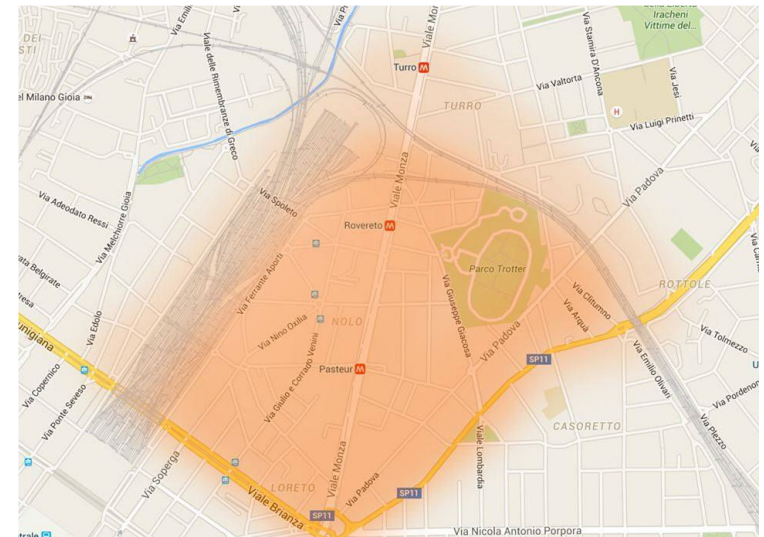




Estimation of the demographics of a Milanese neighborhood

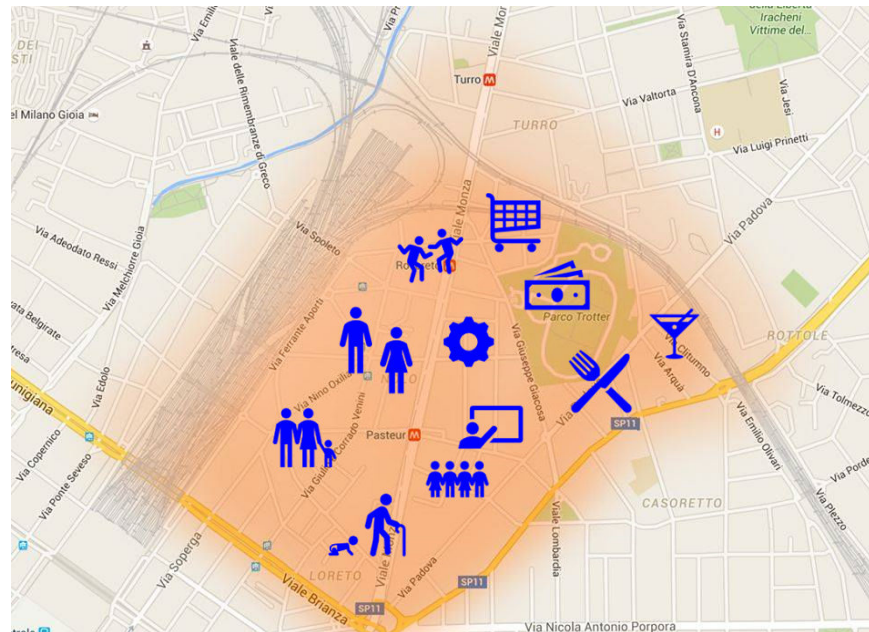
Milan, October 1, 2018



General Objective

The aim of this study is to propose a methodology to obtain **demographic data of a non-official neighborhood of Milan named NoLo** (North of Loreto) for estimates from the data available at the statistical department of the municipality of Milan.

Demographic data can be useful for many purposes (e.g., *urban and planning design*) though the understanding the characteristics of the population living in this area.



What is NoLo

The name NoLo is the acronym of Nord di Loreto (*North of Loreto*) and refers to a **Milanese urban area** that develops between via Ferrante Aporti to the west, via Leoncavallo to the east and the railway under Turro to the north.

It is a post-war neighborhood that has a mix of vintage "*signorili*" buildings from the 30s and more recent, which grew in the 70s booming economy.

NoLo is a neighborhood in full transformation that seems to want to get rid of its old label of "degraded" through a cultural renaissance started about 5 years ago when artists and designers installed their art galleries, attracted by the low prices of rents.

