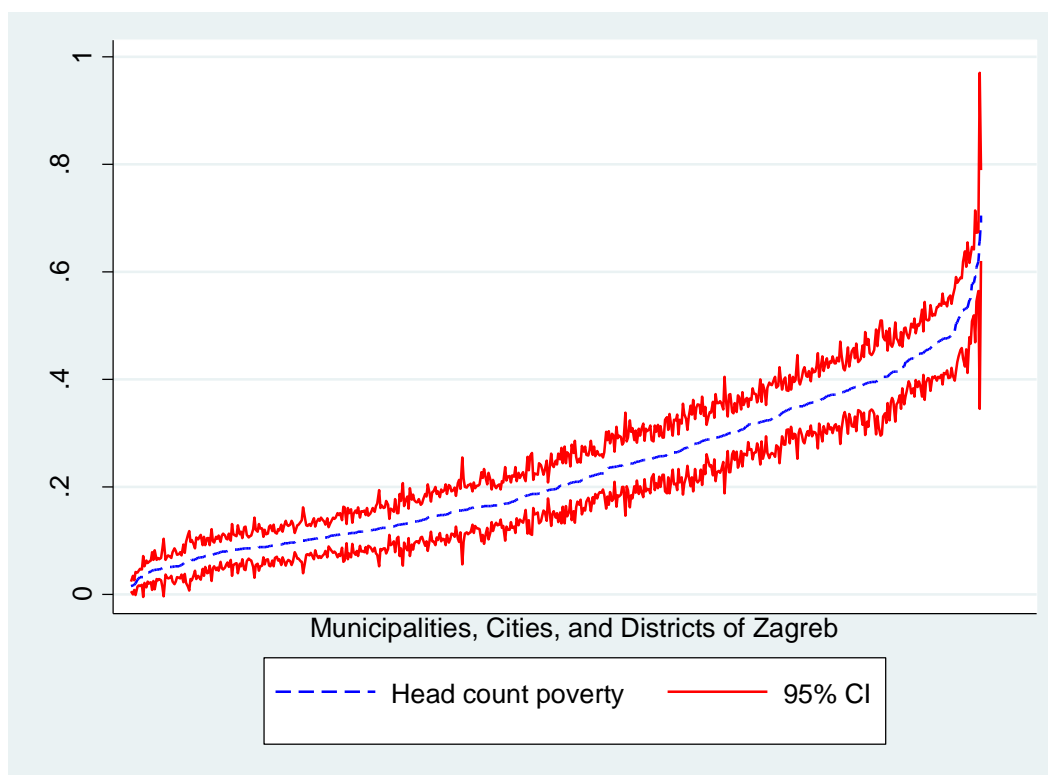
Figure A2: Poverty in the districts of Zagreb

■	1.5 - 1.8
■	1.8 - 3.2
■	3.2 - 6.4
■	6.4 - 9.8
■	9.8 - 11.6

Small area estimates. Adult equivalized consumption poverty. Poverty threshold at 23,918.62 HRK
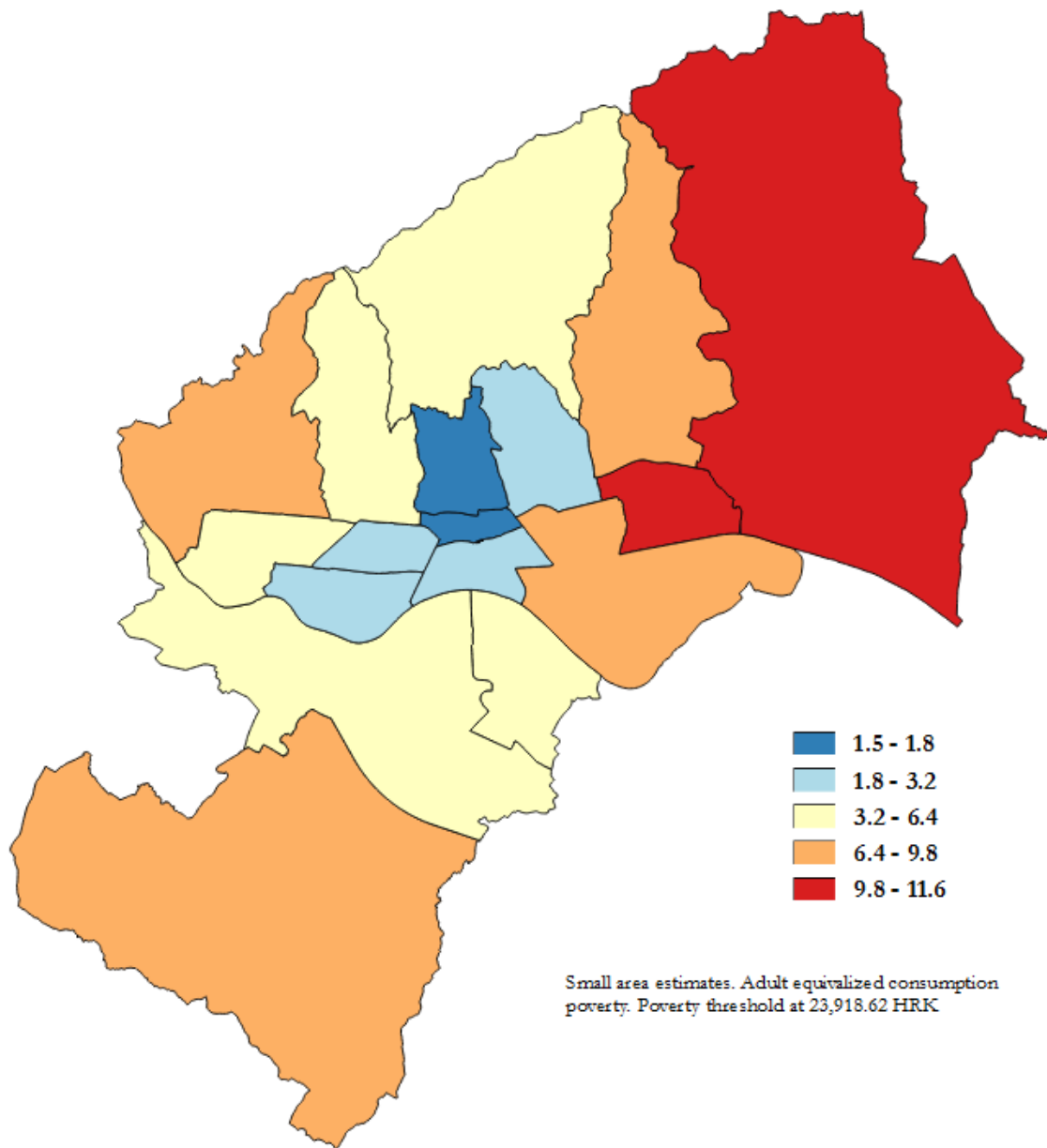
Table 3A: Poverty indicators by LAU-2

