Factors influencing the value of an urban park inside a middle-size city

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Troyes

Parc des Moulins

Le parcours des plumes

http://moulins.troyes.fr/677-observer-la-nature.html

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Le Parc des Moulin description
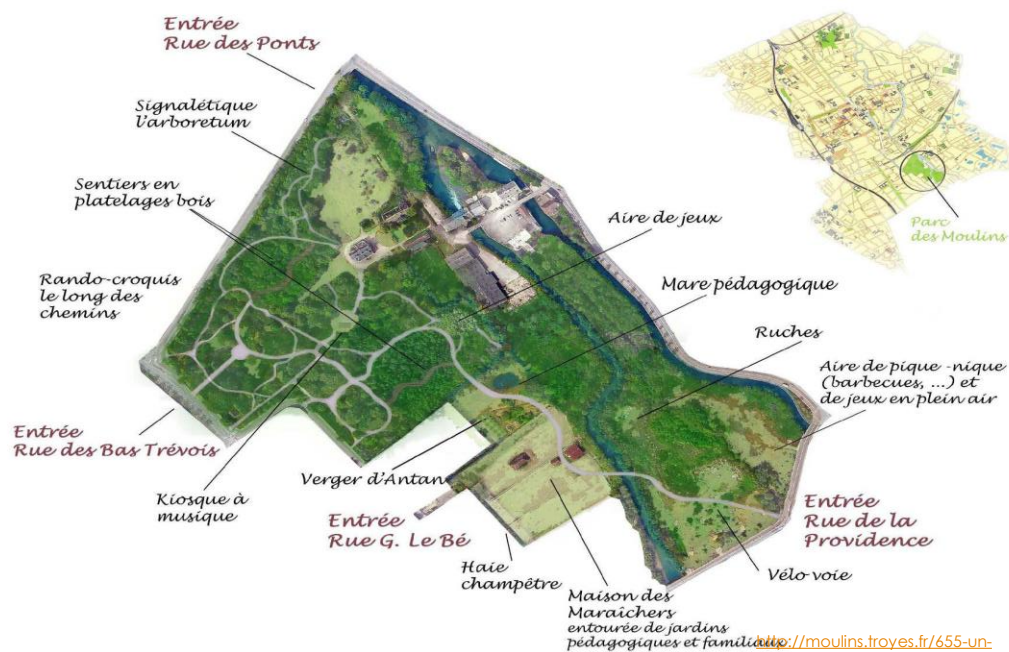
Location: Troyes town in the northern France
History: developed in the period of 1982-1987 and opened since 2011
Area: about 20 ha
- 11.5 ha of wooden area and clearings
- 3 ha of developed area with windmills and a townhouse
- 2 ha of garden space representing a place of education, with the gardening, apiculture, and arboriculture, and
- 1.5 ha of wilderness area for the biodiversity preservation)

http://www.ville-troyes.mobi/actualite/95/608-evenement.htm

http://www.actudici.fr/info+champagne-ardenne+poi+parc-des-moulins+17-10-2012+3713.html

Entrée Rue des Ponts
Signalétique l'arboretum
Sentiers en platelages bois
Rando-croquis le long des chemins
Aire de jeux
Mare pédagogique
Ruches
Aire de pique-nique (barbecues, ...) et de jeux en plein air
Entrée Rue des Bas Trévois
Kiosque à musique
Verger d'Antan
Entrée Rue G. Le Bé
Haie champêtre
Maison des Maraîchers entourée de jardins pédagogiques et familiaux
Entrée Rue de la Providence
Vélo voie
Parc des Moulins

http://moulins.troyes.fr/655-un-poumon-vert-a-la-lisiere-du-centre-ville.htm

http://moulins.troyes.fr/657-la-maison-des-maraichers.htm

Park activities prioritized (+++), allowed (++) or tolerated (+)

Activities	Facility	Expected users	Values/ benefits	Priority, allowed, tolerated
Pedestrian traffic	Trails, benches	Different ages	Recreational	+++
The circulation of bicycles	Trails	Different ages	Recreational	++
The use of strollers, tricycles (for young children) and non-noisy toy vehicles	Trails	Children (0-6 years)	Recreational	+
The individual and family picnics	Tables and benches	Different ages	Recreational	++
All activities, individual or family character of artistic nature, and individual sport practices	Trails, tables and benches	Different ages	Recreational, sport	++
Ball games	Trails, lawns	Different ages	Recreational, sport	++
The presentation in flight of aircrafts or airships of any kind (e.g. kites, gliders, aero-models)	Open spaces, lawns	Different ages	Recreational, sport	+
Access of dogs and other pets	Trails	Adults	Recreational	++
Fishing in the Seine		Adults	Recreational, food	++
The collective meals that require special logistical and cause the partial privatization of the site; the itinerant trade; the organization of sport, cultural and other events; gatherings and collective sports trainings; free group lessons	Open spaces, lawns	Different ages	Recreational	++
The animations	Open spaces, lawns	Different ages	Recreational	++
Playing	Playground equipment	Children	Recreational	++

(Arrêté N 2015/1820, 2015, http://moulins.troyes.fr/)

Objective of the study:

Define the factors/characteristics that influence the probability of users' willingness to pay (WTP) for enjoying an urban park in a medium-sized city within the French context. Define the factors that influence the value of the park itself.

