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# THE IMPACT OF PUBLIC FACILITY SETTING CONFLICT ON RESIDENTIAL HOUSE VALUES IN PARIS'S SUBURBAN ZONES

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# Research context

Public facility setting decisions are frequently opposed by local inhabitants

How market's expectation is made ?

# Plan of the presentation

- I. Research question
- II. Presentation of three study cases
- III. Models and results
- IV. Discussion

# I. Research questions

- How market behaves against a conflict ?

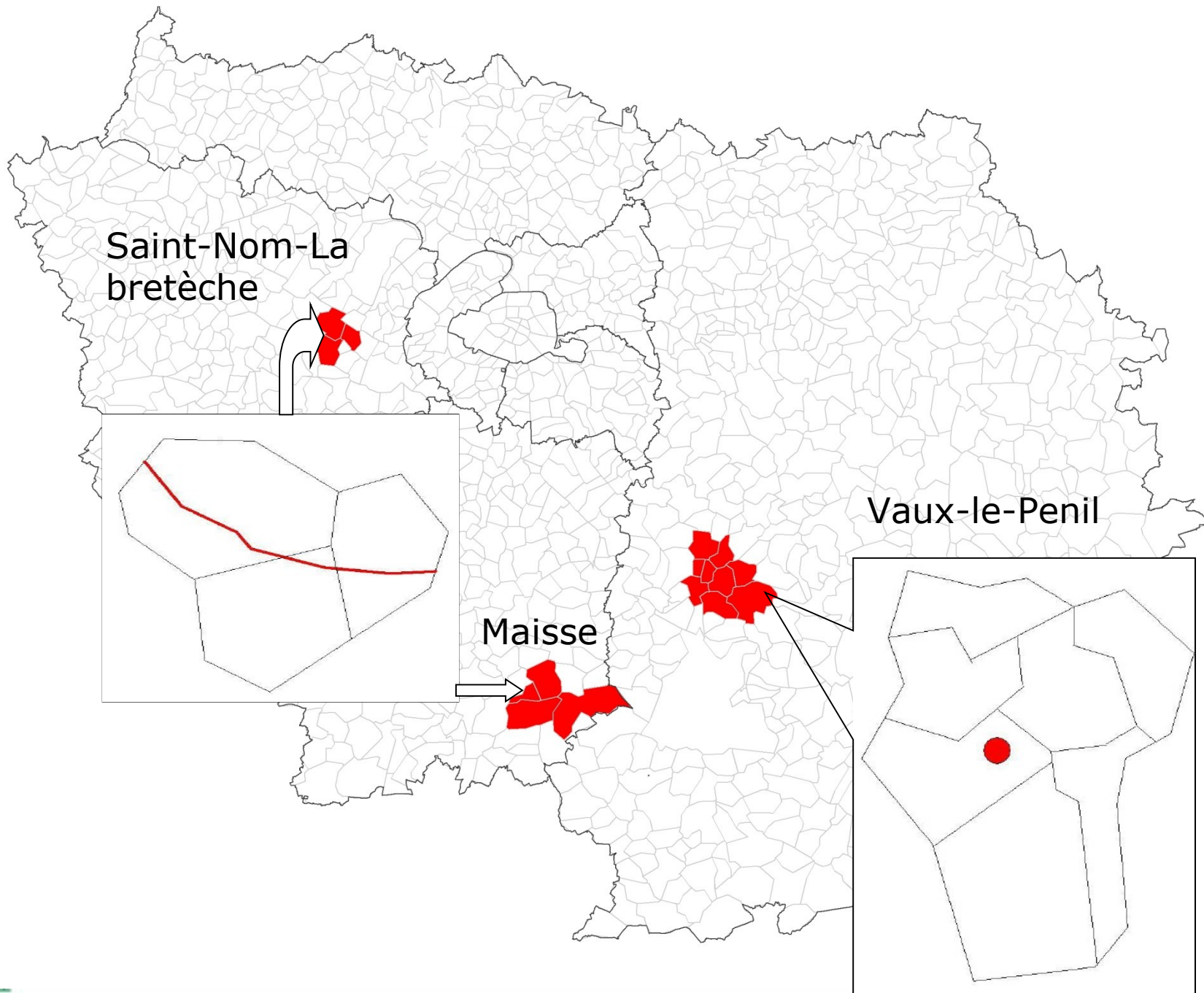
How house market react against the conflict events? Which factors can explain such reactions ?