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Donji Grad	35,609	1.50	0.50	0.20	0.10	0.10	0.00	0.10
Gornji Grad-Medvešèak	29,750	1.80	0.40	0.30	0.10	0.10	0.00	0.10
Trnje	41,021	3.00	0.70	0.60	0.10	0.20	0.00	0.20
Maksimir	47,362	3.20	0.80	0.50	0.10	0.10	0.00	0.20
Pešæenica-Žitnjak	55,057	8.50	1.70	1.90	0.40	0.70	0.20	0.60
Novi Zagreb-istok	58,052	4.50	1.00	0.80	0.20	0.20	0.10	0.30
Novi Zagreb-zapad	56,647	4.80	1.10	0.80	0.20	0.20	0.10	0.40
Trešnjevka-sjever	54,197	3.20	0.80	0.60	0.20	0.20	0.10	0.20
Trešnjevka-jug	65,555	2.80	0.70	0.40	0.10	0.10	0.00	0.20
Èrnomerec	37,577	4.70	0.90	0.80	0.20	0.20	0.10	0.20
Gornja Dubrava	60,882	9.20	1.20	1.80	0.30	0.60	0.10	0.70
Donja Dubrava	35,871	11.60	1.80	2.40	0.50	0.80	0.20	0.50
Stenjevec	50,678	5.10	0.90	0.80	0.20	0.20	0.10	0.30
Podsused-Vrapèe	44,580	9.20	1.40	1.70	0.30	0.50	0.10	0.50
Podsljeme	18,858	6.40	1.50	1.10	0.30	0.30	0.10	0.20
Sesvete	68,924	11.00	1.60	2.10	0.40	0.60	0.10	1.00
Brezovica	11,720	9.80	1.90	1.80	0.40	0.50	0.20	0.20
Grad Zagreb	**772,340**	**5.90**	**0.90**	**1.10**	**0.20**	**0.30**	**0.10**	**6.00**
Andrijaševci	4,020	41.30	2.50	11.20	0.90	4.20	0.50	0.20
Antunovac	3,610	39.30	3.70	10.60	1.40	4.10	0.70	0.20
Babina Greda	3,516	27.70	3.00	6.70	1.00	2.40	0.40	0.10
Bakar	8,211	10.90	1.40	2.10	0.30	0.60	0.10	0.10
Bale - Valle	1,125	7.20	1.70	1.30	0.40	0.40	0.10	0.00
Barban	2,688	10.40	1.90	1.80	0.40	0.50	0.10	0.00
Barilović	2,967	41.40	2.70	10.80	1.10	4.00	0.50	0.20
Baška	1,658	13.50	2.10	2.80	0.50	0.90	0.20	0.00
Baška Voda	2,773	11.10	1.70	2.00	0.40	0.60	0.10	0.00
Bebrina	3,185	41.70	2.40	11.80	1.00	4.60	0.50	0.20
Bedekovčina	7,759	17.60	1.80	3.90	0.50	1.30	0.20	0.20
Bednja	3,954	40.00	4.50	10.80	1.70	4.10	0.80	0.20
Beli Manastir	9,459	30.30	1.90	8.40	0.70	3.50	0.30	0.40
Belica	3,150	12.40	1.90	2.40	0.50	0.70	0.20	0.10
Belišće	10,509	32.20	1.90	9.10	0.70	3.90	0.30	0.40
Benkovac	10,934	24.20	2.10	5.60	0.60	1.90	0.30	0.30
Berek	1,437	48.20	3.80	15.90	1.60	7.40	0.90	0.10
Beretinec	2,117	28.10	3.70	6.30	1.10	2.10	0.40	0.10
Bibinje	3,969	14.60	2.40	2.80	0.60	0.80	0.20	0.10
Bilje	5,590	25.10	2.80	6.00	0.90	2.10	0.40	0.20
Biograd Na Moru	5,501	12.60	1.60	2.40	0.40	0.70	0.20	0.10
Bizovac	4,456	28.60	2.30	6.70	0.80	2.30	0.30	0.20
Bjelovar	39,061	24.70	1.80	6.10	0.60	2.30	0.30	1.30
Blato	3,460	6.90	2.10	1.20	0.40	0.30	0.10	0.00
Bogdanovci	1,877	36.30	3.30	9.40	1.20	3.50	0.60	0.10
Bol	1,576	4.10	1.00	0.70	0.20	0.20	0.10	0.00

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Borovo	4,857	50.70	3.80	15.30	1.70	6.40	0.90	0.30
Bosiljevo	1,253	44.10	3.70	11.70	1.40	4.40	0.70	0.10
Bošnjaci	3,748	29.00	2.00	7.50	0.70	2.80	0.30	0.10
Brckovljani	6,432	13.70	1.50	3.00	0.40	1.00	0.20	0.10
Brdovec	11,048	8.90	1.20	1.60	0.30	0.50	0.10	0.10
Brestovac	3,691	44.20	2.20	12.60	0.90	5.00	0.40	0.20
Breznica	2,188	36.10	4.50	9.00	1.60	3.20	0.70	0.10
Brinje	3,180	25.00	2.70	6.10	0.80	2.20	0.40	0.10
Brod Moravice	849	20.60	2.70	6.90	0.80	3.50	0.40	0.00
Brodski Stupnik	2,950	38.80	2.30	10.30	0.80	3.90	0.40	0.20
Brtonigla - Verteneglio	1,622	1.70	0.90	0.20	0.10	0.00	0.00	0.00
Budinščina	2,390	25.90	3.40	6.40	1.00	2.30	0.50	0.10
Buje - Buie	5,102	8.90	1.20	1.70	0.30	0.50	0.10	0.10
Buzet	6,048	11.70	1.40	2.20	0.40	0.60	0.10	0.10
Cerna	4,489	30.10	2.00	7.50	0.70	2.70	0.30	0.20
Cernik	3,562	37.30	3.10	10.20	1.10	4.00	0.50	0.20
Cerovlje	1,650	11.10	2.10	2.00	0.50	0.60	0.20	0.00
Cestica	5,504	33.50	3.30	9.00	1.10	3.60	0.50	0.20
Cetingrad	1,921	39.60	3.00	11.00	1.20	4.40	0.60	0.10
Cista Provo	2,310	25.50	3.10	5.80	0.90	2.00	0.40	0.10
Civljane	226	65.80	16.00	20.50	8.10	8.50	4.30	0.00
Cres	2,777	5.40	1.30	0.80	0.30	0.20	0.10	0.00
Crikvenica	10,947	9.80	1.20	1.90	0.30	0.50	0.10	0.10
Crnac	1,445	37.20	3.60	10.10	1.20	4.00	0.60	0.10
Čabar	3,748	23.70	3.20	5.20	0.90	1.70	0.40	0.10
Čačinci	2,758	28.80	2.20	6.80	0.70	2.40	0.30	0.10
Čađavica	1,983	40.50	4.40	10.60	1.60	4.00	0.70	0.10
Čaglin	2,363	47.70	3.40	14.20	1.50	5.90	0.80	0.10
Čakovec	26,422	11.40	1.00	3.30	0.30	1.50	0.20	0.40
Čavle	7,071	10.60	1.20	2.00	0.30	0.60	0.10	0.10
Čazma	7,926	32.40	3.10	8.30	1.10	3.10	0.50	0.30
Čeminac	2,780	34.10	3.20	8.70	1.10	3.30	0.50	0.10
Čepin	11,299	22.50	1.80	5.20	0.60	1.80	0.20	0.30
Darda	6,746	34.60	1.70	10.60	0.70	4.70	0.40	0.30
Daruvar	11,482	25.20	1.80	5.70	0.60	1.90	0.20	0.40
Davor	2,967	34.00	3.10	8.80	1.00	3.30	0.50	0.10
Delnice	5,747	14.90	1.90	3.70	0.50	1.50	0.20	0.10
Desinić	2,604	22.20	2.70	4.80	0.80	1.50	0.30	0.10
Dežanovac	2,706	37.10	3.20	10.00	1.20	3.90	0.60	0.10
Dicmo	2,753	47.70	3.80	13.70	1.60	5.40	0.80	0.20
Dobrinj	2,051	7.70	1.40	1.60	0.30	0.50	0.10	0.00
Domašinec	2,217	17.30	2.40	4.40	0.50	1.80	0.30	0.10
Brela	1,698	4.90	1.80	0.80	0.30	0.20	0.10	0.00
Donja Dubrava	1,895	11.90	2.20	2.20	0.50	0.70	0.20	0.00
Donja Stubica	5,375	19.50	1.80	4.20	0.50	1.40	0.20	0.10
Donja Voća	2,392	32.10	4.10	7.90	1.30	2.80	0.60	0.10

