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Decision-making tools for urban regeneration processes: from Stakeholders Analysis to Stated Preference Methods

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Cover Image: Tabiat pedestrian bridge in Tehran, Iran by Leila Araghian from Diba Tensile Architecture – Photo by Mohammad Hassan

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DECISION-MAKING TOOLS FOR URBAN REGENERATION PROCESSES:

FROM STAKEHOLDERS ANALYSIS TO STATED PREFERENCE METHODS

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ABSTRACT

Urban regeneration operations are connected to the creation of a multiplicity of benefits, both economic and extra-economic, that range from the increase in the environmental quality to the amelioration of the urban image, from the valorization of the cultural heritage to the creation of economic development processes. The articles aims at proposing an integrated evaluation approach for addressing decision problems in the context of urban regeneration operations. Starting from the real case of the regeneration programme of the city of Collegno (Italy), the contribution proposes an original evaluation model based on the combined use of Stakeholders Analysis and Stated Preference Methods. The results of the research shows the people's perception about the social value of urban regeneration programme and their Willingness To Pay for specific transformation operations.

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城市复兴决策工具：

从利益相关者分析到偏好方法。

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摘要

城市复兴行动与创造利益多样性密切相关，包括经济利益和超经济利益，其中超经济利益包括环境质量的提升、城市形象的改善、文化资产的价值化过程和经济发展过程的创建。文章旨在提出解决城市复兴行动背景下决策问题的综合评价方法。本文从科莱尼奥市（意大利）复兴计划的实例开始，结合"利益相关者分析"和"陈述性偏好法"，提出一种原创评估模型。研究结果显示了人们对城市复兴项目之社会价值的理解和为特定转换操作支付价格的意愿。

关键词：
社会效益、条件价值评估法、社会网分析、社区参与

1   INTRODUCTION

According to Roberts (2000), urban regeneration can be considered as the outcome of the interplay between the different elements that characterize urban systems, such as political power, physical components, social dynamics, environmental impacts and economic processes. In this sense, urban regeneration operations refer to interventions that aim at strengthening the relationships between physical conditions and socio-political responses, increasing housing, health and well being, boosting social improvement and economic progress, containing urban growth, soil consumption and urban shrinkage, to name a few.

It has been generally agreed that urban transformations can be described as complex systems, defined by a plurality of actors with different values and objectives, and characterized by a great deal of uncertainty. Taking into consideration this complexity, it is of particular importance to provide the Decision Makers with integrated evaluation tools, able to consider the multiplicity of visions when dealing with urban regeneration processes, to include the opinions and the needs of the different stakeholders involved and to assess the impacts and the consequences of each decisions (Bottero & Mondini, 2017; Tyler et al., 2013; Altunkasa et al., 2017).

The paper focuses on an integrated approach based on the combination of Stakeholders Analysis and Stated Preference Methods for supporting the evaluation of the benefits that urban regeneration programmes generate on local community. In particular, the research addresses the decision problem under investigation through the integration of the Social Network Analysis (SNA, Dente, 2014; Knoke & Yang, 2008) from the side of the Stakeholders Analysis and Contingent Valuation Method (CVM, Mitchell & Carson, 1989; Carson, 2000) from the side of the Stated Preference Methods.

It can be noticed that multi-methodological approaches are getting more and more important for supporting decision problems in the context of urban and territorial transformations as the diversity of the methods reflects the multifaceted nature of urban desing and planning (Cerreta & De Toro, 2010; Bottero, 2015, Berta et al. 2016). However, to the knowledge of the authors, the paper presents the first application of the combined use of SNA and CVM in this domain. Starting from a real case related to the urban regeneration programme for the city of Collegno (Italy), the research considers the application of integrated methodology for the estimation of the social benefits that the operation is able to deliver (Bottero & Mondini, 2016). After the introduction, the rest of the paper is organized as follows: section 2 illustrates the integrated methodological approach, clarifying the theory of Stakeholders Analysis and Stated Preference Methods; section 3 presents the application of the proposed method to the real case of the urban regeneration programme for the city of Collegno, focusing on the different phases of the evaluation; section 4 discusses the main findings of the research and summarizes the conclusions that can be drawn from the work done.

2   INTEGRATED METHODOLOGICAL APPROACH

2.1   STAKEHOLDERS ANALYSIS

In decision making processes Stakeholders Analysis (SA) is a procedure for supporting strategy formulation by identifying the key actors, and assessing their respective interest in that system. It has been generally agreed that in the field of urban development projects it is of particular importance to identity and analyze the interests of the various individuals involved in the process in order to try to accommodate possible conflicts among them and to better focus on their needs and requirements (Yang, 2014).

In SA, the stakeholders groups can be classified according to the points of view adopted in their interventions and of the criteria upon which they base their decisions (Dente, 2014). Therefore, it is possible to divide stakeholders into five categories, namely political stakeholders, bureaucratic stakeholders, special interests, general interests and experts. Moreover, in order to understand the dynamics of the actors within the decision

process it is also important to analyze the resources that they have at disposal. These resources can be classified according to four categories: political, economic, legal and cognitive resources.

Different practical methods are available to analyze and to map stakeholders and actors, such as Power/Interest Matrix, the Stakeholders Circle methodology and the Social Network Analysis.

Power/Interest Matrix (Olander & Landin, 2005) is a method for mapping and classifying stakeholders by producing a grid where power and interest are relevant elements; each stakeholders is evaluated according to the aforementioned elements, allowing to understand who are the crucial players in the process.