Method: Contingent valuation (92 interviews of park users)

Conceptual framework

Ecosystem services provision

Functions

Ecological (e.g. Ecological networks and corridors) & Societal (e.g. Network of multifunctional open space)

Ecosystem services

Provisioning (e.g. water supply), Cultural (e.g. environmental settings), Regulation and maintenance (e.g. climate)

Human wellbeing

Benefits

(e. g. Food, fiber, drinking of water; recreation and tourism; avoidance of climate stress; erosion & flood protection; noise reduction)

(economic)Value

(e. g. Willingness to pay for recreation; avoided cost of water purification and erosion protection)

Value creation cascade of an urban park (*Adopted after Potschin, M.B., Haines-Young, R.H., 2011)*

Econometric modeling – Assumptions to be verified ?

- **Festive events-** because it is supposed to be more pleasant to enjoy a social event in nature, **contact with nature** (sightseeing, having a calm walk, enjoying the sound of nature) and **walking in a no-pollution zone** can be positive influencing this value (once again represented by the WTP).

- **Sports events** could be rather less important because the aim of the park is more about individual or small group/family activities (jogging, biking, or walking).

- **People within a certain age category** (typically younger people) and **closer to the park** are more likely to enjoy such park

- **Means of transportation** can be an influencing factor but will depend on the size of the park, knowing that neighboring parks are visited mainly by walking, while natural large parks could be visited by more remote dwellers by car or public transport.
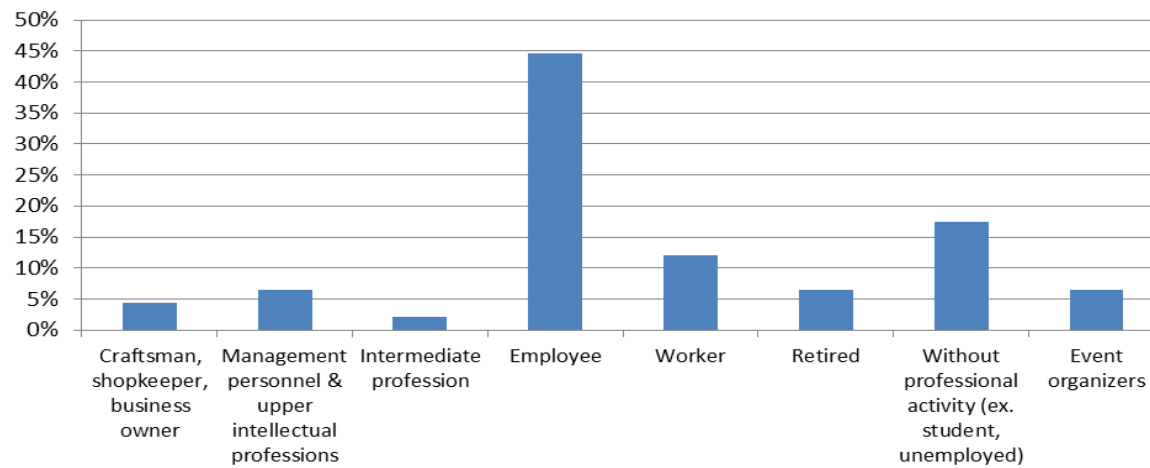
Results: park users' profile
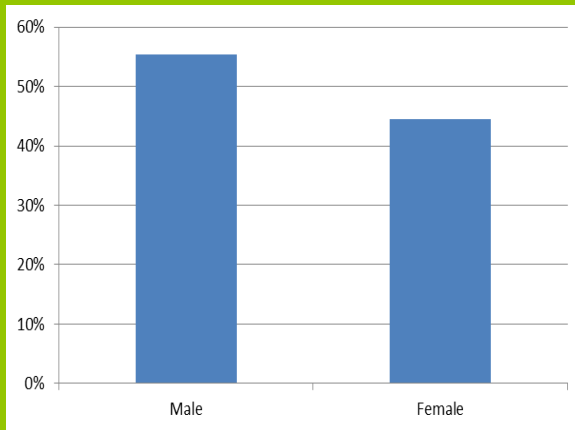
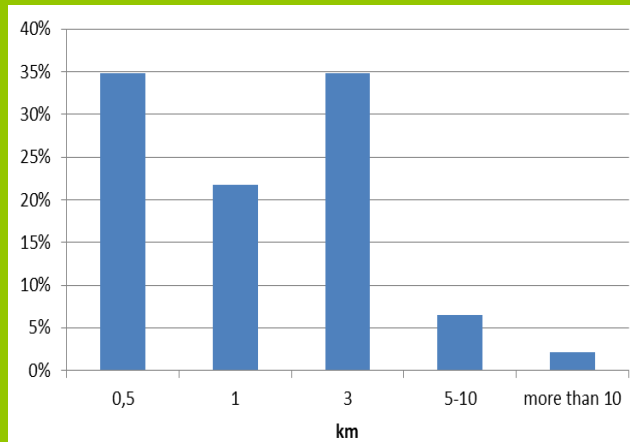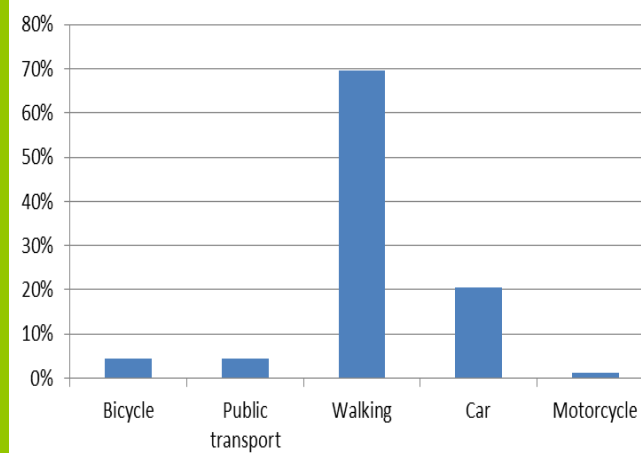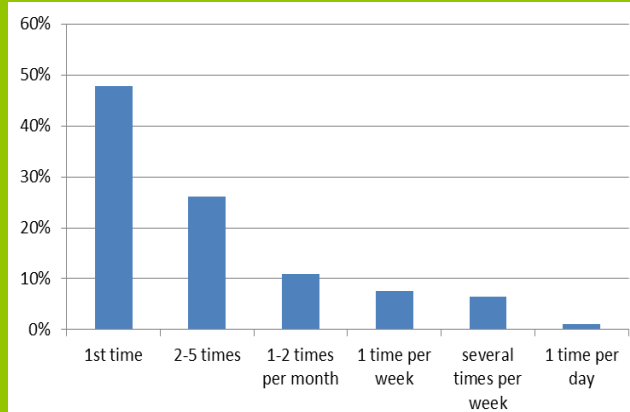