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Donji Andrijevci	3,666	35.00	2.10	9.50	0.80	3.60	0.40	0.20
Donji Kraljevec	4,527	11.40	1.80	2.00	0.40	0.60	0.10	0.10
Donji Kukuruzari	1,634	48.10	3.00	14.80	1.30	6.30	0.70	0.10
Donji Lapac	2,028	15.90	2.30	3.40	0.60	1.10	0.20	0.00
Martijanec	3,788	38.30	3.60	9.50	1.30	3.40	0.60	0.20
Donji Miholjac	9,275	18.70	1.90	4.30	0.60	1.50	0.20	0.20
Muć	3,838	31.70	2.40	7.40	0.70	2.50	0.30	0.20
Proložac	3,491	32.60	3.30	8.10	1.10	2.90	0.50	0.10
Donji Vidovec	1,378	17.50	3.10	4.30	0.70	1.70	0.30	0.00
Draganić	2,665	44.00	2.90	12.80	1.10	5.40	0.60	0.20
Draž	2,681	26.50	3.00	6.70	0.90	2.50	0.40	0.10
Drenovci	4,969	30.60	2.00	7.90	0.80	3.00	0.40	0.20
Drenje	2,592	48.00	3.90	14.40	1.70	6.10	0.90	0.20
Drniš	7,422	19.00	1.70	4.10	0.50	1.30	0.20	0.20
Drnje	1,832	18.80	2.70	5.60	0.80	2.60	0.40	0.00
Dubrava	5,023	19.60	2.70	4.20	0.80	1.40	0.30	0.10
Dubrovnik	41,417	8.60	1.00	1.60	0.30	0.40	0.10	0.50
Duga Resa	11,120	34.30	1.90	8.70	0.70	3.20	0.30	0.50
Dugi Rat	6,982	16.50	1.80	3.30	0.50	1.00	0.20	0.20
Dugo Selo	17,201	10.60	1.60	2.00	0.40	0.60	0.10	0.20
Dvor	5,478	45.30	3.00	13.00	1.20	5.20	0.60	0.30
Đakovo	26,790	22.50	1.50	5.20	0.50	1.80	0.20	0.80
Đelekovec	1,490	11.80	2.00	2.50	0.50	0.80	0.20	0.00
Đulovac	3,171	45.30	4.70	14.20	2.00	6.10	1.10	0.20
Đurđenovac	6,598	47.70	3.00	14.30	1.30	6.00	0.70	0.40
Đurđevac	8,090	18.40	1.40	5.20	0.40	2.20	0.20	0.20
Đurmanec	4,150	20.90	2.40	4.50	0.70	1.40	0.30	0.10
Erdut	7,108	39.50	2.80	11.00	1.10	4.40	0.50	0.40
Ernestinovo	2,064	38.50	3.70	10.70	1.30	4.30	0.60	0.10
Ervenik	1,098	18.40	3.70	3.80	0.90	1.30	0.40	0.00
Farkaševac	1,889	24.30	3.00	6.00	1.00	2.20	0.50	0.10
Ferdinandovac	1,739	14.80	2.90	3.10	0.70	1.00	0.30	0.00
Feričanci	2,093	31.30	2.70	8.10	0.90	3.10	0.40	0.10
Fužine	1,570	14.80	2.30	3.00	0.60	1.00	0.20	0.00
Garčin	4,729	36.70	3.40	9.80	1.20	3.80	0.60	0.20
Garešnica	10,258	39.50	2.60	11.60	1.10	4.80	0.50	0.50
Generalski Stol	2,586	28.30	3.60	6.70	1.20	2.40	0.50	0.10
Glina	8,757	44.80	2.60	12.90	1.00	5.30	0.50	0.50
Gola	2,389	19.60	2.30	4.50	0.70	1.50	0.30	0.10
Goričan	2,777	8.80	1.60	1.70	0.30	0.50	0.10	0.00
Gorjani	1,564	35.00	3.40	8.80	1.20	3.20	0.50	0.10
Gornja Stubica	5,258	15.30	2.00	2.90	0.50	0.90	0.20	0.10
Gornji Bogićevci	1,957	43.90	3.30	13.40	1.30	5.70	0.70	0.10
Gornji Kneginec	5,252	26.20	2.30	6.10	0.70	2.10	0.30	0.20
Gospić	12,320	11.90	1.40	2.50	0.40	0.80	0.10	0.20
Gračac	4,661	22.40	1.90	5.30	0.60	1.80	0.30	0.10

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Gračišće	1,416	9.50	2.10	1.60	0.40	0.40	0.20	0.00
Gradac	3,237	18.70	1.90	4.40	0.60	1.60	0.30	0.10
Gradec	3,601	14.70	1.70	3.20	0.50	1.00	0.20	0.10
Gradina	3,799	52.30	3.30	16.10	1.50	6.80	0.80	0.30
Gradište	2,627	38.60	2.80	10.90	1.10	4.40	0.50	0.10
Grožnjan - Grisignana	733	8.60	2.10	1.50	0.50	0.40	0.20	0.00
Grubišno Polje	6,383	33.20	2.90	8.90	1.00	3.50	0.50	0.30
Gundinci	2,013	40.50	3.80	10.80	1.40	4.00	0.60	0.10
Gunja	3,637	38.00	2.30	10.70	0.90	4.30	0.50	0.20
Hercegovac	2,378	30.70	3.50	7.70	1.20	2.80	0.50	0.10
Hlebine	1,271	17.30	2.50	4.20	0.70	1.50	0.30	0.00
Hrašćina	1,535	29.00	3.50	6.70	1.00	2.30	0.40	0.10
Hrvace	3,595	35.50	2.60	8.70	0.90	3.10	0.40	0.20
Hrvatska Dubica	2,070	46.30	2.90	14.00	1.30	5.90	0.70	0.10
Hrvatska Kostajnica	2,734	37.80	2.00	10.00	0.70	3.80	0.40	0.10
Breznički Hum	1,314	39.20	4.90	10.00	1.70	3.60	0.80	0.10
Hum Na Sutli	4,851	17.00	2.20	3.50	0.60	1.10	0.20	0.10
Hvar	4,218	7.00	1.10	1.20	0.30	0.30	0.10	0.00
Ilok	6,500	31.80	2.80	8.00	0.90	2.90	0.40	0.30
Imotski	10,671	37.30	3.40	9.60	1.30	3.50	0.60	0.50
Ivanec	13,447	27.30	2.70	6.30	0.90	2.10	0.40	0.50
Ivanić-Grad	14,292	10.40	1.10	2.30	0.30	0.80	0.10	0.20
Ivankovo	7,762	31.20	2.60	7.70	0.90	2.70	0.40	0.30
Ivanska	2,908	39.60	5.00	11.10	1.90	4.50	0.90	0.20
Jakovlje	3,813	16.30	2.10	3.20	0.50	0.90	0.20	0.10
Jakšić	3,986	24.50	2.20	5.60	0.70	1.90	0.30	0.10
Jalžabet	3,120	35.80	3.20	9.10	1.10	3.40	0.50	0.10
Jarmina	2,440	29.30	3.20	7.00	1.00	2.40	0.40	0.10
Jasenice	1,395	16.40	2.70	2.90	0.60	0.80	0.20	0.00
Jasenovac	1,987	39.50	2.70	11.40	1.10	4.80	0.60	0.10
Jastrebarsko	15,625	8.60	1.20	1.60	0.30	0.50	0.10	0.20
Jelenje	5,277	10.30	1.60	1.80	0.30	0.50	0.10	0.10
Jelsa	3,556	10.20	1.50	1.90	0.40	0.60	0.10	0.00
Josipdol	3,723	43.60	2.00	12.70	0.80	5.30	0.40	0.20
Kali	1,628	5.30	1.50	0.80	0.30	0.20	0.10	0.00
Kanfanar	1,541	8.80	1.80	1.40	0.40	0.40	0.10	0.00
Kapela	2,939	44.50	3.00	12.70	1.20	5.20	0.60	0.20
Kaptol	3,446	33.80	2.20	8.70	0.80	3.30	0.40	0.20
Karlobag	915	11.40	2.40	2.30	0.50	0.70	0.20	0.00
Karlovac	54,120	26.40	1.60	6.30	0.50	2.20	0.20	1.90
Kastav	10,346	7.40	1.30	1.20	0.30	0.30	0.10	0.10
Kaštela	38,044	12.90	1.20	2.40	0.30	0.70	0.10	0.60
Kijevo	415	21.30	3.20	4.60	1.00	1.50	0.40	0.00
Kistanje	3,429	41.00	4.40	13.20	1.80	5.80	1.00	0.20
Klakar	2,251	26.50	3.10	6.10	1.00	2.10	0.40	0.10
Klana	1,966	18.80	2.90	3.60	0.80	1.00	0.30	0.00