Another interesting method for developing SA is the Stakeholders Circle methodology developed by Bourne and Walke (2008). This method allows the stakeholders to be prioritized and mapped by means of the examination of their power, proximity and urgency in the process.

A third method for developing SA is related to the Social Network Analysis (SNA, Knoke & Yang, 2008). SNA is particular useful in the context of urban projects as it allows the solution dynamics of collective problems to be highlighted. SNA emphasizes the fact that in a given decision process each individual is connected in different ways to other individuals. In this sense, SNA pays attention on the examination of the relationships that pairs of individual exchange in the created network. The method allows the actors' network to be graphically represented and quantitative measures representing the network to be calculated, namely complexity, density and centrality indexes. The evaluation of these parameters will be explained in details in section 3.2 of the present article, with reference to the application of the SNA to the considered case study.

2.2 STATED PREFERENCE METHODS

The benefits delivered by urban regeneration can be difficult to estimate. In fact, while some economic impacts can be easily calculated (this is the case, for example, of the increase of real estate values or the creation of new jobs), other impacts can be more difficult to be evaluated (as, for example, the increase in landscape quality, the improvement in the environmental system and so on). Indeed, urban regeneration operations are related to a series of urban and environmental improvements that refer to positive externalities and that contribute to an increase in the quality of life and in the welfare of individuals.

Generally speaking, from an economic point of view, the urban regeneration benefits can be examined with reference to a particular family of economic goods called public economic goods. A public good is a good that is both non-excludable and non-rivalrous in that individuals cannot be effectively excluded from use and where use by one individual does not reduce availability to others. For public goods, market prices either do not exist or only capture a small part of the total value (World Bank, 1998). It has been generally agreed that the Total Economic Value (TEV) approach is suitable for dealing with the economic valuation of this typology of goods and services (Mazzanti, 2002; Bottero, 2014).

According to Pearce and Turner (1990), the TEV is composed by two principal components that are related to the use and non-use values.

In particular, as far as the use value is considered, this can be further divided in:

−   direct use value, that derives from goods which can be extracted, consumed, or directly enjoyed;

−   indirect use value, that derives from the services the environment provides;

−   option value, that is a special case of use value and corresponds to the value obtained from maintaining the option of taking advantage of something's use value.

With reference to the non-use value, this can be subdivided in:

−   bequest value, that is the value derived from the desire to pass on values to future generations;

−   existence value, that derives from the benefits the environment may provide which do not involve using it in any way.
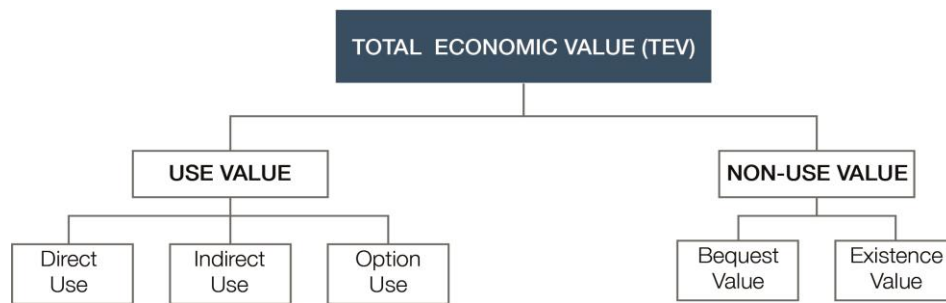
Fig. 1 The concept of Total Economic Value

Different evaluation techniques are available for estimating the TEV. According to the literature (Pearce & Turner, 1990), the methods can be divided in two main families:

— revealed Preference Methods (RPM); these methods derive the value from data that are collected through direct observations of individuals responses to goods/services that are complement or substitute to the good/service under investigation. Examples of these methods include Travel Cost Method and Hedonic Pricing method.

— stated Preference Methods (SPM): these methods are based on the creation of a hypothetical market data in which the data are derived by asking individuals for their opinions or views (Louviere et al., 2000; Pearce & Ozdemirouglu, 2002). Important parameters for the estimations are the Willingness To Pay (WTP), that is the willingness to pay of the society for using a certain good or service, or Willingness to accept (WTA), corresponding to the willingness to accept for abandoning a certain good. Among these method, it is possible to recall the Contingent Valuation Method (Mitchell & Carson, 1989; Carson, 2000), which will be described in details in section 3.3 with referent to its application to the case study.

