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within and across Italian regions**

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# Ethnic groups' income inequality within and across Italian regions

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## Abstract

The relationship between regional income inequality in Italy and the phenomenon of migration is still under current debate. Policymakers and researchers worry about the process of assimilation of the new entrants, in a country where regional disparities are strong. We provide evidence that regional income disparities apply to ethnic groups of migrants, too, like the group of nationals, but the largest source of inequality is still within region and within group. We address this issue by using the 2009 wave of EUSILC data and the ISTAT CVS data in 2009, the latter offering specific information on households with foreigners/migrants by main ethnic groups. We calculate several indexes of income inequality because of their specific sensitivity to different portions of the Italian income distribution. We also estimate the main determinants of such inequality. Our results suggest that, above all, women with very young children and individuals with secondary education belong to categories with significantly increased income inequality, whereas those highly educated and leaving in the Centre-North of Italy belong to categories with reduced inequality. Regional unemployment is associated to lower inequality, especially among those low-income earners, while higher relative mean regional income pushes inequality upwards.

**JEL Classification codes:** D31, F22, O15, R23

**Keywords:** regional income inequality, household income inequality, migration, ethnic groups, Italy

## 1 Introduction

The debate on whether regional economic disparities in Italy come from different sources goes back to the 1970s, when the first flows of international migrants added to inter-regional flows, and a discussion started about the process of assimilation of foreigners into the country. Mussida and Parisi [2016], among others, summarize the literature on the relationship between migration and income inequality. There might be two opposite effects of migration on income inequality. On one hand, economic migrants in Italy come from less developed countries, they are on average less skilled and less qualified than nationals and for this reason suffer from a lower initial level of social and economic inclusion (see e.g. Faini, et al. [2009]). Their presence in Italy therefore contributes to increase income inequality, both within and across regions. On the other hand, migrants try to acquire skills and education, or at least for their children, when coming to Italy; they improve their economic conditions also through entrepreneurial activities, therefore reducing the income gap with nationals or with their own established ethnic group (Codura-Martìnez, Saiz-Alvarez, and Cuervo-Arango Martìnez [2013], Baycan-Levent and Nijkamp [2009]). Few interesting studies tried to address this issue (e.g., Allasino et al. [2004], Barone and Mocetti [2011], Ottaviano and Peri [2012], Saraceno et al. [2013], Venturini and Villosio, [2006] and [2008]) but concentrated the attention on disparities in the labour market outcomes and immigrant assimilation. The recent paper by D'Agostino et al. [2015], instead, deals with the issue of economic integration of immigrants in Italy by analyzing ethnic inequality and economic stratification. By using a Gini decomposition technique, they found that whereas between-group inequality is quite negligible, the largest share of overall inequality is due to within-group inequality. Indeed, ethnic groups tend to concentrate in “enclaves” when migrating to foreign countries, and, according to the Ethnic Enclave Hypothesis, their labor market and economic performance depends on this concentration (see, for example, Portes and Jensen [1987], Light and Gold [2000], Edin et al. [2000]). Moreover, we associate the Ethnic Enclave Hypothesis to regional concentration, at least in Italy, where there seem to be both geographical and job segmentation for foreign workers (Bettio et al. [2006]). In this paper, we first document the presence of migrants in terms of prevalent ethnic groups

across the four macro-regions of Italy (North West, North East, Centre and South) in 2009. Then we discuss whether the presence of different ethnic groups produce income inequality both within groups and/or regions and across groups and/or regions. We measure income inequality by several indexes, differing by their degree of sensitivity to portions of the income distribution, which in Italy respond quite differently to shocks (see Mussida and Parisi [2016], p.13), and by illustrating the ethnic-group heterogeneity of two characteristics of the distribution (skewness and kurtosis). After this qualitative analysis, we estimate the correlation of household characteristics to income inequality (gender, age, skill or education, employment status, household size and composition, nationality, calculated as averages or shares within region-ethnic group cells). To this purpose, we specify a simple model of within-region-group inequality and run the regressions both for all groups and for the sample of foreign groups only.

The existing literature on the determinants of migration suggests that the unemployment rate, the economic structure, the age structure of the population, and disposable income, are among the most relevant pull factors of the migration phenomenon (Venturini [2004]). In particular, the economic aspects (i.e. income) are the most relevant determinants of migration followed by social, cultural and institutional determinants (Etzo [2007]). For this reason, we would like to identify an ‘income effect’ of inequality, such that regions and groups with higher mean income are also those with greater/lower inequality. We therefore estimate the impact of (regional-group) mean household income on inequality of the population.

The paper proceeds as follows. Section 2 sketches the main characteristics and the relevant literature on migration, i.e., presence of ethnic groups in Italy. Section 3 analyzes inequality of income distribution within and between ethnic groups and regions. Section 4 offers an econometric analysis of the determinants of within-region/ethnic group income inequality. Section 5 concludes.

## 2 The presence of ethnic groups in Italy

The Italian migration model is characterized by a strong and increasing fragmentation of the ethnic groups of immigrants. The Italian Census provides evidence about heterogeneity of the country of origin of the migrants, in a database gathered by the Italian National Institute of Statistics (ISTAT [2015]). The most recent data available refer to the latest 2011 Census of the Italian population.

