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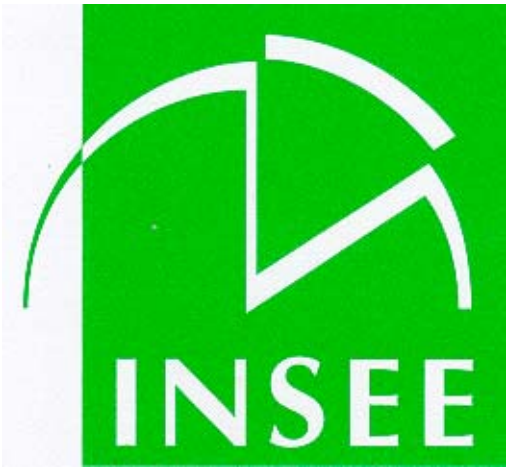

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Abstract

Objective: Because scientists and policy makers now acknowledge the relationship between living in a moldy dwelling and health, prevalence of moldy dwellings and risk factors should be better known.
Design: A French nationally representative survey performed by trained interviewers using a face-to-face validated questionnaire. The questionnaire included items on housing characteristics and socio-economic variables. Besides, data on local meteorological variables were gathered. The logistic regression analysis related reported indoor mold to each predictive variable.
Participants: Among the target population, 32,000 (79%) agreed to participate.
Results: Among housing characteristics, 9 happened to be statistically significantly related to moldy surfaces: type of building, building age, heating system, cold in dwelling during last 12 months, seepage/flooding in dwelling during the last 12 months, number of rooms, low storey level and frontage and / or windows in poor condition. Among socio-economic variables, 6 turned out to be significant predictors: young age, overcrowding, low living standard, tenancy, labour force participation and short time of residence. Meteorological data, which demonstrated relevance, were number of days of rainfall and mean outdoor temperature.
Conclusion: In this large national French survey, dampness in housing was reported in 24% of households. It is by far the most prevalent defect in housing. It is a multi-factorial issue. Some predictive variables might be altered. Others are related to building age and occupant's behaviour. Future surveys should focus on the relevance of living habits.

Keywords: dampness, housing, household characteristics, rainfall, temperature, health.

Résumé

Objectifs : vivre dans un logement humide ayant des conséquences négatives sur la santé des occupants qui sont aujourd'hui bien connues des scientifiques et des pouvoirs publics, cette étude cherche à mesurer la prévalence des problèmes d'humidité dans l'habitat et à en analyser les facteurs explicatifs.
Méthode : on s'appuie ici sur les résultats de l'enquête Logement réalisée en 2002 par l'Insee. Il s'agit d'une enquête par sondage réalisée auprès d'un échantillon représentatif de ménages résidant en France métropolitaine. Les entretiens ont eu lieu en face-à-face et ont été menés par des enquêteurs professionnels. Le questionnaire, qui avait fait l'objet de tests préliminaires et dont le contenu a été validé par le Comité du Label du Conseil national de l'information statistique (Cnis), portait sur les caractéristiques socio-démographiques des ménages et sur leurs conditions de logement. Les fichiers de l'enquête ont été enrichis de données climatologiques. Des modèles de régression logistique ont permis de mettre en évidence les principaux facteurs de la présence de signes d'humidité sur les murs du logement. Les régressions logistiques ont fait intervenir trois types de prédicteurs : des variables relatives à la consistance et à la qualité de l'habitat, des variables socio-démographiques, et des variables liées à la localisation – dont les variables climatiques.
Taux de réponse : 32 000 ménages, soit 79 % des ménages échantillonnés, ont accepté de répondre.
Résultats : Au sein des variables relatives à l'habitat, se sont avérées significatives : le type d'immeuble, son époque de construction, la présence de problèmes de chauffage, le type de système de chauffage, le nombre de pièces, l'étage, l'état de la façade et celui des fenêtres. Les variables socio-démographiques significatives sont l'âge de la personne de référence du ménage, sa participation au marché du travail, le niveau de vie du ménage, le statut d'occupation du logement, l'ancienneté d'occupation du logement et son degré de peuplement. Les données climatiques qui se sont avérées pertinentes sont la température moyenne extérieure et le nombre de journées de précipitations.
Conclusion : cette grande enquête nationale permet d'estimer à près d'un quart la proportion des ménages qui souffrent de problèmes d'humidité dans leur logement. L'humidité est de très loin le problème de qualité de l'habitat rencontré le plus fréquemment, parmi ceux qui ont été étudiés dans l'enquête. La question de savoir si la fréquence de certaines activités pratiquées par les ménages à l'intérieur de leur logement impacte de manière significative la présence d'humidité mériterait de faire l'objet de recherches ultérieures.

Mots-clefs : humidité, logement, habitat, caractéristiques socio-démographiques, climat, santé.

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Introduction

Numerous surveys have evaluated the relationship between damp housing and health. However, only recently expert groups (1, 2) and institutions (3) have concluded that there is an established link between them.
Thus, the magnitude of the problem should be evaluated and, in for the sake of prevention and correction, risk factors for damp housing should be better known. Although there are many published studies relating mite-allergen levels in dwellings to housing characteristics, there are very few on this issue.
We took advantage of a national survey performed in 2002 to investigate both the prevalence of humid dwelling and its risk factors.

Material and methods

Insee (the French statistical agency) conducted a national housing survey from December 2001 to February 2002. 32,000 households across mainland France were interviewed at their homes, on their housing conditions.

The methodology of the survey was approved by a board of experts (statisticians, demographs and social scientists) appointed by the National Council for Statistical Information (Conseil national de l'information statistique - CNIS). The board's function was to ascertain that the methodology agreed with the state of the art in household surveys. The investigations carried out by the board covered in particular the structure and wording of the questionnaire, sample design, data collection methods, and correction methods for non-response.

1. Questionnaire

Alongside household' and household members'characteristics, information was collected mainly on the following housing-related topics: construction age, size and type of building (block of flats/ single-family house) and size of dwelling, equipment and facilities, tenure, general condition of the house, and heating system.
The core of the questionnaire was roughly the same as that for the preceding Housing Surveys (a Housing Survey has been carried out by Insee every four or five years since 1955). The changes embodied in the 2002 questionnaire were the result of two pilot studies on 229 and 263 households conducted in November 2000 and in April-May 2001, respectively. The central question with regard to the present paper, the *GHUMI* question, was one of the newly inserted questions in 2002 questionnaire. It was worded as follows: "GHUMI – "*Are there signs of dampness on walls of your dwelling? (Excessive condensation, moisture, impaired covering…). Do not take into account water damage".*
Various variables, measured at township or district level, were added to the detailed database of the survey: altitude, a classification of townships and areas according to occupational status and sectors of activity of the workforce (4), and climatic variables, The climatic variables were averaged weather data collected by Météo-France over a thirty-year period (1970-2000) at some 3100 meteorological stations spread over France. The data covered summer and winter rainfall and temperature indicators. The values for the 3100 stations were subsequently interpolated (5) by spatial econometric methods, to generate values for all 36,000 townships. Another variable inserted in the files of the Housing Survey was "Urban unit size", measured in terms of the number of inhabitants. An "Urban unit" was defined as a

township or a cluster of townships in which there is a continuous built-up area of at least 2,000 inhabitants.

2. Sample design

The Housing Survey sample was primarily a sample of dwellings. The sampling frame consisted of two Master-Frames: one for existing dwellings in 1999 drawn from the files of the 1999 census, and the other for dwellings completed since 1999, drawn from the register of building licenses. The drawing of the two Master-Frames involved several stages (details in Appendix A), in order to ensure that the resulting two sampling frames were balanced in terms of urban unit size, age structure of the population, and net taxable income. The 2002 Housing Survey sample resulted from a one-stage-drawing in the two Master-Frames, according to probabilities in Table 1. Overall, 45,000 and 3000 dwellings were drawn in the Master-Frames for existing dwellings and that for newly built dwellings respectively.

3. Data collection

An interviewer appointed by Insee visited each address in the sample. Before working on the Housing Survey, interviewers had to attend training sessions and were accompanied in the field by a supervisor. Second homes and vacant dwellings (at the time of the survey) were ineligible. Amongst the remaining main dwellings, 79 % of households (32,000) accepted to be interviewed. On average, each interview lasted 47 minutes. The role of the interviewer was limited to recording the informant's answers: no measurement requiring measure devices were undertaken.

4. Computation of weights

Each respondent household was initially allocated a weight equal to the inverse of its sampling probability, e.g. main dwellings (at the 1999 census) had an initial weight of 648 (cf. supra).
Because non-response behaviour differed across household and dwelling types, the initial weights were corrected thanks to a calibration method (6). The calibration altered the initial weights so as to minimize some distance between the initial weights and the corrected weights, subject to the restriction that the corrected weights be consistent with information available in the sampling frames (e.g. the distribution of dwellings according to building types). The large sample size allowed the use of many variables for the purpose of calibration. For the dwellings drawn in the Master-Frame for existing dwellings, these included the following: dwelling type (house / flat), dwelling category at the 1999 census (main / second / vacant), building period, number of rooms, urban unit size, tenure (at the 1999 census), number of household members, age and employment status of the reference person. Thus the weighted sample was balanced along these lines, at a national scale.
Sampling variances were computed for some of the variables of interest - including the *GHUMI* question - taking into account both the multi-stage design of the survey, the non-response process and the calibration procedure (appendix B).

5. Methods

Data were analysed using both univariate and multivariate techniques, using the SAS system, release 8. Univariate techniques included (unweighted) Pearson Chi-square tests of independence and (weighted) cross-tabulations of the *GHUMI* variable with factors that might be related to dampness. Unweighted

Pearson chi-square tests of independence were preferred to weighted tests, for the use of weights would have lowered the significance levels artificially. Multivariate analyses involved logistic regression models, with explanatory variables being kept if they were statistically significant ($p<0.05$) in a preliminary regression. Equations were run for all main dwellings (flats and houses altogether) first, and subsequently separately for flats on the one hand and one-family houses on the other.

The explanatory variables were of the following types: house-related characteristics, household and household members'characteristics, location factors (climatic and neighbourhood or area variables). Some of the socio-demographic variables, such as household composition and ages of household members, were intended to serve as proxies for living habits that might affect dampness (such as shower use or clothes washing frequencies).

Results

The response rate was equal to 79%. Overall, 23.8% of households reported signs of dampness on walls. Dampness was by far the main defect reported in housing (7).