Figure 2 shows the relationship between Total Economic Value and the two aforementioned categories of valuation techniques.
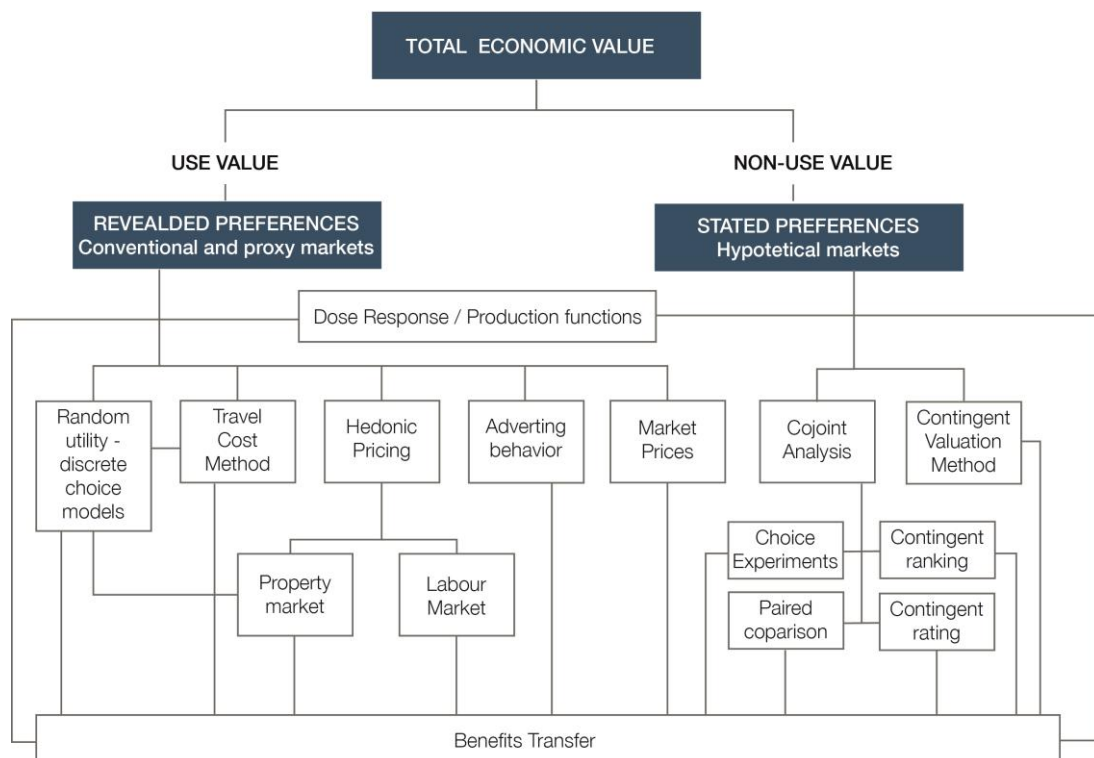
Fig. 2 Valuation techniques for estimating the Total Economic Value

With specific reference to SPM, the technique refers to a multi-stepped procedure that is organized according to different phases (Fig. 3). Firstly, it is necessary to precise the context of the research, clarifying the object under estimation. The second phase involves the choice of the evaluation method and of the way of developing the survey. Then, it is necessary to clarify the target population for the selection of the sample and the form of the questionnaire for the estimation. Once having defined the questionnaire, it is necessary to develop a pilot study for testing the readability of the questions. Subsequently, the method requires the development of the survey and the application of econometric analysis for the elaboration of the data collected. Finally, the results have to be examined by means of validity and reliability tests in order to formulate robust conclusive recommendations and guide lines.
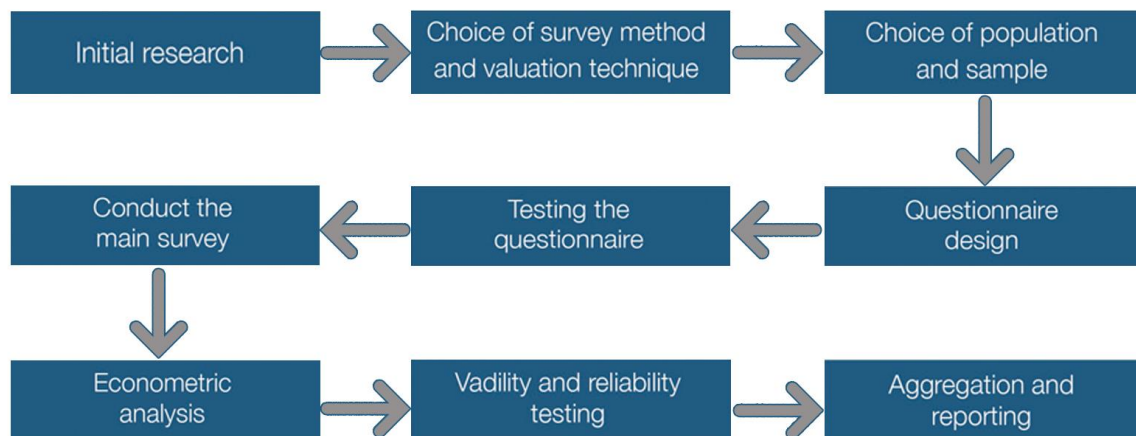
Fig. 3 The multi-stepped procedure for the development of the SPM study

Among Stated Preferences Methods, a very important role is played by the Contingent Valuation Method (CVM, Mitchell & Carson, 1989; Carson, 2000). The CVM is widely applied in environmental cost benefit analysis and is based on the development of a survey for collecting data about the good or service under examination. In a CVM survey the respondents are asked what they are willing to pay towards the preservation or an improvement of a certain asset. The research can then estimate the monetary value of the asset by calculating the average WTP of respondents and multiplying this by the total number of potential consumers.

Applications of CVM method can be found in the domain of environmental evaluation (Boxall et al., 1996) while the scientific works that develop CVM investigations in the context of urban design and planning are more limited (Strazzera et al., 2010; Del Saz-Salar & Garcia-Menendez, 2003).

3 CASE STUDY

3.1 DESCRIPTION OF THE AREA OF INTERVENTION

The case study considered for the application of the integrated approach refers to urban regeneration programme named "Collegno Rigenera", that interests the city of Collegno, located in the metropolitan area of Torino (Italy)[1] (Fig. 4).

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[1] The data used in the present application were collected in the design studio "Architecture and Urban Economics", Master Programme in Architecture Construction City, Politecnico di Torino, a.y. 2015/2016.

Fig. 4 Geographical location of the site under investigation

The program, promoted by the Municipal Administration, aims at finding answers to the economic and social needs of the city and to give uniformity to a territory afflicted by an unregulated development and to the presence of many decommissioned areas, both industrial and not. The area of intervention affects a very large area of the municipal territory, characterized by the presence of numerous industries and abandoned buildings (Fig. 5).