# Two basic assumptions

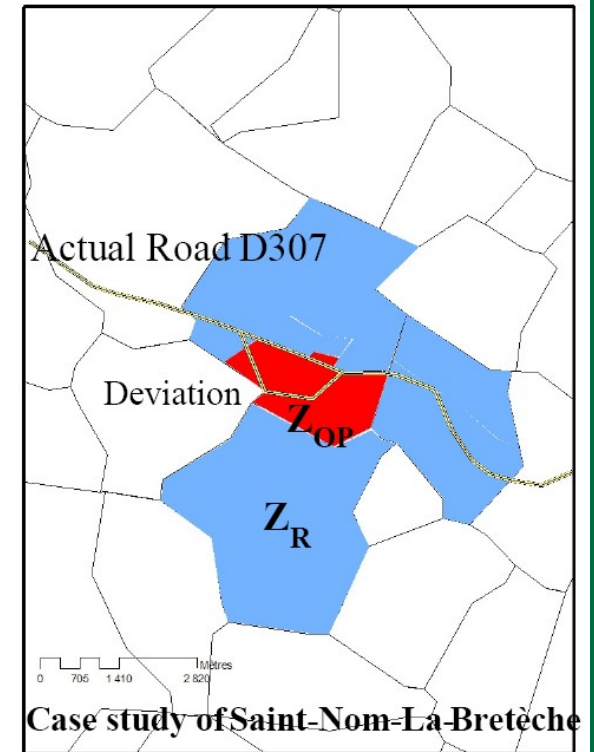
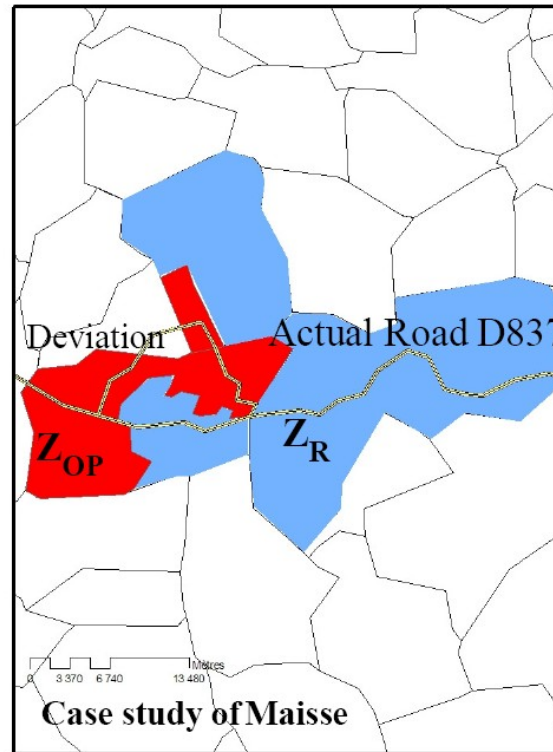
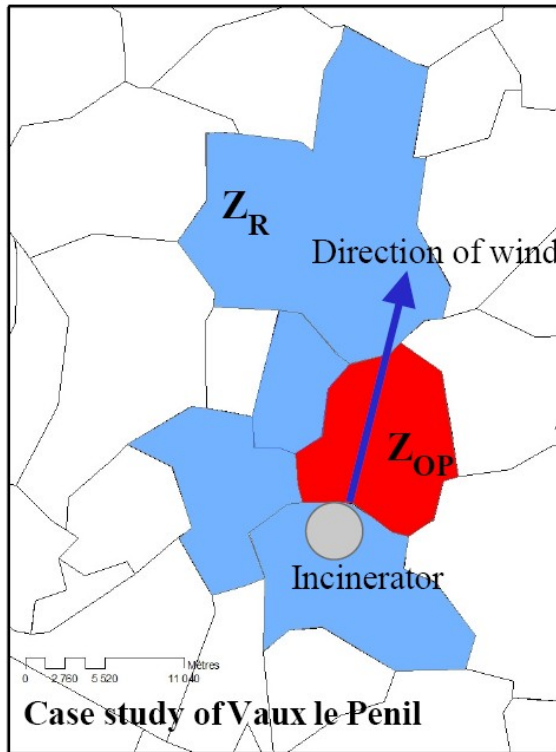
- A public decision does not mean automatically the implementation of project
- Property market behaves rationally against new information (Muth, 1964).

