An Automatic Tool for the Determination of the Housing Rental Prices: An Analysis in the Italian Context

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Table S1. Descriptive statistics of the variables for the city of Turin.

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
Rental prices [€]	710.53	356.42		
			< 500	0.36
			501 > 1,500	0.62
			1,500 > 2,500	0.02
			> 2,501	0.00
Internal area [m²]	74.18	37.91		
			< 60	0.50
			61 - 90	0.27
			91 - 140	0.17
			141 - 180	0.04
			> 181	0.02
Surface of balconies, terraces and patios [m²]	5.77	9.83		
			< 6	0.70
			7 - 15	0.22
			16 - 30	0.06
			31 - 80	0.01
			> 81	0.01
Surface of private external space, i.e. green areas, gardens, courtyards [m²]	6.97	24.01		
			< 50	0.96
			51 - 100	0.03
			>100	0.01
Presence of condominial areas [1-presence; 0 - absence]	0.33	0.47		
			0	0.68
			1	0.32
	2.34	2.28		

Variable	Mean	Std	Category	Value
Floor on which the property is located [n.]			< 2	0.61
			3 - 5	0.29
			6 - 9	0.10
			> 10	0.00
Number of bathrooms of the property [n.]	1.25	0.56		
			1	0.79
			2	0.20
			>3	0.01
Presence of kitchen located in the same living room [1-presence; 0 - absence]	0.43	0.51		
			0	0.54
			1	0.46
Quality of the property maintenance conditions [1 - presence; 0 - absence]			Bad	0.12
			Good	0.41
			Excellent	0.47
EPC label [1—EPC label of the property, 0—all the others]			Eab	0.15
			Ecde	0.47
			Efg	0.38
Age of the building in which the residential unit is located [n.]	1940.46	58.89		
			< 1850	0.07
			1851 - 1950	0.46
			1951 - 1980	0.33
			1981 - 2008	0.10
			2009 - 2020	0.04
Distance from the nearest subway [Km]	1.84	1.36		
			< 1	0.40
			1 < 5	0.58
			> 5	0.02
Distance from the central train station [Km]	3.10	1.70		
			< 1	0.14
			1 < 5	0.71
			> 5	0.15
Distance from the nearest university center [Km]	2.19	1.43		
			< 1	0.25
			1 < 5	0.70
			> 5	0.05
Distance from the central pole [Km]	3.22	1.84		
			< 1	0.10
			1 < 5	0.72
			> 5	0.18
Distance from the nearest urban green space [Km]	1.87	0.94		
			< 1	0.15
			1 < 5	0.85

		> 5	0.00
Municipal trade area [1—if the property belongs to the specific trade area, 0—all the remaining areas]		Central	0.18
		Semicentral	0.40
		Peripheral	0.40
		Suburban	0.02

Table S2. Descriptive statistics of the variables for the city of Milan.

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
Rental prices [€]	1.655,70	1.251,09		
			< 500	0.01
			501 > 1,500	0.66
			1,50 > 2,500	0.18
			2,501 > 5,000	0.12
			> 5,000	0.03
Internal area [m²]	77.47	51.42		
			< 60	0.51
			61 - 90	0.24
			91 - 140	0.16
			141 - 180	0.04
			> 181	0.05
Surface of balconies, terraces and patios [m²]	5.44	12.18		
			< 6	0.76
			7 - 15	0.16
			16 - 30	0.06
			31 - 80	0.01
			> 81	0.01
Surface of private external space, i.e. green areas, gardens, courtyards [m²]	3.40	16.91		
			< 50	0.99
			51 - 100	0.01
			>100	0.00
Presence of condominial areas [1- presence; 0 - absence]	0.32	0.47		
			0	0.68
			1	0.32
Floor on which the property is located [n.]	2.38	2.11		
			< 2	0.56
			3 - 5	0.36
			6 - 9	0.08
			> 10	0.00
Number of bathrooms of the property [n.]	1.27	0.52		
			1	0.76
			2	0.20
			>3	0.04