Fig. 5 The masterplan for the urban regeneration programme

The objectives of the program are related to the qualification of the city as "Collegno Social Town", to the creation of a nice and livable place and to the elimination of physical and environmental barriers.

A crucial point of the programme is the requalification of area of the Fermi metro station, including the site of Campo Volo, which is located in the Northern part of the area of intervention. In particular, the programme aims at the creation of a new public park in this portion of the territory.

3.2 RESULTS OF THE SOCIAL NETWORK ANALYSIS

According to the methodological framework described in section 3, groups of organized stakeholders have been identified that can have an interest in the transformation of the area under examination. Table 1 surveys

the most relevant stakeholders of the problem, with specific reference to the level, the type of actions, the nature of the resources at stake and the goal that they pursue in the process.

Figure 6 illustrates the map of the Social Network Analysis that has been constructed for the analysis of the decision process related for the program "Collegno Rigenera". The choice of the type of analysis is closely dependent to the context of the application. In this case, in fact, the Social Network Analysis has been chosen for its ability to investigate the urban project as a complex system, through the identification and consideration of the full range of stakeholders involved in the process, identifying the relationships between them and defining the resources that are exchanged. As it is possible to see from the analysis of Figure 6, the stakeholders are represented by dots and the exchanged recourses are represented by arrows. The network obtained from this exercise can be classified as "nested network" (Dente, 2014), in which almost all the actors exchange resources with all.

N	Stakeholders	Level	Type of actor	Actor's resource	Goal
1	European Community	European	Political - Bureaucratic	Political - Economic - Legal	Co-financing of the project, improvement of the conditions of the community, promotion of economic activities
2	Torino Metropolitan Area	Metropolitan	Political - Bureaucratic	Political - Legal	Efficient management of the the metropolitan area
3	City of Collegno	Municipal	Political - Bureaucratic	Political - Economic - Legal	Political consensus, improving the area in urban, social and economic profitability
4	Superintence of architectural heritage	Regional	Experts - Bureaucratic	Legal - Cognitive	Preservation of existing structures (necropolis)
5	Private investors	Local - National	Special Interests	Economic	Maximization of economic profit
6	Neighbourhood committees	Local	Special Interests	Cognitive	Representation of the local residents, satisfaction of the residents' needs
7	Consultants of the city of Collegno	Municipal	Experts	Cognitive - Economic	Increase in the participation in urban decision making processes
8	Residents	Local	Special Interests	Cognitive - Economic	Amelioration of the negative aspects of the area (domestic security and public areas availability)
9	Traders	Local	Special Interests	Cognitive - Economic	Creation of business activities, increase in the security in the area
10	Public transport users	Local - Metropolitan	Special Interests	Cognitive - Economic	Increase of underground connections, improvement of the station, security in the car park
11	Workers	Local	Special Interests	Cognitive	Increase in services and parking security
12	Future residents and traders	Local	Special Interests	Cognitive - Economic	Creation of a full-service neighbourhood, transport networks, recreation areas and new employment opportunities
13	Designers (architects, planners, landscapers)	International - National- Local	Experts	Cognitive	Creation of opportunities, formulation of well performing project proposals
14	Construction companies	Local - National	Experts	Cognitive - Economic	Maximization of the economic profits from construction activities
15	Commuters	Local - National	Special Interests	Cognitive- Legal	Reduction in connection time
16	Associations (environmental, historical, cultural)	Local - National	Special Interests	Legal - Cognitive	Prevention of further degradation and environmental problems, valorization of the identity of the place
17	Local Transport Authority	Metropolitan	Special Interests	Economic - Cognitive	Improvement of public transport services, increase in the demand of public transport users

Tab. 1 Survey of the relevant stakeholders in the decision problem
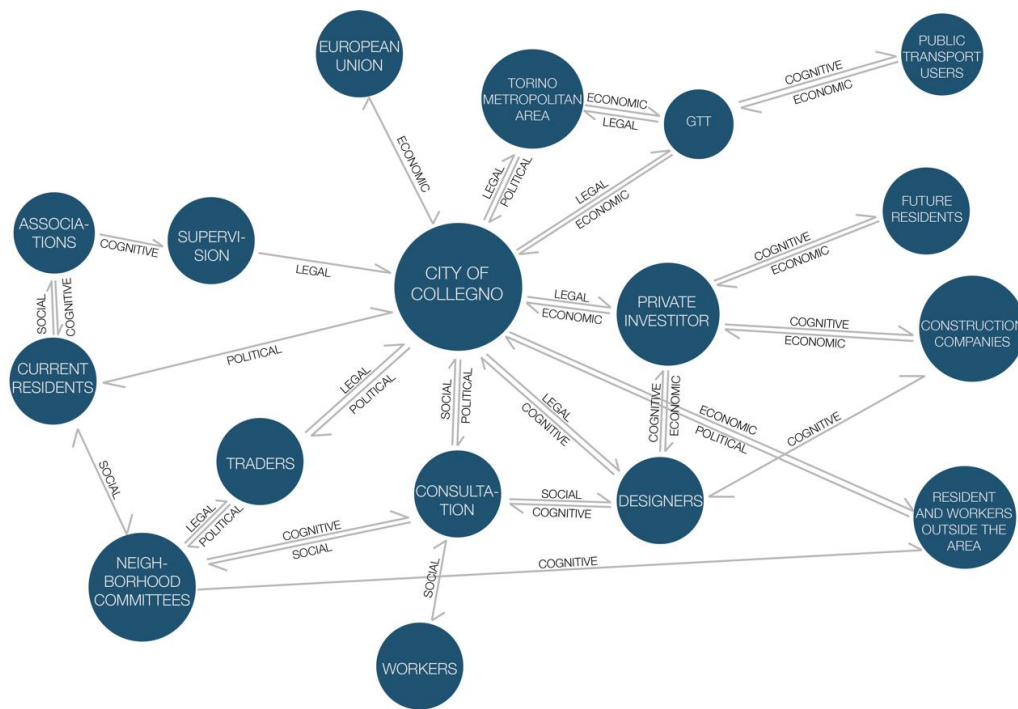
Fig. 6 Stakeholders map of the urban regeneration process under examination