1. Univariate analyses

The Pearson chi-square tests of independence resulted in significance levels as low as .0001 for 46 of the 51 the variables tested, the significance level for the remaining 5 variables laying above .05 (appendix C).

a) Building and dwelling-related factors

Detailed cross-tabulation results are available in appendix D. Residents of dwellings built before 1949 reported signs of dampness almost three times as frequently as those of dwellings built between 1990 and 2002 (odds-ratio = 3.89). The contrasts in terms of reported dampness were somewhat weaker for all the other housing conditions variables surveyed. There was nonetheless a statistically significantly increased risk of reported dampness, in poorly oriented or poorly heated dwellings (households with no heating system were twice as likely to report signs of dampness as those who had collective central heating), in houses with windows, wiring or frontage in bad condition. The presence of a cellar, a basement or an underground parking place all lowered the risk of reported dampness. There was a statistically significant risk of dampness in smaller blocks of flats and in flats located on the ground floor (odds-ratio = 1.50), and detached houses were less affected by dampness than semi-detached ones. Double-glazing and air-conditioning both reduced the risk of reported dampness. However, air-conditioning was found in only 1.4 % of main dwellings.

b) Household and household members'characteristics

The prevalence of reported dampness varied considerably with the age of the household's reference person, with tenure, household type and composition, income, and labour force participation of household members. Older households reported signs of dampness much less frequently than younger ones. Private and social sector renters were almost twice as likely to report signs of dampness as outright owners and mortgagers. The prevalence of reported dampness increased with the number of household members and with the number of children. Signs of dampness were reported 2.4 times as frequently in severely over-crowded dwellings as they were in very severely under-crowded ones. Lone-parent families were 1.5 times as likely to report dampness as other households, and the prevalence of

dampness for the lowest 30 p.c. section of households in terms of equivalized income amounted to 1.67 times that for the highest 30 p.c. Non-Europeans and those born outside Europe reported signs of dampness much more frequently than respondents of European ascent. Reported dampness was also found to be lower for households who moved in their current dwelling more than twelve years before the survey.

c) Location factors

The risk of reporting dampness increased with the number of days of rainfall in winter and decreased with the amount of rainfall in summer. It decreased with altitude and average summer temperature. Urban Unit size was found to affect dampness marginally, rural households reporting signs of dampness more frequently than their urban counterparts.

2. Multivariate analyses

Most dwelling characteristics analysed above were found significant at the 0.05 level (table 2 – detailed results in Appendix E). Exceptions were the presence of double-glazing and that of a car park. As far as socio-demographic factors were concerned, the crowding index, household type, equivalized income, tenure, age of household reference person, and number of household members in the labour force were found to be statistically significant, but the number of children, marital status, nationality and country of birth were not.

Most rainfall and temperature variables were also found to impact dampness significantly, all other things being equal. Altitude no longer had any significant impact, after controlling for climatic, socio-demographic, and housing condition characteristics.

Detailed regression results are to be found in Appendix E.

Discussion

In this large national housing survey, high humidity was reported in 24% of dwellings. The survey highlighted as risk factors variables related to the building itself, some occupants' characteristics and climatic conditions.

The sampling size, sample design and sampling frame used in this survey are likely to provide valid estimates. The interviewers were provided detailed oral and written instructions and attended briefing and training sessions. The same questionnaire had been used in previous national surveys, apart from a few questions (including that on high humidity), which had been previously validated in 2 pilot surveys.

At the best of our knowledge, results on prevalence of dampness on a nationwide basis had been published so far in only one survey (8). 35% of respondents were reported to have noticed mold in at least one room of their house. However, the survey had been performed by telephone, the response rate was only equal to 50.5% and no correction had been undertaken to allow for differing non-response behaviour across social groups. Other surveys, reviewed in (2), performed over small-scale geographical areas, with varying criteria for defining dampness, provided prevalence rates of dampness ranging between 5 to 38%. No objective measurement of humidity was undertaken, and individual perceptions of what makes up signs of dampness may vary across social groups, however.
From our survey, several risk factors exhibited significant associations to reported high humidity.

A first group related to housing conditions. Age of the building was the stronger determinant for reported high humidity, all other building characteristics being taken into account. Its relevance is likely to be

linked to the building practices and the building materials used. It has previously been acknowledged as a risk factor for mold in housing (8, 9) and for a high mite-allergen level in dwellings (10). The “type of building” variable accounted for the number of dwellings in the building (in the case of block of flats) or the way the house was grouped with neighbouring buildings (in the case of one-family houses). Reported humidity was high for private houses, maximum for detached houses and went down when the number of dwellings increased. For flats, it was higher on the ground floor than on higher levels. Previous surveys have reported higher house-dust mite allergen content in detached houses compared to apartments (11, 12). The absence of a proper heating system is likely to be linked to the poor quality of the building, especially the absence of insulation (13) and to a poor maintenance. The presence of a cellar and the orientation of the living room were of borderline statistical significance while the presence of double-glazing had no statistical significant effect. A protective effect of a cellar or a basement has been reported in studies relating mite-allergen levels to housing characteristics (14-16). Double-glazing had a non-statistically significant trend to lower asthma symptoms (9). In the New-Zealand survey (8), sun on house turned out to have a protective effect on dampness.

The second set of variables showing a relationship to reported dampness relates to occupants’ characteristics. The crowding index, but not the number of occupants nor the number of children, was strongly linked to damp housing. This relationship is most likely to be explained by an increased production of water vapour without proper ventilation. Our survey did not include questions about ventilation. In our survey, the heating system, especially using an auxiliary heating, was strongly related to damp housing. Indeed, auxiliary heating is generating carbon monoxide but also large amount of water vapour. The relationship between the number of residents and mold in housing (8) and the number of children and mite-allergen levels has previously been reported (17). The crowding index may also be correlated to omitted variables. The other significant variables, namely equivalized income, length of residence at the current dwelling, number of household members in the labour force, tenure and age of the reference person were related to the household income or had bearing to the way of living. Poor households, often constrained in financial terms in their housing choices, reported more frequently than richer ones not only signs of dampness, but also various house-related disorders such as the absence of an earth socket, inappropriate insulation of wiring, cold in the dwelling, or absence of basic facilities (7). A New Zealand national study on housing (8) reported that various behaviours generating water vapour (frequency of baths, showering and clothes washing) were independently related to mold in housing.

The last set of variables related to damp housing were climatic data. Number of days in winter with a temperature below –5°C, number of rainy days in winter, low mean temperature in summer and number of rainy days in summer were all correlated to a damp housing. The influence of outdoor climatic variables on indoor dampness had been evaluated out in the New-Zealand survey (11) but turned out not to be statistically significant in a multivariate analysis. Altitude, which had a protective effect in univariate analyses in our survey, was not any longer statistically significant in the multiple logistic regressions.

Conclusion

In this large, representative national survey, 24% of households reported signs of dampness in their dwelling. Several groups of risk factors acted as independent risk factors for the occurrence of dampness. Most of these risk factors do not lend themselves to modification. However, both occupants and professionals i.e. architects, builders, designers and occupants should be aware of these issues, in order to take steps to prevent the occurrence of dampness Additional surveys are needed to better understand the relationship between living habits and damp housing.

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Tables

Table 1: Sampling frame of the survey

Dwelling type:	Sampling probability
1. Dwellings in the 1999 census Master-Frame	
- main dwellings (at the 1999 census)	1 / 648
- second dwellings	1 / 1295
- vacant dwellings in urban townships	1 / 648
- vacant dwellings in rural townships	1 / 971
2. Dwellings in the Master-Frame for New Dwellings	1 / 200

Table 2: Statistical significance in logistic regressions of factors affecting reported indoor dampness (insignificant variables were discarded)

		Df	Wald Chi-Square	Prob. Wald
	Building and dwelling-related factors			
typimm	Type of building	6	40.93	<.0001
IAA1	Period at which the property was built	5	321.56	<.0001
KMOD1	Heating system	5	70.45	<.0001
KMOD2	Use of ancillary heating devices	1	22.16	<.0001
GCHAUF	Cold in dwelling at least 1 day during 12 preceding months	1	187.41	<.0001
GFACE	Frontage in good / bad condition	4	301.95	<.0001
GINOA	Seepage / flooding in dwelling during 12 preceding months	1	754.29	<.0001
GVIT2	Windows in good / bad condition	2	278.04	<.0001
HNPH1	Number of rooms	5	45.44	<.0001
iel2	Floor	2	53.00	<.0001
	Household characteristics			
KIP	Crowding index	5	51.30	<.0001
MRDUC1	Living standard	9	44.89	<.0001
MAA1AT	How long the household has been living in the dwelling	4	45.55	<.0001
SEC1	Tenure	9	282.21	<.0001
MAGTR	Age of the reference person	4	87.02	<.0001
MPA	Nr of household members in labour force	2	14.68	0.001
	Location factors			
jpluie-ete	Nr of days of rainfall in summer	3	11.41	0.010
jpluie_hiv	Nr of days of rainfall in winter	3	10.31	0.016
jtmin_hiv	Nr of days in winter with a temperature below -5°C	3	58.41	<.0001
ttemp_ete	Mean temperature in summer	3	15.95	0.001
TYPSEQ	Social classification of neighbourhood	27	62.97	0.000
zone	Urban unit size	6	23.31	0.001

Appendix A: Summary description of the sample design for the Master-Frame of existing dwellings at the 1999 census (MF)

The drawing of the 1999-based Master-Frame involved several stages. “Urban units” and clusters of rural municipalities were used as primary sampling units (PSUs). All urban units having more than 100,000 inhabitants were drawn with a probability equal to unity. The two-stage design for the drawing of the other primary sampling units involved both stratification and clustering (in order to keep collection costs at an acceptable level). The first stratifier used was Region. The second was “urban unit size” (20,000 to 100,000 inhabitants / Less than 20,000 inhabitations / Primary sampling units made of rural municipalities). Within each of the corresponding 66 strata (for there are 22 regions), primary sampling units were drawn with a probability proportional to the number of main dwellings surveyed at the 1999 census. Then, PSUs (having more than 20,000 inhabitants) were split up into districts, and the design for the selection of districts made use of stratification, according to the age structure of the population and net taxable income, thus ensuring that the resulting sample of districts was a balanced one ex post, on a national scale, with respect to these criteria.

Put together, these selected dwellings, plus all dwellings in PSUs made of rural municipalities or urban units comprising less than 20,000 inhabitants, made up the Master-Frame of existing dwellings.

