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Consumer Perspectives of Gas and Electric Cooking:

EVIDENCE FROM FOUR NATIONAL SURVEYS IN EUROPE

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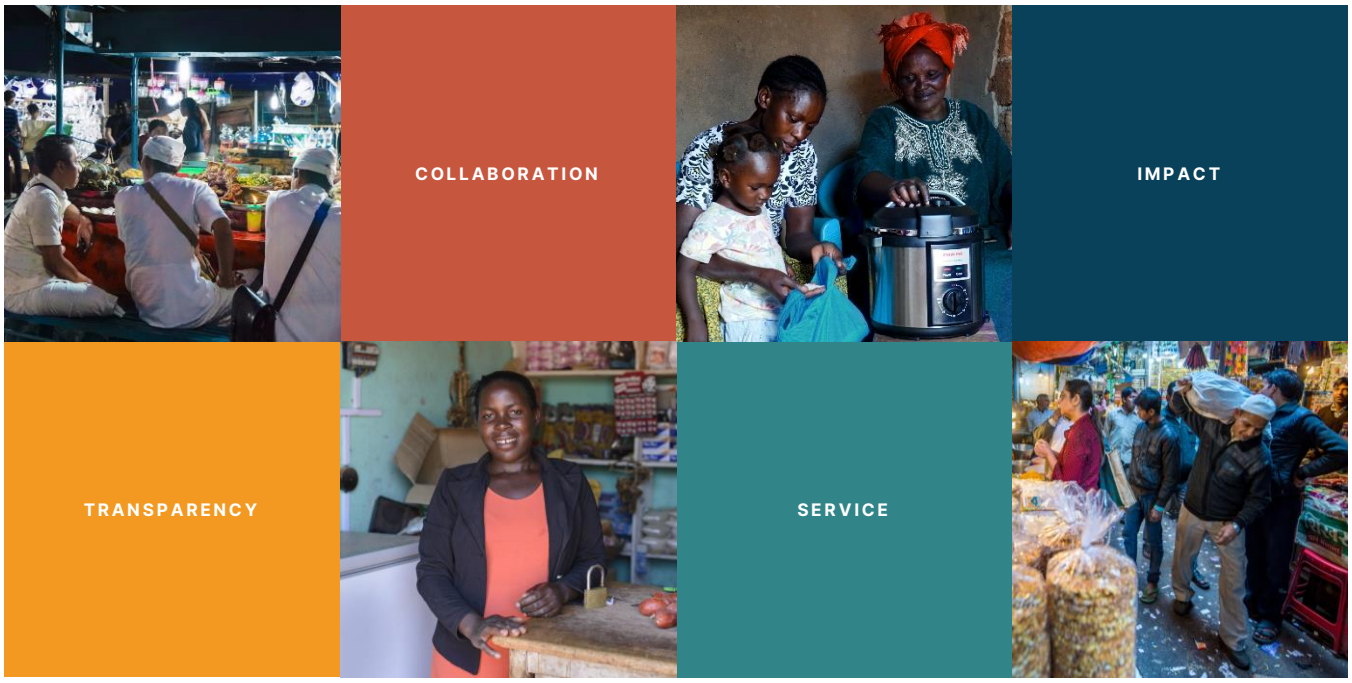

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Executive Summary

This report is designed to provide European policymakers with insights on consumer perspectives of both gas and electric cooking appliances. The following findings are derived from surveys conducted with nationally representative samples of 3,000 adults in France, Romania, and Spain and 2,000 adults in the United Kingdom (UK). Exploring consumer perspectives on cooking appliances and kitchen ventilation, the surveys also reveal new data on appliance purchasing decisions based on age, income, and employment status. This assessment covers consumer awareness of the health risks associated with gas cooking appliances, readiness to transition to electric alternatives, and views on government interventions. The surveys also set out to determine whether consumers perceive the European A–G Energy Label as a useful tool in informing their decisions when acquiring cooking appliances.

Key findings

Preferences for and use of gas and electric cooking appliances vary between countries and demographic segments. Factors such as age, income, and employment status are linked to appliance preference and use. In general, however, consumers tend to prefer the appliances they are most familiar with.

Cost poses a major barrier for consumers, often hindering the transition from gas to electric appliances. Challenges include the initial purchase price of appliances and the ongoing cost of electricity needed to run them. Renters wishing to switch to electric cooking appliances may also encounter obstacles.

Consumers are aware that electric cooking is safer than gas cooking. However, many are unaware of, or not actively concerned about, the health risks associated with gas cooking appliances. Respondents perceive both electric and gas appliances as posing health risks, but less than 20% report using ventilation to reduce indoor air pollution when cooking. A majority of consumers would discontinue the use of their gas cookers if they were informed about the health-related issues.

> **Most respondents (58–74%) said they would consider getting rid of their gas cooker if they knew it was linked to health issues.**

There are significant levels of public support for government schemes aimed at electrifying cooking in Europe. Most respondents (77–88%) consider government incentives an effective way to help households transition from gas to electric cooking appliances. They indicated varying degrees of approval for several schemes that could help enable the switch, including: providing financial

support to households; supporting industries to make electric cooking technologies more available and accessible; setting limits to the amount of pollution cookers can emit; and banning the sale of indoor gas cookers.

Consumers care about the energy efficiency of their cooking appliances, but currently have no means to compare various types of hobs. Almost all respondents expressed strong support for the implementation of an energy efficiency label for hobs and ovens.

