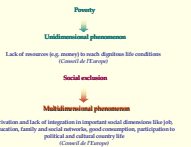


What is Social Exclusion?



Statistical data on social exclusion

The marked increase of foreign people entered in the last years in Italy highlights the need to evaluate integration and exclusion levels of different citizenships in a territorial basis.

The main goal of this study is to define a territorial (i.e. NUTS-3 and -2 level) mapping of social exclusion of foreign population living and working in Italy in order to point out in what territories the foreign population is more prone to poverty and deprivation and what citizenships are more 'included'.

Study population: the foreign population resident in Italy

Spatial Unit of Analysis: 105 NUTS-3 provinces (considering the whole foreign population resident in Italy)

20 NUTS-2 regions (considering the 20 citizenships accounting for the highest number of residents in Italy)

Data Source: Census of Population and Household (2018)

Foreign population includes all the individuals who declare to have not Italian citizenship (1.2 portion of the CEI survey sample).

The considered citizenships

Foreign population resident in Italy by citizenship, 2018

Citizenship	Population	% of total
Algeria	17,013	0.04
Algeria (EU)	1,113	0.00
Bosnia	1,889	0.00
Bosnia (EU)	1,889	0.00
Bulgaria	1,074	0.00
Bulgaria (EU)	1,074	0.00
China	26,897	0.05
China (EU)	10,000	0.02
Croatia	10,000	0.02
Croatia (EU)	10,000	0.02
Egypt	20,123	0.04
Egypt (EU)	1,113	0.00
France	1,113	0.00
France (EU)	1,113	0.00
Germany	1,113	0.00
Germany (EU)	1,113	0.00
India	1,113	0.00
India (EU)	1,113	0.00
Italy	27,228	0.05
Italy (EU)	27,228	0.05
Japan	1,113	0.00
Japan (EU)	1,113	0.00
Lebanon	26,745	0.05
Lebanon (EU)	10,000	0.02
Marocco	10,000	0.02
Marocco (EU)	10,000	0.02
Poland	1,113	0.00
Poland (EU)	1,113	0.00
Romania	1,113	0.00
Romania (EU)	1,113	0.00
Turkey	1,113	0.00
Turkey (EU)	1,113	0.00
Ukraine	1,113	0.00
Ukraine (EU)	1,113	0.00
USA	1,113	0.00
USA (EU)	1,113	0.00
Total Citizenship considered	64,040	0.12
Total foreign population resident in Italy	130,000	0.25

Research dimensions and variables considered

Social Exclusion was evaluated by considering three research dimensions (education, job, and housing) according to the suggestions provided by CEI (e.g. Lancia indicators). For each dimension, variables describing the foreign population's living conditions in Italy were based on the available census data.

Education	Job	Housing
<p>Variables</p> <ul style="list-style-type: none"> Percentage of foreign residents aged 14 years or more without any school degree or who have completed only elementary education 	<p>Variables</p> <ul style="list-style-type: none"> Percentage of foreign residents aged 20 years or more not working or working for a job and not enrolled in any education or training program Percentage of foreign residents living in houses without facilities Percentage of foreign residents living in houses lacking a bathroom 	<p>Variables</p> <ul style="list-style-type: none"> Percentage of foreign residents living in houses lacking a bathroom

Methodology

Three partial indicators (I₁) were built-up in order to describe social exclusion of foreign population related to each dimension studied (education, job, housing).

$$I_1 = \frac{X_i}{V_i} \rightarrow X_i = \text{studied variable with } i = 1, 2, \dots, n$$

$$V_i = x_i - \min(x_i) \rightarrow \text{Calculated for the province/region}$$

$$V_i = \max(x_i) - \min(x_i) \rightarrow \text{Calculated for the province or all for regions}$$

The partial indicator related to housing was computed as a weighted average of the three variables previously illustrated (SEI 1 of Versa 1998, Weight_h) (w) built-up as the inverse of the sum of pairwise correlations among variables as follows:

$$W_i = \frac{1}{1 + \sum_{j \neq i} \rho_{ij}}$$

The synthetic index of social exclusion included the three partial indicators and represented the 'distance' (low after) among provinces (or regions) in terms of social exclusion.

Essentially, for each i -th province (or region), $SEI_i = (S_i - S_{min}) / (S_{max} - S_{min})$ where SEI_i is the distance of the i -th province (or region) from the province (or region) with the best conditions in terms of social exclusion and S is the number of partial indicators considered.

Such methodology was in accordance to the procedure used to build-up the standard *Rosso Dipartimento* Index (RDI), previous studies (Falcato 2018, Castagna de Arcevechi et al. 2018) were especially related to weighting procedures of variables included in the partial indicators as well as to the synthetic index.

A cartographic evaluation of both partial indicator and the synthetic index was conducted at the NUTS-3 level in order to depict the main spatial patterns of the phenomenon considered.

A multidimensional analysis based on the multidimensional scaling approach was carried out in order to obtain a synthetic evaluation of SEI figures measured for the twenty citizenships considered at the territorial level (i.e. NUTS-2 scale). The analyses were plotted on a two-dimensional ordination space. Clusters among citizenships highlights similarity in average exclusion conditions among the Italian regions.

Partial indicators and the synthetic index

For each dimension a partial indicator was built-up

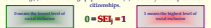
Education	Job	Housing
Educational Attainment Index (EAI)	Labour Market Marginality Index (LMI)	Housing Poverty Index (PI)

The procedure previously described was applied to the figures of each variable measured (I₁) in each Italian province considering the whole foreign resident population and (I₂) in each Italian region considering separately the twenty most representative citizenships in terms of population size

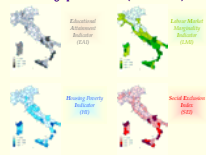
Social Exclusion

Social Exclusion Index (SEI)

SEI synthetic index was calculated as average of the three partial indicators considering (i) the whole foreign population and (ii) the twenty most-representative citizenships.



A cartographic evaluation (NUTS-3 level)



A cartographic evaluation

- EAI partial indicator shows a clear north-south gradient basically according to the different economic performances of the Italian provinces
- LMI territorial distribution is modulated by local factors, generally linked to the availability of buildings and jobs
- PI shows a heterogeneous spatial pattern affected by local factors related to education. Weak differences among some northern provinces and central-southern Italy are observed.
- SEI shows higher exclusion levels in the southern regions, particularly due to LMI contribution. Lower figures of SEI are observed in both Central Italy and in some provinces of northern Italy, especially due to the contribution of EAI and LMI.

A multidimensional analysis

The results presented here allow to classify Italian regions or provinces according to the social exclusion level of the foreign population

- In general, the risk of social exclusion in southern Italy is lower than that observed in the north. This depends on economic factors, which reflect especially on the characteristics of the job market
- In quite almost the Italian region, the citizenships featured by the highest exclusion level are those from Africa (e.g., Senegal, Tunisia, Morocco)

To measure the level of social exclusion of foreign people at regional/province scale provide useful policy information at both local and national level

Further developments

- Comparative evaluation of the performance of different weighting systems on SEI synthetic index at NUTS-3 level
- Calculation of partial indicators and SEI at a higher spatial resolution (i.e. local Labour systems, municipalities)
- Calculation of partial indicators and SEI over a long time period to allow a time series approach

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