
Definition and Evaluation of fuel poverty in Belgium, Spain, France, Italy and the United Kingdom

**EPEE project
WP2 - Deliverable 7**

Legal disclaimer

The sole responsibility for the content of this publication etc. lies with the authors. It does not necessarily reflect the opinion of the European Communities. The European Commission is not responsible for any use that may be made of the information contained therein.

Index

	Page
PREAMBULE _____	4
INTRODUCTION _____	5
A NEED FOR DEFINITION _____	5
A NEED FOR EVALUATION _____	5
I: MULTIPLE AND SIMILAR CAUSES IN THE EYES OF THE COUNTRIES STUDIED ____	7
1ST CAUSE: LOW RESOURCES FOR HEAVY TAXES _____	7
2ND CAUSE: THE ACCOMMODATIONS _____	9
3RD CAUSE: ENERGY _____	11
II: CONSEQUENCES _____	13
A: PHYSICAL HEALTH _____	13
B: PSYCHOLOGICAL HEALTH _____	13
C: DETERIORATING ACCOMMODATIONS _____	14
D: OVER INDEBTEDNESS _____	14
E: GREENHOUSE GASES EMISSIONS _____	14
III: EVALUATION OF FUEL POVERTY IN THE 5 COUNTRIES _____	15
REMINDER: DIFFERENT CONTEXTS _____	15
ANALYSIS OF 3 VARIABLES FROM THE SILC SURVEY 2005 _____	17
SUMMARY _____	21

PREAMBULE

The hereby study has been carried out within the framework of the European project EPEE (European Fuel Poverty and Energy Efficiency). EPEE is a co financed project by the European Commission Intelligent Energy for Europe programme, whose goal is to improve the knowledge and understanding of fuel poverty, evaluate the number of households currently living in fuel poverty in the 5 partner states, and identify operational mechanisms to fight against this phenomenon.

This report presents a general summary of the various studies carried out by the partners of the EPEE project in their respective countries.

First of all, we will present an analysis of causes and consequences of fuel poverty. Secondly, we will give a quantitative and qualitative evaluation of fuel poverty in the 5 partner states (Belgium, Spain, France, Italy, United Kingdom) based on the European survey EU-SILC 2005 (European Union – Statistics on Income and Living Conditions).

Here, the objective is to begin a general understanding of this phenomenon, but also to highlight the international character of fuel poverty.

Introduction

A need for definition

The study of fuel poverty is not new. Many researchers, sociologists, psychologists and others have looked into the problem.

Poverty is a very subjective and relative notion, as it is defined according to what can be considered as an “acceptable situation”. Indeed, depending on the situation, full employment or not, the current employment legislation, but also the type of society and social or cultural model, the notion of poverty will be different (« our poor » would not be so in developing countries). We know rather well the notions of living conditions or relational poverty, but the notion—which is of particular interest to us in this study - of fuel poverty is rather struggling to emerge.

In itself, poverty can be defined as a very strong uncertainty as regards to one’s chances to recover or keep an acceptable situation in the near future.

We have defined fuel poverty as a difficulty, or even incapacity to have proper heating in one’s home, all this at a reasonable cost.

This form of poverty is still not very well defined in most of the countries studied (The United Kingdom only has taken this problem into account by defining it). In order to understand the origins of this phenomenon and what is at stake, it is essential to emphasize the causes and consequences of Fuel Poverty.

Here, we present a general summary of the various studies carried out by the partners of the EPEE project in their respective countries. The objective is to begin a general understanding of this phenomenon but also to highlight the international character of fuel poverty.

A need for evaluation

Implementing a policy in order to fight against fuel poverty requires a good knowledge of the diversity of situations, and an identification of the various publics concerned. In order to evaluate the evolution of the phenomenon and the possible impact of the measures taken, it is indispensable to possess indicators that will quantify the number of households concerned.

This work has a double objective: qualify and quantify fuel poverty.

Qualifying and quantifying fuel poverty is a vast and complex subject because it reflects many situations. Being in arrears with energy bills, being unable to pay to maintain one's home at an adequate temperature and having dampness and/or mould in one's home, all these are situations that can be qualified as fuel poverty.

The United Kingdom has a unique experience in the implementation of a system of specific indicators of fuel poverty. The evaluation is based on a definition adopted on a national scale: a household is living in fuel poverty if they spend more than 10% of their income in order to ensure a comfortable interior temperature. However, this definition, based on criteria called « objective », causes problems. How is a family's "required" level of energy consumption evaluated? Which incomes are taken into consideration? Depending on the criteria chosen, the number of households living in fuel poverty varies strongly. In addition, this definition does not allow the identification of households in auto-restriction.

National surveys on housing conditions gather data on households' incomes, taxes, heating system, as well as level of accommodation isolation and household's characteristics. These surveys constitute the main source to evaluate fuel poverty.

In order to get significant comparisons between the countries involved in this project (Belgium, Spain, France, Italy, United Kingdom), using common data is necessary.

This survey is based on the analysis of variables from the European survey EU-SILC 2005 (European Union – Statistics on Income and Living Conditions). SILC is an annual survey on incomes and living conditions in the 25 countries of the European Union. It constitutes the main tool to draw the picture of poverty and social exclusion, on a European scale.

We have chosen to work on the 3 following variables:

- HH050: Capacity to pay to keep one's home adequately warm
- HH040: Leaking roof, damp walls/floors/foundation, or rot in window frames or floor
- HS020: Arrears on utility bills (electricity, water, gas)

In order to better understand of the multiplicity of situations, these variables have been crossed with 5 others:

- HX060: Type of household
- DB100: Living area
- HH010: Type of accommodation
- HY020: Household's available income
- HH020: Occupier's status.

I: multiple and similar causes in the eyes of the countries studied

With the study of the five partner states: Belgium, Spain, France, Italy, and United Kingdom, we were able to report on many similarities in the factors that increase the possibilities of fuel poverty. Surely those similarities are no hazard and it would not be surprising, by widening the panel of countries studied, to find the same causes leading to the same effects. Nevertheless, only the five states involved in this study cannot be considered as representative of the EU: neither Scandinavian countries, nor Eastern Europe countries. Therefore, it would be useful to continue, in those countries, with the work started here, in order to complete and adjust the results presented today.