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Klanjec	2,911	12.30	2.10	2.40	0.50	0.80	0.20	0.00
Klenovnik	2,006	26.50	3.60	6.00	1.10	2.00	0.40	0.10
Klinča Sela	5,108	11.20	2.00	2.00	0.50	0.50	0.20	0.10
Klis	4,738	16.10	1.60	3.10	0.40	0.90	0.20	0.10
Kloštar Ivanić	5,990	14.70	2.00	3.20	0.60	1.10	0.20	0.10
Kloštar Podravski	3,200	28.00	2.40	8.70	0.90	4.00	0.50	0.10
Kneževi Vinogradi	4,517	25.70	1.90	6.80	0.60	2.60	0.30	0.20
Knin	15,011	17.20	1.90	3.60	0.50	1.20	0.20	0.30
Komiža	1,519	15.70	2.20	3.30	0.50	1.10	0.20	0.00
Konavle	8,549	8.60	2.00	1.40	0.40	0.40	0.10	0.10
Končanica	2,340	24.30	4.20	6.20	1.20	2.30	0.50	0.10
Konjščina	3,658	15.30	2.30	3.20	0.60	1.00	0.20	0.10
Koprivnica	29,930	9.60	0.90	2.00	0.20	0.70	0.10	0.40
Koprivnički Bregi	2,270	16.50	2.50	3.60	0.70	1.20	0.30	0.00
Koprivnički Ivanec	1,972	9.50	1.60	1.90	0.40	0.70	0.20	0.00
Korčula	5,585	4.70	1.10	0.70	0.20	0.20	0.10	0.00
Koška	3,889	26.30	2.50	6.80	0.90	2.60	0.40	0.10
Kotoriba	3,080	24.00	2.00	8.40	0.70	4.20	0.40	0.10
Kraljevec Na Sutli	1,727	13.50	3.20	2.60	0.80	0.80	0.30	0.00
Kraljevica	4,490	9.60	1.60	1.70	0.40	0.50	0.10	0.10
Krapina	12,105	15.50	1.50	3.10	0.40	1.00	0.20	0.20
Krapinske Toplice	5,249	12.30	1.90	2.40	0.50	0.70	0.20	0.10
Križ	6,794	16.50	1.60	3.60	0.50	1.20	0.20	0.10
Križevci	20,631	12.90	1.10	2.60	0.30	0.80	0.10	0.30
Krk	5,951	5.10	1.10	0.80	0.20	0.20	0.10	0.00
Krnjak	1,826	60.90	3.20	19.60	1.60	8.70	0.90	0.10
Kršan	2,913	9.80	1.60	1.70	0.40	0.50	0.10	0.00
Kula Norinska	1,608	14.70	2.20	3.00	0.50	0.90	0.20	0.00
Kutina	22,337	25.00	1.80	6.40	0.60	2.50	0.30	0.70
Kutjevo	6,165	42.20	2.00	12.00	0.80	4.90	0.40	0.30
Labin	11,497	12.60	1.40	2.40	0.40	0.70	0.10	0.20
Lanišće	328	6.30	2.80	1.00	0.50	0.30	0.20	0.00
Lasinja	1,612	41.70	3.60	11.40	1.40	4.40	0.70	0.10
Lastovo	792	4.60	1.90	0.80	0.40	0.20	0.10	0.00
Legrad	2,185	8.70	2.80	2.20	0.70	0.90	0.30	0.00
Lekenik	5,885	27.10	3.30	6.50	1.00	2.30	0.50	0.20
Lepoglava	7,437	28.70	3.20	6.90	1.00	2.40	0.40	0.30
Levanjska Varoš	1,016	70.50	4.30	26.60	2.60	13.20	1.70	0.10
Lipik	6,002	30.80	2.30	8.10	0.70	3.10	0.30	0.20
Lipovljani	3,450	25.60	3.00	6.00	1.00	2.10	0.40	0.10
Lišane Ostrovičke	686	12.30	3.60	2.20	0.80	0.60	0.30	0.00
Ližnjan - Lisignano	3,806	11.00	1.70	2.10	0.40	0.60	0.10	0.10
Lobor	2,818	14.40	2.20	2.80	0.60	0.80	0.20	0.10
Lokve	1,004	27.70	4.30	6.00	1.20	1.90	0.50	0.00
Lovas	1,207	29.30	3.40	7.20	1.00	2.60	0.50	0.00
Lovinac	995	13.50	2.60	3.30	0.80	1.10	0.40	0.00

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Lovran	4,033	4.70	0.90	0.80	0.20	0.20	0.10	0.00
Lovreć	1,691	20.20	2.50	4.30	0.70	1.40	0.30	0.00
Ludbreg	8,223	21.90	2.00	5.00	0.60	1.70	0.30	0.20
Lukač	3,568	36.50	2.60	9.90	1.00	3.90	0.50	0.20
Lupoglav	918	9.10	2.00	1.70	0.50	0.50	0.20	0.00
Ljubešćica	1,837	27.60	3.80	6.30	1.00	2.10	0.40	0.10
Mače	2,511	15.80	2.30	3.20	0.60	1.00	0.20	0.10
Makarska	13,684	10.80	1.20	2.00	0.30	0.60	0.10	0.20
Mala Subotica	5,274	22.50	1.70	8.50	0.60	4.60	0.40	0.20
Mali Bukovec	2,185	35.80	2.80	9.30	1.00	3.50	0.50	0.10
Mali Lošinj	7,916	5.50	0.90	0.90	0.20	0.30	0.10	0.10
Malinska-Dubašnica	3,050	9.20	1.50	1.70	0.40	0.50	0.10	0.00
Marčana	4,199	15.30	2.10	3.00	0.50	0.90	0.20	0.10
Marija Bistrica	5,889	12.60	1.70	2.40	0.40	0.70	0.20	0.10
Marijanci	2,358	23.90	2.90	5.80	0.90	2.10	0.40	0.10
Marina	4,496	30.30	2.70	7.10	0.90	2.40	0.40	0.20
Martinska Ves	3,393	37.20	3.00	9.80	1.10	3.70	0.50	0.20
Maruševec	6,275	32.20	2.90	7.50	1.00	2.50	0.40	0.30
Matulji	11,121	6.50	1.10	1.10	0.20	0.30	0.10	0.10
Medulin	6,374	8.60	1.30	1.70	0.30	0.60	0.10	0.10
Metković	15,956	17.80	2.00	3.70	0.50	1.20	0.20	0.40
Mihovljan	1,921	37.90	4.10	9.50	1.40	3.40	0.60	0.10
Mikleuš	1,449	38.30	2.80	10.80	1.10	4.30	0.60	0.10
Milna	1,022	13.90	2.50	2.70	0.70	0.80	0.30	0.00
Mljet	1,061	3.80	1.30	0.70	0.30	0.20	0.10	0.00
Molve	2,147	22.10	3.30	5.10	1.00	1.70	0.40	0.10
Podravska Moslavina	1,153	23.60	3.50	5.70	1.00	2.10	0.50	0.00
Mošćenička Draga	1,526	7.10	1.90	1.10	0.40	0.30	0.10	0.00
Motovun - Montona	916	14.30	3.10	3.00	0.70	1.00	0.30	0.00
Mrkopalj	1,205	20.80	3.60	4.00	0.80	1.20	0.30	0.00
Mursko-Središće	6,209	16.60	1.70	4.40	0.50	1.80	0.20	0.10
Našice	15,912	21.10	1.80	5.20	0.50	2.00	0.20	0.40
Nedelišće	11,700	18.70	1.30	6.80	0.50	3.50	0.30	0.30
Nerežišća	845	4.40	1.80	0.70	0.30	0.20	0.10	0.00
Netretić	2,791	57.80	3.50	17.10	1.60	7.00	0.80	0.20
Nin	2,710	10.00	2.10	1.70	0.50	0.50	0.20	0.00
Nova Bukovica	1,769	47.30	3.30	13.20	1.30	5.20	0.60	0.10
Nova Gradiška	13,880	32.00	1.90	8.50	0.70	3.30	0.30	0.60
Nova Kapela	4,108	37.10	3.10	9.80	1.20	3.70	0.60	0.20
Nova Rača	3,391	32.20	3.50	8.10	1.20	2.90	0.50	0.10
Novalja	3,613	4.30	1.00	0.70	0.20	0.20	0.10	0.00
Novi Marof	13,103	22.30	2.30	4.80	0.70	1.60	0.30	0.40
Novi Vinodolski	4,976	7.50	1.10	1.50	0.30	0.50	0.10	0.00
Novigrad - Cittanova	4,145	8.00	1.20	1.40	0.30	0.40	0.10	0.00
Novigrad Podravski	2,758	16.30	1.80	4.20	0.50	1.70	0.30	0.10
Novska	13,404	30.20	1.80	7.90	0.70	3.00	0.30	0.50