Appendix B: 2002 Housing Survey Standard-Error Estimates

(Computed by Sébastien Hallépée, of the Insee Statistical Methods Unit)

Variable(s) involved	Label	Estimate	Stand. error	95 % conf. interval - lower bound	95 % conf. interval - upper bound	Coeff. of varia-tion (%)	Design effect
Dwellings by category (in thousands)							
HCLO	Main dwellings	24 525	60	24 407	24 643	0,24	2,039
HCLO	Second dwellings	2 944	63	2 821	3 067	2,14	5,265
HCLO	Vacant dwellings	2 667	38	2 593	2 741	1,42	1,176
HCLO	Total number of dwellings	29 495	14	29 468	29 522	0,05	0,985
Frequencies (in thousands)							
MNP1	Household population	58 592	176	58 247	58 937	0,30	1,321
SEC1	Homeowners	13 724	54	13 618	13 830	0,39	1,637
SEC1	HLM and other social sector renters	4 231	30	4 172	4 290	0,71	1,197
SEC1	Renters in the private sector	5 075	46	4 985	5 166	0,91	1,241
XLN	Landlords in the private sector	1 778	41	1 698	1 858	2,31	1,304
XS	Households having a second home	1 432	36	1 361	1 503	2,51	1,257
OLA	Households dissatisfied with their accomodation	1 764	38	1 690	1 839	2,15	1,223
SEC1	Renters under the protection of the 1948 Act	246	16	214	277	6,51	1,333
LBA	Renters with no written lease contract	670	27	617	722	4,03	1,486
MAGTR	Households with ref. person less than 25 years'old	1 210	29	1 153	1 267	2,40	1,177
MAGTR	Households with ref person aged 25 to 29	1 742	35	1 673	1 811	2,01	1,170
MAGTR	Households with ref. person aged 65 or more	6 357	46	6 267	6 447	0,72	1,221
MRDUC1	Households in the lowest two income deciles	4 905	67	4 774	5 036	1,37	1,586
SEC1/MRDUC1	HLM renters in the lowest two income deciles	1 340	29	1 283	1 397	2,16	1,150
SEC1/MRDUC1	Private sector renters in the lowest two income deciles	1 283	34	1 217	1 350	2,65	1,431
SAA1	Recent mortgagers (purchase later than 1st January 1997)	2 328	42	2 246	2 410	1,80	1,255
Averages							
MRTOTA	Income (€ per annum)	27 310	141	27 034	27 586	0,52	1,721
LMLM/SEC1	Rent in HLM sector (€ per month)	299	2	295	303	0,67	1,224
LMLM/SEC1	Rent in private sector (€ per month)	426	3	419	432	0,77	1,382
MNP1	Number of household members	2,389	0,005	2,379	2,399	0,21	1,092

Variable(s) involved	Label	Estimate	Std error	95 % conf. interval - lower bound	95 % conf. interval - upper bound	Coeff. of variation	Design effect
Shares (percentage points)							
SEC1	Homeowners	56,0	0,2	55,6	56,4	0,36	1,236
OLA	Households dissatisfied with their accomodation	7,2	0,2	6,8	7,6	2,78	1,213
SEC1	HLM (social sector) renters	17,3	0,1	17,1	17,4	0,58	1,178
SEC1	Renters in the private sector	20,7	0,2	20,3	21,1	0,97	1,215
XLN	Landlords in the private sector	7,2	0,2	6,9	7,6	2,76	1,299
SEC1	Social sector renters / All renters	45,5	0,3	44,9	46,1	0,66	1,242
SEC1	Private sector renters / All renters	54,5	0,3	53,9	55,1	0,55	1,242
LBA	Renters with no written lease contract / All renters	7,2	0,3	6,6	7,8	4,17	1,502
LPBA	Renters experiencing difficulties to pay the rent / Renters	13,9	0,4	13,2	14,7	2,87	1,304
SEC1	Renters under the protection of the 1948 Act / Renters	2,6	0,2	2,2	3,0	7,57	1,347

Appendix C: Unweighted Pearson Chi-Square Tests of Independance

Of the GHUMI variable with the following variables:

Variable	Label	DF	Value	Signif. level
Building-related factors				
typimm	Type of building	6	360.35	<.0001
IAA1	Period at which the builiding was completed	5	1258.63	<.0001
KMOD1	Heating system	5	378.43	<.0001
KMOD2	Use of ancillary heating devices	1	136.17	<.0001
GCHAUF	Cold in dwelling at least 1 day during 12 preceeding months	1	1022.74	<.0001
KOR1	Orientation of living-room	3	108.64	<.0001
GFACE	Frontage in good / bad condition	4	1945.24	<.0001
GINOA	Seepage / flooding in dwelling during 12 preceeding months	1	1696.87	<.0001
GVIT1	Double-glazing	1	475.58	<.0001
GVIT2	Windows in good / bad condition	2	1895	<.0001
HAUT	Ceiling height	1	78.7	<.0001
HNPH1	Number of rooms	15	114.21	<.0001
KCA	Presence of a cellar	1	18.01	<.0001
KGA	Presence of a car park	3	396.42	<.0001
IEL	Floor	23	77.28	<.0001
KCLIM1	Presence of air conditioning system	2	11.06	0
KCLIM2	Type of air conditioning system	1	0.87	0.35
KCLIM3	Reversible air conditioning	1	3.64	0.06
Other indicators of good / poor housing conditions (which, presumably, are not source of dampness)				
GELEC2	Is Wiring flushed in?	2	1366.3	<.0001
GELEC3	Presence of an earth socket	1	144.36	<.0001
GENTR2	Cracks in the floor (into which someone may tumble)	1	431.46	<.0001
OLA	Household's overall satisfaction with dwelling	4	2841.41	<.0001
Household characteristics				
KIP	Crowding index	5	320.65	<.0001
MNE	Number of children in the household	10	213.17	<.0001
enf0_3	Nr of children aged 0 to 3 years	3	107.26	<.0001
enf3_6	Nr of children aged 3 to 6 years	3	42.41	<.0001
MNP1	Number of inhabitants in the dwelling	11	149.78	<.0001
MTY1A	Household Type	3	157.18	<.0001
MRDUC1	Equivalized income decile	9	546.91	<.0001
MAA1AT	How long has the household been living in the dwelling?	13	65.31	<.0001
SEC1	Tenure	9	941.72	<.0001
MAGTR	Age of the reference person	4	333.61	<.0001
MCOHAB	Reference person has a partner?	1	2.27	0.13
MCS8	Socio-Profess. Status (Ref. Person)	7	393.7	<.0001
MMATRI	Marital Status (Ref. Person)	3	181.47	<.0001
MNATIOR	Nationality (Ref. person)	11	81.78	<.0001
mimmigr	Migrant (Ref. Person)	2	15.09	0
MPA	Labour-Force Participation (Ref. Person)	6	200.87	<.0001
MPAO	Employment Status (Reference Person)	5	77.66	<.0001
Location factors				

TYPSEQ	Social Classif. of Neighbourhood	27	551.65	<.0001
zone	Size of "urban unit"	6	58.38	<.0001
ZUS	« Zone urbaine sensible », ie. deprived urban area	1	58.42	<.0001
hpluie_ete	Amount of rainfall in Summer	3	50.92	<.0001
hpluie_hiv	Amount of rainfall in Winter	3	7.94	0.05
jpluie_ete	Nr of days of rainfall in Summer	3	44.5	<.0001
jpluie_hiv	Nr of days of rainfall in Winter	3	103.87	<.0001
jtmax_ete	Nr of days in Summer with a temperature exceeding 30°C	3	59.58	<.0001
jtmin_hiv	Nr of days in Winter with a temperature below -5°C	3	108.83	<.0001
ttemp_ete	Mean temperature in Summer	3	88.38	<.0001
ttemp_hiv	Mean temperature in Winter	3	4.54	0.21
ALTMAI	Township altitude (measured at town hall)	4	78.12	<.0001

Appendix D: Detailed cross-tabulation results

typimm(Type of building)	% with signs of damp.	relative risk	odds ratio
One-family houses - Detached	20.3	1.12	1.15
One-family houses - Semi-detached	29.7	1.64	1.90
One-family houses - other	26.6	1.47	1.64
2 dwellings	31.3	1.72	2.05
3 to 9 dwellings	30.5	1.68	1.98
10 to 49 dwellings	22.1	1.22	1.28
50 dwellings or more	23.8	1.00	1.00
IAA1(Completion period of the building)	% with signs of damp.	relative risk	odds ratio
Before 1949	33.8	2.91	3.89
From 1949 to 1974	23.1	1.99	2.28
From 1975 to 1989	17.0	1.46	1.55
In 1990 or after	11.6	1.00	1.00
KMOD1(Heating system)	% with signs of damp.	relative risk	odds ratio
Individual central heating	21.9	1.13	1.17
District heating	19.3	1.00	1.00
Collective central heating	21.1	1.09	1.11
Mixed heating	22.2	1.15	1.19
Electric heating	25.1	1.30	1.40
None of the above means	38.2	1.97	2.58
KMOD2(Heating by means other than those referred to in the KMOD1 question)	% with signs of damp.	relative risk	odds ratio
Yes	27.6	1.28	1.38
No	21.6	1.00	1.00
GCHAUF(Did you experience cold in dwelling at least one day over the last 12 months ?)	% with signs of damp.	relative risk	odds ratio
Yes	48.0	2.26	3.42
No	21.3	1.00	1.00
KOR1(Orientation of living-room)	% with signs of damp.	relative risk	odds ratio
South	22.0	1.00	1.00
West	25.1	1.14	1.19
East	25.4	1.16	1.21
North	27.9	1.27	1.37
GFACE(Frontage in good/bad condition)	% with signs of damp.	relative risk	odds ratio
Very good	13.1	1.00	1.00
Good	19.0	1.45	1.56
Reasonably good, with stains	30.2	2.31	2.88
Second-rate, with open splits or damaged coating	44.1	3.38	5.26
Bad, tumbledown building	59.2	4.54	9.67

GINOA(Percolation of water / flooding in dwelling during 12 preceeding months)	% with signs of damp.	relative risk	odds ratio
Yes	46.1	2.32	3.45
No	19.8	1.00	1.00
GVIT1(Double-glazing)	% with signs of damp.	relative risk	odds ratio
Yes	19.7	1.00	1.00
No	29.8	1.52	1.74
GVIT2(Windows in good/bad condition)	% with signs of damp.	relative risk	odds ratio
Good	17.6	1.00	1.00
Poor	30.4	1.73	2.05
Bad	47.8	2.72	4.29
HAUT(Ceiling height)	% with signs of damp.	relative risk	odds ratio
Less than 3 meters	23.2	1.00	1.00
3 meters or more	29.8	1.29	1.41
HNPH1(Number of rooms)	% with signs of damp.	relative risk	odds ratio
1	23.1	1.13	1.16
2	26.6	1.30	1.41
3	26.0	1.27	1.36
4	24.1	1.18	1.23
5	22.3	1.09	1.11
6 or more	20.5	1.00	1.00
KCA(Presence of a cellar)	% with signs of damp.	relative risk	odds ratio
Yes	22.4	1.00	1.00
No	25.5	1.14	1.19
KGA(Parking place)	% with signs of damp.	relative risk	odds ratio
Yes, a garage or a closed underground parking place	20.3	1.35	1.44
Yes, an unclosed underground parking place	15.0	1.00	1.00
Yes, outside, on the premises of the building	25.2	1.68	1.90
No	28.8	1.92	2.29
IEL(Floor)	% with signs of damp.	relative risk	odds ratio
Ground floor	30.8	1.34	1.50
1st floor or higher	22.9	1.00	1.00
Range: flats			
KCLIM1(Air-conditioning)	% with signs of damp.	relative risk	odds ratio
Yes	16.4	1.00	1.00
No	23.9	1.46	1.60