Fuel poverty is often due to an accumulation of disadvantages and a vicious circle. Financial insecurity brings poor households into living in poor quality accommodations that are difficult to heat, and the expected or already noticed increase in the price of energy will make the payment of bills harder and harder for all categories of people.

1st cause: low resources for heavy taxes

According to our study, the insufficiency of financial resources is the factor expressing the highest probability for an individual to live in fuel poverty.

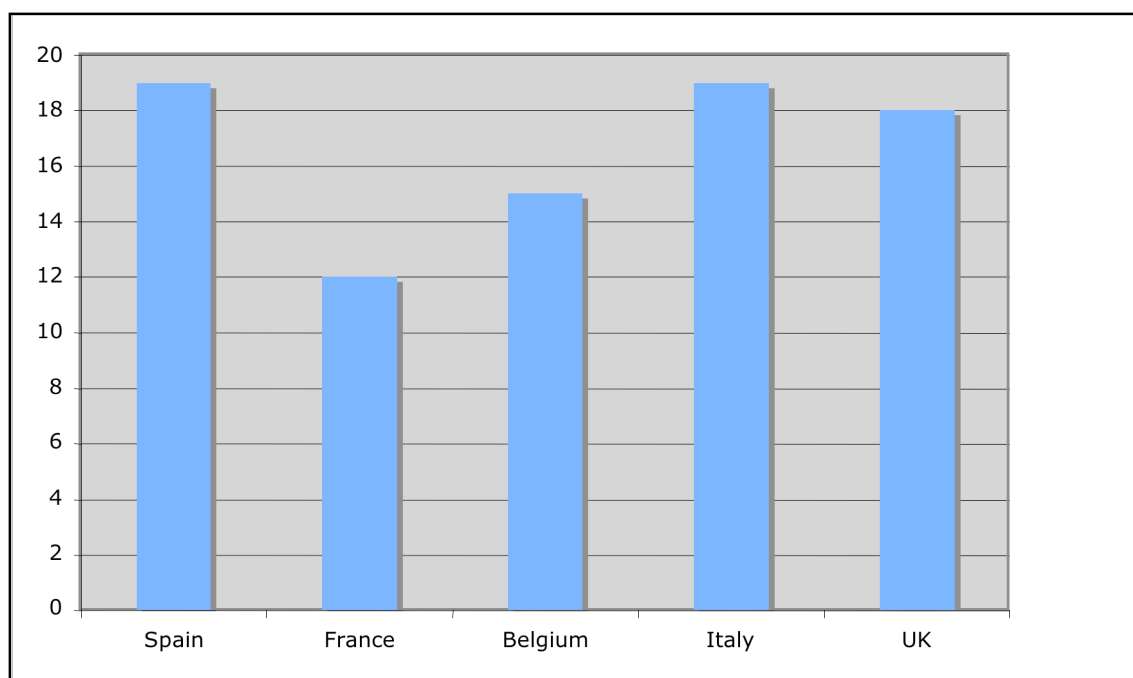
Receiving low incomes pushes people to live soberly and with restraint; actually, to survive. But there are essential needs, and energy is one of them; without calling into question the need to save it, in order to fight against global warming, we must, however, reaffirm its indispensable character for everyone, poor and less poor, in everyday life.

In the majority of cases studied, people living in fuel poverty are those who receive basic social incomes, work part time, and/or are in debt. Unemployment is taking root, employment insecurity is increasing (Fixed-term contracts, part-time jobs...), and all this pushes a high number of people into poverty, as we will find out below with the data by country.

The countries studied do not calculate poverty in the same way. For information, we indicate below the amounts chosen in each country. However, the following table, made after Eurostat data, takes 60 % of the median income as a measure of the poverty threshold for all countries.

Poverty threshold:

- **Belgium:** €9864 / An. - Person (calculated at 60% of the median)
- **Spain:** €6278 / An. – Person (calculated at 50% of the median)
- **Italy:** €6743 / An. – Person (calculated at 50% of the median)
- **U.K:** €7200/ An. - Person (available incomes, calculated at 60% of the median)
- **France:** €7740 / An. - Person (calculated at 50% of the median)¹



Graph 1 Part of people living under poverty threshold (60% of the median income) Source Eurostat Sept 2005

¹ Website 'Observatoire des inégalités' (observatory of inequalities)

Moreover, the rise of living standards and especially the increase in rent prices (in France: 6.2% per year in average over 20 years², in Italy: 100% since 1999 and in Belgium: 10.6% in average from 1996 to 2001) have also led to consequences on people with low incomes' living comfort. Often, by lack of financial means, they have to rent « low-facilities » accommodations. The mode of appropriation of the accommodation is not the same when it has been chosen and wanted or chosen by obligation.

As their incomes do not allow them to live in « decent » accommodations, they find themselves, in most case, in accommodations with many problems and dysfunctions.

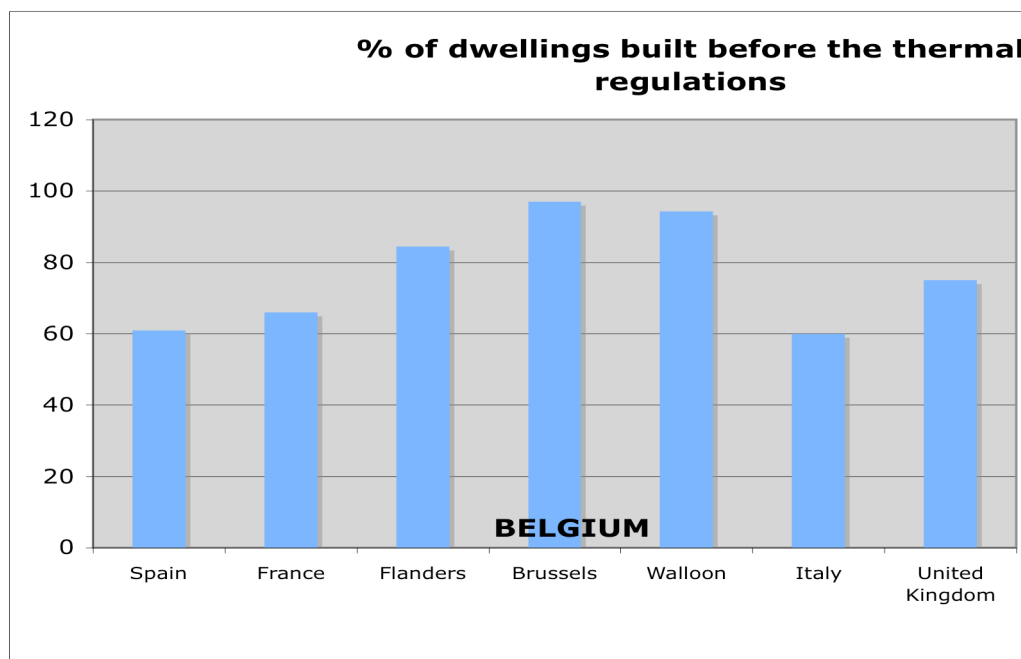
2nd cause: the accommodations

Thermal regulations have been implemented at different periods in the five countries studied:

- Spain: 1980
- France: 1974
- Italy: 1973
- UK: 1965 but it has only really been effective since 1974.
- Belgium:
 - Flanders: 1992
 - Region of Brussels: 1999
 - Walloon: 1984

The table below shows the stock of accommodations built before the thermal regulations therefore supposed to be very energy-consuming.

² INSEE



Graph 2: percentage of dwellings built before the thermal regulation

Low-facility accommodations in which live low-income people often have characteristics such as:

- unsuitable heating systems
- Defective isolation (windows, roof structures, walls...)
- Dampness

It seems difficult to live in an accommodation that present one, two, or three of the characteristics mentioned above. Indeed, an accommodation with very little isolation and an unsuitable heating system, such as an old electric heater, cannot possibly become a comfortable home. The heat coming out from the heater is immediately lost.

In those cases, people living in fuel poverty make two very different choices of life:

- They try to heat their home anyway – sometimes by using additional heaters such as oil stoves – and take the risk to be unable to pay their bill and be in debt.
- They decide, concerned by financial economy, to use no or little heating in their home, even if it means living in the cold.

3rd cause: energy

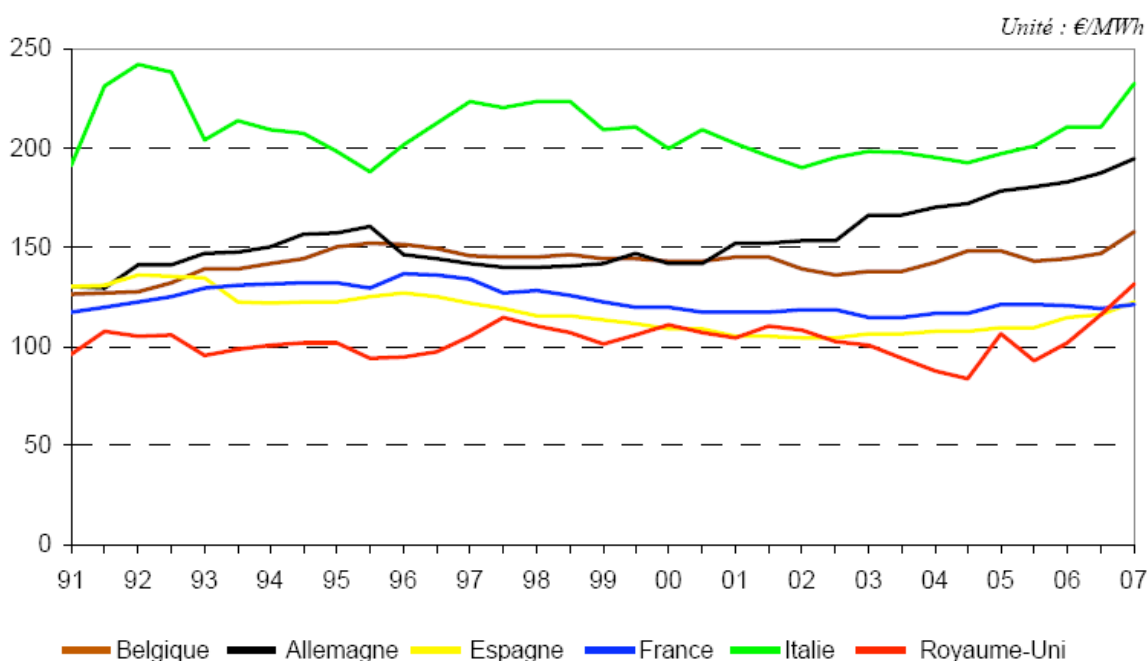
The oil price counter shock has led to a decline in energy control policies, which were the best weapons to fight against global warming (but who cared at the time?) and fuel poverty at the same time. In France, a strong impulsion towards thermal uses of electricity has led to a generalisation of the use of electrical heating, whose kWh price has long stayed the highest.

For about ten years, and in each country studied, gas price has considerably increased; electricity prices are more stable but they have also increased over the past two years.

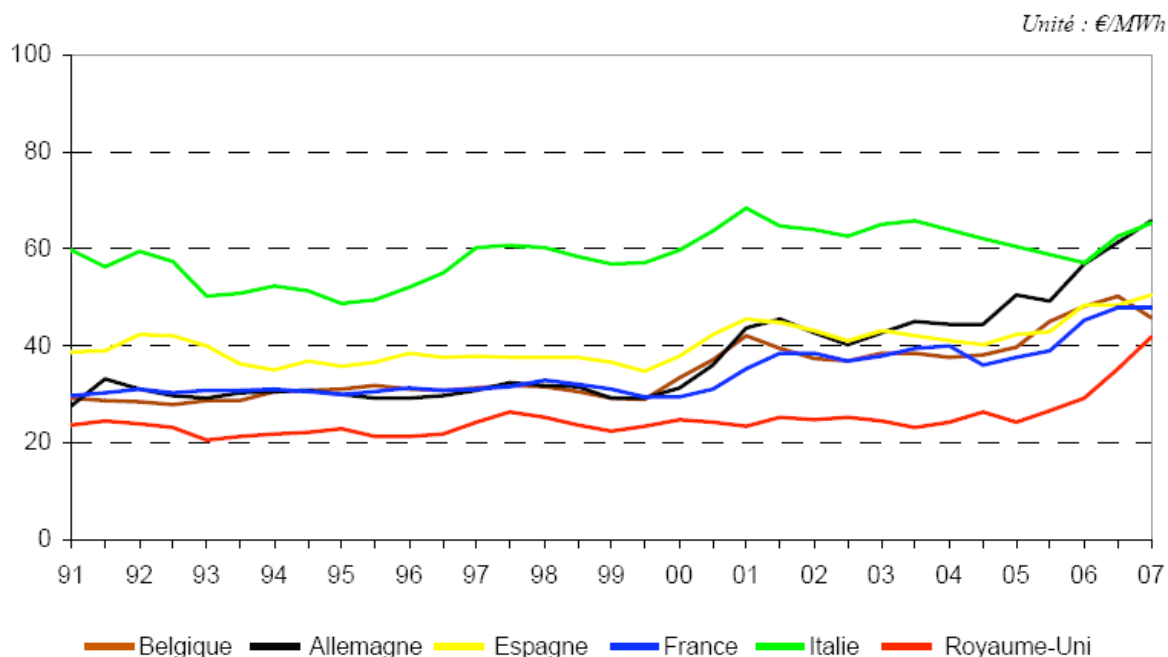
Support mechanisms for bills vary enormously according to the country: almost inexistent in Spain or in Italy, very controlled in France (it has been an obligation of general councils since the last law on decentralisation).