Further consumer research on the barriers and opportunities to electrifying cooking across Europe is needed. The surveys did not include representation from some countries with a high prevalence of gas cooking, such as Italy, where nearly 68.5% of households rely on gas hobs. Additional research on the impact of culture and media on consumers' opinions about gas cooking would also facilitate the development of targeted information-sharing on transitioning to electric cooking. In-depth research on specific demographic groups is also necessary to develop tailored interventions that effectively support the most vulnerable households.

Background and Purpose

Across the European Union (EU) and the UK, millions of people sit down to meals cooked with gas, widely unaware of the invisible air pollution coming from their appliances.[1] While decades of research have established a correlation between the emissions from these appliances and their detrimental health impacts, these findings have not been widely circulated among the European public. As a result, misconceptions and misinformation about the safety, performance, and efficiency of electric alternatives remain common.

In 2023, CLASP released two reports detailing new research on the health risks of gas cooking. The first, *Exposing the Hidden Health Impacts of Cooking with Gas,* synthesised health risks, quantified their societal cost, and provided actionable solutions for transitioning to electric cooking appliances across the EU. The second, *The Public Health and Environmental Impacts of Cooking with Gas in the UK,* offered the same insights for the UK.

The reports included a robust literature review and found that no comprehensive consumer-focused studies on gas cooking had been recently conducted in the EU or the UK. The few recent references to consumer perspectives on gas cooking and the related health risks form part of larger studies on air quality and health, primarily focused on the UK. The 2023 *Black Child Clean Air Report*[2] explored the views and experiences of 226 Black mothers and pregnant women living in London. When questioned about their concerns regarding the health impact of various air pollutants during their current or most recent pregnancy, over half (56%) of respondents were most concerned about "smoke and vapour" as well as "damp and mould" (56%). Only 14% identified cooking appliances as an area of concern. The study concluded that the lack of concern could be attributed to individual cooking practices or a lack of awareness regarding cooking appliances as potential sources of indoor air pollution.

Global Action Plan commissioned Opinium to conduct the first UK-wide Clean Air Public Insight Tracker (CAPIT),[3] with the goal of providing quarterly information on public awareness and attitudes regarding air quality and tracking how members of the public modify their behaviour for self-protection. In September 2022, CAPIT asked 2,000 UK residents which of a series of air pollutants were the biggest contributors to indoor air pollution. Respondents listed smoking (44%), indoor open fire (28%), cleaning products (25%), mould (25%), and solid fuel stoves (20%) as the biggest contributors. Only 16% listed "gas oven / hob" as a major contributor. Respondents were also asked if they had concerns about cooking with gas at home. The most prominent concerns associated with gas cooking were the financial cost (32%), environmental impact (21%), and safety (20%). Only 14% of respondents expressed concern about the health effects of gas cooking, while the majority (43%) had no specific concerns.

In October 2022, CLASP commissioned a survey with a representative sample of 2,000 adults in the UK. The survey explored consumers' cooking practices, preferences, and willingness to deviate from legacy cooking methods. In the study, featured in CLASP's UK report,[4] gas hob users indicated a

willingness to consider switching to electric alternatives if they were aware of the health implications. However, they expressed reluctance to transition due to misconceptions that gas cooking appliances are more efficient and perform better than electric models.

In February 2023, CLASP commissioned Opinium to replicate the UK survey with 1,000 consumers in France, Romania, and Spain, respectively. The surveys aimed to compare three distinct markets, providing insight into demographic trends and preferences. In each market, factors such as the cost of electricity and the availability of appliances dictate accessibility to electric cooking. This analysis of the surveys seeks to identify trends and provide recommendations for policymakers and other relevant stakeholders, as well as educate consumers on the risks of gas cooking and identify opportunities to transition to electric alternatives.

Our research questions address the following:

- Consumer use of gas versus electric cooking appliances, including reasons for this choice.
- Awareness of the health risks associated with gas cooking and risk-reduction practices such as ventilation.
- The importance of energy efficiency in major appliance purchase decisions and the utility of a comparative energy label for gas and electric hobs and ovens.
- The level of support for government schemes to accelerate the transition to electric cooking.

Findings

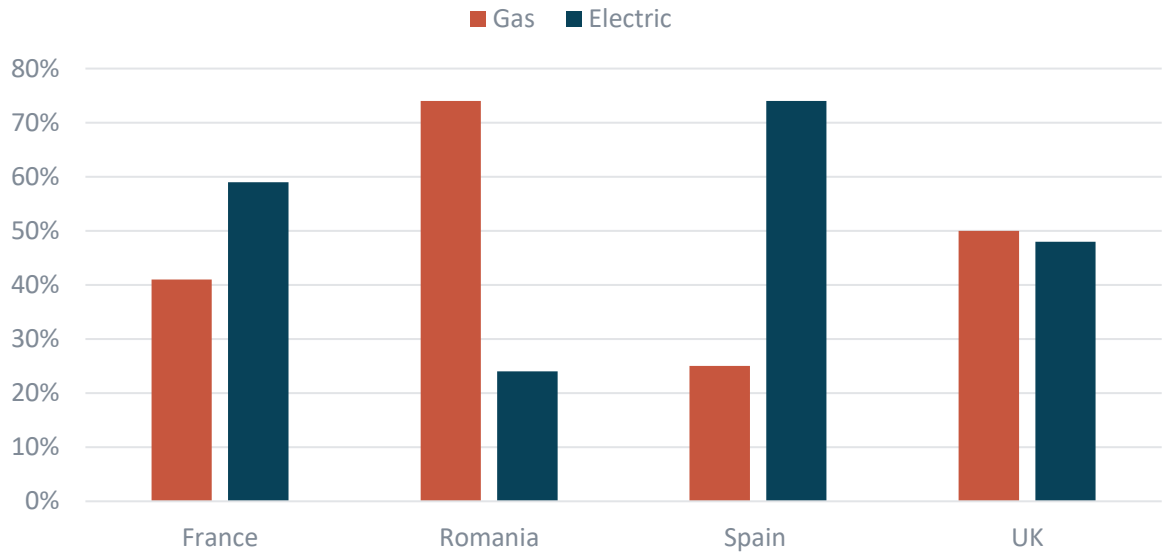
1 Consumer Cooking Appliance Preferences

The surveys included questions on the type of cooking appliances used by respondents and examined the factors that influenced consumer preference for the appliance. Barriers such as the upfront cost, higher electricity bills, and limitations to switching if renting a home may explain the following trends.