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Nuštar	5,486	32.00	2.40	8.40	0.90	3.10	0.40	0.20
Nijemci	4,643	34.50	3.30	9.30	1.10	3.70	0.50	0.20
Obrovac	4,254	22.00	2.50	5.30	0.80	1.90	0.30	0.10
Ogulin	13,687	31.60	1.70	7.90	0.60	2.90	0.30	0.60
Promina	1,048	17.00	2.50	3.50	0.80	1.10	0.30	0.00
Okučani	3,362	44.80	3.00	13.80	1.30	5.90	0.70	0.20
Omiš	14,654	25.70	1.70	5.90	0.60	2.00	0.20	0.50
Omišalj	2,973	3.70	0.80	0.90	0.20	0.30	0.10	0.00
Opatija	11,369	5.10	0.90	0.90	0.20	0.30	0.10	0.10
Oprisavci	2,481	30.00	3.70	7.30	1.20	2.60	0.50	0.10
Oprtalj - Portole	850	6.00	1.90	1.00	0.40	0.20	0.10	0.00
Opuzen	3,133	12.60	2.10	2.50	0.50	0.70	0.20	0.10
Orahovica	5,090	20.40	2.10	4.40	0.60	1.50	0.20	0.10
Orebić	4,031	5.80	1.80	0.90	0.40	0.20	0.10	0.00
Oriovac	5,719	45.00	2.10	12.60	0.80	5.00	0.40	0.30
Biskupija	1,688	27.10	4.30	6.30	1.20	2.20	0.50	0.10
Oroslavje	6,039	19.20	2.00	4.10	0.50	1.30	0.20	0.20
Osijek	105,841	16.80	1.40	3.60	0.40	1.20	0.20	2.30
Otočac	9,516	10.20	1.30	2.00	0.30	0.60	0.10	0.10
Otok	5,401	36.90	3.60	9.40	1.20	3.40	0.50	0.30
Ozalj	6,537	33.10	2.70	8.20	1.00	2.90	0.40	0.30
Pag	3,802	4.10	0.90	0.70	0.20	0.20	0.10	0.00
Pakoštane	4,090	11.70	1.80	2.30	0.50	0.70	0.20	0.10
Pakrac	8,345	35.60	2.10	9.20	0.70	3.50	0.30	0.40
Pašman	2,069	7.70	1.70	1.30	0.40	0.30	0.10	0.00
Pazin	8,570	8.10	1.10	1.40	0.30	0.40	0.10	0.10
Perušić	2,636	16.10	2.30	4.10	0.60	1.60	0.30	0.10
Peteranec	2,648	20.90	1.90	6.80	0.60	3.30	0.40	0.10
Petlovac	2,350	34.70	3.00	9.50	1.00	3.80	0.50	0.10
Petrijanec	4,695	31.80	2.80	10.30	0.90	5.10	0.50	0.20
Petrijevci	2,761	24.30	2.50	5.70	0.80	2.00	0.40	0.10
Petrinja	23,896	29.90	1.60	7.40	0.60	2.70	0.30	0.90
Petrovsko	2,643	15.70	3.00	3.10	0.80	0.90	0.30	0.10
Pićan	1,805	12.10	2.30	2.20	0.50	0.60	0.20	0.00
Pisarovina	3,661	14.60	2.80	3.20	0.70	1.10	0.30	0.10
Pitomača	9,782	31.70	2.30	8.70	0.80	3.50	0.40	0.40
Plaški	2,057	53.30	3.90	16.30	1.60	6.90	0.90	0.10
Pleternica	11,115	37.70	2.20	10.10	0.90	3.90	0.40	0.50
Ploče	9,776	18.50	2.40	4.00	0.70	1.30	0.30	0.20
Podbablje	4,679	38.60	4.20	10.00	1.40	3.70	0.60	0.20
Podcrkavlje	2,544	45.60	2.70	13.50	1.20	5.50	0.70	0.20
Podgora	2,505	8.20	1.60	1.50	0.40	0.40	0.10	0.00
Podgorač	2,834	41.10	2.70	12.80	1.10	5.70	0.60	0.20
Podstrana	8,932	9.60	1.70	1.70	0.40	0.50	0.10	0.10
Podturen	3,810	19.60	2.10	5.30	0.60	2.30	0.30	0.10
Pojezerje	896	20.90	3.90	4.20	1.00	1.30	0.40	0.00