In the United Kingdom, implementing prepayment systems implies obviously another kind of support, since there are no more arrears on bills; it is support to the person which is awarded, on age or health criteria.

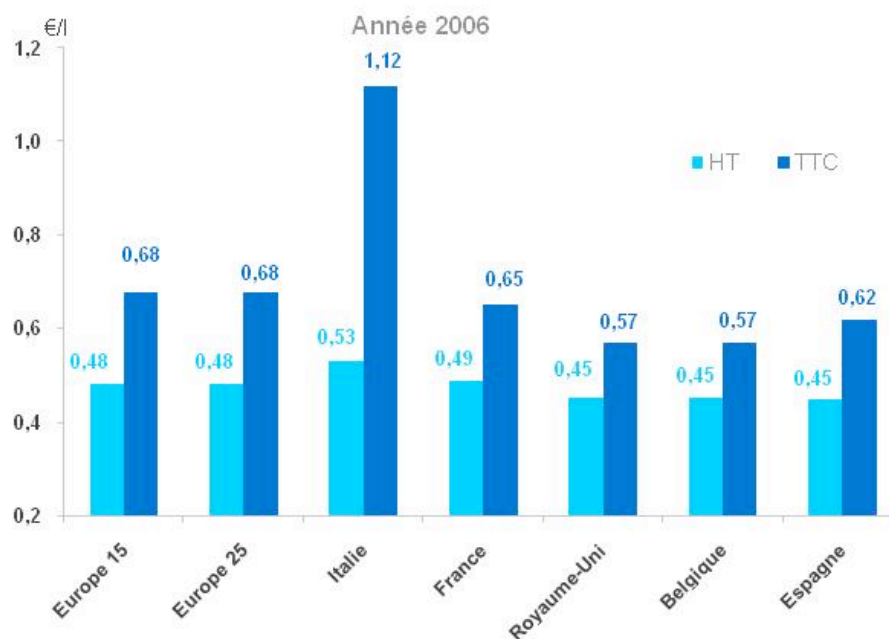
The tables below enable the comparison of gas and electricity prices in the partner states. They show a general increase in heating energy prices (heating oil, electricity, natural gas) in the 5 countries. The United Kingdom has the lowest prices. Italy has by far the highest prices. Italy is distinguished by a very heavy tax system on heating oil: more than 110 %.



Graph 3 Electricity for household use: inclusive of tax price, Source: Energy Observatory according to Eurostat (January 2007)



Graph 4: Natural Gas for households use: inclusive of tax price, Source: Energy Observatory according to Eurostat (January 2007)



Graph 5: Comparison of heating oil prices in 2006 (Source: UFIP)

II: Consequences

A: Physical health

The studies made by the countries have established a link between fuel poverty and some physical health problems, touching first delicate people such as young children or elderly people. This phenomenon can cause death. For example, in the UK, the government takes into account deaths due to winter over mortality caused by housing condition and counts on average 25,000 to 40,000 deaths. We have no figures for the other countries, probably because there are still no statistical studies on that subject.

By lack of isolation and efficient heating system, the constant cold and dampness of an accommodation can cause respiratory problems such as bronchitis or asthma, etc. Sometimes, in order to adapt to their environment, people living in fuel poverty use substitutes such as oil stoves, so as to warm up, but those alternative systems still do not help reducing dampness.

Indeed, this substitute causes dampness and turns out to be very damaging for the health, as it can cause asthma, bronchitis and/or allergies, but also risks of fire and/or CO intoxication. Despite those dangers, it is considered, for people living in fuel poverty, as a sure way to get quick, constant and manageable heat.

In addition, 'low-facility' accommodations sometimes have defective wiring. This can also cause a high risk of fire if there are too many things plugged in at the same time.

B: Psychological health

In each country, people living in fuel poverty struggle to live. Indeed, such living conditions can without any doubt have consequences on their psychological health. One's home is oneself's reflection, it shows the way one lives, thinks, and sees the world. This can stop people from having a social or personal life

People living in fuel poverty did not choose to live in such conditions, they are dependent on the state of their home, and it can have a big influence on self construction.

C: Deteriorating accommodations

Dampness in accommodations can cause the very fast deterioration of a building. Indeed, there is an alteration in the mechanical properties of walls, doors, windows. The more damaged an accommodation is, the more difficult it is to heat it, as dampness develops quicker.

Tenants living in fuel poverty often mention the dilapidation of their accommodation to their landlord, who blames back the tenant for not heating their place enough and so contributing to its deterioration. This can create tensions in the tenant-landlord relationship. Yet, as far as landlords are the only ones who can decide to do some work in their property (except in case of proven insecurity), those bad relationships make the negotiation for the rehabilitation of the place even harder.

D: Over indebtedness

People living in fuel poverty who live in a deteriorated and badly isolated accommodation often struggle to pay their energy bills. They often accumulate debts, which reduces what they have left to live on. The possibility to take charge of these debts will be specified in WP3, whose objective is to highlight the different mechanisms and infrastructures involved in the field of fuel poverty.