The use of gas and electric cooking hobs varies across the four countries[i] (Figure 1). In the UK, gas and electric hob usage is almost equally split, while 59% of respondents in France use electric hobs. (Within this group, 54% use induction hobs.) In Spain, 74% of respondents use electric hobs (63% of them ceramic). Gas is the more prevalent fuel source in Romania, with 74% of respondents using gas hobs. However, across all markets, the results demonstrate that higher-income urban respondents are more likely to cook with electric hobs.

Aligned with their use of electric hobs (Figure 1), respondents in Spain and France favour electric ovens (Figure 2). In Romania, the distribution between gas and electric ovens is almost equally split, while in the UK, 29% of respondents prefer gas ovens. When asked about their preference for gas cooking, the most cited reason was familiarity.

Figure 1. Types of hobs used by country



[i] The numbers in all graphs are based on the surveys conducted with 1,000 respondents in France, Romania, and Spain, respectively, and 2,000 respondents in the UK.

DEMOGRAPHIC INSIGHTS

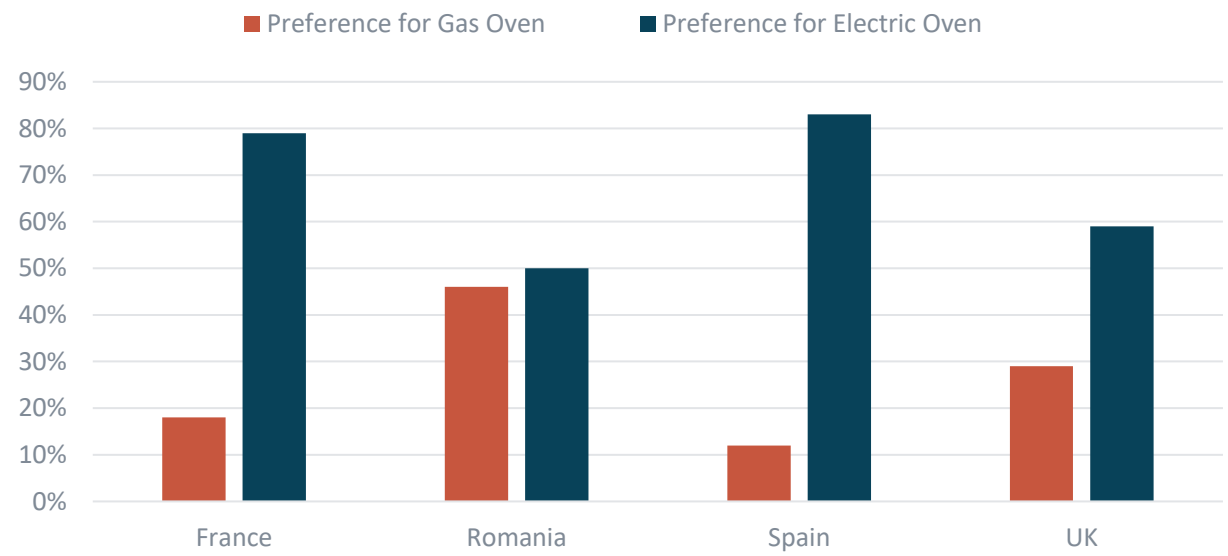
France: Urban consumers with higher incomes are more likely to cook with electric hobs. Those living in urban areas (64%) are more likely to have electric hobs at home than respondents in rural areas (54%). The use of electric hobs is higher among the employed (61%) than the unemployed (55%). This trend is also observed among those aged 18–34, of whom 63% cook with electric hobs, compared to 55% of those aged 55 and above.

Romania: Younger consumers (27%) aged 18–34 are more likely to use an electric hob at home than those aged 55 and above (13%). Employed adults also have a greater tendency to use electric hobs, with 26% of workers having cooked with them, versus 18% of unemployed adults. Homeowners (26%) are more inclined to have electric hobs than renters (20%). Similarly, those living in urban areas (26%) are more likely to use an electric hob than those living in rural areas (16%).

Spain: Higher-income consumers tend to use electric cookers. The lowest earners (65%) are less likely to have electric cookers than the highest earners (83%). Among workers, 77% use electric cookers, compared to 68% among non-workers.

UK: Usage varies based on location, with a higher prevalence of electric cooking found in rural areas (58%), compared to urban (50%) and suburban areas (44%). Additionally, 57% of multi-ethnic respondents favour gas cooking, in comparison to 49% of those who identify as white.