The network can also be described by several indexes, such as: complexity index, density index and centrality index. The first two refer to the network in its globality, while the third refers to single stakeholders.

In order to measure the complexity of the decision network it is necessary to create a matrix that places the actors in different cells, according to the typology of the actors and the dimension of the interest (Table 2).

Dimension of the interest	Type of Stakeholders				
	Politicians	Bureaucrats	Experts	Special interest	General interest
International	EU				
National					
Regional		Superintendence			
Municipal	City of Collegno	Torino Metropolitan Area	Consultants	Public transport users, Commuters, Local Transport Authority	
Local			Designers Construction companies	Private Investors, Neighbourhood Committees Residents, Traders and Workers, Future residents and traders	Associations

Tab. 2 Complexity Index

Through the compilation of this matrix, the complexity of the network can be evaluated; if the stakeholders act at the level of all scales, then the complexity is be maximum. In our case, nine cells are occupied, so the complexity of the network is 9/25=0,39 which corresponds to a medium level of complexity.

A further characteristic of the network is the density, meaning the intensity of the relations between the actors of a decision-making process. The density can be measured trough the calculation of a specific index as represented in equation (1):

$$D = \frac{\sum K_i}{(n^2 - n)} \tag{1}$$

where D is the density index varying between 0 and 1, n is the number of actors and k_i is the number of relations in each group. In the present study, the application of formula (1) provides a density of 0,17. It is possible to state that in this case the medium complexity of the network is further weakened by the low density of the system, contracting both the benefits and the obstacles of the process.

Finally, it is possible to take into consideration the centrality of the different actors, namely the fact that one or few actors monopolize relations with participants. The centrality index of the network can be measured as in equation (2)

$$C_i = \frac{k_i}{\sum K_i} \qquad (2)$$

where C_i is the centrality index of each stakeholder that varies between 0 and 1 and k_i is the number of relations of each actor. According to the numerical results provided by the application of formula (2) to the decision network under examination, it is possible to state that the most central actors of the process is the city of Collegno (Table 3). Other relevant stakeholders are the consultants of the city of Collegno, who have different technical expertises for addressing in a proper way the regeneration process, and the private subjects who could invest economic resources in the operation. The analysis also shows that an important role is covered by the residents of the area and by the local committees that express specific requirements and need for the transformation.

No.	Stakeholders	K_i	Σk_i	Centrality Index
1	European community	1	45	0.02
2	Torino Metropolitan area	2	45	0.04
3	City of Collegno	10	45	0.22
4	Superintendence	1	45	0.02
5	Private investor	4	45	0.09
6	Neighbourhood committees	3	45	0.07
7	Consultants	4	45	0.09
8	Current residents	3	45	0.07
9	Traders	2	45	0.04
10	Public transport users	1	45	0.02
11	Workers	1	45	0.02
12	Future residents and traders	1	45	0.02
13	Designers	4	45	0.09
14	Construction companies	2	45	0.04
15	Commuters	2	45	0.04
16	Associations	1	45	0.02
17	Local Transport Authority	3	45	0.07

Tab. 3 Centrality Index for the stakeholders

3.3 RESULTS OF THE SOCIAL NETWORK ANALYSIS

I   Selection of the sample and development of the survey

Starting from the results of the SNA, the objectives and the values of residents and local associations in the areas have been further investigated by mean of the CVM approach.

In particular, following the CVM methodology, the first step in the application consisted in the selection of the sample for the development of the survey. In particular, the questionnaire was conducted in the city of Collegno in March 2016 and addressed both to residents and to visitors in the area under investigation. Mention has to be made to the fact that, before the development of the survey, a specific pre-test has been considered involving a small group of respondents. In particular, the questionnaire was firstly submitted to a sample of 15 people in order to verify the readability of the questions and to harm the credibility of the CVM estimations.

II   Design of the CVM questionnaire

According to the CVM methodology, the questionnaire consisted of three components, that can be described as follows:

— attitude of the respondents towards the good under investigation;

— simulation experiment and WTP elicitation;

— background information.

The complete version of the CVM questionnaire that has been used for the application is reported in the Appendix of the present paper.

In the first part of the questionnaire, questions aiming at understanding the familiarity of the respondents with the site in Collegno were included.

Question were of the type: *"Are you interested in urban and territorial requalification operations?" or "How often do you spend time in public open spaces?".*

The second part presented the hypothetical scenario for the evaluation. The respondents were asked a question of this type: *"If the regeneration of the city of Collegno were to transform the site of Campo Volo with the creation of an urban park, how much would you be willing to pay for the construction of the new facilities by a one-off payment in the form of an income tax?".*

Figure 7 shows the representation of the transformation operation that was included in the questionnaire.