E: Greenhouse gases emissions

The poor energy performance and the deterioration of an accommodation cause an increase in energy consumption in order to maintain thermal comfort in it. Often, even an overconsumption of energy is not enough to reach an adequate temperature at home, not to mention greenhouse gases emissions related to it.

Improving energy performance in one's accommodation leads to thermal comfort, with reduced energy charges and reduced greenhouse gases emissions.

III: Evaluation of fuel poverty in the 5 countries

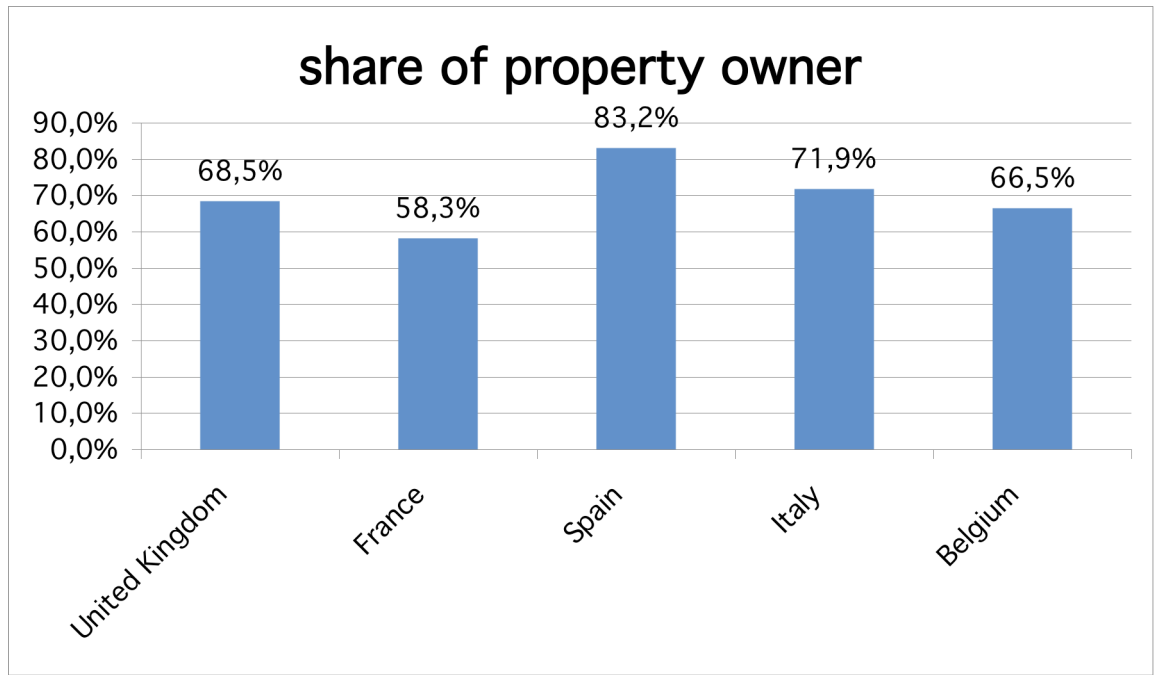
Reminder: different contexts

Before comparing situations in the different countries, it is important to look for the characteristics of the households surveyed in the EU-SILC survey 2005. The following graphs and table highlight some particularities:

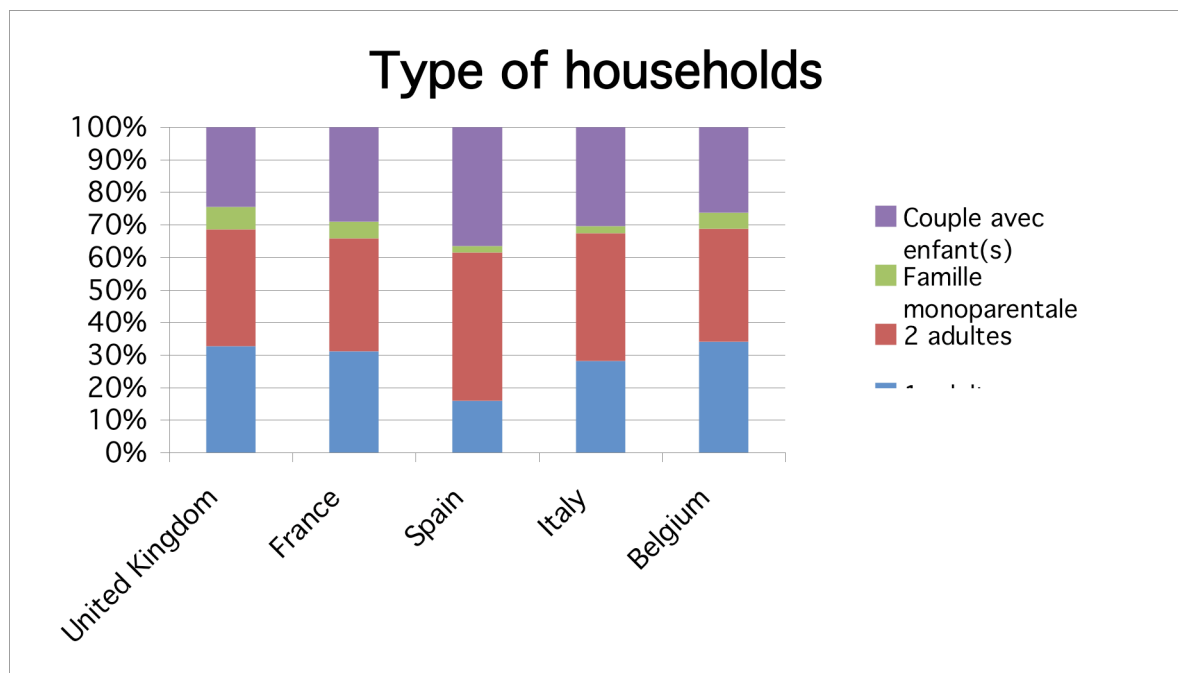
- A high rate of property owners, notably in Spain. The lowest rate is in France
- A low rate of single people in Spain
- Very few households in low-density areas in Belgium
- France has an important number of detached, isolated houses. Belgium and the UK distinguish themselves by detached, grouped houses and Spain by buildings of more than 10 flats.