The fragmentation of the ethnic groups of immigrants and the related heterogeneity of inflows to Italy are due both to the easy access favored by a well-developed communication and transportation system at the international level, and to the absence of past relevant colonial experience or agreements with other countries. The increasing relevance and heterogeneity, therefore, is due to the central and strategic position of Italy in the Mediterranean area (Del Boca and Venturini [2003], Ortega and Peri [2009], Visco [2008]).

Ethnic groups changed over time. The first immigration flows, at the end of the 1970s, were especially concentrated on the Mediterranean route. Italy hosted immigrants from Northern Africa and Greece, but also from China, Iran, Philippines and Ethiopia. Things changed during the 1990s, primarily due to the dissolution of the communist regimes, which gave rise to a massive migration from Eastern Europe. Italy became rapidly one of the preferred countries of destination from the Balkans and ex-Soviet Union. The continuous growth of international migration flows since the 2000s has had the consequence that migrants are now a significant component of the Italian population. In 2011, foreign residents in Italy represented more than 7% of Italian population (Census data). Immigrants are therefore becoming an important source of population growth and in the future high skilled foreigners might add to overall productivity of the society (D'Agostino et al. [2015]). The structure of the foreign resident population has changed strongly/significantly and rapidly. In general, the gender composition of migrants is balanced, migrants are much younger than natives (migration involves mainly people aged between 18 and 30 years old), and little educated (Morettini et al. [2012]). In addition, as explained above, the geographical origin of migrants is highly heterogeneous.

Table I shows which ethnic groups are prevalent in Italy, as confirmed by the Census data<sup>1</sup> and by the literature (see Morettini et al. [2011], for instance, for details on the foreign presence in Italy). There we

show the frequency of the most important ethnic groups in our sample from ISTAT CVS-2009 survey, which includes households with at least a foreign component. The first group, named “Italy”, includes Italian resident individuals living in households with at least one foreigner/immigrant. The following groups are the predominant groups in Italy by country of origin.

As displayed in Table I, the most relevant ethnic groups come (primarily) from Romania, Albania, Morocco, China, Ukraine, Philippines, India, Poland, Moldova and Tunisia. The last two groups in the table include ‘residual’ categories of “other EU” and “non-EU countries” (belonging to this last group are for example Pakistan or Egypt). Table II shows the (macro) region of destination of the main ethnic groups, i.e., their current Italian macro-region of residence. In general, regions in the South of Italy are the most relevant destinations of foreigners in these data, followed by the North East and North West (almost equally distributed there), and the Centre. The importance of the South as macro-region of destination is due both to sampling design of the database<sup>2</sup> and to the fact that, recently, migrant workers have increasingly found opportunities to get jobs – although irregular - in the Southern regions (Bettio et al. [2006], Fullin and Reyneri [2011]).

ethnic group	Freq.	Percent	Cum.
Italy	3,969	26.40	26.40
Romania	2,355	15.66	42.06
Albania	1,375	9.14	51.20
Morocco	1,121	7.46	58.66
China	436	2.90	61.56
Ukraine	449	2.99	64.55
Philippines	271	1.80	66.35
India	244	1.62	67.97
Poland	369	2.45	70.42
Moldova	282	1.88	72.30
Tunisia	371	2.47	74.77
Other EU	811	5.39	80.16
Other non-EU	2,983	19.84	100.00
<b>Total</b>	<b>15,036</b>	<b>100.00</b>	

Table I. Incidence of the ethnic group (state of origin)

*Source: Authors' elaborations on ISTAT CVS-2009 data*

(Macro) Region of destination					
Ethnic group	North-West	North-East	Centre	South	Total
Italy	843	908	761	1,457	3,969
Romania	461	427	607	860	2,355
Albania	300	303	334	438	1,375
Morocco	307	306	108	400	1,121
China	75	68	66	227	436
Ukraine	59	78	63	249	449
Philippines	46	30	90	105	271
India	88	66	41	49	244
Poland	28	50	81	210	369
Moldova	31	144	79	28	282
Tunisia	51	66	29	225	371
Other EU	131	145	174	361	811
Other non-EU	805	891	546	741	2,983
Total	3,225	3,482	2,979	5,350	15,036

Table II. Ethnic group by (macro) region of destination  
Source: Authors' elaborations on ISTAT CVS-2009 data

### 3 Inequality of income distribution within and between ethnic groups and regions

The objective of this section is investigating income inequality for each ethnic group, by region, and in a comparative perspective. We use different measures/indexes of inequality (for a thorough discussion of how to measure inequality of the income distribution see for example Jenkins [1999], as well as some discussion in Mussida and Parisi [2016]); in general, higher values of the index are associated to higher inequality. The Gini index is one of the most common measure of inequality. This coefficient however is very sensitive to differences in the middle portion of the income distribution, while not very sensitive to differences in the bottom or upper tail. We need to be careful at taking extreme values of these parameters, though, as the presence of one or two very large or small outliers might influence the measure of inequality. For these reasons, we use additional measures besides Gini. The class of General Entropy indexes,  $GE(a)$ , depends on a parameter  $a$  taking up values in the set  $\{-1, 0$  (mean log-