Figure 2. Preferred type of oven



TAKEAWAY

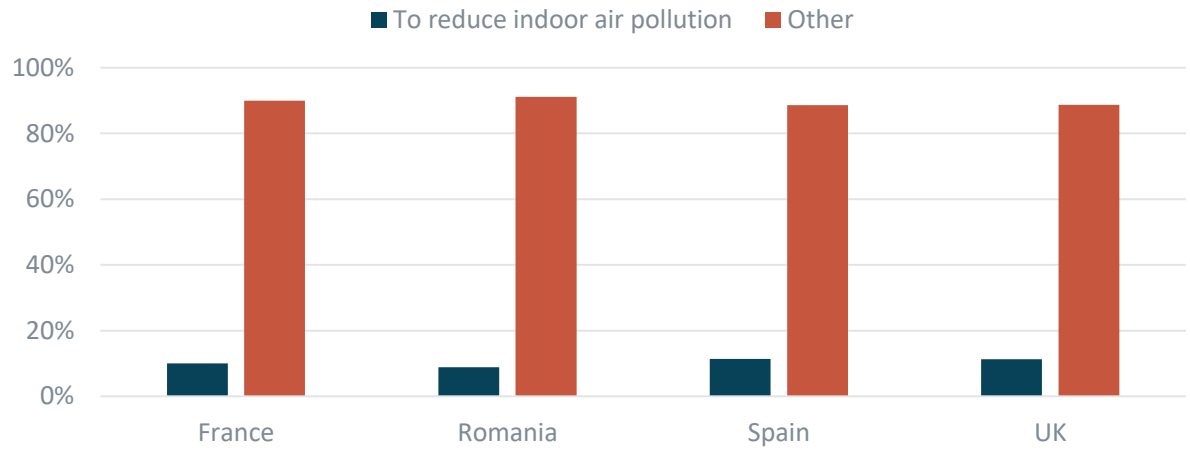
Lower-income, older, and multi-ethnic households tend to cook with gas appliances. Higher-income households are more likely to use electric cooking appliances. This presents an equity issue since certain demographic segments are more exposed to the health impacts of gas cooking. This concern could be partially addressed by providing financial incentives to support an equitable transition to cleaner electric cooking.

2 Ventilation Practices

Gas cookers are one of the main sources of indoor air pollution, which can lead to detrimental health impacts. The World Health Organisation Europe[5] recognises gas appliances as one of the main factors in overall exposure to nitrogen dioxide[6] (NO_2), a major health-damaging air pollutant produced by the gas flame.[7]

Adequate ventilation may help reduce indoor air pollution.[8] In surveyed countries, most respondents employ some form of ventilation when cooking; the primary methods include opening windows or using an exhaust hood. However, most respondents prioritise ventilation to eliminate cooking odours and reduce steam, while only a minority ventilate with the specific aim of reducing indoor air pollution (Figure 3).

Figure 3. Reasons for using ventilation in the kitchen



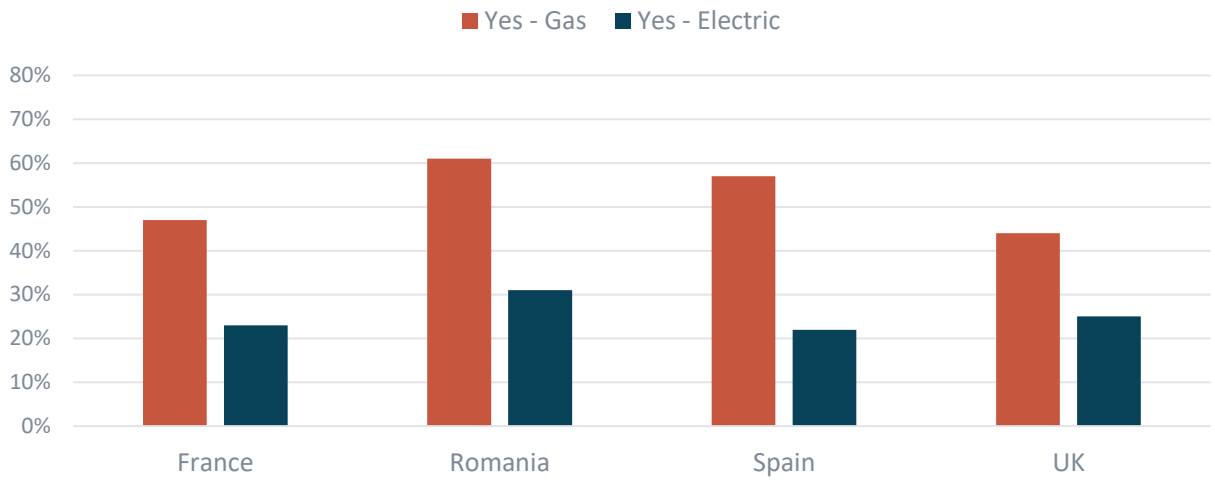
TAKEAWAY

Only 20% of respondents use ventilation while cooking to reduce indoor air pollution. Greater awareness-raising efforts are necessary to educate consumers about the importance of adequate ventilation to reduce indoor air pollution when cooking, particularly when gas appliances are in use. Transitioning to electric cooking appliances would eliminate a large part of the pollution at the source, offering a safer alternative to gas appliances.

3 Awareness of the Relationship Between Cooking and Health

Many adults (40–60%) in France, Romania, Spain, and the UK believe their gas appliance causes health issues (Figure 4). The most common issues respondents associate with gas appliances are respiratory problems; cardiovascular and respiratory illnesses; and irritation of the eyes, nose, and throat. Most respondents also claim they would consider getting rid of their gas appliance if they knew it was linked with health issues.

Figure 4. Are health issues associated with your cooking appliance?