	United Kingdom	France	Spain	Italy	Belgium	
Number of households who answered to the SILC survey	9,820	9,754	12,996	22,032	5,137	
Basic extrapolation (in millions of households)	25.96	25.65	15.14	23.57	4.47	
Status of occupier	Property owner	68.5%	58.3%	83.2%	71.9%	66.5%
	Tenant	15.7%	21.9%	7.0%	12.7%	22.8%
	Low or free rent	15.9%	19.8%	9.7%	15.5%	10.6%
Type of households (or family situation)	1 adult	33.0%	31.0%	16.0%	28.0%	34.0%
	2 adults	35.9%	34.7%	45.4%	39.0%	34.7%
	Single parent family	7.0%	5.0%	2.0%	2.0%	5.0%
	Couple with child(ren)	24.6%	28.9%	36.5%	30.2%	26.1%
Living area	Dense	58.0%	49.9%	53.0%	43.8%	56.7%
	Intermediate	13.6%	33.6%	19.8%	38.3%	39.4%
	Low-population area	3.7%	16.6%	27.2%	17.9%	3.9%
	Unknown UK	24.8%				
Type of accommodation	Detached, isolated house	22.3%	41.0%	14.8%	26.4%	34.3%
	Detached, grouped house	58.2%	18.3%	20.8%	20.2%	39.0%
	Building, number flats < 10	12.1%	15.3%	19.2%	23.9%	18.1%
	Building, number flats > 10	7.2%	25.1%	45.1%	26.8%	7.3%
Poverty (Percentage of households whose available incomes < 60% median salary)	18.0%	12.0%	19.0%	19.0%	18.0%	

Table 3: Comparisons of the households surveyed in each country (source: EU-SILC 2005)



Graph 1: share of property owner - Source: EU-SILC survey 2005



Graph 2 type of households - Source: EU-SILC survey 2005

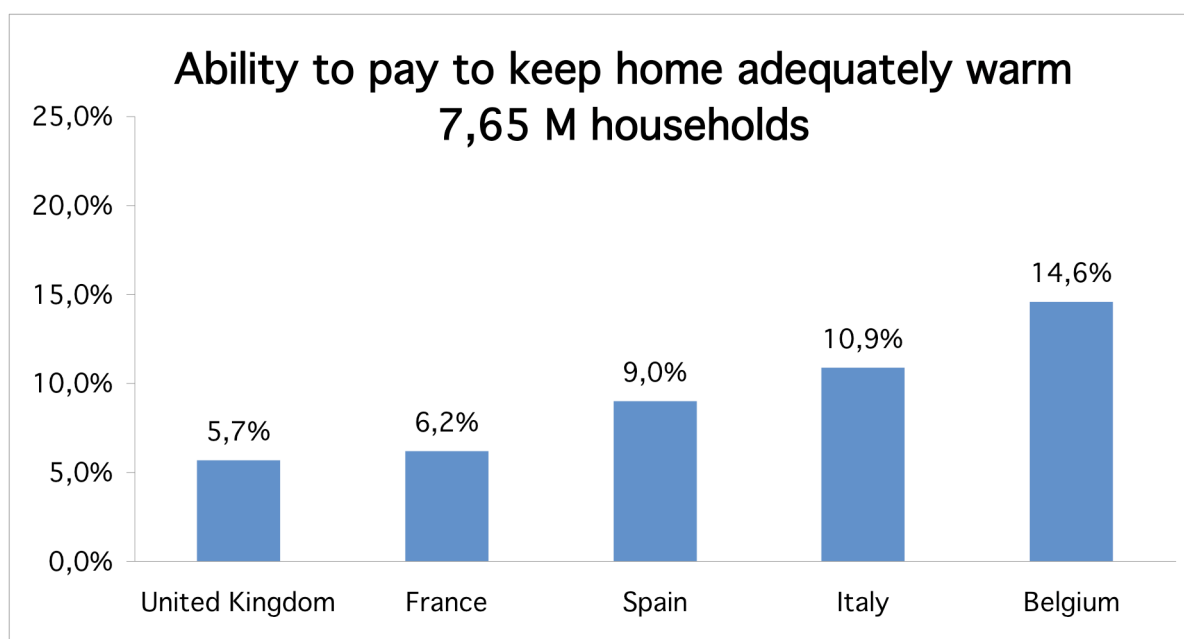
Analysis of 3 variables from the SILC survey 2005

The summary below is based on the analysis of 3 variables from the European EU-SILC survey 2005 (European Union – Statistics on Income and Living Conditions) for Belgium, Spain, Italy, France and the United Kingdom. The data for the United Kingdom was not always usable. The objective is to qualify and quantify the households living in fuel poverty, on the basis of 3 questions from the EU-SILC survey. This analysis requires the reading precautions exposed in the EPEE project's D6 report.

A: HH050: Capacity to pay to keep one's home warm

The HH050 variable (capacity to pay to keep one's home warm) informs us on the households' auto-perception of their financial capacities to heat their home. Of course, this information is subjective. It depends on the very subjective notion of thermal comfort, and on what is meant by « incapacity ».

In Belgium, we observe the highest rate of households (almost 15%) who consider they are unable to pay to keep their home adequately warm. The UK and France have the lowest rate (6%).



Graph Source: EU-SILC survey 2005

It is reminded that for the southern regions of Europe, the « capacity to pay to keep one's home warm » criterion is not necessarily relevant. This is particularly true for the south of Spain. In Spain, 50% of households have no heating system. Yet 9% of them consider they cannot afford to pay to keep their home warm.

Even though the characteristics are not the same for all the households we find some similarities in aggravating factors: tenants, single parent families (except for Spain and the United Kingdom), single people and especially pensioners, because of a higher risk to have a lower income, combined with higher energy needs. In the UK, this risk affects more particularly rural areas.

Available incomes appear to be the most aggravating factor as it affects particularly households from the first decile (17% for Belgium, 18% for Spain, 28% for Italy and 25% for France). Households of the first three deciles represent in general more than half of the households concerned by the problem (49% for Belgium, 52% for Spain, 57% for Italy and 60% for France).

Living in a detached house in Italy and in Spain seems to be an aggravating factor. In France, it appears to be the fact to live in a building of less than 10 flats.