deviation), 1 (Theil), 2 ( $\frac{1}{2}$  the square of coefficient of variation)}, which signals sensitivity to upper or bottom tail of the income distribution. A higher positive parameter  $a$  is associated to more sensitivity to income differences at the top tail of the distribution. If  $a > 1$  the index is very sensitive to outliers in the data (Cowell and Flachaire [2007]). The more negative  $a$ , the more sensitive the index to discriminate at the bottom tail of the distribution (and to very small income levels too). In the class of Atkinson indexes,  $A(e)$ ,  $e$  is an inequality “aversion” parameter. This means that the more positive  $e$ , the more sensitive  $A(e)$  to differences at the bottom tail of the distribution. Moreover, we consider percentile ratios of the income distribution. The p90/p10 ratio is the ratio of the upper bound value of the ninth decile (*i.e.* 10% people with the highest incomes) to that of the first decile (*i.e.*, 10% people with the lowest levels of income). The p90/p50 ratio is the ratio of the upper bound value of the ninth decile and the median income (fifth decile); the p50/p10 ratio is the ratio between median income and the upper bound value of the first decile. The advantage of using these last measures of inequality is that they address the over-sensitivity of the Gini coefficient to middle incomes, and reflect the impact of economic shocks on the society as a whole.

Table III reports all inequality indexes calculated for the whole sample and for each ethnic group in the data.<sup>3</sup> Inequality, measured by the middle-portion sensitive indexes, is high for individuals coming from Philippines (Gini, GE(1), GE(2), A(0.5), and A(1)), Moldova (Gini, GE(2)), and the residual category of other EU countries (Gini, GE(-1)). On the other hand, inequality seems to be relatively low for India and China (especially measured by the Gini index).

The percentile ratios of the income distribution are displayed in the last three columns of Table III. The ratio p90/p10 is high in the groups coming from Ukraine, Poland, and in the category of other EU countries of origin. This fact suggests the presence of very high inequality between income groups in the highest decile of the income distribution and the lowest decile, the upper 10% of people in these groups have an income up to seven times higher than the lowest 10%. Inequality between the highest decile and the middle part of the income distribution (p90/p50) is instead highest for groups of Moldova, Philippines, and other European countries’ category, on average the highest 10% share of individuals having twice as much income as the median individual. Finally, the highest inequality



between the middle part of the income distribution and the first decile (p10/p50) is again among the groups born in Philippines, Moldova, and Morocco, where the lowest 10% share of individuals earn about 40% of the median income. These numbers suggest quite a lot of heterogeneity across groups in the distribution of income.

The last panel of Table III shows the decomposition of inequality within and between-group categories: macro regions (4), ethnic groups (14) and ethnic group by region (56).

We calculate this decomposition for the General Entropy and Atkinson classes of measures. The Gini index is not additively decomposable, so it cannot give indication of within or between-group inequality.<sup>4</sup> In general, the within-region value is much higher than the between-region value of the indexes. This is particularly true for GE(-1), i.e. the most sensitive measure to the bottom portion of income distribution. Between-region inequality appears to be quite low, but not according to A(2). The last result is quite interesting, given that macro-regions in Italy are different in terms of economic conditions, labor market structures, growth, and culture (see e.g. Venturini and Villosio [2008]). As far as the categories of ethnic groups, within-group inequality is far higher than between-group inequality, even for A(2). This result is consistent with the rest of the literature on income inequality for migrants (D'Agostino et al. [2015], Perugini and Martino [2008], Saraceno et al. [2013], Carillo [2012]). Finally, we calculate the within and between group inequality for 56 disaggregated categories (14 ethnic groups in the 4 macro-regions). In the latter case, within-category inequality is higher than between-category inequality according to all measures, although it is never above 0.57 (i.e. inequality at more disaggregated level is less pronounced within-category but slightly more pronounced between-category, although “within” inequality is still higher than “between”). We can conclude that within-region inequality seems to be the most important source of inequality in Italy when we discriminate clearly the bottom tail of the income distribution, (GE(-1) =0.757). However, within-region and within-ethnic group inequality have the same weight on shaping the income distribution according to other measures. Finally, regional differences matter, i.e. not only is it important what group an individual belongs to, but group inequality is heterogeneous according to the region of residence.<sup>5</sup>

In the next section, we will use three of Table III's indexes in a regression of within-region/group inequality at the disaggregated level, on features of individuals and households, including their relative mean income. We are interested in what features are associated to more inequality, penalizing individuals and families who are on different portions of the income distribution, different ethnic group or different region.

In this section, we answer the question of “how unequal” is the income distribution for each ethnic group, by estimating the main parameters shaping the density. Figure 1 illustrates the estimated “alpha” parameter of skewness when we adapt a skew-Student's t distribution to the equivalised-household In-income of individuals, divided by ethnicity (see Mussida and Parisi [2016], for an application of the method on Italian households over time. See Marchenko and Genton [2010], Azzalini and Genton [2008], for a theoretical support to this methodology). If  $\alpha > 0$  the distribution is asymmetric to the right. If  $\alpha < 0$  the distribution is skewed to the left. If  $\alpha = 0$ , the skewed-Student's t reduces to the symmetric Student's t.<sup>6</sup> Figure 1 shows heterogeneity in the asymmetry of the distribution. In the South, most of the ethnic groups' alphas are negative (these correspond to right-skewed distributions of the ‘level’ of income) even if the confidence interval reveal that these estimates are not significantly different from zero. In the Centre, only Romania has a negative and significant alpha. In the North West, Moldova and Poland have a negative significant alpha, while Ukraine and other EU countries have a significant positive alpha.