TAKEAWAY

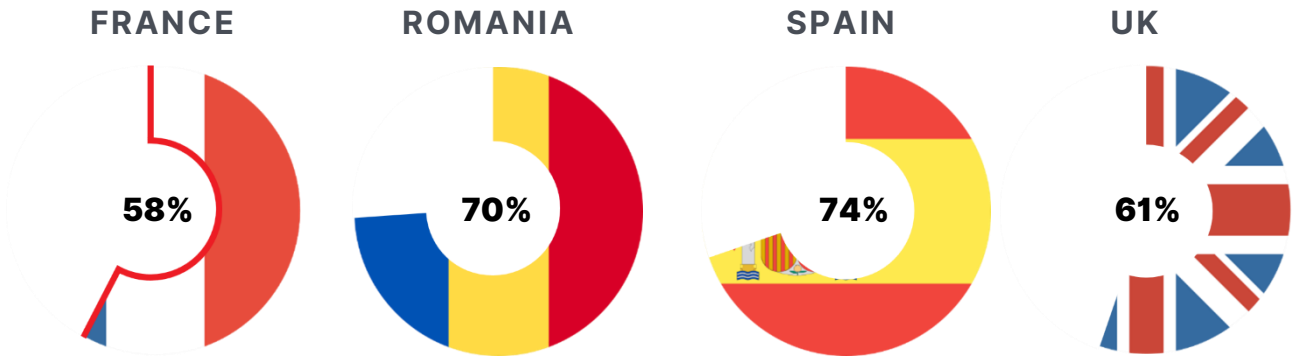
Between 58% and 74% of adults would consider getting rid of their gas appliance if they knew it was linked with health issues.

While respondents tend to consider gas appliances more detrimental to health than electric appliances, approximately 25% of French and Spanish adults believe that electric appliances can also contribute to health problems (Figure 4). Concerns over the health impacts of electric appliances are shared by 31% of adults in Romania, where most survey respondents prefer gas to electric ovens or use gas hobs. However, people in Romania are twice as likely to associate gas appliances with health risks than they are electric appliances.

TAKEAWAY

While respondents associate both electric and gas cooking appliances with health risks, they generally perceive electric appliances as the safer choice. This indicates a consensus among consumers that gas appliances carry higher health risks that could be prevented by transitioning to electric cooking. However, further awareness-raising is essential to educate consumers about the health risks associated with gas cooking and the relative safety of electric alternatives.

Figure 5. I would consider getting rid of my gas cooker if there were health implications.



4 Barriers and Opportunities to Transitioning from Gas to Electric Appliances

4.1. BARRIERS TO TRANSITIONING TO ELECTRIC APPLIANCES

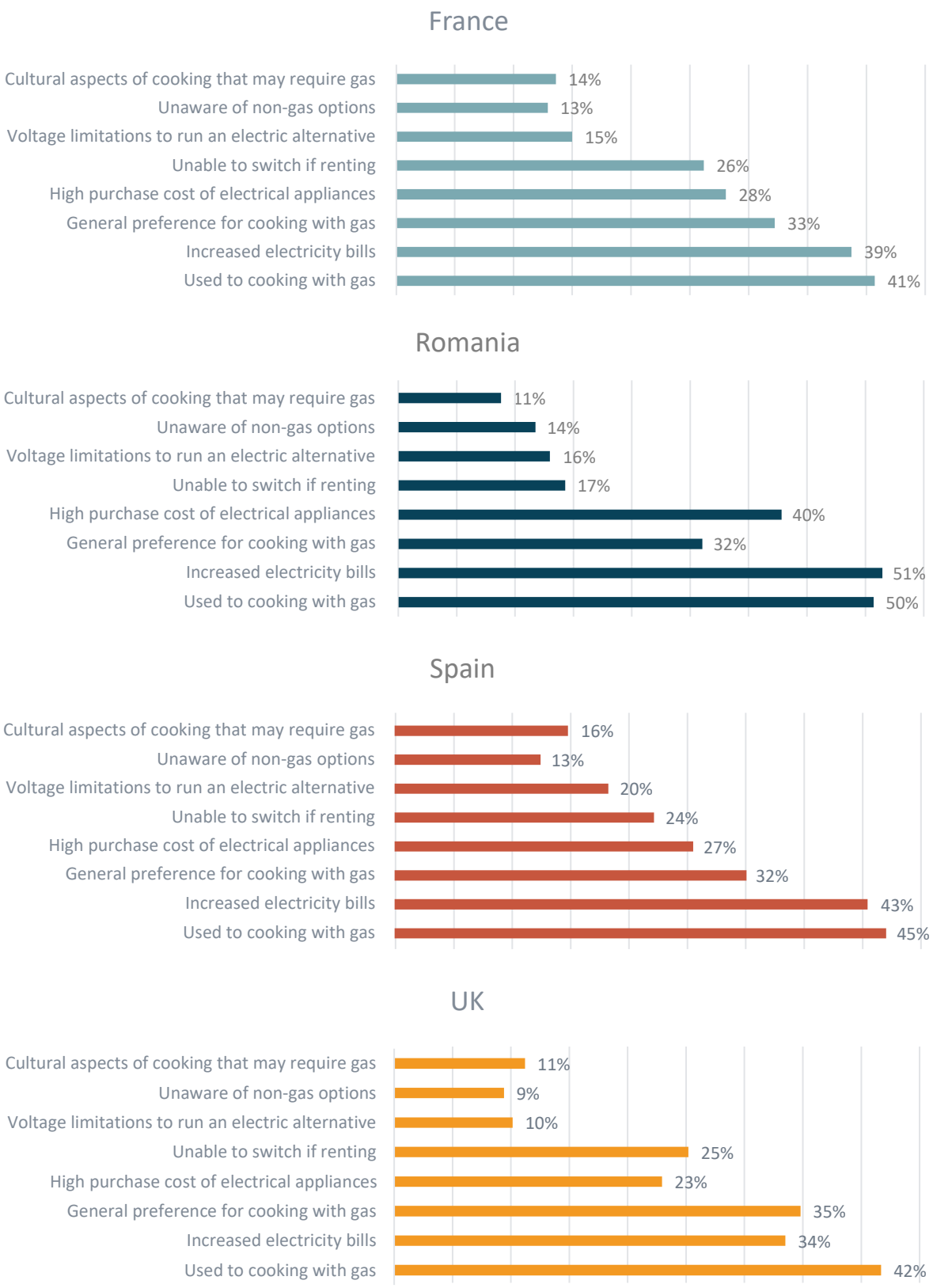
The surveys explored barriers that prevent consumers from transitioning from gas to electric appliances. In all four markets, the primary barrier identified is consumers' familiarity with gas cooking and their "general preference for cooking with gas," (Figure 6[ii]) reflecting a reluctance to adopt new appliances and technologies.