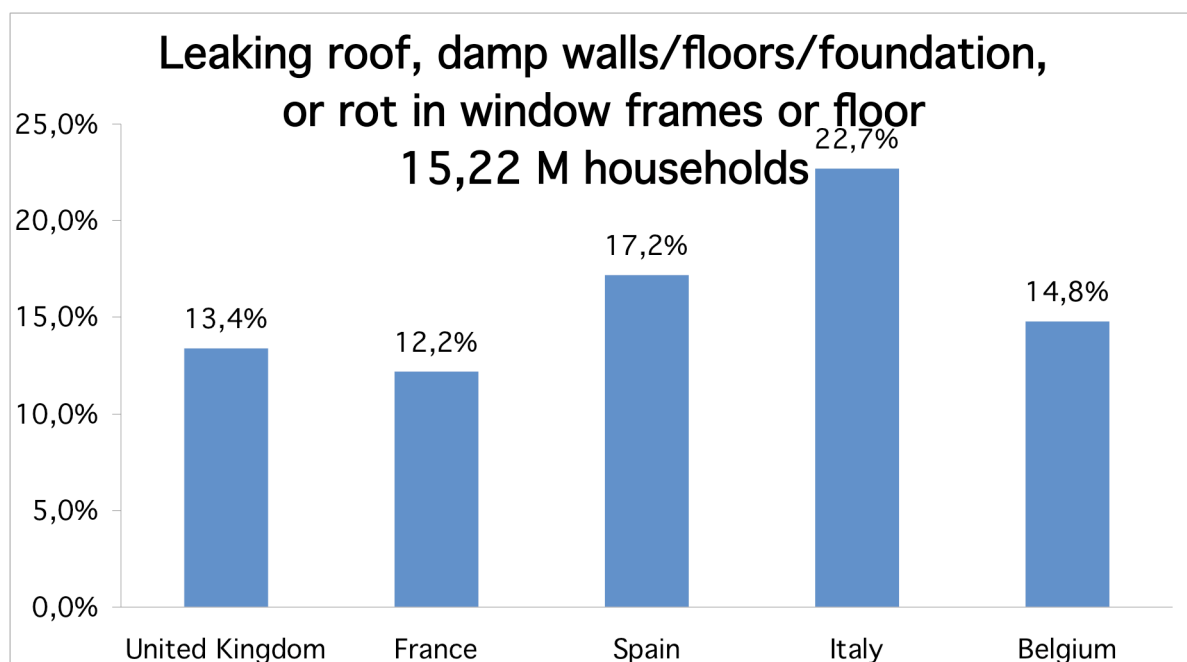
B: HH040: Dampness, leaks, mould

The HH040 (leaks/dampness) variable is relevant because it reveals the quality of the accommodation.

Dampness and leaks are symptoms of a bad isolation, or worse, of the dilapidation of the accommodation, and the consequences are all unpleasant: bad smells, damp cloths, rotting interior, appearance of mould and mushrooms.

If those symptoms are not treated, they speed up the deterioration of the accommodation, not to mention the situation of discomfort and the consequences on one's health: breathing problems, asthma, asthmatic bronchitis, chronic bronchitis, chronic rhinitis and diverse respiratory allergies. Moreover, in order to maintain a thermal comfort in the house despite the symptoms detected, an overconsumption of energy for heating is necessary, leading to an increase in energy bills and greenhouse gases emissions.

Except for Belgium, this variable concerns a much higher population than the two other variables. This problem seems to affect, in a more spread out way, all the households surveyed. The aggravating factors remain, but they are not as strong. The answers to this variable are more often analysed in relation with the households themselves.



Graph 7 Source: EU-SILC survey 2005

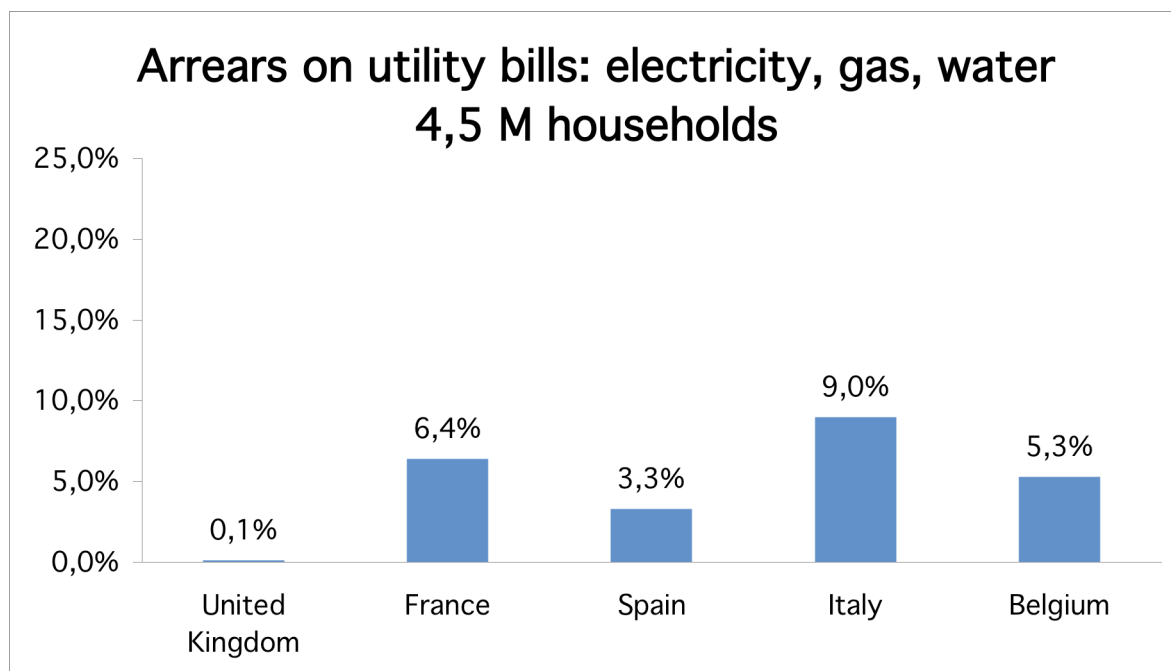
The phenomenon affects more particularly the poorest households, but in a more moderate way than for the other variables. The households of the first 5 deciles represent 59% of the households concerned in Belgium, 57% in Spain, 58% in Italy and 60% in France).