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Polača	1,452	21.40	2.70	4.70	0.80	1.60	0.30	0.00
Poličnik	4,454	16.80	2.20	3.30	0.60	1.00	0.20	0.10
Popovac	2,044	36.00	3.30	10.10	1.20	4.10	0.60	0.10
Popovača	11,394	32.30	1.50	9.00	0.50	3.70	0.30	0.50
Poreč - Parenzo	16,438	7.10	1.00	1.30	0.20	0.40	0.10	0.20
Posedarje	3,565	16.40	2.10	3.40	0.60	1.10	0.20	0.10
Postira	1,542	9.20	1.90	1.70	0.40	0.50	0.20	0.00
Požega	25,406	23.70	1.40	5.60	0.50	2.00	0.20	0.80
Pregrada	6,485	24.30	2.10	5.40	0.60	1.80	0.30	0.20
Preko	3,339	5.30	1.10	0.90	0.20	0.20	0.10	0.00
Prelog	7,638	8.40	1.30	1.40	0.30	0.40	0.10	0.10
Preseka	1,413	13.10	3.90	2.70	0.90	0.80	0.30	0.00
Primošten	2,794	8.40	1.40	1.40	0.30	0.30	0.10	0.00
Pučišća	2,144	17.80	2.50	3.70	0.70	1.20	0.30	0.00
Pula - Pola	55,918	10.70	0.90	2.10	0.30	0.70	0.10	0.80
Punat	1,907	9.10	1.40	1.80	0.40	0.60	0.20	0.00
Punitovci	1,750	28.90	2.60	7.10	0.90	2.60	0.40	0.10
Pušća	2,615	25.10	3.20	6.00	1.00	2.10	0.50	0.10
Rab	7,942	10.60	1.70	2.00	0.40	0.60	0.10	0.10
Radoboj	3,339	20.90	2.80	4.40	0.70	1.40	0.30	0.10
Rakovica	2,368	42.50	3.60	12.10	1.50	4.80	0.80	0.10
Rasinja	3,171	22.50	2.00	5.90	0.60	2.30	0.30	0.10
Raša	3,074	14.70	2.30	2.90	0.50	0.90	0.20	0.10
Ravna Gora	2,426	23.80	2.70	5.40	0.80	1.80	0.40	0.10
Ražanac	2,900	8.00	1.50	1.40	0.40	0.40	0.10	0.00
Rešetari	4,653	41.50	3.10	11.70	1.20	4.70	0.60	0.30
Rijeka	125,857	8.30	0.90	1.60	0.20	0.50	0.10	1.40
Rovinj	13,942	8.50	1.00	1.60	0.20	0.50	0.10	0.20
Rovišće	4,749	35.20	2.70	9.90	1.00	4.00	0.50	0.20
Rugvica	7,661	9.30	1.20	1.80	0.30	0.60	0.10	0.10
Ružić	1,559	25.00	3.50	5.60	1.10	1.80	0.50	0.10
Saborsko	626	59.20	6.20	17.70	2.70	7.40	1.40	0.00
Sali	1,672	2.00	1.10	0.30	0.20	0.10	0.00	0.00
Samobor	37,186	8.60	1.10	1.50	0.30	0.40	0.10	0.40
Satnica Đakovačka	2,082	27.50	2.80	6.70	0.80	2.40	0.40	0.10
Seget	4,787	21.00	2.20	4.60	0.60	1.50	0.30	0.10
Selca	1,786	16.20	2.40	3.10	0.60	0.90	0.20	0.00
Selnica	2,885	13.70	2.10	2.70	0.50	0.80	0.20	0.10
Semeljci	4,219	35.80	2.90	11.10	1.00	5.00	0.50	0.20
Senj	7,095	8.40	1.30	1.50	0.30	0.40	0.10	0.10
Sibinj	6,815	29.00	2.50	6.80	0.80	2.30	0.30	0.30
Sinj	24,471	22.10	2.00	4.80	0.60	1.60	0.20	0.70
Sirač	2,201	28.40	2.60	7.00	0.80	2.60	0.40	0.10
Sisak	46,762	25.40	1.50	6.30	0.50	2.30	0.20	1.60
Skrad	1,054	15.60	3.00	2.80	0.70	0.80	0.20	0.00
Skradin	3,701	25.70	2.90	5.60	0.80	1.80	0.30	0.10

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Slatina	13,529	25.80	1.80	6.20	0.60	2.20	0.30	0.50
Slavonski Brod	57,296	28.80	1.40	7.50	0.50	2.90	0.30	2.20
Slavonski Šamac	2,112	44.90	4.10	12.80	1.60	5.20	0.80	0.10
Slivno	1,906	14.70	2.40	3.10	0.60	1.10	0.20	0.00
Slunj	5,012	46.20	3.00	12.70	1.30	4.90	0.70	0.30
Smokvica	874	3.30	1.90	0.50	0.30	0.10	0.10	0.00
Sokolovac	3,346	39.40	4.20	10.60	1.60	4.00	0.80	0.20
Solin	23,670	20.50	2.00	4.30	0.60	1.40	0.20	0.60
Sopje	2,242	40.30	5.50	10.80	2.00	4.20	0.90	0.10
Split	173,163	11.30	0.90	2.10	0.30	0.60	0.10	2.60
Sračinec	4,689	37.60	3.50	9.30	1.20	3.40	0.50	0.20
Stankovci	1,982	29.20	3.30	6.70	0.90	2.30	0.40	0.10
Stara Gradiška	1,349	58.00	3.10	18.00	1.50	7.60	0.90	0.10
Stari Grad	2,744	8.40	1.40	1.50	0.30	0.40	0.10	0.00
Stari Jankovci	4,322	45.60	2.80	13.50	1.10	5.60	0.60	0.30
Stari Mikanovci	2,864	40.50	2.50	11.50	1.00	4.60	0.50	0.20
Starigrad	1,869	8.70	1.80	1.50	0.40	0.40	0.20	0.00
Staro Petrovo Selo	5,090	41.60	3.00	11.80	1.20	4.70	0.60	0.30
Ston	2,287	9.00	1.80	1.70	0.40	0.50	0.10	0.00
Strizivojna	2,494	35.00	2.70	9.10	1.00	3.40	0.50	0.10
Stubičke Toplice	2,736	10.40	1.60	1.90	0.40	0.50	0.10	0.00
Sućuraj	458	10.00	3.10	1.60	0.70	0.40	0.20	0.00
Suhopolje	6,477	36.20	2.20	9.70	0.80	3.80	0.40	0.30
Sukošan	4,533	7.60	1.60	1.30	0.30	0.30	0.10	0.00
Sunja	5,709	43.90	2.50	12.20	1.00	4.90	0.50	0.30
Supetar	3,997	5.80	1.00	0.90	0.20	0.20	0.10	0.00
Sveti Filip I Jakov	4,434	12.00	1.70	2.40	0.40	0.70	0.20	0.10
Sveti Ivan Zelina	15,623	13.30	1.40	2.60	0.40	0.80	0.10	0.30
Sveti Križ Začretje	6,037	19.50	2.30	4.10	0.60	1.30	0.20	0.20
Sveti Lovreč	1,014	11.40	2.30	2.10	0.50	0.60	0.20	0.00
Sveta Nedelja	2,880	10.10	1.40	1.80	0.30	0.50	0.10	0.00
Sveti Petar U Šumi	1,052	8.80	2.20	1.30	0.40	0.30	0.10	0.00
Svetvinčenat	2,184	12.00	2.10	2.10	0.50	0.60	0.20	0.00
Sveta Nedelja	17,785	8.70	1.70	1.50	0.30	0.40	0.10	0.20
Sveti Đurđ	3,763	39.70	3.30	10.60	1.20	4.20	0.60	0.20
Sveti Ilija	3,357	29.70	3.40	6.50	1.00	2.10	0.40	0.10
Sveti Ivan Žabno	5,086	15.80	2.10	3.20	0.50	1.00	0.20	0.10
Sveti Juraj Na Bregu	4,909	9.80	1.60	1.70	0.30	0.50	0.10	0.10
Sveti Martin Na Muri	2,586	16.80	2.10	3.30	0.60	1.00	0.20	0.10
Sveti Petar Orehovec	4,449	34.90	4.90	8.30	1.60	2.90	0.70	0.20
Šestanovac	1,849	18.00	2.40	3.70	0.70	1.10	0.30	0.00
Šibenik	45,426	8.80	1.00	1.60	0.20	0.40	0.10	0.50
Škabrnja	1,770	8.30	2.50	1.30	0.50	0.30	0.20	0.00
Šolta	1,668	11.50	2.10	2.30	0.50	0.70	0.20	0.00
Špišić Bukovica	4,171	46.10	2.90	13.50	1.10	5.50	0.60	0.30
Štefanje	1,988	33.00	3.50	9.80	1.10	4.50	0.60	0.10