Cost is also an important factor hindering consumers from transitioning to electric appliances. Increased electricity bills, particularly for respondents in Romania and Spain, along with the high purchase cost of electric appliances, are two of the top barriers identified.

Renters face an additional obstacle when considering transitioning to electric hobs, with an average of 25% of respondents in all markets noting that they would be unable to switch if renting a home.

[ii] The data in Figure 6 and section 4.1 are based on the number of respondents who selected each option. Respondents could select more than one response.

Figure 6: Barriers that prevent consumers from transitioning to electric appliances



DEMOGRAPHIC INSIGHTS

Do consumers face varying challenges when transitioning to electric cooking, influenced by their demographic characteristics?

France: Older adults tend to view familiarity with gas cooking as a potential barrier to switching, whereas individuals aged 18–34 are more likely to view increased electricity bills as an obstacle.

Romania: Increased electricity bills are a challenge met by rural residents and those with medical conditions. Familiarity with gas appears to be a more significant barrier for older adults.

Spain: Younger adults and unemployed individuals are more likely to perceive the high initial purchase cost as a barrier. However, the impact of increased electricity bills on the cost of living appears to be a concern shared across all demographic groups, indicating its universal effect.

UK: A general preference for cooking with gas is the greatest obstacle for older adults: 49% of those aged 55 and above express this concern, compared to 31% of individuals aged 18–34. Consumers across all age groups are concerned by increased electricity bills and view renting homes as an additional barrier to transition to electric hobs.

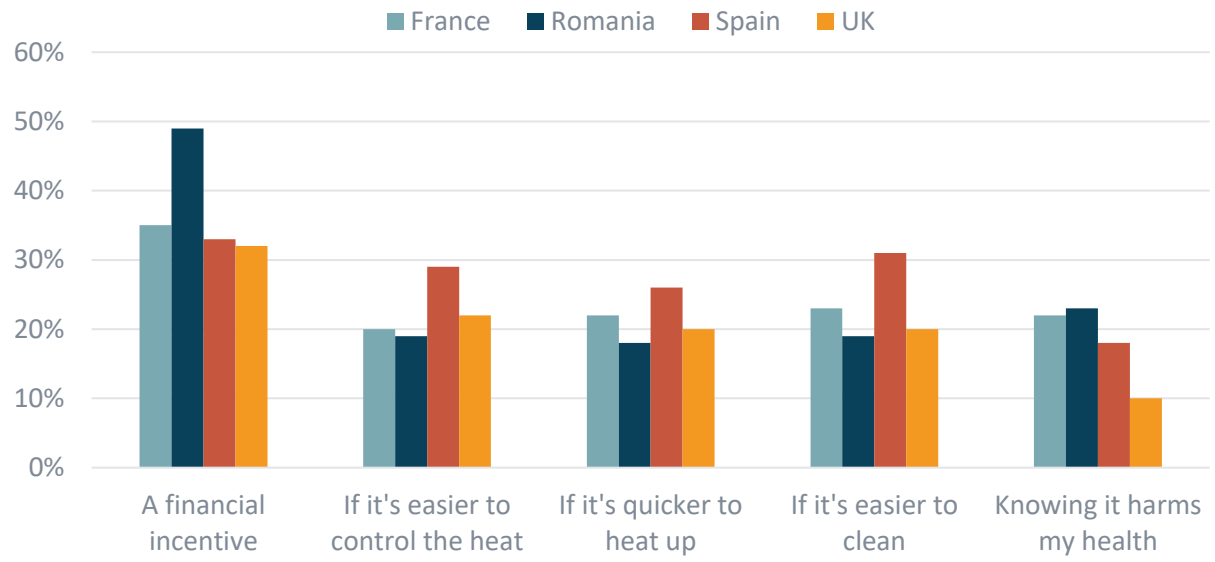
TAKEAWAY

The data reveal that electricity bills are a more prominent concern than the purchase cost of electric cooking appliances. The gap between gas and electric tariffs remains substantial in all four countries. Although specific tariff components may vary by country, fossil fuel subsidies still favour gas over electricity.[9] Governments must prioritise electricity market reforms to ensure that renewable energy becomes competitive and affordable.

4.2. OPPORTUNITIES TO TRANSITION TO ELECTRIC APPLIANCES

Most respondents indicated a financial incentive as a primary motivation to transition to electric hobs. Other motivations include improved appliance performance, such as quicker heating, better control, and easier cleaning. Unlike the findings in Section 3, where respondents expressed a willingness to consider transitioning to electric cooking in response to potential health risks associated with gas hobs, the data also suggest that respondents are more inclined to switch when presented with financial or functional incentives, as opposed to health-related concerns.

Figure 7. What would motivate you, if anything, to transition to electric hobs?