The parameter “DF” of the skewed-Student's t distribution measures the thickness of the tails. The lower this parameter, the heavier the tails of the distribution. On the other hand, an infinite value of DF means that the skewed-Student's t reduced to a skewed-Normal. Moreover, if  $\alpha = 0$  and  $DF = \infty$ , the distribution is a standard Normal. Figure 2 illustrates the estimated DF for our data. The values indicate that the tails of income distribution are quite fat in all regions, with the northern regions having heavier tails. This might signal the fact that household income in those regions is more “equally distributed” than in the Centre-South. The average  $DF = 4.116$  in the North West,  $DF = 4.42$  in the North East,  $DF = 4.65$  in the Centre, and  $DF = 4.67$  in the South. Notice that the three ethnic groups from China, India

and Tunisia have  $DF \rightarrow \infty$  in the Centre region. Philippines has  $DF \rightarrow \infty$  in the North East. Ukraine, Moldova, Poland and Tunisia have  $DF \rightarrow \infty$  in the North West.

Asymmetric distributions with thin and long tails signal that the income is “more unequally” distributed across individuals, especially if asymmetry of the income level is *to the right* ( $\alpha > 0$  and low DF). We think that this evidence is consistent with previous results we obtained on inequality heterogeneity of ethnic groups in different regions, as Table III illustrates.

	Gini	GE(-1)	GE(0)	GE(1)	GE(2)	A(0.5)	A(1)	A(2)	p90/p10	p90/p50	p10/p50
Whole	0.345	0.769	0.252	0.218	0.288	0.107	0.222	0.606	5.230	1.941	0.371
Italy	0.340	0.643	0.230	0.208	0.273	0.101	0.206	0.563	5.182	2.100	0.437
Romania	0.334	0.730	0.238	0.196	0.230	0.100	0.212	0.594	5.934	1.983	0.334
Albania	0.351	1.146	0.313	0.233	0.286	0.121	0.269	0.696	5.801	1.835	0.316
Morocco	0.316	0.309	0.192	0.189	0.272	0.089	0.175	0.382	4.370	1.889	0.432
China	0.306	0.427	0.190	0.165	0.194	0.083	0.173	0.461	4.888	1.848	0.378
Ukraine	0.357	0.548	0.267	0.219	0.244	0.112	0.235	0.523	8.584	2.101	0.245
Philippines	0.396	0.327	0.268	0.314	0.559	0.134	0.235	0.395	4.676	2.392	0.512
India	0.275	0.980	0.223	0.141	0.134	0.080	0.200	0.662	4.007	1.627	0.406
Polonia	0.369	0.964	0.293	0.245	0.307	0.122	0.254	0.659	6.593	1.834	0.278
Moldova	0.382	0.443	0.272	0.308	0.549	0.132	0.238	0.470	5.441	2.523	0.464
Tunisia	0.355	0.478	0.262	0.255	0.448	0.117	0.230	0.489	5.678	2.015	0.355
Other EU	0.386	1.545	0.311	0.260	0.319	0.129	0.267	0.755	6.853	2.248	0.328
Other non-EU	0.314	0.699	0.206	0.178	0.217	0.089	0.187	0.583	4.443	1.862	0.419
<b>Decomposition of inequality</b>											
Within-region		0.757	0.240	0.207	0.277	0.101	0.206	0.522			
Between-region		0.012	0.012	0.011	0.011	0.007	0.020	0.176			
Within-ethnic group		0.738	0.239	0.209	0.278	0.103	0.213	0.580			
Between-ethnic group		0.010	0.010	0.010	0.010	0.005	0.010	0.045			
Within-region/group		0.572	0.164	0.158	0.216	0.075	0.149	0.481			
Between-region/group		0.016	0.015	0.015	0.014	0.008	0.018	0.115			

Table III. Inequality of income distribution for households in different ethnic groups

Source: Authors' elaborations on ISTAT CVS-2009 data.