Sex
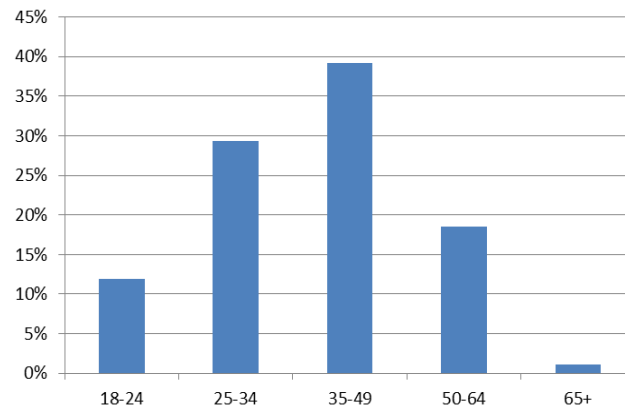
Age

Job

Park visit characteristics:
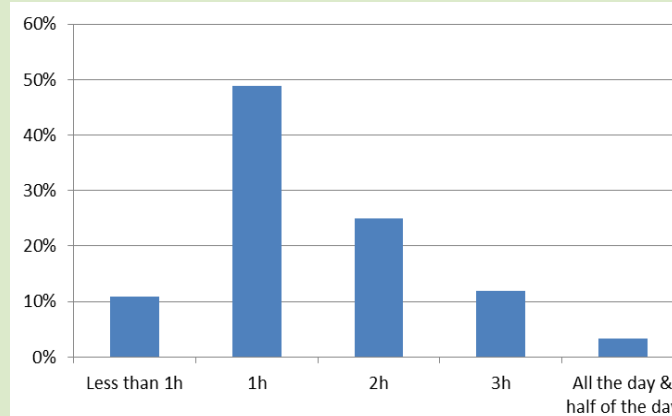

Provenance

Means of transportation

Visit frequeny

Visit duration

Results of econometric modeling

- Non-consumptive use value of the park is associated primarily with **cultural ecosystem services rather than regulation ones**

- Given our Logit model a 5% level of error, the **visit frequency per year** and the **age** influence positively to the probability of WTP for enjoying the park.