Now it refers to a social community who uses the social networking to share information on services, friendly places, helping themselves, giving life to smart initiatives.

The Data

The data used in this study was taken from [SISI - Sistema Statistico Integrato](#) an online platform for the consultation and diffusion of municipal statistics.

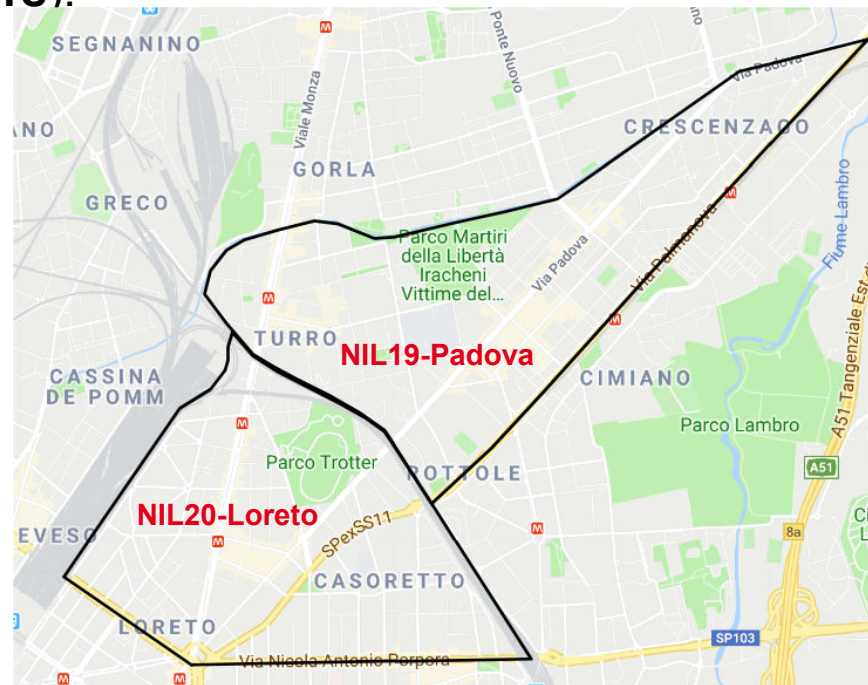
In particular, the data needed for the processing concerned:

- **Registry of residents in 2016-2017**, by neighborhood.
- **Registry of eligible voters in the municipal election of 2016**, by polling station.

The Methodology

The estimation consists in 3 steps:

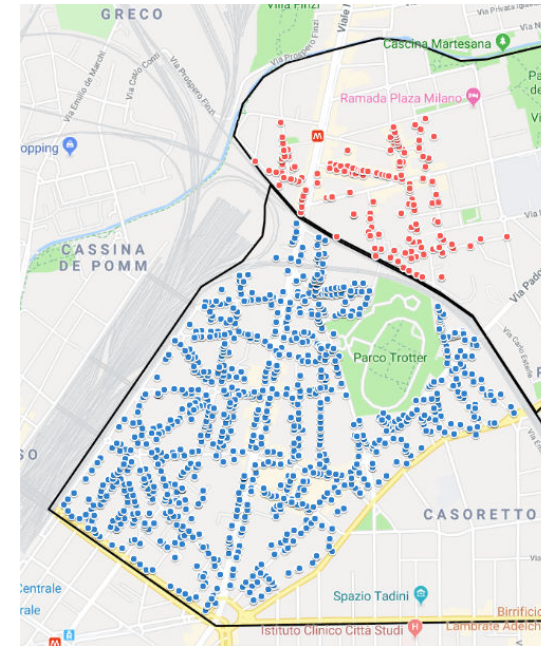
1. We first selected the 2 Milanese neighborhoods¹ that include NoLo (from now indicated as *NIL19-Padova* and *NIL20-Loreto*) by grouping residents in 2 age classes: from 0 to 17 years and those over (the second class has been chosen to be **consistent to the age of eligible voters**).



¹ The administrative area of Milan is sub-divided into 88 urban districts (the so-called 'local identity districts' or 'Nuclei di Identità Locale', NIL) representing homogeneous neighborhoods in terms of social composition and economic structure.

The Methodology

2. Since every polling station consists of a number of addresses of potential voters, we had **selected all the polling stations¹ included in the NoLo area** (the points in the map).