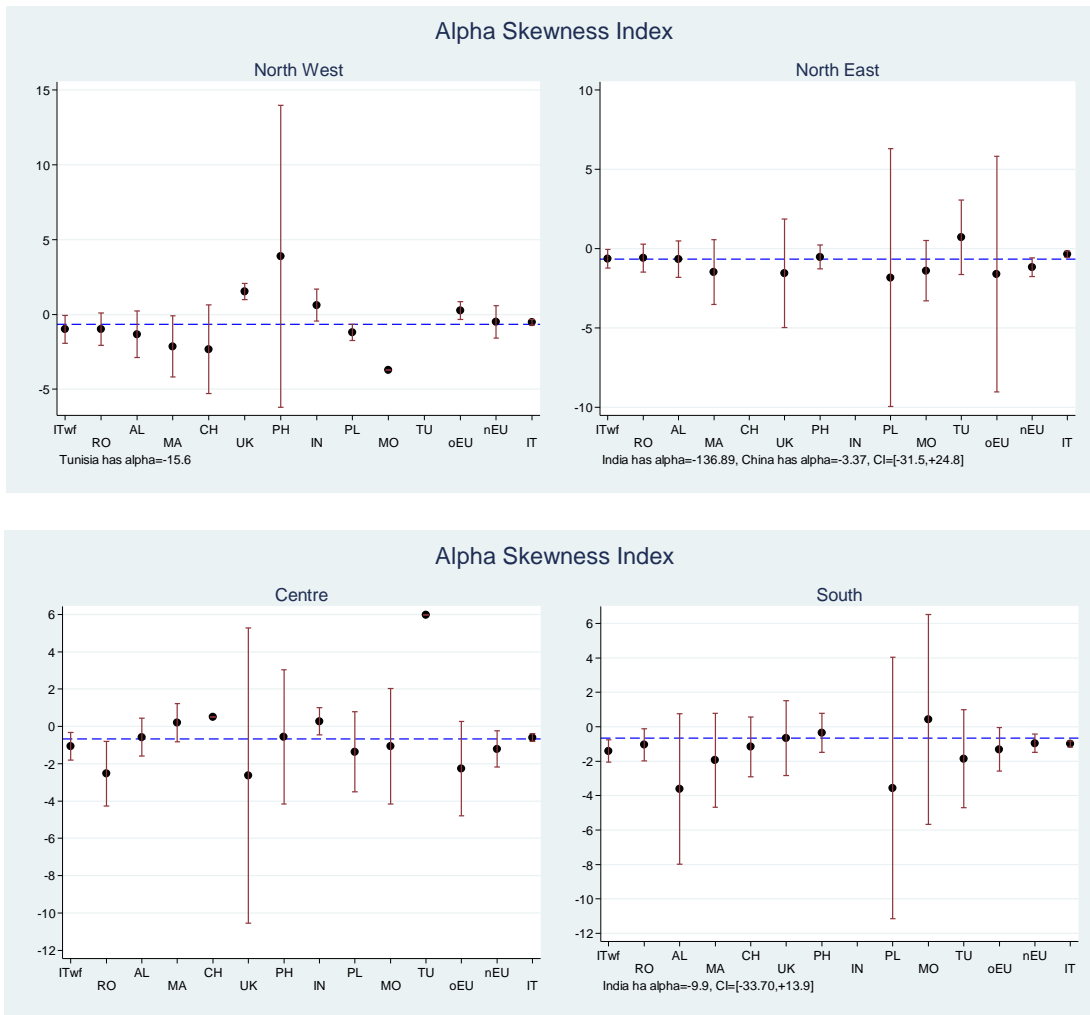


Figure 1. Estimated alpha parameter of skewness of skewed-Student's t distribution by ethnic group and region

ITwf = Italians with foreign household members, RO = Romania, AL = Albania, MA = Morocco, CH=China, UK=Ukraine, PH=Philippines, MO=Moldova, TU=Tunisia, oEU=other European Union, nEU=non-EU member, IT=nationals.