GELEC2(Is wiring flushed-in ?)	% with signs of damp.	relative risk	odds ratio
Yes, the whole wiring is flushed-in	19.6	1.00	1.00
Part of the wiring is not flashed-in, but that part is protected by tubes	36.4	1.85	2.34
Not enterely flushed-in and some wires are not insulated	57.3	2.92	5.50
GELEC3(Presence of an Earth socket)	% with signs of damp.	relative risk	odds ratio
Yes	23.4	1.00	1.00
No	42.3	1.81	2.40
GENTR2(Cracks in the floor (into which someone may tumble))	% with signs of damp.	relative risk	odds ratio
Yes	60.3	2.60	5.04
No	23.2	1.00	1.00
OLA(Household's assessment of accomodation)	% with signs of damp.	relative risk	odds ratio
Very Satisfied	12.2	1.00	1.00
Fairly satisfied	21.1	1.72	1.92
Neither satisfied nor dissatisfied	36.8	3.01	4.17
Slightly dissatisfied	51.3	4.20	7.57
Very dissatisfied	68.4	5.60	15.57
KIP(Crowding index for the dwelling)	% with signs of damp.	relative risk	odds ratio
Very severely under-crowded	19.3	1.00	1.00
Severely under-crowded	20.6	1.07	1.08
Slightly under-crowded	23.8	1.23	1.31
Normally crowded	28.1	1.45	1.63
Slightly over-crowded	28.7	1.49	1.68
Severely over-crowded	45.4	2.35	3.47
MNE(Number of children)	% with signs of damp.	relative risk	odds ratio
0	21.4	1.00	1.00
1	27.4	1.28	1.39
2	27.5	1.28	1.39
3	31.7	1.48	1.70
4 or more	33.2	1.55	1.83
enf0_3(number of children aged less than 3 years)	% with signs of damp.	relative risk	odds ratio
0	23.0	1.00	1.00
1	32.3	1.40	1.60
2 or more	38.0	1.65	2.05
enf3_6(Number of children aged 3 to 6 years)	% with signs of damp.	relative risk	odds ratio
0	23.3	1.00	1.00
1	29.7	1.27	1.39

2 or more	30.4	1.31	1.44
MNP1(Number of household members)	% with signs of damp.	relative risk	odds ratio
1	21.4	1.00	1.00
2	21.9	1.02	1.03
3	26.3	1.23	1.31
4	27.2	1.27	1.37
5	29.3	1.37	1.52
6 or more	34.3	1.60	1.91
MTY1A(Household Type)	% with signs of damp.	relative risk	odds ratio
One person living alone	21.4	1.00	1.00
Two or more unrelated persons	27.0	1.26	1.36
Lone-parent with dependant children	34.7	1.62	1.95
Married or unmarried couple, with or without dependent children	23.8	1.11	1.14
MRDUC1(Equivalized income* - deciles)	% with signs of damp.	relative risk	odds ratio
Lower 3 deciles	30.4	1.67	1.96
Deciles 4 to 7	23.1	1.27	1.35
Top 3 deciles * Income divided by the number of consumption units, computed as follows: 1.0 unit for the first adult + 0.5 unit for any subsequent adult or child aged at least 14 + 0.3 units for any child aged less than 14.	18.2	1.00	1.00
MAA1AT(How long the household has been liiving in the dwelling)	% with signs of damp.	relative risk	odds ratio
Less than 1 year	22.0	1.00	1.00
From 1 year to (less than) 4 years	26.9	1.22	1.31
From 4 years to (less than) 8 years	25.7	1.17	1.23
From 8 years to (less than) 12 years	24.8	1.13	1.17
12 years or more	22.0	1.00	1.00
SEC1(Tenure)	% with signs of damp.	relative risk	odds ratio
Outright owner	17.9	1.29	1.36
Mortgager - housing benefit or subsidized loan recipient	13.9	1.00	1.00
Other mortgager	21.3	1.53	1.68
HLM Renter	28.9	2.09	2.53
Other social sector Renter	31.4	2.26	2.84
Private-sector Renter under the protection of the 1948 Act	40.1	2.89	4.16
Other Private Renter	32.9	2.37	3.04
Subrenter, lodger, furnished accomodation, hotel room	25.8	1.86	2.16
Farmer, sharecropper	23.9	1.72	1.95
Rent-free non owner	30.6	2.21	2.74

MAGTR(Age of reference person)	% with signs of damp.	relative risk	odds ratio
Less than 30 years	29.9	1.68	1.96
From 30 to 39 years	28.9	1.62	1.87
From 40 to 49 years	26.8	1.50	1.68
From 50 to 64 years	20.9	1.17	1.21
65 years or more	17.9	1.00	1.00
MCS8(Socio-occupational category - Ref. Person)	% with signs of damp.	relative risk	odds ratio
Farmers	31.1	1.74	2.08
Craftsmen, retailed or wholesale traders, firm owners and managers	22.5	1.26	1.34
Executives	21.6	1.22	1.27
Intermediate professions	24.9	1.40	1.53
Clerks	28.8	1.62	1.87
Manual workers	30.2	1.70	2.00
Pensioners	17.8	1.00	1.00
Other persons not in employment	25.5	1.43	1.58
MMATRI(Matrimonial Status of Reference Person)	% with signs of damp.	relative risk	odds ratio
Single	28.8	1.55	1.77
Married	22.3	1.20	1.26
Widowed	18.6	1.00	1.00
Divorced	25.6	1.37	1.50
MNATIOR(Nationality of Reference Person)	% with signs of damp.	relative risk	odds ratio
French - at birth	23.5	1.09	1.11
Was granted french citizenship	21.7	1.00	1.00
Other european nationality	24.8	1.15	1.19
Other non european nationality	35.5	1.64	1.99
MIMMIGR (Migrant / non-migrant household)	% with signs of damp.	relative risk	odds ratio
Non-migrant household	23.5	1.00	1.00
Mixed Household	25.4	1.08	1.11
Migrant household	27.0	1.15	1.20
A person is said to be migrant if he or she was born abroad and was not french at birth. A migrant household is a household in which both the reference person and his partner (if the ref. person has a partner) are migrants. A mixed household is one in which the reference person is a migrant and his partner is not, or vice-versa.			
MPA(Number of household members in Labour Force)	% with signs of damp.	relative risk	odds ratio
0	18.6	1.00	1.00
1	26.8	1.44	1.61
2	25.8	1.39	1.52
3 or more	27.5	1.48	1.66

MPAO(Number of employed household members)	% with signs of damp.	relative risk	odds ratio
0	20.7	1.00	1.00
1	26.4	1.28	1.38
2	25.0	1.21	1.28
3 or more	24.0	1.16	1.21
TYPSEQ(Social classification of neighbourhood)	% with signs of damp.	relative risk	odds ratio
Civil service, catering	23.7	1.13	1.17
Agriculture	28.2	1.34	1.47
Craftsmen, Unemployed, Deprived urban areas	25.6	1.22	1.29
Executives, High value-added services	21.1	1.00	1.00
Basic industry workers	27.8	1.32	1.44
Qualified industry workers	23.0	1.09	1.12
Semi-agricultural spaces	25.5	1.21	1.28
Technical intermediate professions	21.8	1.03	1.04
Range: dwellings completed before 1999 The classification aims at distinguishing “poor” and “rich” districts by grouping together districts that have broadly similar structures of the workforce in terms of professional status and sectors of activity (cf. Martin-Houssard et Tabart, 2002, Representation socio-économique du territoire: typologie des quartiers et communes selon la profession et l’activité économique de leurs habitants, France métropolitaine, recensement de 1999, Insee, Working Paper n° F0208). For instance, "Executives, High value-added services" stands for those areas where the proportion of executives in the workforce, and the proportion of the labour force working in high valued-added service industries are highest.			
ZUS ("zone urbaine sensible", ie. deprived urban area)	% with signs of damp.	relative risk	odds ratio
No	23.5	1.00	1.00
Yes	29.1	1.24	1.34
Urban Unit size	% with signs of damp.	relative risk	odds ratio
Rural township - not counter-urbanized	29.2	1.40	1.56
Rural township - counter-urbanized	25.9	1.24	1.33
Urban township - Less than 100,000 inhbts	23.7	1.13	1.18
Urban township - above 100,000 inhbts	20.9	1.00	1.00
Paris urban unit	24.5	1.18	1.23
hpluie_ete(amount of rainfall in Summer)	% with signs of damp.	relative risk	odds ratio
1. Less than 47	23.8	1.12	1.15
2. 47.1 to 52.0	25.6	1.20	1.27
3. 52.1 to 62.0	24.2	1.14	1.18
4. 62.1 or more	21.3	1.00	1.00
hpluie_hiv(amount of rainfall in Winter)	% with signs of damp.	relative risk	odds ratio
1. 0 to 51.2	24.0	1.06	1.08
2. 51.3 to 59.8	22.5	1.00	1.00