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
Presence of kitchen located in the same living room [1- presence; 0 - absence]	0.31	0.47		
			0	0.69
			1	0.31
Quality of the property maintenance conditions [1 - presence; 0 - absence]			Bad	0.07
			Good	0.29
			Excellent	0.64
EPC label [1—EPC label of the property, 0—all the others]			Eab	0.27
			Ecde	0.25
			Efg	0.48
Age of the building in which the residential unit is located [n.]	1950	58		
			< 1850	0.02
			1851 - 1950	0.45
			1951 - 1980	0.28
			1981 - 2008	0.05
			2009 - 2020	0.20
Distance from the nearest subway [Km]	1.44	6.94		
			< 1	0.65
			1 < 5	0.34
			> 5	0.01
Distance from the central train station [Km]	3.74	2.28		
			< 1	0.05
			1 < 5	0.75
			> 5	0.20
Distance from the nearest university center [Km]	2.86	1.84		
			< 1	0.07
			1 < 5	0.85
			> 5	0.08
Distance from the central pole [Km]	3.32	2.00		
			< 1	0.05
			1 < 5	0.77
			> 5	0.18
Distance from the nearest urban green space [Km]	1.82	1.39		
			< 1	0.27
			1 < 5	0.72
			> 5	0.01
Municipal trade area [1—if the property belongs to the specific trade area, 0—all the remaining areas]			Central	0.27
			Semicentral	0.40
			Peripheral	0.30
			Suburban	0.03

Table S3. Descriptive statistics of the variables for the city of Rome.

Rental prices [€]	1,541.74	1,255.91		
			< 500	0.01
			501 > 1,500	0.68
			1,500 > 2,500	0.19
			> 2,501	0.12
Internal area [m²]	91.60	59.49		
			< 60	0.32
			61 - 90	0.35
			91 - 140	0.21
			141 - 180	0.07
			> 181	0.05
Surface of balconies, terraces and patios [m²]	9.55	18.04		
			< 6	0.63
			7 - 15	0.21
			16 - 30	0.09
			31 - 80	0.05
			> 81	0.02
Surface of private external space, i.e. green areas, gardens, courtyards [m²]	8.68	27.79		
			< 50	0.90
			51 - 100	0.07
			>100	0.03
Presence of condominial areas [1- presence; 0 - absence]	0.25	0.43		
			0	0.75
			1	0.25
Floor on which the property is located [n.]	2.25	1.94		
			< 2	0.59
			3 - 5	0.36
			6 - 9	0.05
			> 10	0.00
Number of bathrooms of the property [n.]	1.49	0.73		
			1	0.63
			2	0.28
			>3	0.09
Presence of kitchen located in the same living room [1- presence; 0 - absence]	0.62	0.49		0
			0	0.38
			1	0.62
Quality of the property maintenance conditions [1 - presence; 0 - absence]			Bad	0.08
			Good	0.35
			Excellent	0.57
			Eab	0.18
			Ecde	0.06

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
EPC label [1—EPC label of the property, 0—all the others]			Efg	0.76
Age of the building in which the residential unit is located [n.]	1929	95.39		
			< 1850	0.08
			1851 - 1950	0.40
			1951 - 1980	0.36
			1981 - 2008	0.05
			2009 - 2020	0.11
Distance from the nearest subway [Km]	2.08	2.28		
			< 1	0.42
			1 < 5	0.49
			> 5	0.08
Distance from the central train station [Km]	5.55	3.77		
			< 1	0.05
			1 < 5	0.52
			> 5	0.43
Distance from the nearest university center [Km]	4.36	2.57		
			< 1	0.02
			1 < 5	0.68
			> 5	0.30
Distance from the central pole [Km]	5.43	3.75		
			< 1	0.03
			1 < 5	0.56
			> 5	0.41
Distance from the nearest urban green space [Km]	2.52	2.22		
			< 1	0.24
			1 < 5	0.64
			> 5	0.12
Municipal trade area [1—if the property belongs to the specific trade area, 0—all the remaining areas]			Central	0.26
			Semicentral	0.42
			Peripheral	0.24
			Suburban	0.08

Table S4. Descriptive statistics of the variables for the city of Naples.

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
Rental prices [€]	915.66	461.37		
			< 500	0.15
			501 > 1,500	0.76
			1,500 > 2,500	0.08
			> 2,501	0.01