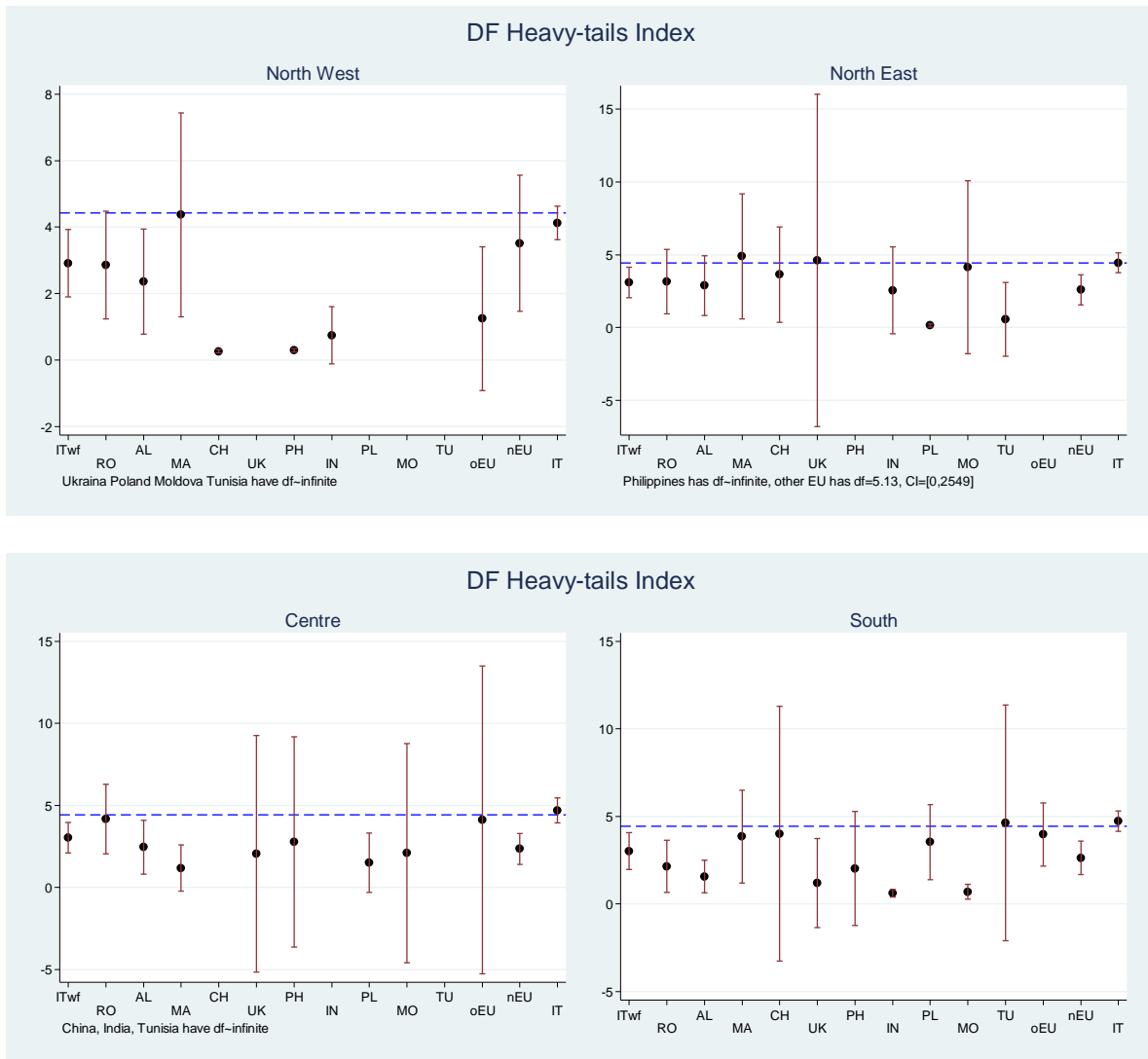


Figure 2. Estimated DF parameter of heavy tails of skewed-Student's t distribution by ethnic group and region

## 4 The determinants of within-region/ethnic group income inequality

We adopt here a regression approach to explore income inequality across regions in Italy. The inequality indexes highlight that most of income inequality in Italy takes the form of within-ethnic group inequality and within-region inequality, as illustrated in Table III. Moreover, we calculate the inequality indexes of household incomes for 56 disaggregated categories (14 ethnic groups for each macro-region, including the group of nationals, as described in Table II). Again, in this case, income inequality source comes from within-categories.

We choose three inequality indexes (A(2), Gini and GE(2), see section 3 for their definitions) as dependent variables in separate OLS regressions (56 observations in total, 48 observations of foreign ethnic groups and two categories of “Italians”, those coming from EUSILC and those coming from CVS, the latter belonging to families with foreign-born individuals). Within each category, we calculate the following set of explaining variables, contained in the 2009 wave of EUSILC data and the ISTAT CVS data. The latter dataset offers specific information on households with foreign-born individuals by main ethnic groups.<sup>vii</sup> It includes: the share of married individuals, the share of female individuals, separating mothers of less than 6 years old children, individuals with secondary or tertiary education, the share of individuals belonging to five different age classes (16-24, 25-34, 35-44, 45-54 and over 55 years old), the regional unemployment rate, the share of foreigners, the relative mean income, dummies for macro-regions and ethnic groups. Table IV shows the descriptive statistics for these variables as averages in the 56 categories. We choose those three different inequality indexes because of their sensitivity to lower, middle and upper portions – respectively - of the income distribution, and we find interesting relationships. Table V shows the regression results. Categories with a higher share of married individuals are associated to a reduced inequality for the bottom-tail sensitive index A(2) in column (3). If we take only foreign ethnic groups, the estimated coefficient of marital status is negative and statistically significant both for Gini and A(2) in columns (4) and (6), the latter showing a particularly strong effect (-1.13). The share of female does not seem to have any significant relationship with inequality across groups and regions. However, mothers of very young children (less than 6 years

old) belong to categories with significantly increased inequality, according to Gini and GE(2) in the total sample and according to all indexes for foreigners. Secondary education is associated almost everywhere to higher inequality, in the whole sample, especially in the low and middle incomes categories, and to higher inequality only according to A(2) for foreigners (0.729). Tertiary education helps at reducing inequality according to GE(2) for the whole sample and according to Gini and GE(2) for foreigners. Of course, having a tertiary degree increases the probability of getting better-paid jobs. Education is emphasized in the literature as one of the most important factors affecting the degree of income inequality even though theoretical studies suggest, as in our case, that the relationship between education and inequality is not always clear (Knight and Sabot [1983], and among others the more recent works of De Gregorio and Lee [2002], Yang and Qiu [2016]). The share of youngsters (16-24 years old) seems not to be correlated to inequality. The share of individuals aged 25-34 is important only according to Gini in column (4), i.e. for foreigners, to reduce income inequality with respect to people over 55 (the reference category). Otherwise, households with individuals in the 35-44 age class belong to categories with reduced inequality (except for A(2) index). Finally, there is no difference between age class 45-54 or over-55 to reduce or increase income inequality. Regional economic and labor market features as well play a role in shaping income distribution of ethnic groups. The regional unemployment rate is negatively correlated to inequality, measured with the bottom-tail income sensitive index A(2). This result indicates that the higher the general unemployment rate in a region, the lower the inequality among (low) income earners. However, lower regional unemployment rates would encourage more migrants to reside in those regions, thus increasing inequality.