3. 59.9 to 73.4	23.9	1.06	1.08
4. 73.5 or more	24.9	1.11	1.14
jpluie_ete(Number of days of rainfall in Summer)	% with signs of damp.	relative risk	odds ratio
1. 0 to 6.6	21.3	1.00	1.00
2. 6.7 to 7.2	25.1	1.18	1.24
3. 7.3 to 8.1	24.7	1.16	1.21
4. 8.2 et +	24.3	1.14	1.18
jpluie_hiv(number of days of rainfall in Winter)	% with signs of damp.	relative risk	odds ratio
1. 0 to 9.8	19.7	1.00	1.00
2. 9.9 to 10.5	25.6	1.30	1.40
3. 10.6 to 11.5	24.4	1.24	1.31
4. 11.6 or more	25.7	1.30	1.41
ttemp_ete(Average temperature in Summer)	% with signs of damp.	relative risk	odds ratio
15.0 to 18.3 degrees Celsius	26.1	1.27	1.36
18.4 to 19.3	24.5	1.19	1.25
19.4 to 20.4	24.3	1.18	1.23
20.5 or more	20.6	1.00	1.00
ttemp_hiv(Average temperature in Winter)	% with signs of damp.	relative risk	odds ratio
3.3 or less	22.7	1.00	1.00
3.4 to 4.4	24.2	1.07	1.09
4.5 to 6.0	25.0	1.10	1.14
6.1 or more	23.6	1.04	1.05
jtmax_ete(Number of summer days with a temperature exceeding 30°C)	% with signs of damp.	relative risk	odds ratio
0 to 2.5	25.8	1.20	1.27
2.6 to 4.5	24.7	1.15	1.20
4.6 to 7.0	23.8	1.11	1.15
7.1 or more	21.5	1.00	1.00
jtmin_hiv(Number of winter days with a temperature lower than -5°)	% with signs of damp.	relative risk	odds ratio
0 to 1.5	24.9	1.24	1.32
1.6 to 2.4	24.3	1.22	1.28
2.5 to 3.9	26.6	1.33	1.45
4.0 or more	20.0	1.00	1.00
ALTMAI(Township altitude (at town hall))	% with signs of damp.	relative risk	odds ratio
1. 0 to 50	25.3	1.23	1.31
2. 51 to 100	25.2	1.22	1.30
3. 101 to 200	22.3	1.08	1.10
4. 201 to 350	21.1	1.02	1.03
5. 351 or more	20.6	1.00	1.00

Appendix E: Detailed Logistic Regression Results

1. Basic results

	All dwellings		Houses	Flats
	1st regr.	2nd regr.		
Number of Observations Read	32 156	32 156	19 225	12 931
Number of Observations Used	29 399	30 478	18 590	11 888
Model Fit Statistics				
AIC	26852.489	27704.686	16703.856	10890.179
SC	28261.57	28628.734	17526.046	11687.574
-2 Log L	26512.489	27482.686	16493.856	10674.179
Testing BETA=0 Chi-square stat.				
Likelihood Ratio	5693.1632	5832.7053	3626.985	13191.144
Score	5603.5413	5758.9994	3613.4706	13198.527
Wald	4267.5406	4392.4933	2723.371	13189.144
Testing BETA=0 Prob > Chi-square				
Likelihood Ratio	<.0001	<.0001	<.0001	0.0000
Score	<.0001	<.0001	<.0001	0.0000
Wald	<.0001	<.0001	<.0001	0.0000
Percent Concordant	77.9	77.8	78.3	78.7
Percent Discordant	21.8	21.9	21.4	21.0
Percent Tied	0.3	0.3	0.3	0.3

2. Type III Sums of Squares

		All dwellings – first regression			All dwellings – 2nd regression			Single-family Houses			Flats		
		Df	Wald Chi-Sq	Prob. > Wald	Df	Wald Chi-Sq	Prob. > Wald	Df	Wald Chi-Sq	Prob. > Wald	Df	Wald Chi-Sq	Prob. > Wald
	Building-related factors												
typimm	Type of building	6	29.09	<.0001	6	40.93	<.0001	2	8.21	0.017	3	27.60	<.0001
IAA1	Period at which the property was built	5	278.48	<.0001	5	321.56	<.0001	5	323.97	<.0001	5	30.17	<.0001
KMOD1	Heating system	5	71.15	<.0001	5	70.45	<.0001	5	21.20	0.001	5	68.52	<.0001
KMOD2	Use of ancillary heating devices	1	19.55	<.0001	1	22.16	<.0001	1	2.68	0.101	1	40.50	<.0001
GCHAUF	Cold in dwelling at least 1 day during 12 preceeding months	1	182.19	<.0001	1	187.41	<.0001	1	51.84	<.0001	1	126.19	<.0001
KOR1	Orientation of living-room	3	7.03	0.071	.	.	.	.	.	.	.	.	.
GFACE	Frontage in good / bad condition	4	290.54	<.0001	4	301.95	<.0001	4	201.10	<.0001	4	92.76	<.0001
GINOA	Seepage / flooding in dwelling during 12 preceeding months	1	712.12	<.0001	1	754.29	<.0001	1	401.16	<.0001	1	348.71	<.0001
GVIT1	Double-glazing	1	1.82	0.178	.	.	.	.	.	.	.	.	.
GVIT2	Windows in good / bad condition	2	221.72	<.0001	2	278.04	<.0001	2	204.32	<.0001	2	91.17	<.0001
HAUT	Ceiling height	1	3.81	0.051	.	.	.	.	.	.	.	.	.
HNPH1	Number of rooms	5	17.30	0.004	5	45.44	<.0001	5	6.24	0.284	5	47.43	<.0001
KCA	Presence of a cellar	1	3.08	0.079	.	.	.	.	.	.	.	.	.
KGA	Presence of a car park	3	1.13	0.770	.	.	.	.	.	.	.	.	.
iel2	Floor	2	48.81	<.0001	2	53.00	<.0001	0	.	.	2	50.60	<.0001
ICO	One-family house / Condominium / single owner	1	0.00	0.968	.	.	.	.	.	.	.	.	.
	Household and neighbourhood characteristics												
KIP	Crowding index	5	16.41	0.006	5	51.30	<.0001	5	14.56	0.012	5	30.57	<.0001
MNE	Number of children	3	2.38	0.498	.	.	.	.	.	.	.	.	.
enf0_3	Nr of children aged 0 to 3 years	2	2.84	0.242	.	.	.	.	.	.	.	.	.
enf3_6	Nr of children aged 3 to 6 years	2	0.38	0.827	.	.	.	.	.	.	.	.	.
MNP1	Number of inhabitants in the dwelling	4	4.21	0.379	.	.	.	.	.	.	.	.	.
MTY1A	Household Type	2	0.85	0.655	.	.	.	.	.	.	.	.	.
MRDUC1	Equivalized income decile	9	38.60	<.0001	9	44.89	<.0001	9	25.24	0.003	9	31.36	0.000

		All dwellings – first regression			All dwellings – 2nd regression			Single-family Houses			Flats		
		Df	Wald Chi-Sq	Prob. > Wald	Df	Wald Chi-Sq	Prob. > Wald	Df	Wald Chi-Sq	Prob. > Wald	Df	Wald Chi-Sq	Prob. > Wald
MAA1AT	How long the household has been liiving in the dwelling	4	51.03	<.0001	4	45.55	<.0001	4	25.24	<.0001	4	28.11	<.0001
SEC1	Tenure	9	236.29	<.0001	9	282.21	<.0001	9	200.84	<.0001	9	56.24	<.0001
MAGTR	Age of the reference person	4	42.31	<.0001	4	87.02	<.0001	4	26.81	<.0001	4	77.75	<.0001
MCS8	Socio-Professionnal Classification (Ref. Person)	7	11.37	0.123	.	.	.	.	.	.	.	.	.
MMATRI	Marital Status (Ref. Person)	3	6.79	0.079	.	.	.	.	.	.	.	.	.
MNATIOR	Nationality (Ref. person)	11	13.55	0.259	.	.	.	.	.	.	.	.	.
mimmigr	Migrant (Ref. Person)	2	3.61	0.164	.	.	.	.	.	.	.	.	.
MPA	Nr of household members in Labour Force	2	6.35	0.042	2	14.68	0.001	2	7.61	0.022	2	12.23	0.002
MPAO	Nr of household members in employment	2	3.01	0.222	.	.	.	.	.	.	.	.	.
TYPSEQ	Social Classification of Neighbourhood	27	58.33	0.000	27	62.97	0.000	27	53.19	0.002	27	37.15	0.092
zone	City size	6	21.59	0.001	6	23.31	0.001	6	23.65	0.001	6	9.30	0.157
zus	« Zone urbaine sensible », ie. deprived urban area	1	1.27	0.259	.	.	.	.	.	.	.	.	.
	Climatic factors												
jpluie_ete	Nr of days of rainfall in Summer	3	9.91	0.019	3	11.41	0.010	3	10.11	0.018	3	15.91	0.001
jpluie_hiv	Nr of days of rainfall in Winter	3	10.11	0.018	3	10.31	0.016	3	10.40	0.016	3	5.85	0.119
jtmax_ete	Nr of days in Summer with a temperature exceeding 30°C	3	1.59	0.661	.	.	.	.	.	.	.	.	.
jtmin_hiv	Nr of days in Winter with a temperature below -5°C	3	24.47	<.0001	3	58.41	<.0001	3	54.31	<.0001	3	6.95	0.074
ttemp_ete	Mean temperature in Summer	3	14.61	0.002	3	15.95	0.001	3	10.25	0.017	3	5.87	0.118
ttemp_hiv	Mean temperature in Winter	3	1.74	0.629	.	.	.	.	.	.	.	.	.
ALTMAI	Altitude	4	2.88	0.579	.	.	.	.	.	.	.	.	.

3. Parameter Estimates

		All dwellings				Single-Family Houses				Flats			
		estim.	std err	Wald	Prob	estim.	std err	Wald	Prob	estim.	std err	Wald	Prob
Intercept		-0.354	0.080	19.6	<.0001	-2.112	23.028	0.0	0.927	-0.583	0.167	12.3	0.001
ICO	Type of building												
	Single-family House -Detached	0.272	0.095	8.2	0.004	-0.075	0.029	6.8	0.009	.	.	.	.
	Single-family House - Semi-Detached	0.455	0.095	23.0	<.0001	0.066	0.031	4.4	0.036	.	.	.	.
	Single-Family House - grouped	0.402	0.098	17.0	<.0001	.	.	.	.	.	.	.	.
	Block of flats - 2 flats	-0.043	0.092	0.2	0.644	.	.	.	.	0.361	0.087	17.4	<.0001
	Block of flats - 3 to 9 flats	-0.258	0.084	9.4	0.002	.	.	.	.	0.072	0.049	2.2	0.137
	Block of flats - 10 to 49 flats	-0.370	0.085	19.1	<.0001	.	.	.	.	-0.146	0.045	10.3	0.001
	Block of flats - 50 flats or more (Ref)	0.000				0.000				0.000			
IAA1	Period at which the property was built												
	Before 1948	0.591	0.049	144.2	<.0001	0.772	0.067	134.1	<.0001	0.180	0.079	5.2	0.023
	1949-1974	0.255	0.051	25.5	<.0001	0.305	0.071	18.6	<.0001	0.253	0.074	11.5	0.001
	1975-1981	-0.170	0.058	8.5	0.004	-0.188	0.079	5.7	0.017	-0.053	0.090	0.3	0.554
	1982-1989	-0.209	0.061	11.9	0.001	-0.234	0.080	8.6	0.003	-0.052	0.098	0.3	0.596
	1990-1998	-0.253	0.066	14.8	0.000	-0.261	0.088	8.7	0.003	-0.234	0.101	5.4	0.020
	After 1998 (Ref)	0.000				0.000				0.000			
KMOD1	Heating system												
	Individual central heating	0.006	0.046	0.0	0.897	1.502	23.028	0.0	0.948	0.031	0.060	0.3	0.608
	District heating	-0.318	0.092	12.1	0.001	1.593	23.030	0.0	0.945	-0.342	0.099	12.0	0.001
	Collective central heating	-0.286	0.054	28.2	<.0001	2.132	23.029	0.0	0.926	-0.306	0.059	26.6	<.0001
	Mixed Heating	0.187	0.157	1.4	0.235	-8.631	115.100	0.0	0.940	0.106	0.159	0.4	0.508
	Electric heating	0.200	0.049	16.8	<.0001	1.697	23.028	0.0	0.941	0.324	0.065	24.5	<.0001
	None of the above means (Ref)	0.000				0.000				0.000			
KMOD2	Use of ancillary heating devices												
	Yes	0.087	0.018	22.2	<.0001	0.037	0.022	2.7	0.101	0.212	0.033	40.5	<.0001
	No (Ref)	0.000				0.000				0.000			
GCHAUF	Cold in dwelling at least 1 day during 12 preceeding months												
	Yes	0.335	0.025	187.4	<.0001	0.265	0.037	51.8	<.0001	0.377	0.034	126.2	<.0001
	No (Ref)	0.000				0.000				0.000			
GFACE	Frontage in good / bad condition												
	Very good	-0.537	0.044	151.5	<.0001	-0.496	0.058	74.3	<.0001	-0.548	0.070	61.9	<.0001