Scenario without intervention   Scenario with intervention

Fig. 7 Representation of the hypothetical scenario for the evaluation

This part included also specific questions which aimed at discovering the importance that the respondents attached to the different components of the Total Economic Value of the park (Table 4).

The final part of the questionnaire requested standard demographic information from the respondents, including sex, age, education, income level, location of residence and location of work or study.

According to your opinion, how much would you evaluate the importance of

	Not important	Low	Medium	High	Very high
Being able to use a park with different function?	☐	☐	☐	☐	☐
Knowing that the city of Collegno has a park with these characteristics?	☐	☐	☐	☐	☐
Passing on to future generations the park?	☐	☐	☐	☐	☐
Protecting with the intervention the site of the Campo Volo?	☐	☐	☐	☐	☐

Tab. 4 Questions for evaluation the contribution of the TEV categories

III   Data analysis

The data collected through the questionnaire were analyzed in order to estimate the mean WTP and to provide statistics about the respondents' socio-economic characteristics and other variables included in the questionnaire.

Around 100 interviews were conducted using face-to-face approach and on line questionnaire. Figure 8 reports the socio-economic characteristics of the sample considered in the questionnaire.
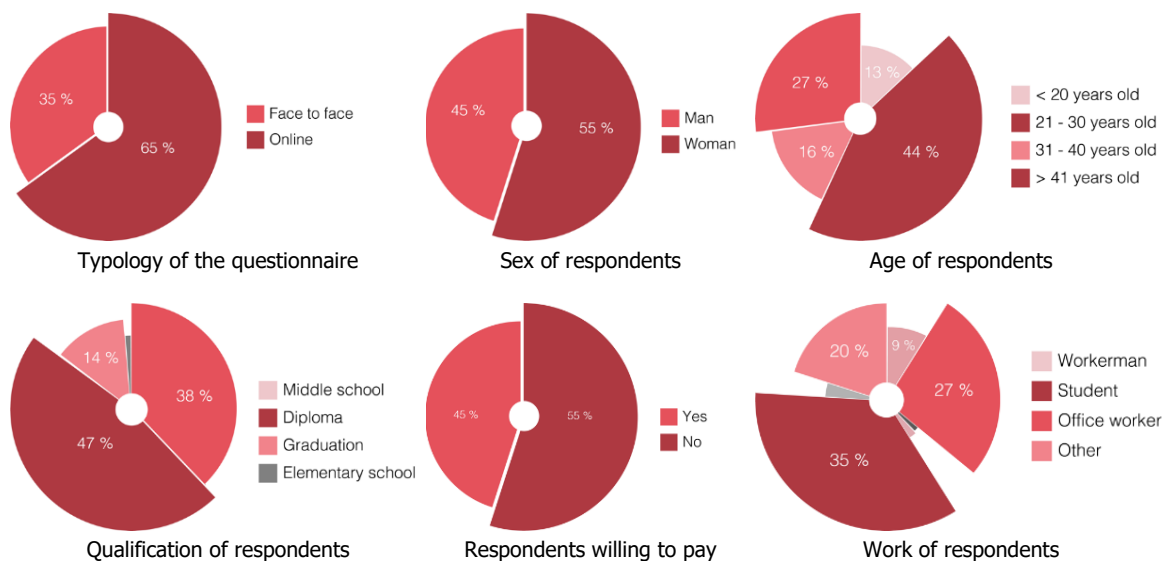
Fig. 8 Socio-economic characteristics of the respondents

According to the data collected in the questionnaire, different WTP were defined by the respondents. The respondents mean WTP was 31 €. This mean WTP value can be used for estimating the aggregated WTP amounts for the urban regeneration operation under investigation.

In a CVM study it is of particular interest to understand if the WTP measures perform in different ways in relation to other variables. For this purpose, Tables 5-8 report the relationships existing between the WTP values and the TEV components as resulting from the responses collected in the CVM questionnaire.

WTP classes		Sample	TEV					
			According to your opinion, how much would you evaluate the importance of being able to use a park with different function?					
No.	WPT [€]	Frequency [%]	None	Low	Medium	High	Very High	I don't know
1	0	55	100%	100%	73%	49%	39%	50%
2	1 - 10	9	0%	0%	4%	14%	5%	25%
3	10 - 50	16	0%	0%	19%	16%	17%	0%
4	50 - 100	17	0%	0%	4%	19%	30%	25%
5	100 - 300	3	0%	0%	0%	2%	9%	0%

Tab. 5 Analysis of the correlation between WTP and direct use value

WTP classes		Sample	TEV					
			According to your opinion, how much would you evaluate the importance of knowing that the city of Collegno has a park with these characteristics?					
No.	WPT [€]	Frequency [%]	None	Low	Medium	High	Very High	I don't know
1	0	55	50%	75%	6%	53%	33%	0%
2	1 - 10	9	50%	8%	7%	6%	12%	50%
3	10 - 50	16	0%	17%	20%	17%	11%	0%
4	50 - 100	17	0%	0%	7%	22%	33%	50%
5	100 - 300	3	0%	0%	0%	3%	11%	0%

Tab. 6 Analysis of the correlation between WTP and indirect use value

WTP classes		Sample	TEV					
			According to your opinion, how much would you evaluate the importance of passing on to future generations the park?					
No.	WPT [€]	Frequency [%]	None	Low	Medium	High	Very High	I don't know
1	0	55	0%	0%	74%	58%	43%	100%
2	1 - 10	9	0%	0%	11%	6%	12%	0%
3	10 - 50	16	0%	100%	11%	19%	14%	0%
4	50 - 100	17	0%	0%	5%	14%	26%	0%
5	100 - 300	3	0%	0%	0%	3%	5%	0%

