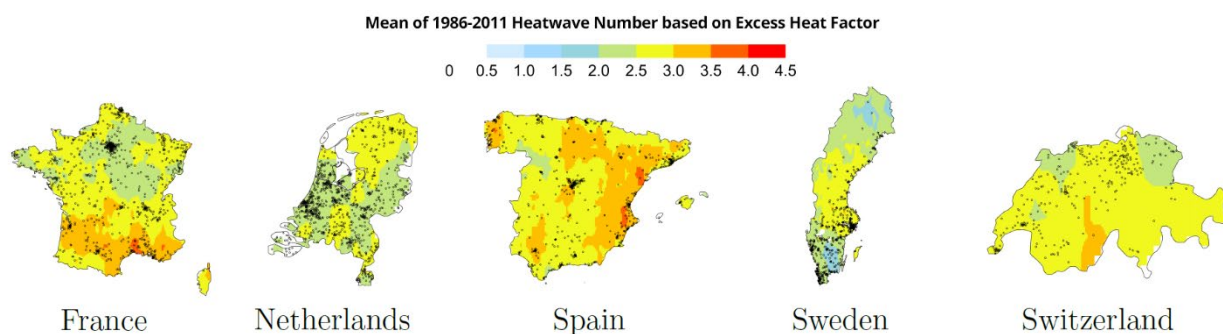


## THE RUSH TO AIR CONDITIONING IN EUROPE PUSHED BY URBANIZATION AND CLIMATE CHANGE

***A new study published in Environmental Science and Policy shows that without adequate and focused policies, many households will rely on air conditioners to adapt to climate change, thus generating even more greenhouse gas emissions.***



Venice 15/07/2019 - The study, led by Enrica De Cian, professor at University Ca' Foscari Venice and researcher at the Euro-Mediterranean Center on Climate Change, analyses **for the first time the dynamics which brings households to adopt air conditioning and thermal insulation** in 8 countries, of which 5 European, from 1990 till 2040. The study is based on a survey implemented by the OECD on a sample of European families, combined with climatologic data.

Besides the important regional differences, and the **surge of AC in the cities**, the study also shows that, more than the income of the head of the family, an essential factor for choosing to have an air conditioner at home is actually the **wealth of the household**. The presence of sensible persons in households, such as **children and the elderly**, is also crucial. Other important factors are the typology, the property and the state of the home as well as the environmental awareness of the head of the family, and its habit of putting into practice energy saving behaviours.

Prof. De Cian also points out that **“Europeans have globally a low inclination for installing Air Conditioners in their home** (20% of households on average) if compared to countries like Japan (90%) and Australia (72%) which should reach 100% in 2040. Climatic and cultural differences, even within the same country, lead to very different adoption rates across households today, and for the next 20 years.”

As the number of households which will buy a new AC will increase by an average 4.3% between 2011 and 2040 across the 5 European Countries object of the study, the study shows that **this increase is more due to urbanization (3/4) than climate change (1/4)**.

- FRANCE is a country with typically little inclination for AC, both for cultural and climatic reasons, and high preference for **thermal insulation, with 50% of its dwellings equipped today**. In 1990, the percentage of households with AC was almost nil, while since 2000 we can witness a low but constant increase, reaching 13% in 2011 and 17.3% in 2040.



- Similarly to France, THE NETHERLANDS see about 60% of its households equipped today with some sort of thermal insulation. As the number of **hot days have increased by 60% between 1990 and 2011**, the number of AC in households have also surged: from 0.5% in 1990 to 14% in 2014, the study projects a worrying 19% for 2040.
- SPAIN on the opposite, being the only Mediterranean country object of the study, shows well different characteristics and distributions. Also because of the numerous heatwaves insisting on the country, **the 5% of households having an AC in 1990 will become 50% in 2040**, while thermal insulation reaches only 1/3 of the dwellings, and will remain constant.
- SWEDEN, being a north-European country, is traditionally less exposed to recurring heatwaves but the number of households with AC have nevertheless increased today by 30 times since 2005, and the study projects it will reach more than one family in five in 2040. This is also one of the countries with more inclination for **thermal insulation with almost one family on two in 2040**.
- SWITZERLAND, because of its peculiar cultural, territorial and climatic characteristics is - among the European countries analysed – **the one with fewer AC installed today**, but these will increase by 50% in the next 20 years, reaching 15% of the households in 2020.

The EU is currently lagging in its scheduled objectives to cut heavily Green House Gas Emissions by 2020 and 2030. It is true that **new buildings consume on an average 40% less energy** than old ones, but only 1% of the current stock is of this type in Europe.

“As highlighted by a number of studies, improving thermal insulation of buildings through the adoption of building codes, is among the most effective policy instruments for reducing residential energy consumption and reduce adaptation needs for cooling” explains Filippo Pavanello co-author of the study and researcher at Ca' Foscari. **“New policies should also seek to increase the environmental awareness** of the public, as we show that this is an important factor for deciding to install AC in your home and choose how much to use it.”

This new study is the collective effort of a team of researchers (<http://www.energy-a.eu/team/>) financed by the European Research Council and currently based in Venice at Ca' Foscari University and at the Euro-Mediterranean Center on Climate Change. This same team studies the broader theme of adaptation to climate change thanks to energy, and seek to advise on how it will be possible to possibly break this vicious cycle, where **more emissions mean more climate change, leading to increase in energy use for adaptation and thus further emissions**.

50 days open access link to the paper on *Environmental Science and Policy*:  
<https://www.sciencedirect.com/science/article/pii/S1462901119304216?dgcid=author>

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