	Good	-0.350	0.036	92.1	<.0001	-0.353	0.049	51.5	<.0001	-0.315	0.056	31.6	<.0001
	Reasonably good, with stains	0.020	0.036	0.3	0.574	0.087	0.049	3.2	0.072	-0.054	0.055	1.0	0.328
	Second-rate, with open splits or damaged coating	0.274	0.044	38.6	<.0001	0.338	0.059	32.8	<.0001	0.174	0.068	6.6	0.010
	Bad, tumbledown building (ref)	0.000				0.000				0.000			
GINOA	Seepage / flooding in dwelling during 12 preceeding months												
	Yes	0.521	0.019	754.3	<.0001	0.523	0.026	401.2	<.0001	0.526	0.028	348.7	<.0001
	No (Ref)	0.000				0.000				0.000			
GVIT2	Windows in good / bad condition												
	Good	-0.374	0.023	271.9	<.0001	-0.438	0.031	202.6	<.0001	-0.281	0.035	64.4	<.0001
	Reasonably good	0.028	0.025	1.3	0.262	0.083	0.034	6.0	0.014	-0.076	0.039	3.9	0.049
	Second-rate (Ref.)	0.000				0.000				0.000			
HNPH1	Number of rooms												
	1	-0.525	0.093	31.8	<.0001	-0.226	0.217	1.1	0.297	-0.559	0.118	22.5	<.0001
	2	-0.150	0.055	7.5	0.006	-0.070	0.103	0.5	0.497	-0.150	0.079	3.6	0.057
	3	0.052	0.040	1.7	0.189	-0.063	0.068	0.9	0.355	0.073	0.064	1.3	0.258
	4	0.190	0.037	25.6	<.0001	0.079	0.061	1.7	0.195	0.251	0.067	14.0	0.000
	5	0.240	0.048	25.4	<.0001	0.132	0.070	3.6	0.059	0.501	0.093	29.3	<.0001
	6 or more (Ref)	0.000				0.000				0.000			
iel2	Floor												
	Ground Floor	0.395	0.064	38.1	<.0001	.	.	.	.	0.377	0.065	33.7	<.0001
	First floor or higher	-0.032	0.060	0.3	0.598	.	.	.	.	-0.056	0.061	0.8	0.362
	Single-family house (Ref)	0.000				0.000				0.000			
KIP	Crowding index												
	Very severely under-crowded	-0.301	0.068	19.5	<.0001	-0.235	0.093	6.5	0.011	-0.452	0.166	7.4	0.006
	Severely under-crowded	-0.283	0.050	32.6	<.0001	-0.172	0.076	5.1	0.024	-0.336	0.089	14.3	0.000
	Mildly under-crowded	-0.180	0.042	18.1	<.0001	-0.089	0.072	1.5	0.218	-0.138	0.065	4.5	0.035
	Normally crowded	0.031	0.046	0.5	0.500	0.094	0.080	1.4	0.240	0.057	0.066	0.7	0.390
	Mildly over-crowded	0.318	0.068	21.8	<.0001	0.271	0.128	4.5	0.035	0.348	0.090	15.1	0.000
	Severely over-crowded (Réf)	0.000				0.000				0.000			
MRDUC1	Equivalized income												
	1st decile	0.193	0.047	16.9	<.0001	0.117	0.067	3.1	0.081	0.289	0.069	17.8	<.0001
	2nd decile	0.202	0.045	20.6	<.0001	0.227	0.058	15.0	0.000	0.205	0.071	8.3	0.004
	3rd decile	0.029	0.045	0.4	0.517	0.050	0.057	0.8	0.381	0.022	0.075	0.1	0.772
	4th decile	0.074	0.044	2.8	0.097	0.038	0.058	0.4	0.508	0.143	0.071	4.0	0.045
	5th decile	-0.006	0.045	0.0	0.901	0.037	0.056	0.4	0.509	-0.057	0.077	0.6	0.458
	6th decile	-0.074	0.046	2.6	0.108	-0.082	0.058	2.0	0.157	-0.053	0.077	0.5	0.494

	7th decile	-0.102	0.047	4.6	0.031	-0.085	0.060	2.0	0.157	-0.126	0.079	2.5	0.114
	8th decile	-0.077	0.048	2.5	0.113	-0.137	0.062	4.9	0.027	-0.005	0.080	0.0	0.951
	9th decile	-0.042	0.050	0.7	0.393	-0.004	0.062	0.0	0.948	-0.137	0.085	2.6	0.108
	10th decile (ref)	0.000				0.000				0.000			
MAA1AT	How long the household has been living in the dwelling												
	Less than 1 year	-0.230	0.046	25.4	<.0001	-0.204	0.071	8.4	0.004	-0.256	0.062	17.3	<.0001
	1 year to (less than) 4 years	-0.044	0.033	1.8	0.186	-0.006	0.049	0.0	0.904	-0.115	0.047	6.1	0.014
	4 years to (less than) 8 years	-0.021	0.036	0.3	0.565	-0.083	0.051	2.7	0.102	0.023	0.053	0.2	0.662
	8 years to (less than) 12 years	0.086	0.044	3.8	0.050	0.082	0.058	2.0	0.157	0.107	0.070	2.3	0.126
	12 years or more (Ref)	0.000				0.000				0.000			
SEC1	Tenure												
	Outright owner	-0.286	0.050	32.1	<.0001	-0.328	0.067	24.0	<.0001	-0.270	0.155	3.0	0.081
	Mortgager - housing benefit or subsidized loan recipient	-0.609	0.070	75.1	<.0001	-0.520	0.083	39.3	<.0001	-0.298	0.238	1.6	0.210
	Mortgager - neither housing benefit nor subsidized loan recipient	-0.225	0.056	16.3	<.0001	-0.173	0.071	5.9	0.015	-0.147	0.159	0.9	0.354
	HLM Renter	0.466	0.057	67.6	<.0001	0.628	0.095	43.7	<.0001	0.334	0.141	5.6	0.018
	Other social sector Renter	0.317	0.108	8.7	0.003	0.212	0.169	1.6	0.210	0.360	0.185	3.8	0.052
	Private-sector Renter under the protection of the 1948 Act	0.018	0.133	0.0	0.890	0.200	0.198	1.0	0.314	0.082	0.224	0.1	0.715
	Other Private Renter	0.320	0.049	42.4	<.0001	0.388	0.073	28.0	<.0001	0.297	0.137	4.7	0.031
	Subletting, in furnished accomodation, lodger	0.183	0.128	2.0	0.154	-0.068	0.300	0.1	0.822	0.285	0.188	2.3	0.129
	Farmer, sharecropper	-0.413	0.238	3.0	0.082	-0.413	0.250	2.7	0.098	-0.989	1.122	0.8	0.378
	Rent-free non owner (ref)	0.000				0.000				0.000			
MAGTR	Age of the reference person												
	18 to 29	0.314	0.046	47.6	<.0001	0.225	0.078	8.3	0.004	0.408	0.059	47.8	<.0001
	30 to 39	0.149	0.035	17.8	<.0001	0.070	0.050	1.9	0.165	0.271	0.052	27.1	<.0001
	40 to 49	0.082	0.034	5.8	0.016	0.115	0.045	6.6	0.010	0.098	0.055	3.2	0.073
	50 to 64	-0.187	0.032	33.7	<.0001	-0.126	0.043	8.6	0.003	-0.193	0.054	12.7	0.000
	65 or more (ref)	0.000				0.000				0.000			
MPA	Nr of household members in labour force												
	None	-0.099	0.036	7.4	0.007	-0.036	0.049	0.5	0.460	-0.183	0.057	10.3	0.001
	1	-0.012	0.024	0.2	0.631	-0.054	0.034	2.6	0.109	0.029	0.037	0.6	0.423
	2 or more (Ref)	0.000				0.000				0.000			