Tab. 7 Analysis of the correlation between WTP and bequest value

WTP classes		Sample	TEV					
			According to your opinion, how much would you evaluate the importance of protecting with the intervention the natural site of the Campo Volo?					
No.	WPT [€]	Frequency [%]	None	Low	Medium	High	Very High	I don't know
1	0	55	67%	67%	52%	61%	42%	72%
2	1 - 10	9	33%	33%	4%	11%	4%	14%
3	10 - 50	16	0%	0%	22%	11%	21%	14%
4	50 - 100	17	0%	0%	22%	14%	25%	0%
5	100 - 300	3	0%	0%	0%	3%	8%	0%

Tab. 8 Analysis of the correlation between WTP and existence value

The analysis of the correlation between the WTP and the different components of the TEV shows that the respondents with higher WTP attribute more importance to bequest and existence values while respondent with lower WTP attribute more important to direct and indirect use values.

Other interesting results were provided by the analysis of the relationships between the WTP declared and the individuals' knowledge about the area under examination. In line with other findings coming from the literature (Maltese et al., 2016), there is a positive correlation between WTP and knowledge of the site and people who are familiar with the site are willing to pay more that people who do not know the area (Table 9).

	WTP classes	Sample	TEV	
			Do you know the area of the Campo Volo?	
No.	WPT [€]	Frequency [%]	Yes	No
1	0	55	57%	52%
2	1 - 10	9	6%	16%
3	10 - 50	16	13%	23%
4	50 - 100	17	22%	6%
5	100 - 300	3	3%	3%

Tab. 9 Analysis of the correlation between WTP and knowledge of the area

IV   WTP aggregation

In order to provide an aggregate measure of the social benefits delivered by the transformation, the catchment area of the new park has been defined. In particular, an isochronous map showing the places from which the park will be accessible in 20 minutes by car has been created in order to understand the potential beneficiaries of the new facilities (Figure 9). The mean WTP was multiplied by the number of family units in the catchment area. According to the calculations done, the overall social benefit accrued from the regeneration project was estimated to be around 7 millions of Euro.

This value shows that the respondents pay attention to the conservation and valorization of the built environment and urban landscape.
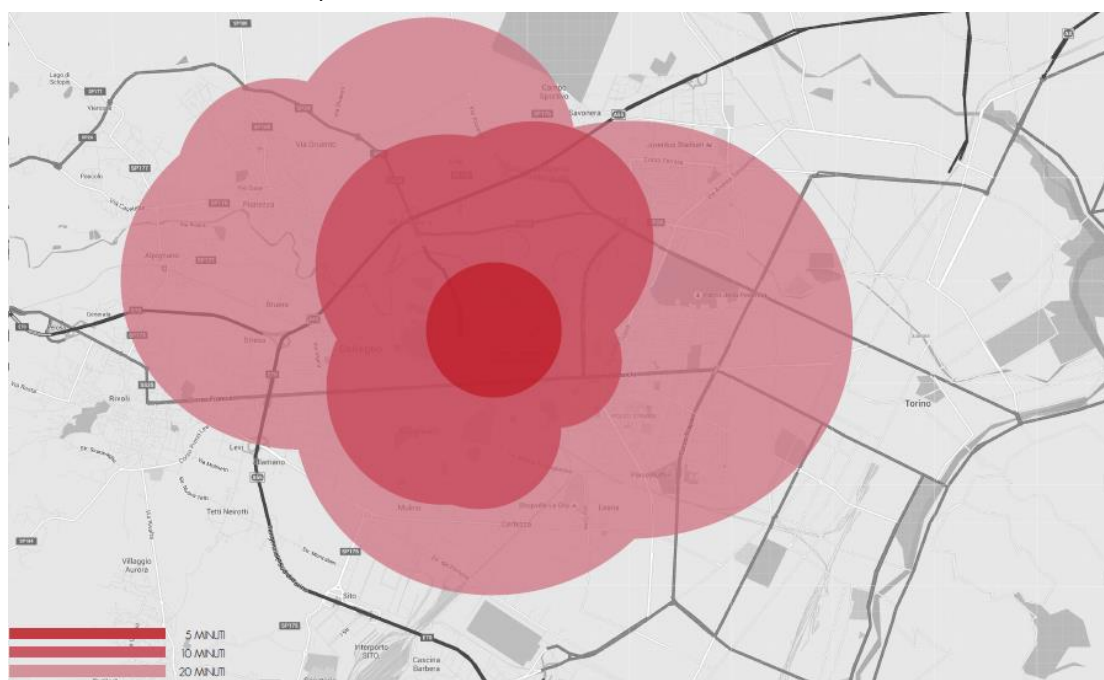

Fig. 9 Isochronous map for the definition of the catchment area.

4   DISCUSSION AND CONCLUSIONS

This paper focused on the evaluation of the social benefits that urban regeneration processes deliver on local community. In the research, the requalification programmes of the city of Collegno (Italy) has been considered and the benefits provided by the creation of a new urban park were estimated using the integrated approach which combined SNA and CVM approach. The results of the evaluation showed an overall benefit of around 7 millions of Euro, thus confirming the relevance of non-economic value of urban regeneration processes.

Apart from the estimation of the WTP, the results of the questionnaire highlighted other relevant issues about respondents' preferences towards the future transformation of the site, suggesting functions and services that could be included in the project.

The study shows the importance of adopting public participatory approaches in proposing and deciding new uses in urban regeneration processes. In fact, active involvement can ensure good decisions, able to match the public's preferences (Hing & Chan, 2015).