# II. Presentation of study cases

3 STUDY CASES



# The three study cases in details





# Table of conflict periods

Case 1: Vaux-le-Penil – 4 dummies  
(3 reclaims at TA, and the reference of no conflict)

Av_Conflict (Non conflict)	Claim1 (Conflict)	Claim2 (Conflict)	Claim3 (Conflict)	Service_Date (No conflict)
03/2001- 01/2002	08/2001- 01/2003	02/2002- 01/2003	02/2003- 08/2003	09/2003- 12/2005

Maise: 4 dummies,  
(3 conflicts due to appeal procedure, and 1 reference)

Av_Conflict (Non conflict)	TA (Conflict)	CAA (Conflict)	CE (Conflict)
01/2004- 08/2004	09/2004- 06/2006	06/2006- 06/2007	07/2007- 12/2008

Saint-nom-la-bretèche : 2 dummies,  
(1 reclaim at TA, and 1 reference)

Av_Conflict (Non conflict)	TA (Conflict)	APTA (Non conflict)
01/2004- 01/2005	02/2005- 9/2006	10/2006- 12/2006

# III. Hedonic model

- Period under study:  
Project's official announce – end of opposition
- Methodology

Creating time and spatial dummies in regard to the conflict.

Conflict Time dummies: legal claim at tribunal.

Conflict Spatial dummies: determine the geographic zoning of the opponents

# III. Hedonic Model

$$\text{LnDP} = \beta_H \theta + F(K_H) + \sum_{j=1}^j \gamma_j C_j + \sum_{i=1}^i \alpha_i Z_i + \sum_{j=1}^j \sum_{i=1}^i \omega_{ij} C_j Z_i + \varepsilon$$

In which:

LnDP = logarithm of the deflated sale price.

$K_H$ : the multidimensional vector of the house's characters.

The conflict time impact is controlled by the dummies  $C_j$

The conflict location impact is controlled by the dummies  $Z_i$

The interaction of time location impact is controlled by the dummies  $C_j Z_i$  (*interaction terms*)

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	9,92	0,09		106,73	0,00***		
lnNbRoom	0,54	0,03	0,49	17,13	0,00***	0,76	1,31
lnSurfT	0,16	0,01	0,31	11,33	0,00***	0,83	1,21
Cellar	0,03	0,02	0,04	1,39	0,16	0,86	1,17
Nb_Parking_0	-0,07	0,02	-0,09	-3,41	0,00***	0,90	1,12
Nb_Parking_2	-0,03	0,03	-0,03	-1,07	0,28	0,90	1,11
HOU_MV	0,12	0,07	0,04	1,58	0,12	0,80	1,25
HOU_VI	0,17	0,13	0,03	1,24	0,21	0,97	1,03
HOU_NA	-0,04	0,02	-0,05	-2,06	0,04	0,93	1,07
LEVEL_2	0,07	0,02	0,10	3,35	0,00***	0,69	1,45
LEVEL_3	0,15	0,04	0,12	3,95	0,00***	0,65	1,53
LEVEL_4	0,49	0,23	0,05	2,08	0,04**	0,95	1,05
EPO_AV47	0,03	0,03	0,03	1,02	0,31	0,63	1,57
EPO_1980_2000	0,00	0,02	0,00	0,10	0,92	0,66	1,52
EPO_AP2000	0,09	0,06	0,04	1,57	0,12	0,78	1,28
EPO_NA	0,00	0,02	0,00	-0,05	0,96	0,62	1,62
MOT_SPC_SALE	-0,07	0,03	-0,07	-2,60	0,01***	0,93	1,07
RENT_HOUSE	-0,07	0,05	-0,04	-1,39	0,16	0,98	1,02
ZONE_OP	0,01	0,04	0,01	0,33	0,74	0,61	1,64
Recours_1	0,04	0,03	0,03	1,29	0,20	0,87	1,15
Recours_2	0,03	0,02	0,04	1,29	0,20	0,84	1,19
Recours_3	-0,02	0,03	-0,02	-0,64	0,52	0,85	1,18
Zone Op Recours1	0,01	0,13	0,00	0,08	0,94	0,83	1,20
Zone Op Recours2	-0,16	0,07	-0,07	-2,24	0,03**	0,67	1,48
Zone Op Recours3	-0,09	0,10	-0,02	-0,85	0,39	0,81	1,24