TYPSEQ	Social Classification of Neighbourhood[1]												
	ADPUB1	0.005	0.068	0.0	0.945	-0.106	0.111	0.9	0.341	0.194	0.099	3.8	0.051
	ADPUB3	0.059	0.086	0.5	0.490	0.126	0.200	0.4	0.528	0.264	0.107	6.0	0.014
	AGRI12	0.224	0.112	4.0	0.046	0.308	0.129	5.7	0.017	-0.194	0.395	0.2	0.623
	AGRI13	0.189	0.094	4.0	0.045	0.254	0.111	5.3	0.022	-0.154	0.401	0.1	0.701
	AGRI21	-0.212	0.130	2.7	0.102	-0.154	0.146	1.1	0.291	-0.541	0.444	1.5	0.223
	AGRI22	0.137	0.078	3.1	0.079	0.160	0.097	2.7	0.099	-0.080	0.277	0.1	0.772
	AGRI31	-0.093	0.097	0.9	0.340	-0.017	0.115	0.0	0.880	-0.557	0.329	2.9	0.090
	CHOMA1	-0.062	0.101	0.4	0.537	0.015	0.167	0.0	0.929	0.042	0.137	0.1	0.758
	CHOMA2	0.119	0.097	1.5	0.219	-0.029	0.184	0.0	0.877	0.309	0.123	6.3	0.012
	CHOMA3	-0.251	0.116	4.7	0.030	-0.385	0.247	2.4	0.118	-0.164	0.144	1.3	0.254
	CHOMA4	0.207	0.191	1.2	0.280	-1.121	0.531	4.5	0.035	0.598	0.220	7.4	0.007
	DIR1	-0.117	0.122	0.9	0.336	-0.567	1.051	0.3	0.589	0.050	0.145	0.1	0.732
	DIR3	-0.437	0.146	8.9	0.003	-0.115	0.408	0.1	0.779	-0.255	0.173	2.2	0.141
	DIR4	-0.047	0.099	0.2	0.634	0.179	0.178	1.0	0.315	0.039	0.129	0.1	0.761
	DIR5	-0.054	0.091	0.4	0.554	-0.014	0.150	0.0	0.927	0.033	0.127	0.1	0.794
	INDOUV1	0.069	0.083	0.7	0.406	0.197	0.103	3.7	0.055	-0.119	0.219	0.3	0.587
	INDOUV3	0.256	0.120	4.6	0.033	0.365	0.151	5.8	0.016	0.166	0.225	0.5	0.462
	INDOUV4	-0.013	0.108	0.0	0.904	0.005	0.140	0.0	0.970	0.115	0.198	0.3	0.562
	INDOUV5	0.102	0.080	1.6	0.200	0.148	0.114	1.7	0.196	0.181	0.131	1.9	0.169
	INDQ2	0.060	0.066	0.8	0.361	0.122	0.105	1.4	0.243	0.077	0.100	0.6	0.437
	INDQ3	0.032	0.086	0.1	0.710	0.066	0.106	0.4	0.534	0.224	0.210	1.1	0.286
	INDQ4	-0.103	0.069	2.2	0.134	-0.032	0.091	0.1	0.725	-0.131	0.152	0.7	0.391
	INDQ5	0.216	0.088	6.0	0.014	0.417	0.124	11.3	0.001	0.058	0.140	0.2	0.682
	N	-0.598	0.219	7.5	0.006	-0.390	0.311	1.6	0.210	-0.666	0.319	4.4	0.037
	SEMAG2	0.240	0.087	7.6	0.006	0.258	0.114	5.2	0.023	0.303	0.166	3.3	0.068
	SEMAG3	-0.033	0.065	0.3	0.611	0.002	0.086	0.0	0.986	0.011	0.166	0.0	0.946
	TEC2	0.045	0.061	0.5	0.464	0.080	0.086	0.9	0.351	0.136	0.121	1.3	0.262
	TEC3 (ref)	0.000				0.000				0.000			
zone	Urban Unit size												
	Paris urban unit (city + suburbs)	-0.050	0.074	0.5	0.498	-0.155	0.112	1.9	0.166	0.059	0.116	0.3	0.613
	100,000 to 200,000 inhbts	-0.120	0.064	3.5	0.062	-0.212	0.100	4.5	0.035	-0.061	0.097	0.4	0.528
	20,000 to 100,000 inhbts	-0.013	0.043	0.1	0.774	0.021	0.060	0.1	0.725	0.016	0.076	0.0	0.832

[1] cf. Martin-Houssard et Tabart, 2002, Representation socio-économique du territoire: typologie des quartiers et communes selon la profession et l'activité économique de leurs habitants, France métropolitaine, recensement de 1999, Insee, Working Paper n° F0208

	Urban – Less than 20,000 inhbts	0.001	0.041	0.0	0.984	0.026	0.050	0.3	0.612	0.010	0.086	0.0	0.911
	More then 200,000 inhbts (except Paris)	-0.135	0.042	10.5	0.001	-0.070	0.058	1.4	0.231	-0.190	0.076	6.2	0.013
	Rural counter-urbanized	0.187	0.047	15.8	<.0001	0.245	0.053	21.2	<.0001	0.135	0.153	0.8	0.379
	Rural not subject to urban influence (ref)	0.000				0.000				0.000			
jpluie_ete	Nr of days of rainfall in Summer												
	1. 0 to 6.6	-0.017	0.044	0.1	0.700	0.102	0.056	3.3	0.067	-0.161	0.077	4.4	0.037
	2. 6.7 to 7.2	0.104	0.031	11.0	0.001	0.055	0.040	1.8	0.176	0.171	0.053	10.2	0.001
	3. 7.3 to 8.1	-0.015	0.030	0.3	0.615	-0.003	0.038	0.0	0.940	-0.083	0.054	2.4	0.123
	4. More than 8.1 (Ref)	0.000				0.000				0.000			
jpluie_hiv	Nr of days of rainfall in Winter												
	1. 0 to 9.8	-0.123	0.045	7.4	0.007	-0.176	0.061	8.3	0.004	-0.018	0.071	0.1	0.795
	2. 9.9 to 10.5	0.071	0.033	4.7	0.030	0.108	0.045	5.8	0.016	0.042	0.052	0.7	0.417
	3. 10.6 to 11.5	0.051	0.028	3.3	0.069	0.045	0.036	1.6	0.205	0.095	0.049	3.8	0.050
	4. More than 11.5 (Ref)	0.000				0.000				0.000			
jtmin_hiv	Nr of days in Winter with a temperature below -5°C												
	0 to 1.5	0.160	0.035	21.4	<.0001	0.198	0.044	20.4	<.0001	0.114	0.060	3.6	0.058
	1.6 to 2.4	0.013	0.032	0.2	0.679	0.024	0.040	0.4	0.544	0.007	0.056	0.0	0.902
	2.5 to 3.9	0.072	0.031	5.4	0.020	0.086	0.039	4.8	0.028	0.021	0.054	0.1	0.701
	4. More than 3.9 (Ref)	0.000				0.000				0.000			
ttemp_ete	Mean temperature in Summer												
	15.0 to 18.3°C	0.074	0.037	4.0	0.045	0.067	0.044	2.3	0.128	0.123	0.072	2.9	0.088
	18.4 to 19.3	0.037	0.032	1.4	0.244	0.050	0.042	1.4	0.231	0.051	0.054	0.9	0.343
	19.4 to 20.4	0.066	0.031	4.6	0.032	0.070	0.040	3.0	0.082	0.018	0.052	0.1	0.724
	More than 20.4 (ref)												

4. Logistic Regression Odds-Ratios

		All dwellings			Single-family Houses			Flats		
		OR	lower 95 %	Upper 95 %	OR	lower 95 %	Upper 95 %	OR	lower 95 %	Upper 95 %
ICO	Type of building									
	Single-family House -Detached	2.074	1.449	2.969	0.919	0.828	1.022	.	.	.
	Single-family House - Semi-Detached	2.492	1.743	3.562	1.059	0.945	1.186	.	.	.
	Single-Family House - grouped	2.363	1.645	3.395	1.000			.	.	.
	Block of flats - 2 flats	1.515	1.184	1.939	.	.	.	1.912	1.463	2.498
	Block of flats - 3 to 9 flats	1.221	1.033	1.443	.	.	.	1.433	1.200	1.711
	Block of flats - 10 to 49 flats	1.092	0.949	1.258	.	.	.	1.153	0.998	1.331
	Block of flats - 50 flats or more (Ref)	1.000			.	.	.	1.000		
IAA1	Period at which the property was built									
	Before 1948	2.238	1.422	3.521	3.211	1.696	6.078	1.314	0.681	2.534
	1949-1974	1.599	1.014	2.521	2.012	1.059	3.820	1.414	0.731	2.734
	1975-1981	1.046	0.660	1.657	1.228	0.643	2.345	1.041	0.532	2.036
	1982-1989	1.006	0.634	1.596	1.174	0.615	2.239	1.042	0.530	2.050
	1990-1998	0.963	0.608	1.524	1.143	0.602	2.171	0.869	0.444	1.702
	After 1998 (Ref)	1.000			1.000			1.000		
KMOD1	Heating system									
	Individual central heating	0.814	0.723	0.916	0.814	0.712	0.930	0.855	0.642	1.138
	District heating	0.588	0.464	0.746	0.892	0.393	2.023	0.589	0.416	0.834
	Collective central heating	0.608	0.520	0.711	1.528	0.817	2.860	0.611	0.457	0.816
	Mixed Heating	0.975	0.663	1.435	<0.001	<0.001	>999.999	0.921	0.584	1.455
	Electric heating	0.988	0.874	1.117	0.989	0.859	1.140	1.147	0.862	1.525
	None of the above means (Ref)	1.000			1.000			1.000		
KMOD2	Use of ancillary heating devices									
	Yes	1.189	1.107	1.278	1.076	0.986	1.175	1.529	1.342	1.743
	No (Ref)	1.000			1.000			1.000		
GCHAUF	Cold in dwelling at least 1 day during 12 preceeding months									
	Yes	1.955	1.776	2.152	1.700	1.472	1.965	2.127	1.865	2.427
	No (Ref)	1.000			1.000			1.000		
GFACE	Frontage in good / bad condition									
	Very good	0.323	0.246	0.425	0.399	0.273	0.583	0.275	0.183	0.413
	Good	0.390	0.299	0.509	0.460	0.317	0.667	0.347	0.235	0.514