Residents of the Centre-North of Italy have less “unequal” incomes with respect to the South (at least according to Gini and A(2)). This result confirms what we found in section 3, p. 7, in other words, the South is the region with the highest income inequality in Italy, even for foreign ethnic groups. This is true according to all indexes, apart from GE(2), i.e. top earners inequality does not depend on the region of residence. Finally, the distance between individual’s income and the mean of her/his category, measured by the “relative” mean income, is positively associated to income inequality, but not according to A(2), i.e. the bottom-tail sensitive index, according to which inequality does not depend on



this measure. This result is interesting because it appears that the source of income inequality among foreign households in Italy regards mainly incomes around the mean and at the top levels, *ceteris paribus*.

Our findings about the determinants of within group regional income inequality, especially the relevance of the geographical residence and the regional unemployment rate on income inequality, are primarily due to the structural characteristics of the Italian labor market, also confirmed by specific literature on this issue. The Italian economy in general and, more specifically, the Italian labor market is structurally characterized by a “regional divide”: the Italian households living in Southern regions on average enjoy less favorable economic conditions while immigrant households living in Northern regions benefit from more advantageous conditions, thus mitigating the economic differences between natives and immigrant households. Income inequality in Italy, on average, is therefore higher in the South compared to the North as we found in our estimates, both for nationals and foreigners. Indeed, the positive relationship between inequality and the share of immigrants in Southern regions, as found in our results, is supported also by other literature (D’Agostino et al. [2015]; Einaudi [2007]). The uneven economic development in Italy then influences also the regional distribution of immigration. Einaudi [2007], for instance, stressed that in the North of Italy, the unemployment rate is lower than in the South of Italy and consequently the share of immigrants in the North is higher compared to the share of the South. However, the importance of the South of Italy as a macro-region of destination for migrants, as explained above, has increased recently. The issue of regional differentials in economic conditions therefore affects importantly the immigration flows to Italy.

	Whole Sample		Foreigners only	
	Mean	Std. Dev.	Mean	Std. Dev.
Married	48.9	12.0	51.2	9.99
Women	54.5	14.9	55.8	15.5
Secondary education	30.5	12.4	32.0	12.2
Tertiary education	11.2	8.4	11.6	8.9
Age	35.2	5.7	35.7	3.3
Age 0-15	12.6	14.7	8.3	4.2
Age 16-24	11.5	4.2	12.2	4.0
Age 25-34	23.6	10.4	26.1	9.0
Age 35-44	24.9	7.8	27.0	6.1
Age 45-54	16.8	6.5	17.7	6.5
Age >55	10.6	8.9	8.7	6.3
Household components	3.2	0.6	3.2	0.6
# kids <6 years-old	36.1	20.7	34.2	18.3
Unemployment rate	8.2	3.6	8.2	3.6
foreigners	85.7	35.3	-	-
Mean income	12413.9	3640.6	11796.9	3299.9
Relative mean income	68.9	20.2	65.4	18.3
Observations	56		48	

Table IV. Descriptive statistics of explanatory variables

*Note to Table IV: figures are in percentage, apart from Age in years, household components in units, and mean income in euro. Categories are formed by 14 ethnic groups in 4 macro regions. There is one group of Nationals, in households with at least one foreign member.*

	(1) Gini	(2) GE(2)	(3) A(2)	(4) Gini foreign	(5) GE(2) foreign	(6) A(2) foreign
married	-0.143 (0.1268)	-0.287 (0.3594)	-0.672* (0.3023)	-0.306§ (0.1734)	-0.538 (0.5074)	-1.131** (0.3642)
female	-0.030 (0.1548)	-0.328 (0.4387)	-0.353 (0.3690)	-0.028 (0.1755)	-0.326 (0.5135)	-0.376 (0.3686)
female#children<6	0.360* (0.1720)	1.055* (0.4881)	0.582 (0.4105)	0.406* (0.1912)	1.102* (0.5597)	0.941* (0.4017)
secondary education	0.287* (0.1400)	0.735§ (0.3966)	0.822* (0.3336)	0.195 (0.1595)	0.584 (0.4667)	0.729* (0.3350)
tertiary education	-0.268 (0.1766)	-1.050* (0.5005)	0.457 (0.4210)	-0.452* (0.2176)	-1.343* (0.6370)	0.011 (0.4572)
age 16-24	-0.309 (0.2629)	-0.280 (0.7448)	-0.408 (0.6265)	-0.562§ (0.3171)	-0.680 (0.9281)	-1.041 (0.6661)
age 25-34	-0.272 (0.1747)	-0.463 (0.4949)	-0.023 (0.4163)	-0.447* (0.2155)	-0.728 (0.6306)	-0.645 (0.4526)
age 35-44	-0.481* (0.2024)	-1.244* (0.5734)	-0.148 (0.4823)	-0.673** (0.2439)	-1.535* (0.7139)	-0.747 (0.5124)
age 45-54	0.207 (0.2836)	1.342 (0.8036)	0.026 (0.6760)	0.051 (0.3123)	1.088 (0.9139)	-0.298 (0.6559)
u-rate	-0.045 (0.0266)	-0.076 (0.0754)	-0.110§ (0.0634)	-0.045 (0.0301)	-0.073 (0.0881)	-0.159* (0.0632)
foreign	0.222** (0.0739)	0.504* (0.2093)	0.164 (0.1760)	.	.	.
relative mean income	0.242*** (0.0673)	0.765*** (0.1906)	0.245 (0.1603)	0.283*** (0.0773)	0.835*** (0.2262)	0.286§ (0.1624)
North West	-0.457* (0.2185)	-0.801 (0.6192)	-1.150* (0.5208)	-0.460§ (0.2484)	-0.767 (0.7270)	-1.560** (0.5218)
North East	-0.498§ (0.2478)	-0.906 (0.7021)	-1.256* (0.5905)	-0.476 (0.2817)	-0.834 (0.8246)	-1.658** (0.5918)
Centre	-0.330§ (0.1766)	-0.593 (0.5004)	-0.862* (0.4209)	-0.317 (0.2006)	-0.540 (0.5871)	-1.192** (0.4214)
Constant	0.806* (0.3607)	0.761 (1.0221)	2.093* (0.8598)	1.280** (0.4579)	1.598 (1.3402)	3.640*** (0.9619)
Observations	56	56	56	48	48	48
$R^2$	0.557	0.479	0.557	0.589	0.488	0.665
Adjusted $R^2$	0.391	0.283	0.391	0.415	0.271	0.523