TAKEAWAY

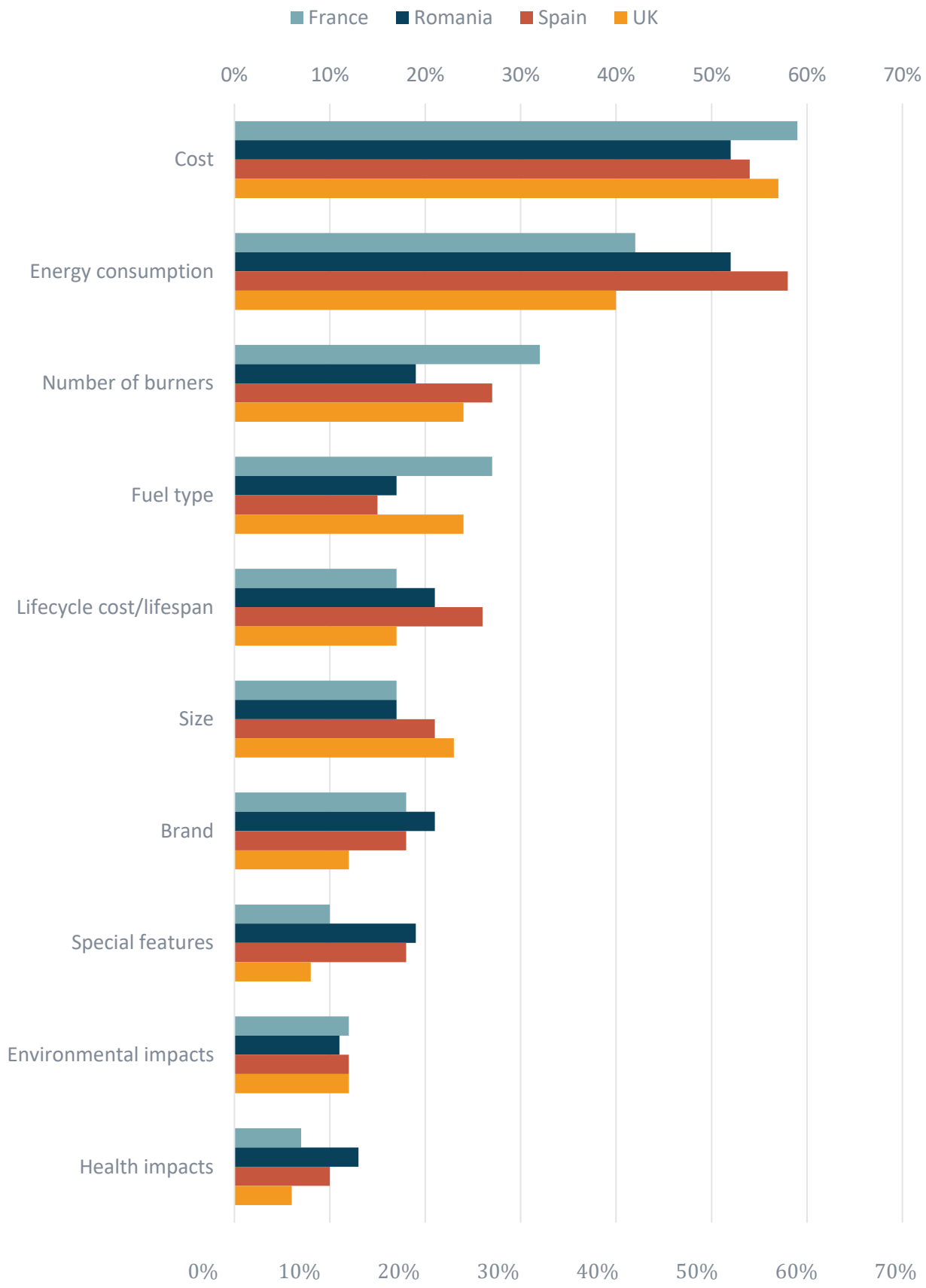
Cost, including both electricity bills and purchase price of electric appliances, is a limiting barrier for most consumers in all four countries. Providing financial incentives to offset the upfront costs would motivate consumers to transition from gas to electric hobs. A better understanding of the quality, performance, and ease of cleaning electric appliances could motivate many consumers to switch. Efforts to raise awareness and educate the public should emphasise that electric alternatives are easier to control and heat up quicker than gas hobs.

5 Energy Efficiency and the Transition to Electric Cooking

5.1. PURCHASE DECISIONS: ENERGY EFFICIENCY VS. COST

Consumers in all four markets prioritise the energy efficiency of their cooking appliances, ranking it among the top two out of ten factors they consider when purchasing a new hob or oven. In Romania and Spain, energy efficiency is the most important factor to consider, while in France and the UK, it comes second, following cost.

Figure 8. Top ten factors considered when buying a new hob



DEMOGRAPHIC INSIGHTS

France: Older adults (47%) prioritise energy consumption when choosing cooking appliances, compared to 39% of those aged 18-34. The importance of cost increases among the unemployed, individuals with low incomes, renters, and those living in rural areas.

Romania: Energy consumption is considered more important by women (56%) than men (46%). Older adults (64%) place a higher importance on energy consumption compared to those aged 18–34 (45%). Adults with young children (55%) value energy consumption more than those without children (47%). Employed individuals (56%) prioritise energy consumption over unemployed individuals (43%), and those with medical conditions (56%) find it more important than those without medical conditions (48%). Cost is considered most important among older adults and urban residents.