Variable	Mean	Std. Dev.	Category	Frequency
Internal area [m²]	74.33	34.06		
			< 60	0.42
			61 - 90	0.28
			91 - 140	0.26
			141 - 180	0.03
			> 181	0.01
Surface of balconies, terraces and patios [m²]	7.52	15.28		
			< 6	0.70
			7 - 15	0.20
			16 - 30	0.06
			31 - 80	0.03
			> 81	0.01
Surface of private external space, i.e. green areas, gardens, courtyards [m²]	22.49	141.12		
			< 50	0.92
			51 - 100	0.06
			>100	0.04
Presence of condominial areas [1-presence; 0 - absence]	0.22	0.42		
			0	0.78
			1	0.22
Floor on which the property is located [n.]	2.15	1.93		
			< 2	0.63
			3 - 5	0.32
			6 - 9	0.05
			> 10	0.00
Number of bathrooms of the property [n.]	1.36	0.55		
			1	0.67
			2	0.29
			>3	0.04
Presence of kitchen located in the same living room [1-presence; 0 - absence]	0.52	0.50		
			0	0.48
			1	0.52
Quality of the property maintenance conditions [1 -presence; 0 - absence]			Bad	0.07
			Good	0.50
			Excellent	0.43
EPC label [1—EPC label of the property, 0—all the others]			Eab	0.24
			Ecde	0.09
			Efg	0.67
Age of the building in which the residential unit is located [n.]	1940	56.54		
			< 1850	0.03
			1851 - 1950	0.45
			1951 - 1980	0.48
			1981 - 2008	0.03

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
			2009 - 2020	0.01
Distance from the nearest subway [Km]	1.54	1.50		
			< 1	0.58
			1 < 5	0.38
			> 5	0.04
Distance from the central train station [Km]	5.29	4.40		
			< 1	0.02
			1 < 5	0.57
			> 5	0.41
Distance from the nearest university center [Km]	3.53	2.24		
			< 1	0.15
			1 < 5	0.60
			> 5	0.25
Distance from the central pole [Km]	3.90	2.38		
			< 1	0.09
			1 < 5	0.58
			> 5	0.33
Distance from the nearest urban green space [Km]	2.22	1.63		
			< 1	0.27
			1 < 5	0.66
			> 5	0.07
Municipal trade area [1—if the property belongs to the specific trade area, 0—all the remaining areas]			Central	0.47
			Semicentral	0.25
			Peripheral	0.17
			Suburban	0.11

Table S5. Descriptive statistics of the variables for the city of Catania.

Variable	Mean	Standard Deviation	Levels/Intervals	Frequence [%]
Rental prices [€]	658.79	298.35		
			< 500	0.31
			501 > 1,500	0.68
			1,500 > 2,500	0.01
			> 2,501	0.00
Internal area [m²]	89.93	50.08		
			< 60	0.32
			61 - 90	0.26
			91 - 140	0.32
			141 - 180	0.05
			> 181	0.05
	10.95	30.65		

Variable	Mean	Std. Dev.	Category	Value
Surface of balconies, terraces and patios [m²]			< 6	0.58
			7 - 15	0.26
			16 - 30	0.10
			31 - 80	0.05
			> 81	0.01
Surface of private external space, i.e. green areas, gardens, courtyards [m²]	0.01	21.30		
			< 50	0.98
			51 - 100	0.01
			>100	0.01
Presence of condominial areas [1-presence; 0 - absence]	0.10	0.42		
			0	0.92
			1	0.08
Floor on which the property is located [n.]	2.22	1.92		
			< 2	0.65
			3 - 5	0.27
			6 - 9	0.08
			> 10	0.00
Number of bathrooms of the property [n.]	1.35	0.54		
			1	0.68
			2	0.30
			>3	0.02
Presence of kitchen located in the same living room [1-presence; 0 - absence]	0.66	0.48		
			0	0.34
			1	0.66
Quality of the property maintenance conditions [1 -presence; 0 - absence]			Bad	0.02
			Good	0.42
			Excellent	0.56
EPC label [1—EPC label of the property, 0—all the others]			Eab	0.07
			Ecde	0.18
			Efg	0.75
Age of the building in which the residential unit is located [n.]	1941	128.82		
			< 1850	0.03
			1851 - 1950	0.33
			1951 - 1980	0.54
			1981 - 2008	0.06
			2009 - 2020	0.04
Distance from the nearest subway [Km]	0.95	0.81		
			< 1	0.71
			1 < 5	0.29
			> 5	0.00
Distance from the central train station [Km]	2.36	1.51		
			< 1	0.11

		1 < 5	0.84
		> 5	0.05
Distance from the nearest university center [Km]	2.22	1.32	
		< 1	0.21
		1 < 5	0.75
		> 5	0.04
Distance from the central pole [Km]	2.30	1.40	
		< 1	0.20
		1 < 5	0.76
		> 5	0.04
Distance from the nearest urban green space [Km]	1.41	0.92	
		< 1	0.37
		1 < 5	0.62
		> 5	0.01
Municipal trade area [1—if the property belongs to the specific trade area, 0—all the remaining areas]		Central	0.25
		Semicentral	0.27
		Peripheral	0.10
		Suburban	0.38