Table V. Determinants of within-group-region income inequality in Italy

*Note to Table V: Standard errors in parentheses. §  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . All inequality indexes refer to the equivalized-household income. Column (4) to (6) include foreign group only. Column (1) to (3) include all groups (nationals and foreigners). Source: Authors' elaborations on ISTAT CVS-2009 data.*

## 5 Conclusions

In order to provide evidence about regional income inequality of national and foreign households in Italy, we followed two approaches. The first is a qualitative assessment of income distribution for the most numerous ethnic groups residing in the four macro-regions of Italy, through a plethora of indexes, differing by their sensitivity to quintiles of the income distribution. The second is a quantitative analysis, through estimation techniques, of the factors affecting the value of three of such indexes. In fact, using different indexes for inequality gives rise to different conclusions, in some aspects. Within-ethnic group and within-region income inequalities are the most relevant source of inequality in Italy, according to our analysis of EUSILC and CVS-ISTAT 2009 data. Household and individual's characteristics are important factors in determining such inequality. For example, mothers of young children in the household suffer from high (equivalized-) household income inequality, especially if they are foreign. Age classes indicate that only the share of 35-44 years old individuals significantly reduce income inequality, when we measure it with middle income and/or upper-tail sensitive indexes. The most "unequal" income distribution among ethnic groups is associated to the South of Italy. Moreover, regional economic and labor market features as well play a role in shaping income distribution of ethnicities. The regional unemployment rate is negatively correlated to inequality, when measured with a bottom-tail income sensitive index. This result indicates that the higher the average unemployment rate of ethnic groups in a region, the lower the inequality among (low) income earners. However, lower regional unemployment rates would encourage more migrants to settle in those regions, thus increasing inequality. The distance between individual's income and the mean of her/his category, measured by the "relative" mean income is positively associated to income inequality, but not for bottom incomes. This result is interesting because it appears that the source of income inequality

among foreign households in Italy regards mainly incomes around the mean and at the top levels, *ceteris paribus*. The uneven economic development in Italy then influences also the regional distribution of immigration. As far as policy implications of these results, facilitating the access to tertiary levels of education especially for foreigners in the bottom portion of household income, or for all residents even in the middle portion, together with interventions favoring the reconciliation of work and household duties, might help reducing income inequality. This reduction could show up in three important dimensions, within each ethnic group, between foreigners and Italians and between the South and the rest of the country.

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## Notes

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<sup>1</sup> Figures from the 2011 and previous years' ISTAT Census on the Italian population are available on the site <http://dati.censimentopopolazione.istat.it/Index.aspx?lang=it>.

<sup>2</sup> The prevalence of the South as region of destination is due to the sampling design of the ISTAT CVS-2009, which includes a higher number of households resident in the South of Italy compared to the residents in the other regions (North-West, North-East, and Centre). Specific details on our sample from ISTAT CVS-2009 data are available upon request.

<sup>3</sup> The ISTAT CVS-2009 data offer a rich array of information useful to calculate the inequality indexes for each ethnic group, resident in Italy.

<sup>4</sup> Unless we take into account overlapping categories, as in D'Agostino et al. [2015].

<sup>5</sup> Mussida and Parisi [2016] show that this phenomenon occurs to the entire income distribution of Italian nationals across regions too.

<sup>6</sup> Notice that when asymmetry of the level of income is skewed to the right, the skewness of the ln-income goes to the left. Total population's (Italians + foreigners)  $\alpha = 2.26$  for income in levels. This corresponds to an  $\alpha = -0.669$  for the log-distributed income.  $\alpha = 1.324$  for CVS dataset (income in levels) equivalent to  $\alpha = -1.21$  for CVS ln-income.

<sup>vii</sup> The data used in this work, as mentioned above, come from the 2009 European Union Statistics on Income and Living Conditions (EU-SILC) survey for the household without immigrants (see EUROSTAT [2010] for further details) and from the ad-hoc survey on households with foreign people (CVS-2009) conducted by the Italian National Institute of Statistics (ISTAT [2011]). The CVS-2009 survey covers a larger sample of foreign households than the national EU-SILC. The two surveys share the same methodology and definitions, which allow us to use both in order to compare living conditions of native and foreign households.