Except in the case of Italy, being a tenant is an aggravating factor, because of the risk to live in an accommodation with « leak/dampness » problems. In France, single people and single parent families are particularly touched. In France, Italy and Spain, this phenomenon affects particularly detached houses in low-density areas.

C: HS020: Arrears on electricity, gas and water bills

The HS020 variable (arrears on bills) is relevant to the survey as the households in arrears with energy bills are an important part of the households living in fuel poverty.

The percentage of households in arrears varies from 3.3% for Spain to 9% for Italy. However, the figures provided by the English regulator of energy (Ofgem) Shows rates of arrears on electricity and gas bills rounding 11% to 13%.



Graph 8 Source: EU-SILC survey 2005

Whichever country is considered, single parent families seem to be particularly over represented among households with arrears on electricity, water, or gas bills.

Very-low-income households are logically over represented, particularly the households of the 1st decile (around 20% of the households concerned). Households from the first 3 deciles represent approximately half of the households in arrears with bills.

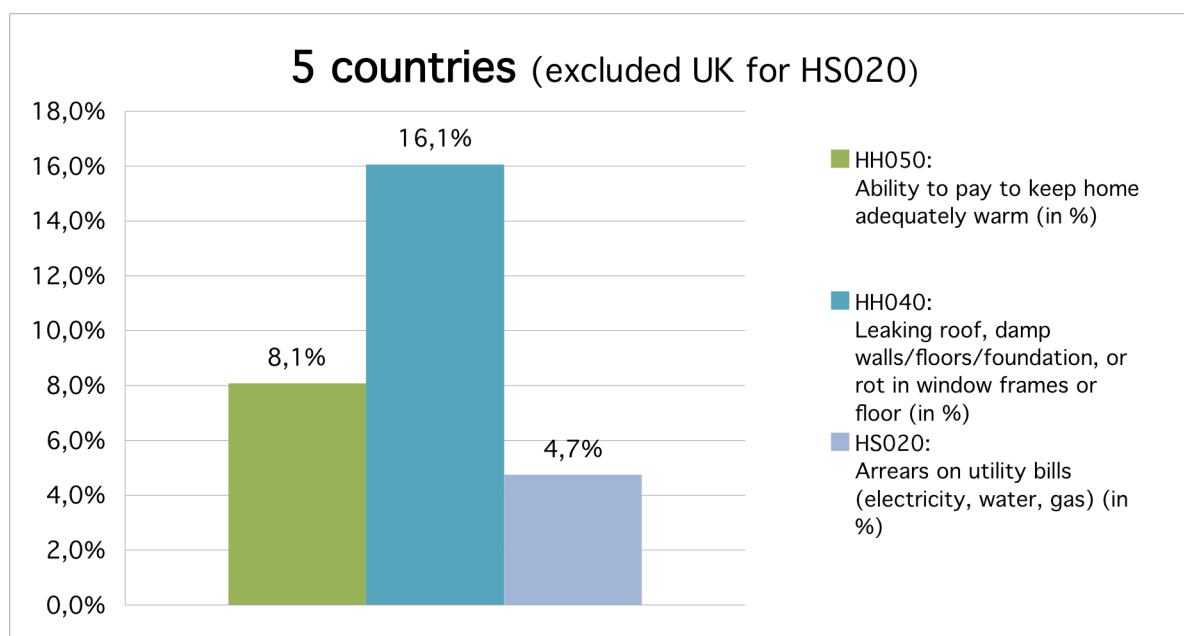
For every country, being a tenant is an aggravating factor. In Italy and in France, couples with children are over represented. In Belgium, single people are.

The type of accommodation concerned varies according to the country: in Belgium, it is buildings of less than 10 flats, in Spain, buildings of more than 10 flats, in Italy, accommodations in dense areas and in France all buildings, whatever their size.

Summary

Fuel poverty is a multi-faceted phenomenon that covers very diverse situations. Indicators allowing the quantification and qualification of households living in fuel poverty are hard to define. Depending on the phenomenon studied (dampness, capacity to pay, arrears ...), the number of households concerned by fuel poverty can vary by a factor 5 like in the case of Spain.

The method called « objective » used by the United Kingdom knows the same difficulties to evaluate a complex phenomenon through one indicator only. Depending on the criteria chosen, the number of households living in fuel poverty varies a lot. In addition, this definition does not allow the identification of households in self restriction.



Graph 9 Source: EU-SILC survey 2005

	Total number of households per country (in millions of households)	HH050: Ability to pay to keep home adequately warm		HH040: Leaking roof, damp walls/floors/foundation, or rot in window frames or floor		HS020: Arrears on utility bills (electricity, water, gas)	
		(In %)	(in millions of households)	(In %)	(in millions of households)	(In %)	(in millions of households)
United Kingdom	25.96	5.7%	1.48	13.4%	3.48	0,1%	0.03
France	25.65	6.2%	1.59	12.2%	3.13	6,4%	1.64
Spain	15.14	9.0%	1.36	17.2%	2.60	3,3%	0.50
Italy	23.57	10.9%	2.57	22.7%	5.35	9,0%	2.12
Belgium	4.47	14.6%	0.65	14.8%	0.66	5,3%	0.24

Table 4 Source: EU-SILC survey 2005

It was noticed that, in several countries, there were regional inequalities, within the country itself, either because of the climate or the economic context. A regional analysis could also be relevant in order to stick better to the reality of households, the type and condition of buildings, and the needs for heat/cold.

Several factors contribute to fuel poverty, the main one seems to be low-income. Households in the first 3 deciles represent half of the households in arrears with bills and of those who consider they are unable to pay to keep their home warm. In the case of arrears, households of the first deciles are particularly affected (20% of the households concerned).

We find, in the households living in fuel poverty, the characteristics of poor households. The most financially disadvantaged households are pensioners, low-income families with dependent children, and more particularly single parent family. Tenants are also an over represented category. Indeed, being a tenant can be the consequence of a household's low income. However, those conclusions are more moderate for the « leaks/dampness » variable: It covers a wider population, notably in terms of available incomes.

The age of an accommodation is an important criterion as most of the households concerned live in accommodations that date back from before the first Thermal Regulations.