3. We had finally calculated **2 coefficients to re-proportion any population characteristics** for each of the 2 parts of NoLo belonging to their neighborhood and eventually add up their values.

¹ Boundaries have been drawn in accordance with the administrators of the Facebook's NoLo Social District group.

The Methodology

Last step can be formally express as follows:

$$cp_{NoLo_NIL} = \frac{Eligible_Voters_2016_{NoLo_NIL}}{Residents_2016\ (18+)_{NIL}}$$

Example:

The eligible voters (2016) in NoLo polling stations belonging to NIL19 and NIL20 were respectively 2.624 and 18.100,

the residents (2016) who were at least 18 years old belonging to NIL19 and NIL20 were respectively 31.263 and 38.220,

the coefficient of proportionality (cp_{NoLo_NIL}) for NoLo_NIL19 was 0,08393 (2.624/31.263) and for NoLo_NIL20 was 0,473574 (18.100/38.220).

The Methodology

The estimates of the characteristics for each part of NoLo **were performed re-proportioning** for the respective NIL:

$$Chr_{NoLo_NB} = Chr_{NB} * cp_{NoLo_NB}$$

Example:

The **characteristic of the residents** (Chr_{NB}) belonging to NIL19 and NIL20 **was respectively 37.081 and 44.863**,

the **estimated residents** in NoLo (Chr_{NoLo_NB}) belonging to **NIL19 was 3.112** ($37.081 * 0,08393$) and those belonging to **NIL20 was 21.245** ($44.863 * 0,473574$)

$$Chr_{NoLo} = Chr_{19} * cp_{NoLo_19} + Chr_{20} * cp_{NoLo_20}$$

So, the **estimated residents in NoLo** (Chr_{NoLo}) **was 24.358** ($3.112 + 21.246$).

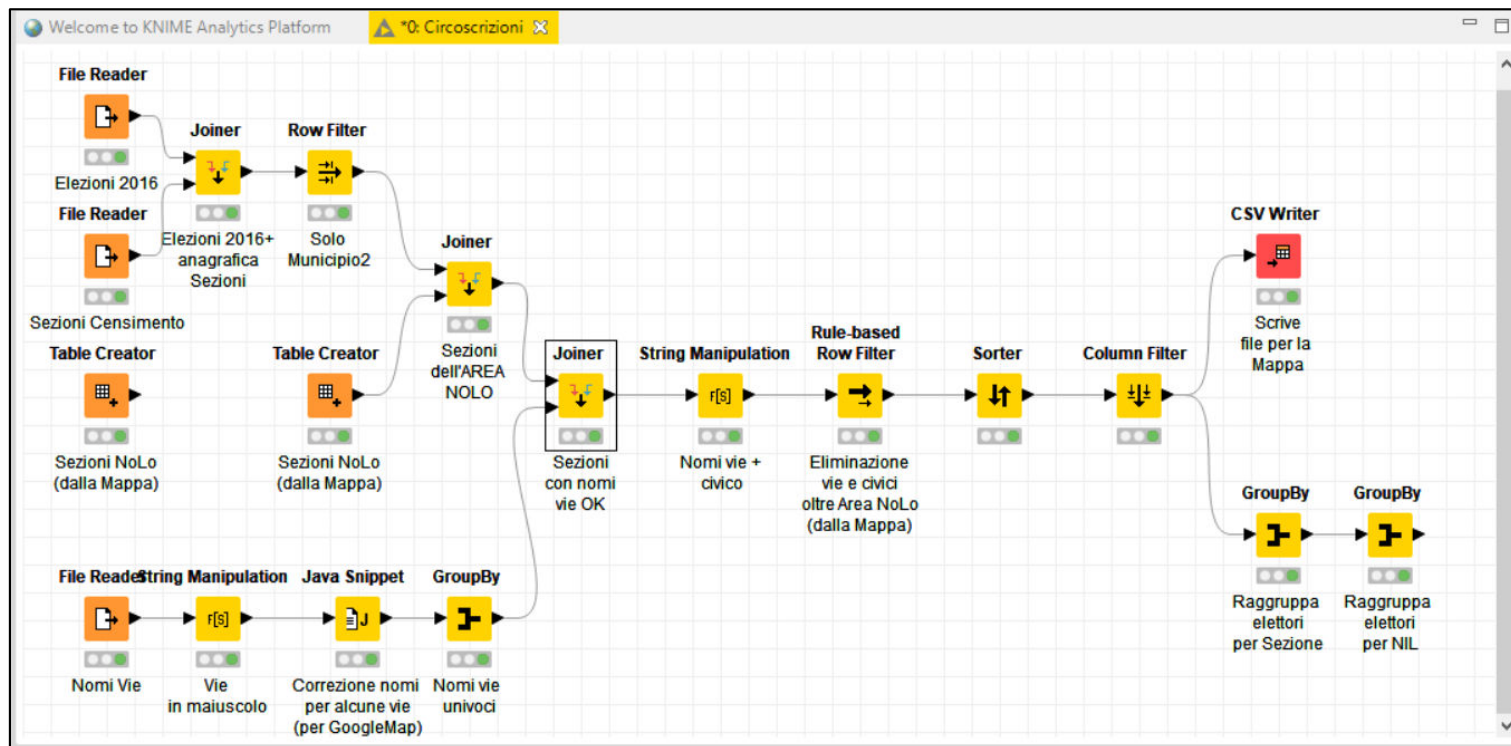
This procedure can be applied to all other available characteristics (age, gender, marital status, nationality, ...).