Dependent Variable: lnDPrice  
Adjusted R2 : 0,493

Tab. 4 V aux-le-Penit case regression

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	10,34	0,11		93,11	0,00***		
LnNbRoom	0,47	0,05	0,43	9,48	0,00***	0,57	1,76
LnSurfT	0,11	0,02	0,29	6,99	0,00***	0,68	1,47
Cellar	0,02	0,03	0,02	0,61	0,54	0,89	1,13
Nb_Parking_0	-0,07	0,03	-0,10	-2,68	0,01***	0,85	1,17
Nb_Parking_2	0,02	0,04	0,02	0,51	0,61	0,90	1,11
HOU_MV	0,01	0,08	0,00	0,07	0,94	0,86	1,16
HOU_VI	0,16	0,07	0,08	2,15	0,03**	0,93	1,08
HOU_NA	0,02	0,03	0,02	0,66	0,51	0,86	1,16
LEVEL_2	0,11	0,03	0,16	3,46	0,00***	0,58	1,73
LEVEL_3	0,13	0,06	0,09	2,13	0,03**	0,63	1,58
EPO_1980_2000	0,01	0,04	0,01	0,37	0,71	0,75	1,33
EPO_AP2000	0,11	0,08	0,05	1,37	0,17	0,91	1,10
EPO_NA	-0,05	0,03	-0,07	-1,70	0,09	0,77	1,30
MOT_SPC_SALE	-0,12	0,04	-0,11	-3,07	0,00***	0,91	1,10
RENT_HOUSE	0,00	0,10	0,00	-0,05	0,96	0,94	1,06
Z_Op	-0,09	0,06	-0,10	-1,43	0,15	0,23	4,40
TA	-0,01	0,03	-0,01	-0,24	0,81	0,53	1,89
CAA	0,00	0,04	0,00	-0,09	0,93	0,56	1,79
CE	0,02	0,04	0,02	0,52	0,61	0,56	1,80
ZOp_TA	-0,01	0,08	-0,01	-0,15	0,88	0,33	3,07
ZOp_CAA	0,01	0,09	0,01	0,14	0,89	0,42	2,38
ZOp_CE	-0,17	0,10	-0,08	-1,70	0,09*	0,48	2,06

Dependent Variable: LnDprice  
adjusted R2=0,495

Tab.5 Maisse Case Regression

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	10,33	0,11		92,84	0,00***		
LnNbRoom	0,82	0,05	0,46	15,86	0,00***	0,72	1,38
LnSurfT	0,10	0,02	0,17	6,35	0,00***	0,85	1,17
Cellar	0,16	0,03	0,12	4,68	0,00***	0,92	1,09
Nb_Park_0	0,03	0,03	0,03	0,97	0,33	0,83	1,21
Nb_Park_2	0,20	0,03	0,17	6,29	0,00***	0,83	1,21
HOU_MV	-0,07	0,21	-0,01	-0,36	0,72	0,98	1,02
HOU_VI	0,17	0,06	0,07	2,66	0,01***	0,89	1,12
HOU_NA	0,06	0,03	0,06	2,20	0,03**	0,87	1,15
LEVEL_2	0,02	0,04	0,02	0,50	0,62	0,34	2,90
LEVEL_3	-0,23	0,05	-0,21	-4,88	0,00***	0,34	2,98
LEVEL_4	-0,05	0,30	0,00	-0,18	0,86	0,98	1,03
EPO_AV47	0,27	0,09	0,08	3,03	0,00***	0,84	1,19
EPO_1980_2000	0,23	0,04	0,18	5,83	0,00***	0,65	1,54
EPO_AP2000	0,35	0,06	0,15	5,50	0,00***	0,84	1,19
EPO_NA	0,13	0,03	0,15	4,64	0,00***	0,62	1,62
MOT_SPC_SALE	-0,08	0,05	-0,04	-1,48	0,14	0,94	1,06
RENT_HOUSE	-0,08	0,08	-0,03	-1,04	0,30	0,97	1,03
Z <sub>Op</sub>	0,25	0,10	0,10	2,50	0,01***	0,39	2,56
CONFLICT	0,01	0,03	0,01	0,51	0,61	0,89	1,13
Z <sub>Op</sub> _CONFLICT	0,02	0,13	0,01	0,14	0,89	0,39	2,55