With reference to the perspective of the work, it would be useful to use the results of the present study in a cost benefit analysis (Hanley & Spash, 1993; Stellin & Rosato, 1998) that would allow to compare the social benefits delivered by the operation with the cost for undertaking the project, providing a benefit/cost ratio able to inform public Decision Makers about the social return of urban regeneration investments.

Further research could expand the econometric analysis of the data in order to provide better estimations of the WTP values by means of utility differences models.

Finally, future work could also consider the use of different protocols for the WTP estimation, such as the bidding game format with follow-up questions, that is able to better approximate the WTP values of the respondents.

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IMAGE SOURCES

Fig. 1: elaboration from World Bank, 1998

Fig. 2: elaboration from Pearce & Turner, 1990

Fig. 3: elaboration from Pearce & Ozdemirouglu, 2002

Fig. 4, 5, 6, 7, 8, 9: elaborated by the authors

Tab. 1, 2, 3, 4, 5, 6, 7, 8, 9: elaborated by the authors

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APPENDIX

QUESTIONNAIRE FOR THE CVM APPLICATION

A research group of the Politecnico of Torino is conducting an investigation on residents' and visitors' preferences about the transformation project for the site of Campo Volo in Collegno.

The purpose of the research is to determine the economic value of the social benefits that the project is able to deliver trough the implementation of the technique called Contingent Valuation Method.

We will mainly ask you questions on your preferences on the future transformation scenario for the area.

All the respondents of our investigation are chosen randomly and the whole interview may take you around 10 minutes.

All the information you will give us during the interview will be treated confidentially. All personal data will only be used for scientific research and will not be released to any third party.

We thank you in advance for your participation in our investigation.

PART 1_ATTITUDE OF THE RESPONDENTS TOWARDS THE GOOD UNDER INVESTIGATION

1   Do you usually frequent the Fermi metropolitan station?
     ☐ Yes
     ☐ No

     1.2   If yes, for which purposes?
           ☐ Inter-mobility exchange
           ☐ Residence
           ☐ Shopping
           ☐ Services in general

2   Do you know the area of Campo Volo in Collegno?
     ☐ Yes
     ☐ No

3   How often do you spend time in public spaces?
     ☐ Often
     ☐ Sometimes
     ☐ Almost never
     ☐ Never

4   Are you aware about the program "Collegno Rigenera" promoted by the municipality for the regeneration of Fermi metropolitan station area?
     ☐ Yes
     ☐ No

5   Which development scenario would you choose for the metropolitan station area?
     ☐ Residential area
     ☐ Commercial area
     ☐ Regeneration of brownfields
     ☐ Environmental regeneration of the Campo Volo area
     ☐ No one of these alternatives
     ☐ Other _____

6   In the case of the creation of a new park in this area, which functions should you include? (one or more choice)

☐ Sports activities

☐ Urban gardens

☐ Relax space s

☐ Educational activities and laboratories

☐ Installations and art exhibitions

☐ Other   _____

7   Do you think that the realisation of this new park could contribute to increase the market value of the property in this area?

☐ Yes

☐ No

PART 2_SIMULATION EXPERIMENT

Let us assume that the urban regeneration programme of the city of Collegno will consider the creation of a new urban park in the site of Campo Volo; the new park would host green areas for different activities, such as ports, urban gardens, playgrounds, educational activities and so on.

Scenario without intervention   Scenario with intervention

8   How much would you be willing to pay for the construction of the park and the new facilities by a one-off payment in the form of an income tax?

      _____ €

9   If you are not willing to pay, which are the main reasons?

☐ Improving the city image and its valorization should be a task of the Municipal Authority

☐ I would to contribute, but I cannot afford it

☐ I would like to have more information about the project

☐ I will not get any benefit from the project

☐ I prefer to contribute for my residential area projects

10   According to your opinion, how much would you evaluate the importance of:

	Not important	Low	Medium	High	Very high
Being able to use a park with different function?	☐	☐	☐	☐	☐
Knowing that the city of Collegno has a park with these characteristics?	☐	☐	☐	☐	☐
Passing on to future generations the park?	☐	☐	☐	☐	☐
Protecting with the intervention the site of the Campo Volo?	☐	☐	☐	☐	☐

PART 3_BACKGROUND INFORMATION

11   Residence municipality   _____

12   Gender
  ☐ Female
  ☐ Male

13   Age   _____

14   Educational background
  ☐ Primary school
  ☐ Secondary school
  ☐ High school
  ☐ University degree
  ☐ Ph.D.
  ☐ I do not know / I do not answer

15   Job

Sector   Employment
  ☐ Agriculture   ☐ Worker
  ☐ Industry   ☐ Employed
  ☐ Commerce / Hotels   ☐ Executive
  ☐ Transport / Communications   ☐ Practitioner
  ☐ Credit / Insurance   ☐ Retired
  ☐ School / University   ☐ Housewife
                                            ☐ Student
                                            ☐ Unemployed
                                            ☐ Other
                                            ☐ I do not know/I do not answer

16   Annual household income

Which is the average net income per year of your family, including all the revenues at disposal?

(We would like to highlight that this information has a fundamental importance for the correct development of the research work and we remind you that the data will be used only by the university staff for scientific purposes)

  ☐ < 15.000 €
  ☐ 15.000 € / 30.000 €
  ☐ 30.000 € / 50.000 €
  ☐ 50.000 € / 100.000 €
  ☐ > 100.000 €
  ☐ I do not know / I do not answer