The Software

For the data extraction, transformation and reporting process we relied on the [Knime® Analytics Platform](#) software.

Knime is a free and open-source platform that integrates a various components for statistical analysis through its modular data pipelining concept.

Here is a screenshot of the workflow used to perform part of the analysis:



The Report

The result of the processing was exported in Excel to create the final report:

	MILANO			PADOVA (NIL 19)		LORETO (NIL 20)		NoLo ⁽¹⁾		
	Numero	%	Δ % A.P.	Numero	Δ % A.P.	Numero	Δ % A.P.	Numero	%	Δ % A.P.
Superficie (Km²)	181,8			2,1		1,7				
Popolazione										
Residenti - 2017	1.380.873		+0,9	37.081	+1,0	44.863	+0,4	24.358		+0,4
Famiglie - 2017	679.014		+0,7	18.128	+0,6	21.814	+0,8			
Densità popolazione per Km2 (resid./superf.)	7.597			17.984		25.672		15.224		
Genere residenti - 2017										
Femmine	717.940	52,0	+0,7	18.721	+0,7	21.550	-0,2	11.777	48,3	-0,1
Maschi	662.933	48,0	+1,1	18.360	+1,3	23.313	+0,9	12.581	51,7	+0,9
Età residenti - 2017										
0-17 anni	213.693	15,5	+0,8	5.554	+1,8	6.448	-0,6	3.528	14,4	-0,3
18-35 anni	268.983	19,5	+1,9	7.607	+0,6	10.503	-0,9	5.612	23,0	-0,7
36-65 anni	593.588	43,0	+1,1	16.355	+1,8	20.447	+1,3	11.056	45,4	+1,3
66-85 anni	256.958	18,6	-0,9	6.295	-1,8	6.340	-0,3	3.531	14,5	-0,5
85+	47.651	3,5	+0,9	1.270	+3,5	1.125	+5,1	639	2,6	+4,9
18-85+	1.167.180		+0,9	31.527	+0,8	38.415	+0,5	20.839		+0,6
Età media	46,8		+0,4	48,3	-0,1	49,5	+1,4	49,4		+1,2
Nazionalità residenti - 2017										
Italiani	1.114.011	80,7	+0,5	24.439	+0,6	29.499	+0,7	16.021	65,8	+0,7
Stranieri	266.862	19,3	+2,5	12.642	+1,7	15.364	-0,3	8.337	34,2	-0,1
Cittadinanza - 2017										
Prima	41.672	Filippine		2.674	Filippine	2.877	Egitto	1.587	Egitto	
Seconda	38.265	Egitto		2.385	Egitto	2.818	Filippine	1.535	Filippine	
Terza	29.476	Cina		1.302	Cina	1.801	Cina	962	Cina	
Nascite residenti 2017 ⁽²⁾										
Italiani	8.109		-1,0	165	-5,2	209	-9,1			
Stranieri	2.936		-5,8	164	-1,2	154	-8,3			
Decessi residenti 2017										
Italiani	13.990		+2,1	351	+3,5	310	-11,4			
Stranieri	300		+29,9	9	-18,2	19	>100			