Dependent Variable: lnDPrice  
adjusted R2=0,597

Tab.6 Saint-Nom-la-Bretèche case Regression

# Results

Decline de 16%  
after the legal  
claim asking for  
public urgent  
intervention  
against pollution

Case 1: Vaux-le-Penil – 4 dummies (3 reclaims at TA, and the reference of)			
Av_Conflict (Non conflict)	Claim1 (Conflict)	Claim2 (Conflict)	e_Date (Conflict)
03/2001- 01/2002	08/2001- 01/2003	02/2002- 01/2003	03- 05

Decline de 17%  
after the  
judgement of the  
appeal court  
which maintains  
the project

Maise: 4 dummies, (3 conflicts due to appeal procedure, and 1 refero)			
Av_Conflict (Non conflict)	TA (Conflict)	CAA (Conflict)	CE (Conf)
01/2004- 08/2004	09/2004- 06/2006	06/2006- 06/2007	07/20 12/20

Saint-nom-la-bretèche : 2 dummies, (1 reclaim at TA, and 1 reference)		
Av_Conflict (Non conflict)	TA (Conflict)	APTA (Non conflict)
01/2004- 01/2005	02/2005- 9/2006	10/2006- 12/2006

# IV. Synthesis

Vaux le Penil			Maise			Saint-nom-la-bretèche		
	Out-of-conflict periode	Conflict period		Out-of-conflict periode	Conflict period		Out-of-conflict periode	Conflict period
Out-of-conflict zone	No Impact	No Impact	Out-of-conflict zone	No Impact	No Impact	Out-of-conflict zone	No Impact	No Impact
Conflict zone	No Impact	House value during conflict	Conflict zone	No Impact	House value fall at the last conflict	Conflict zone	No Impact	No Impact



# Elements of discussion

- Market's expectation is depending on the information certainty.

The conflict is an invested activity of opponents -> degree of certainty

# 1 – The mechanism of expectation

The expected impact is the product of:

- the estimation by the population of the negatives impacts, and
- a degree of certainty of the impacts: the to-be-realized-chance of the project

$$\text{Exp (Impact)} = \text{Estimated Full Impact} * \text{Probability}$$

The product of these two factors means that a project can at the same time have a potentially big impact (a) but will be not considered by the market until there is certainty about its implementation (b)

## 2 – Credibility (probability) of information

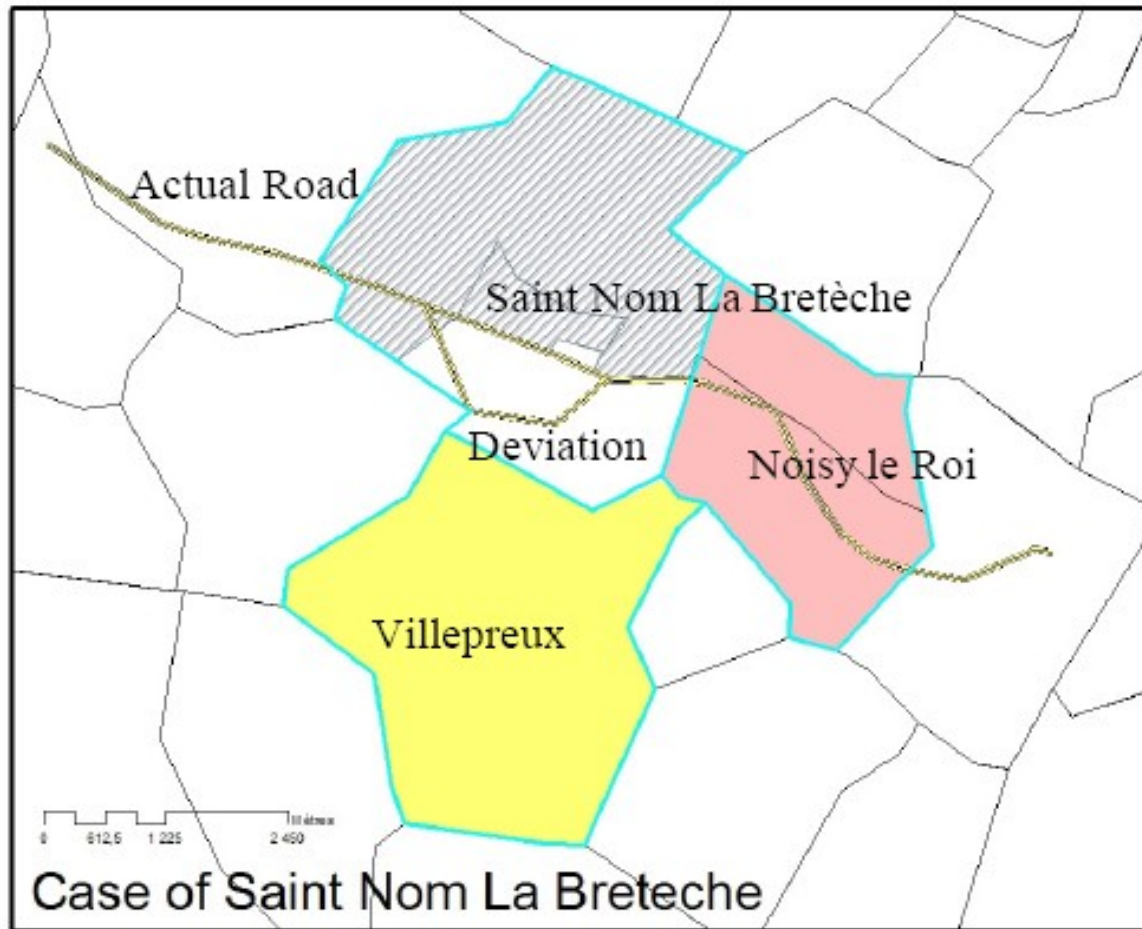
Conflict signal may play a double role in information diffusion:

- Firstly, conflict conveys information but also rumors expansion (meaning non official message including wrong information) to future buyers and sellers of houses. In this role, it amplifies the belief of project's implementation.
- The second role is linked with the deterring power of conflict, as suggested by game theorist (Schelling, 1960).
- From this point of view, the conflict is seen as a kind of message sent by a group of actors to the others in order to make explicit their opposition (Kirat and Torre, 2007). Conflict means here engagement to fight against the project, so its non-implementation.

Thank you for your attention

# Nouveau model

$$\ln DP = \beta_H 0 + F(K_H) + \sum_1^i T_i D + \varepsilon$$



	NOISY LE ROI		VILLEPREUX		SAINT NOM LA BRETECHE	
	Unstandardized Coefficients		Unstandardized Coefficients		Unstandardized Coefficients	
	B	Sig.	B	Sig.	B	Sig.
(Constant)	10,30	0,00***	10,52	0,00***	10,32	0,00***
ln_NbRoom	0,62	0,00**	0,31	0,00***	0,42	0,00***
ln_SurfT	0,25	0,00**	0,21	0,00***	0,25	0,00***
Cellar	0,08	0,09	0,09	0,01***	0,03	0,39
NbParking_0	0,01	0,85	-0,02	0,56	-0,01	0,76
NbParking_2	0,03	0,68	0,08	0,04**	0,06	0,08*
HOU_MV	0,05	0,83	0,19	0,27	-	-
HOU_VI	-0,01	0,89	0,04	0,57	0,15	0,04**
HOU_NA	0,10	0,01**	0,01	0,66	0,03	0,38
LEVEL_2	-0,12	0,08	0,03	0,45	0,12	0,02**
LEVEL_3	-0,13	0,12	-0,04	0,25	0,15	0,03**
LEVEL_4	-	-	0,12	0,49	-	-
EPO_AV47	-0,23	0,15	0,60	0,00***	0,03	0,76
EPO_1980_2000	0,05	0,41	0,17	0,00***	0,04	0,49
EPO_AP2000	-0,03	0,71	-	-	0,09	0,22
EPO_NA	-0,07	0,16	0,05	0,01***	0,02	0,61
RENT_HOUSE	-0,25	0,04**	0,11	0,11	-0,02	0,83
MOT_SPC_SALE	-0,06	0,43	-0,14	0,00***	-0,17	0,08*
AVDUP_Dist	0,08	0,05**	-0,15	0,00***	0,04	0,38
AVTA_Dist	0,03	0,76	-0,14	0,01***	-0,06	0,59
TA_Dist	0,14	0,00***	-0,10	0,01***	-0,02	0,31
APTA_Dist	0,05	0,72	-0,05	0,56	-0,08	0,63
	Adjusted R2=0,729 (151 transactions)		Adjusted R2=0,653 (301 transactions)		Adjusted R2=0,663 (213 transactions)	