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Štrigova	2,526	9.10	1.90	1.70	0.40	0.50	0.10	0.00
Tinjan	1,660	13.00	2.20	2.30	0.50	0.60	0.20	0.00
Tisno	3,089	5.30	1.10	0.80	0.20	0.20	0.10	0.00
Plitvička Jezera	4,299	11.90	1.60	2.40	0.40	0.70	0.10	0.10
Tompojevci	1,523	30.30	3.40	7.10	1.10	2.40	0.50	0.10
Topusko	2,956	39.00	2.60	10.40	0.90	3.90	0.50	0.20
Tordinci	2,004	47.10	3.50	13.20	1.40	5.10	0.70	0.10
Tovarnik	2,736	24.80	2.40	5.80	0.70	2.10	0.30	0.10
Trilj	8,801	34.80	2.50	8.70	0.80	3.10	0.40	0.40
Trnava	1,568	47.70	3.30	14.30	1.40	6.00	0.80	0.10
Trnovec Bartolovečki	6,470	23.60	2.30	4.90	0.60	1.50	0.20	0.20
Trogir	12,784	14.40	1.40	2.80	0.40	0.80	0.10	0.20
Trpinja	5,386	40.50	3.40	10.80	1.30	4.10	0.60	0.30
Tuhelj	1,973	16.50	3.10	3.30	0.80	1.00	0.30	0.00
Udbina	1,791	14.50	2.40	3.30	0.60	1.10	0.30	0.00
Umag	13,383	7.30	1.00	1.30	0.20	0.40	0.10	0.10
Unešić	1,637	20.30	3.60	4.20	0.90	1.30	0.40	0.00
Valpovo	11,216	27.30	1.70	6.60	0.60	2.40	0.30	0.40
Varaždin	45,378	10.10	1.30	1.90	0.30	0.60	0.10	0.60
Varaždinske Toplice	6,316	21.60	2.20	4.60	0.70	1.50	0.30	0.20
Vela Luka	4,059	8.70	1.50	1.60	0.30	0.50	0.10	0.00
Velika	5,393	38.80	2.40	10.30	0.90	3.90	0.40	0.30
Velika Kopanica	3,258	25.00	3.00	6.20	0.90	2.30	0.40	0.10
Velika Ludina	2,614	37.30	2.90	10.40	1.00	4.20	0.50	0.10
Velika Pisanica	1,775	29.70	5.60	7.30	1.80	2.60	0.80	0.10
Veliki Grđevac	2,808	26.20	3.80	6.60	1.20	2.50	0.50	0.10
Veliko Trgovišće	4,856	21.50	3.00	4.60	0.80	1.50	0.30	0.10
Veliko Trojstvo	2,687	52.20	3.40	16.10	1.50	6.80	0.80	0.20
Vidovec	5,325	16.80	1.90	3.40	0.50	1.00	0.20	0.10
Viljevo	2,038	23.50	2.70	6.00	0.80	2.30	0.40	0.10
Vinica	3,336	24.80	3.10	5.10	0.80	1.60	0.30	0.10
Vinkovci	34,453	26.60	1.60	6.50	0.60	2.30	0.30	1.20
Vinodolska Općina	3,539	12.00	1.80	2.20	0.40	0.60	0.20	0.10
Vir	2,972	16.40	3.60	3.70	1.00	1.30	0.40	0.10
Virje	4,451	18.10	1.80	4.30	0.50	1.60	0.20	0.10
Virovitica	20,924	20.70	1.60	4.60	0.50	1.50	0.20	0.60
Vis	1,842	16.30	2.00	3.40	0.60	1.10	0.20	0.00
Visoko	1,498	50.40	4.50	14.90	2.20	6.00	1.20	0.10
Viškovci	1,885	48.40	4.40	14.40	1.70	6.00	0.80	0.10
Viškovo	14,235	10.50	1.70	1.90	0.40	0.60	0.10	0.20
Višnjan - Visignano	2,261	10.60	1.90	2.10	0.50	0.70	0.20	0.00
Vižinada - Visinada	1,146	9.60	2.10	1.70	0.50	0.50	0.20	0.00
Voćin	2,274	45.90	4.10	14.20	1.70	5.90	0.90	0.10
Vodice	8,784	11.90	1.50	2.20	0.30	0.60	0.10	0.10
Vodnjan - Dignano	5,943	18.80	1.80	4.70	0.50	1.80	0.20	0.10
Vojnić	4,524	61.90	2.80	20.80	1.50	9.40	0.90	0.40

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Vratišinec	1,953	10.00	2.00	1.90	0.40	0.50	0.20	0.00
Vrbanja	3,815	26.80	2.50	6.60	0.90	2.40	0.40	0.10
Vrbje	2,162	38.90	3.80	10.60	1.40	4.20	0.60	0.10
Vrbnik	1,244	6.90	1.70	1.20	0.40	0.30	0.20	0.00
Vrbovec	14,406	11.20	1.30	2.20	0.30	0.70	0.10	0.20
Vrbovsko	5,025	16.60	1.90	3.60	0.50	1.20	0.20	0.10
Gvozd	2,889	51.30	3.60	14.90	1.50	6.10	0.80	0.20
Vrgorac	6,336	35.00	2.50	8.50	0.90	2.90	0.40	0.30
Vrhovine	1,378	11.30	2.50	2.30	0.60	0.70	0.20	0.00
Vrlika	1,968	23.80	3.80	5.30	1.20	1.80	0.50	0.10
Vrpolje	3,457	38.90	2.50	11.10	0.90	4.50	0.50	0.20
Vrsar - Orsera	2,152	11.70	1.90	2.10	0.40	0.60	0.20	0.00
Vuka	1,145	20.50	3.00	4.40	0.90	1.40	0.40	0.00
Vukovar	26,975	37.00	2.60	9.70	0.90	3.70	0.40	1.30
Zabok	8,938	13.10	1.80	2.50	0.40	0.70	0.20	0.20
Zadar	73,680	5.00	0.70	0.80	0.10	0.20	0.00	0.50
Zagorska Sela	990	11.20	2.60	1.90	0.60	0.50	0.20	0.00
Zagvozd	1,186	33.10	3.80	7.90	1.10	2.80	0.50	0.10
Zažablje	720	28.10	3.40	6.40	1.10	2.20	0.50	0.00
Zdenci	1,869	31.80	3.40	8.50	1.00	3.30	0.50	0.10
Zemunik Donji	1,885	9.60	1.80	1.90	0.40	0.50	0.20	0.00
Zlatar	6,014	15.60	2.10	3.10	0.60	1.00	0.20	0.10
Zlatar Bistrica	2,562	16.40	2.10	3.40	0.50	1.10	0.20	0.10
Zmijavci	2,038	29.20	4.10	6.60	1.10	2.20	0.40	0.10
Žakanje	1,856	29.40	3.20	6.60	1.00	2.20	0.40	0.10
Žminj	3,462	13.60	1.90	2.50	0.40	0.70	0.20	0.10
Krašić	2,511	13.10	2.20	2.60	0.50	0.80	0.20	0.00
Županja	11,622	22.20	1.80	5.20	0.60	1.90	0.20	0.30
Otok	6,218	34.40	1.80	8.80	0.70	3.20	0.30	0.30
Rakovec	1,238	15.60	5.10	3.00	1.20	0.90	0.40	0.00
Novigrad	2,365	14.10	2.10	2.60	0.50	0.70	0.20	0.00
Kostrena	4,152	5.10	1.00	0.90	0.20	0.20	0.10	0.00
Marija Gorica	2,214	19.30	2.90	4.00	0.80	1.30	0.30	0.10
Žumberak	830	16.40	3.30	3.50	1.00	1.10	0.40	0.00
Velika Gorica	62,711	7.90	0.90	1.50	0.20	0.40	0.10	0.70
Orle	1,924	13.90	2.00	3.50	0.60	1.30	0.30	0.00
Zaprešić	24,935	9.20	1.10	1.70	0.30	0.50	0.10	0.30
Pokupsko	2,210	40.40	5.40	11.10	2.10	4.40	1.00	0.10
Kravarsko	1,966	25.90	3.60	6.00	1.10	2.00	0.50	0.10
Bistra	6,389	13.80	1.60	2.70	0.40	0.80	0.20	0.10
Luka	1,323	13.20	2.60	2.50	0.60	0.70	0.20	0.00
Dubravica	1,425	12.50	2.50	2.30	0.60	0.60	0.20	0.00
Bedenica	1,424	19.90	3.30	4.20	0.80	1.30	0.30	0.00
Stupnik	3,652	7.90	1.70	1.40	0.40	0.40	0.10	0.00
Jesenje	1,512	33.40	4.60	8.20	1.50	2.90	0.70	0.10
Kumrovec	1,587	16.50	2.40	3.40	0.70	1.10	0.30	0.00