- The probability of **WTP** is **lower** when people come for the **contact with nature** rather than for sport events.

- A similar conclusion can be drawn when they **walk** instead of using motorized vehicles.

Significativity	Significative variables of Logit Model	Marginal contribution to the probability of paying for an increase of 1%
At a level of 5%	Visit per year	+1.70%
	Age	+3.22%
	Contact with nature	-10.60%
	Foot	-71.46%

Results of econometric modeling

- Tobit model suggests that **age and sport events** are the only determinants of the amount users are willing to pay

- Be aged a supplementary year increases the value of the park on 32 cents while attributing an extra point for sports events increases the value on € 9.53. These values are in € of 2013

- With this model we tried to estimate the value the park for the one average person of our survey. The value was determined from characteristics of our sample modelled by choosing an average person in our sample

- With the significant variables, it was determined that the value attributed to the park by an average person is equal to € 16.36

- If we consider our sample as representative of Troyes' population, the value of this park is estimated as € 980,000. For the agglomeration (130,000 inhabitants), it is more than € 2 millions.

Results of econometric modeling & local government interview

Three exploratory surveys were carried out with administrative representatives of the Troyes municipality, of the agglomeration and of the public association responsible for working on a significant planning document (*Schéma de coherence urbaine – SCOT*).

These questionnaires aimed at appreciating how public actors consider parks in the "urban fabric" and if they take into account the multi-functionality of parks through for example ecosystem services.

- **Ecosystem services and benefits are not yet really integrated in the urban planning documents**; they are differently apprehended and prioritized by stakeholders, who do not use the same grid of analysis.

- **Contact with nature and the isolation from noise pollution are particularly highlighted even in a medium-sized city.**

- Ecosystem services and biodiversity continuity through blue and green networks as **a good opportunity to cross expertise and fields**: environmental protection, urban planning as well to make public officers and population sensitive to the "common" nature.

Local government previewed budget of € 210,000 for 2015 to develop Parc des Moulins (maison des maraîchers, new trails, vegetalised parking, recreation and pedagogical equippment).

Thank you for your attention !
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Results of Logit model

Depend variables : Ready to pay			
Variable	Coefficient	Standard Error	Z-Statistic	Probability
MALE	1.205770	0.633148	1.904405	0.0569
AGE	0.085429	0.026967	3.167916	0.0015
AMOUNTVISIT	0.044994	0.022684	1.983535	0.0473
DISTANCE	-2.74E-06	0.000209	-0.013128	0.9895
TIMESPENT	0.003150	0.009940	0.316898	0.7513
NATURE	-0.281228	0.143379	-1.961425	0.0498
FESTIVE EVENTS	3.101192	2.163877	1.433165	0.1518
PEDAGOGICAL	-0.452886	0.311740	-1.452771	0.1463
PATRIMONIAL	0.172054	0.284140	0.605524	0.5448
SOUND ISOLATION	0.369607	0.273525	1.351271	0.1766
OTHER	2.611526	1.357879	1.923239	0.0545
PUBLIC TRANSPORTS	-2.512619	1.944466	-1.292189	0.1963
FOOT	-1.895821	0.895927	-2.116045	0.0343
Constant	-1.723122	1.630318	-1.056924	0.2905

Results of Tobit model

Variable	Coefficient	Standard Error	Z-Statistic	Probability
Dependent Variable: Willingness to Pay				
MALE	5.847639	4.836169	1.209147	0.2266
AGE	0.325555	0.126564	2.572263	0.0101
AMOUNTVISIT	0.240446	0.175230	1.372175	0.1700
DISTANCE	-0.000228	0.001574	-0.145111	0.8846
TIMESPENT	0.032781	0.090994	0.360258	0.7187
PEDAGOGICAL	0.306322	1.800664	0.170116	0.8649
PATRIMONIAL	-2.045942	2.342117	-0.873544	0.3824
NATURE	-0.851129	1.150407	-0.739850	0.4594
FESTIVE EVENTS	-1.050586	2.615796	-0.401632	0.6880
SOUND ISOLATION	1.507662	1.926390	0.782636	0.4338
SPORTS	9.533948	3.579729	2.663316	0.0077
OTHER	8.594898	8.703331	0.987541	0.3234
PUBLIC TRANSPORTS	-9.336200	15.21586	-0.613583	0.5395
FOOT	-5.116578	8.625224	-0.593211	0.5530
C	-11.99868	11.84196	-1.013234	0.3109