	Reasonably good. with stains	0.564	0.433	0.735	0.715	0.494	1.034	0.451	0.305	0.667
	Second-rate. with open splits or damaged coating	0.727	0.554	0.954	0.918	0.630	1.339	0.566	0.379	0.846
	Bad. tumbledown building (ref)	1.000			1.000			1.000		
GINOA	Seepage / flooding in dwelling during 12 preceeding months									
	Yes	2.834	2.631	3.052	2.847	2.570	3.154	2.863	2.563	3.197
	No (Ref)	1.000			1.000			1.000		
GVIT2	Windows in good / bad condition									
	Good	0.486	0.444	0.533	0.452	0.396	0.517	0.529	0.464	0.603
	Reasonably good	0.727	0.659	0.803	0.762	0.661	0.878	0.649	0.563	0.748
	Second-rate (Ref.)	1.000			1.000			1.000		
HNPH1	Number of rooms									
	1	0.488	0.371	0.640	0.688	0.399	1.187	0.643	0.381	1.083
	2	0.710	0.580	0.868	0.805	0.601	1.077	0.967	0.602	1.555
	3	0.868	0.736	1.025	0.811	0.662	0.992	1.208	0.768	1.901
	4	0.996	0.866	1.146	0.934	0.798	1.093	1.444	0.931	2.241
	5	1.048	0.937	1.172	0.985	0.875	1.109	1.855	1.221	2.818
	6 or more (Ref)	1.000			1.000			1.000		
iel2	Floor									
	Ground Floor	2.135	1.546	2.950	.	.	.	2.010	1.448	2.790
	First floor or higher	1.394	1.018	1.907	.	.	.	1.304	0.948	1.795
	Single-family house (Ref)	1.000			.	.	.	1.000		
KIP	Crowding index									
	Very severely under-crowded	0.488	0.346	0.689	0.693	0.352	1.367	0.378	0.221	0.645
	Severely under-crowded	0.497	0.360	0.687	0.739	0.380	1.438	0.425	0.282	0.640
	Mildly under-crowded	0.551	0.404	0.753	0.803	0.415	1.553	0.518	0.358	0.748
	Normally crowded	0.681	0.502	0.923	0.964	0.498	1.867	0.629	0.443	0.894
	Mildly over-crowded	0.907	0.664	1.239	1.150	0.576	2.294	0.841	0.591	1.196
	Severely over-crowded (Réf)	1.000			1.000			1.000		
MRDUC1	Equivalized income									
	1st decile	1.478	1.263	1.731	1.320	1.070	1.628	1.769	1.376	2.275
	2nd decile	1.492	1.280	1.739	1.473	1.210	1.793	1.626	1.263	2.093
	3rd decile	1.255	1.077	1.462	1.235	1.017	1.498	1.354	1.049	1.748
	4th decile	1.312	1.129	1.524	1.220	1.006	1.479	1.528	1.193	1.958
	5th decile	1.212	1.044	1.407	1.219	1.010	1.471	1.251	0.972	1.611
	6th decile	1.132	0.975	1.314	1.082	0.896	1.307	1.257	0.978	1.614

	7th decile	1.100	0.948	1.278	1.079	0.892	1.304	1.169	0.909	1.502
	8th decile	1.129	0.973	1.309	1.024	0.847	1.237	1.318	1.032	1.685
	9th decile	1.168	1.008	1.353	1.169	0.971	1.409	1.156	0.902	1.481
	10th decile (ref)	1.000			1.000			1.000		
MAA1AT	How long the household has been living in the dwelling									
	Less than 1 year	0.644	0.564	0.736	0.659	0.542	0.802	0.608	0.501	0.738
	1 year to (less than) 4 years	0.776	0.699	0.863	0.804	0.695	0.930	0.701	0.595	0.824
	4 years to (less than) 8 years	0.794	0.715	0.883	0.745	0.646	0.858	0.804	0.681	0.950
	8 years to (less than) 12 years	0.884	0.787	0.992	0.878	0.757	1.018	0.874	0.721	1.060
	12 years or more (Ref)	1.000			1.000			1.000		
SEC1	Tenure									
	Outright owner	0.598	0.514	0.695	0.669	0.554	0.808	0.540	0.408	0.714
	Mortgager - housing benefit or subsidized loan recipient	0.432	0.358	0.523	0.552	0.440	0.694	0.525	0.323	0.853
	Mortgager - neither housing benefit nor subsidized loan recipient	0.635	0.539	0.749	0.781	0.634	0.961	0.610	0.456	0.817
	HLM Renter	1.268	1.075	1.496	1.740	1.358	2.229	0.987	0.773	1.261
	Other social sector Renter	1.092	0.842	1.416	1.148	0.775	1.701	1.013	0.708	1.450
	Private-sector Renter under the protection of the 1948 Act	0.810	0.595	1.104	1.134	0.721	1.782	0.767	0.488	1.205
	Other Private Renter	1.095	0.938	1.277	1.369	1.109	1.691	0.952	0.752	1.204
	Subletting. in furnished accomodation. lodger	0.955	0.708	1.289	0.868	0.445	1.694	0.940	0.653	1.353
	Farmer. sharecropper	0.526	0.309	0.895	0.614	0.351	1.077	0.263	0.023	3.053
	Rent-free non owner (ref)	1.000			1.000			1.000		
MAGTR	Age of the reference person									
	18 to 29	1.960	1.673	2.296	1.662	1.304	2.117	2.697	2.119	3.433
	30 to 39	1.661	1.438	1.919	1.423	1.174	1.725	2.351	1.856	2.978
	40 to 49	1.553	1.356	1.778	1.489	1.251	1.772	1.979	1.566	2.501
	50 to 64	1.187	1.059	1.330	1.170	1.016	1.347	1.479	1.196	1.828
	65 or more (ref)	1.000			1.000			1.000		
MPA	Nr of household members in labour force									
	None	0.811	0.720	0.914	0.882	0.753	1.033	0.715	0.592	0.864
	1	0.885	0.819	0.956	0.866	0.781	0.960	0.884	0.785	0.995
	2 or more (Ref)	1.000			1.000			1.000		

TYPSEQ	Social Classification of Neighbourhood[2]									
	ADPUB1	0.944	0.765	1.165	0.717	0.503	1.021	1.141	0.871	1.494
	ADPUB3	0.997	0.801	1.240	0.904	0.562	1.455	1.223	0.946	1.582
	AGRI12	1.175	0.879	1.571	1.085	0.737	1.596	0.774	0.333	1.799
	AGRI13	1.135	0.872	1.477	1.027	0.715	1.477	0.806	0.342	1.899
	AGRI21	0.760	0.553	1.044	0.683	0.454	1.028	0.547	0.214	1.403
	AGRI22	1.077	0.849	1.368	0.935	0.662	1.319	0.867	0.471	1.598
	AGRI31	0.856	0.655	1.119	0.783	0.541	1.133	0.538	0.263	1.102
	CHOMA1	0.883	0.684	1.140	0.809	0.524	1.249	0.980	0.708	1.357
	CHOMA2	1.058	0.826	1.357	0.775	0.490	1.226	1.280	0.947	1.730
	CHOMA3	0.731	0.575	0.929	0.542	0.324	0.907	0.798	0.603	1.055
	CHOMA4	1.155	0.763	1.749	0.260	0.085	0.790	1.709	1.067	2.739
	DIR1	0.836	0.651	1.073	0.452	0.053	3.836	0.988	0.744	1.311
	DIR3	0.607	0.449	0.819	0.711	0.307	1.647	0.728	0.516	1.027
	DIR4	0.896	0.699	1.150	0.953	0.610	1.489	0.978	0.721	1.326
	DIR5	0.890	0.731	1.084	0.786	0.560	1.103	0.972	0.758	1.246
	INDOUV1	1.006	0.788	1.285	0.971	0.683	1.380	0.835	0.504	1.383
	INDOUV3	1.213	0.901	1.633	1.148	0.758	1.738	1.109	0.670	1.836
	INDOUV4	0.927	0.700	1.228	0.801	0.536	1.197	1.054	0.666	1.669
	INDOUV5	1.041	0.828	1.308	0.924	0.646	1.320	1.126	0.810	1.565
	INDQ2	0.998	0.813	1.225	0.901	0.639	1.268	1.016	0.779	1.325
	INDQ3	0.970	0.759	1.239	0.851	0.598	1.211	1.176	0.730	1.895
	INDQ4	0.847	0.681	1.054	0.772	0.554	1.075	0.825	0.570	1.194
	INDQ5	1.165	0.914	1.486	1.210	0.833	1.757	0.996	0.702	1.412
	N	0.517	0.321	0.830	0.540	0.271	1.074	0.483	0.245	0.951
	SEMAG2	1.194	0.933	1.528	1.032	0.719	1.481	1.273	0.850	1.906
	SEMAG3	0.909	0.730	1.132	0.798	0.573	1.111	0.951	0.633	1.429
	TEC2	0.983	0.810	1.193	0.864	0.635	1.174	1.077	0.806	1.438
	TEC3 (ref)	1.000			1.000			1.000		
zone	Urban Unit size									
	Paris urban unit (city + suburbs)	0.835	0.670	1.040	0.741	0.551	0.996	1.028	0.599	1.763
	100.000 to 200.000 inhbts	0.779	0.636	0.953	0.700	0.534	0.919	0.912	0.542	1.535
	20.000 to 100.000 inhbts	0.867	0.736	1.022	0.884	0.730	1.070	0.985	0.600	1.615

[2] cf. Martin-Houssard et Tabart, 2002, Representation socio-économique du territoire: typologie des quartiers et communes selon la profession et l'activité économique de leurs habitants, France métropolitaine, recensement de 1999, Insee, Working Paper n° F0208

	Urban – Less than 20.000 inhbts	0.879	0.765	1.009	0.888	0.765	1.031	0.979	0.608	1.575
	More then 200.000 inhbts (except Paris)	0.767	0.647	0.908	0.807	0.662	0.983	0.802	0.485	1.326
	Rural counter-urbanized	1.058	0.922	1.214	1.106	0.956	1.279	1.109	0.644	1.910
	Rural not subject to urban influence (ref)	1.000			1.000			1.000		
jpluie_ete	Nr of days of rainfall in Summer									
	1. 0 to 6.6	1.057	0.914	1.222	1.291	1.078	1.547	0.791	0.609	1.028
	2. 6.7 to 7.2	1.193	1.063	1.340	1.232	1.065	1.424	1.102	0.897	1.355
	3. 7.3 to 8.1	1.059	0.956	1.172	1.163	1.028	1.316	0.855	0.706	1.036
	4. More than 8.1 (Ref)	1.000			1.000			1.000		
jpluie_hiv	Nr of days of rainfall in Winter									
	1. 0 to 9.8	0.883	0.767	1.017	0.821	0.682	0.987	1.106	0.872	1.401
	2. 9.9 to 10.5	1.072	0.961	1.196	1.090	0.943	1.260	1.174	0.971	1.420
	3. 10.6 to 11.5	1.050	0.957	1.153	1.023	0.914	1.145	1.239	1.032	1.486
	4. More than 11.5 (Ref)	1.000			1.000			1.000		
jtmin_hiv	Nr of days in Winter with a temperature below -5°C									
	0 to 1.5	1.499	1.336	1.682	1.659	1.427	1.928	1.291	1.062	1.569
	1.6 to 2.4	1.295	1.158	1.448	1.394	1.209	1.607	1.160	0.951	1.414
	2.5 to 3.9	1.373	1.242	1.518	1.482	1.308	1.680	1.176	0.980	1.410
	4. More than 3.9 (Ref)	1.000			1.000			1.000		
ttemp_ete	Mean temperature in Summer									
	15.0 to 18.3°C	1.285	1.110	1.486	1.288	1.074	1.546	1.371	1.050	1.789
	18.4 to 19.3	1.239	1.078	1.424	1.266	1.057	1.517	1.275	1.011	1.610
	19.4 to 20.4	1.276	1.127	1.444	1.292	1.099	1.517	1.234	1.007	1.513
	More than 20.4 (ref)	1.000			1.000			1.000		