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Novi Golubovec	971	18.60	3.70	3.70	1.00	1.10	0.40	0.00
Majur	1,185	47.00	3.30	13.70	1.30	5.70	0.70	0.10
Ribnik	473	37.50	4.80	9.40	1.70	3.40	0.80	0.00
Tounj	1,143	54.80	3.50	16.50	1.60	7.00	0.90	0.10
Veliki Bukovec	1,411	19.50	3.40	4.10	1.00	1.30	0.40	0.00
Kalinovac	1,596	8.40	2.30	1.70	0.60	0.50	0.20	0.00
Kalnik	1,351	30.10	3.70	7.70	1.30	2.80	0.60	0.10
Novo Virje	1,169	23.10	3.70	5.40	1.20	1.90	0.50	0.00
Severin	873	52.90	4.60	16.30	2.00	6.90	1.10	0.10
Šandrovac	1,742	32.40	3.60	9.90	1.40	4.30	0.70	0.10
Velika Trnovitica	1,356	35.60	3.10	9.40	1.20	3.60	0.60	0.10
Zrinski Topolovac	861	53.40	6.20	16.80	2.70	7.40	1.40	0.10
Bukovlje	3,018	32.60	3.20	8.30	1.10	3.10	0.50	0.10
Dragalić	1,340	46.70	3.50	14.70	1.40	6.50	0.70	0.10
Gornja Vrba	2,478	34.80	2.60	9.20	0.90	3.50	0.40	0.10
Sikirevci	2,461	28.60	4.20	6.60	1.30	2.30	0.50	0.10
Galovac	1,226	15.60	2.60	3.10	0.70	1.00	0.30	0.00
Kukljica	686	6.40	1.90	1.00	0.40	0.30	0.10	0.00
Povljana	756	6.90	1.90	1.10	0.40	0.30	0.10	0.00
Privlaka	2,211	11.10	1.90	2.20	0.50	0.70	0.20	0.00
Tkon	754	20.40	3.60	4.70	1.10	1.60	0.50	0.00
Donja Motičina	1,637	25.00	3.00	5.90	0.90	2.00	0.40	0.10
Magadenovac	1,904	26.70	3.00	6.90	0.90	2.70	0.40	0.10
Vladislavci	1,836	35.20	3.60	9.70	1.30	3.80	0.60	0.10
Pirovac	1,850	18.90	2.20	4.30	0.60	1.50	0.30	0.00
Rogoznica	2,339	12.40	2.00	2.60	0.50	0.80	0.20	0.00
Privlaka	2,754	25.50	2.40	6.50	0.80	2.40	0.40	0.10
Vođinci	1,931	24.40	3.30	5.60	1.00	1.90	0.40	0.10
Dugopolje	3,439	23.70	3.10	5.10	0.90	1.70	0.40	0.10
Lećevica	577	41.40	4.70	10.80	1.80	4.00	1.00	0.00
Lokvičići	783	47.50	4.30	13.90	1.90	5.60	1.00	0.00
Okrug	3,326	13.50	2.00	2.70	0.50	0.80	0.20	0.10
Prgomet	665	24.20	4.90	5.50	1.50	1.80	0.60	0.00
Primorski Dolac	769	55.00	4.30	17.00	1.90	7.20	1.10	0.10
Runovići	2,373	30.50	3.10	7.70	1.00	2.80	0.50	0.10
Sutivan	800	7.30	1.60	1.40	0.40	0.40	0.20	0.00
Tučepi	1,925	12.20	2.40	2.30	0.50	0.70	0.20	0.00
Zadvarje	250	5.00	2.70	0.90	0.60	0.20	0.20	0.00
Karojba	1,427	15.10	2.70	2.80	0.60	0.80	0.20	0.00
Kaštelir-Labinci - Castelliere-S. Domenica	1,463	5.20	1.40	0.80	0.30	0.20	0.10	0.00
Dubrovačko Primorje	2,081	15.20	2.50	3.40	0.70	1.10	0.30	0.00
Janjina	544	6.20	2.50	1.30	0.60	0.40	0.20	0.00
Lumbarda	1,211	5.20	1.70	0.90	0.40	0.20	0.10	0.00
Trpanj	705	6.70	2.00	1.20	0.50	0.30	0.20	0.00
Župa Dubrovačka	8,056	11.60	2.30	2.20	0.50	0.60	0.20	0.10

Location	Population	Head count poverty	Std. Err. Head count poverty	Poverty Gap	Std. Err. Poverty Gap	Poverty Gap Sq.	Std. Err. Poverty Gap Sq.	Share of poor
Dekanovec	735	18.70	3.90	3.60	1.00	1.00	0.40	0.00
Gornji Mihaljevec	1,911	23.90	2.70	5.20	0.80	1.70	0.30	0.10
Orehovica	2,478	37.90	2.60	15.80	1.30	8.60	0.90	0.10
Strahoninec	2,653	7.90	1.60	1.30	0.40	0.40	0.10	0.00
Sveta Marija	2,284	17.10	2.60	3.50	0.60	1.10	0.20	0.10
Šenkovec	2,795	10.50	1.90	2.00	0.40	0.60	0.20	0.00
Jagodnjak	1,969	43.20	3.30	13.70	1.40	6.10	0.80	0.10
Markušica	2,524	43.20	2.70	12.50	1.10	5.20	0.60	0.10
Negoslavci	1,370	16.90	3.50	3.60	0.90	1.10	0.30	0.00
Šodolovci	1,598	36.40	4.00	9.60	1.40	3.70	0.70	0.10
Podravske Sesvete	1,616	12.80	2.50	2.70	0.60	0.90	0.30	0.00
Murter - Kornati	2,040	11.40	1.90	2.20	0.50	0.70	0.20	0.00
Gornja Rijeka	1,753	53.10	5.50	16.60	2.60	7.10	1.40	0.10
Fažana - Fasana	3,491	13.60	1.90	2.70	0.50	0.80	0.20	0.10
Pribislavec	3,096	29.60	2.50	12.50	1.10	7.10	0.70	0.10
Bilice	2,255	17.90	2.20	3.80	0.60	1.20	0.30	0.10
Kolan	789	7.40	2.50	1.30	0.50	0.40	0.20	0.00
Kamanje	855	13.00	3.00	2.50	0.80	0.80	0.30	0.00
Lopar	1,233	10.40	1.90	1.80	0.40	0.50	0.20	0.00
Vrsi	2,036	9.60	1.80	1.80	0.40	0.50	0.20	0.00
Tribunj	1,534	16.40	2.60	3.40	0.70	1.10	0.30	0.00
Štitar	2,049	24.70	2.90	5.80	1.00	1.90	0.40	0.10
Funtana - Fontane	907	6.30	1.80	1.00	0.40	0.30	0.10	0.00
Tar-Vabriga - Torre-Abrega	1,982	8.80	1.80	1.60	0.40	0.50	0.20	0.00