Spain: Among consumers aged 55 and above, 60% prioritise energy consumption when selecting a cooking appliance, compared to 51% among younger consumers aged 18–34. Parents with children under 18 also prioritise energy consumption, with 62% of them considering it important, compared to those without children, of whom 52% consider it important. Respondents with higher incomes consider energy consumption to be important, while those with lower incomes prioritise cost.

UK: As in France, older adults (49% of those aged 55 and above versus 34% of those aged 18–34) give more consideration to energy consumption when selecting appliances. There is a higher level of concern for energy consumption among those living in rural areas (46%) compared to those living in urban areas (37%).

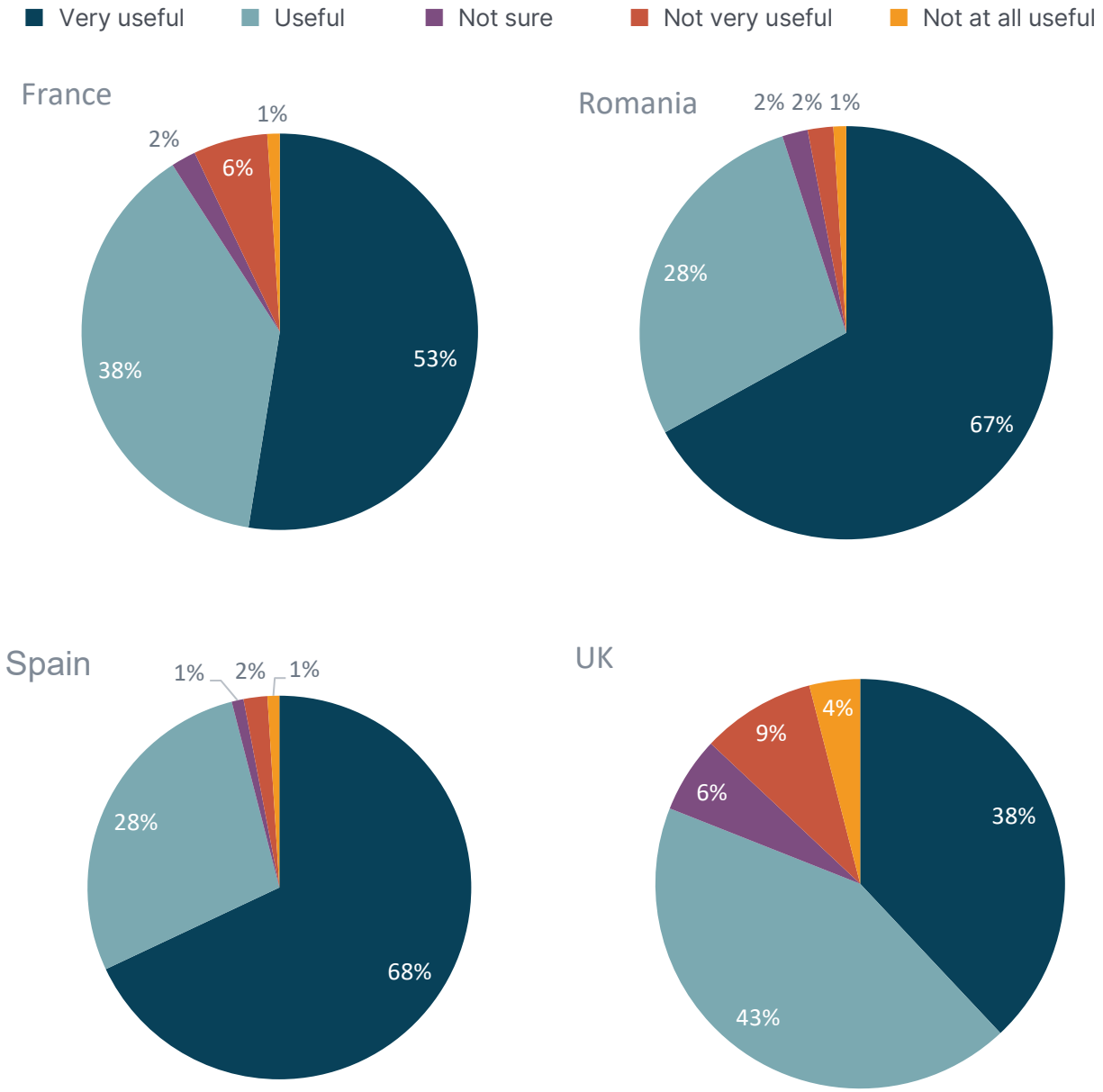
TAKEAWAY

Affordability of appliances is a significant concern across markets. Both the cost of an appliance and its energy consumption play an important role in consumers' appliance selection. This shows the importance of maintaining a variety of electric hob technologies available on the market. Induction hobs are the most efficient, but also the most expensive. Financial incentives for the purchase of induction hobs, specifically for lower-income households, would respond to the concern of the high purchase cost and allow consumers to prioritise energy efficiency, accelerating the transition to more efficient electric cooking.[10]

5.2. HOW *IMPORTANT* AND *USEFUL* WOULD AN ENERGY EFFICIENCY LABEL BE?

When a consumer purchases an oven, the product is sold with an A-G Energy Label that provides an overview of energy efficiency and other performance information (although with different labels for electric and gas ovens). While research has clearly highlighted variations in efficiency levels between gas and electric technologies,[11] there is currently no standardised labelling or comparison mechanism in place for hobs to inform consumers about these differences. An overwhelming majority of respondents (91% in France, 95% in Romania, 96% in Spain, and 81% in the UK) would find the implementation of an energy efficiency label useful for both hobs and ovens.

Figure 9. Usefulness of a new energy efficiency label for hobs and ovens in 4 European countries



TAKEAWAY

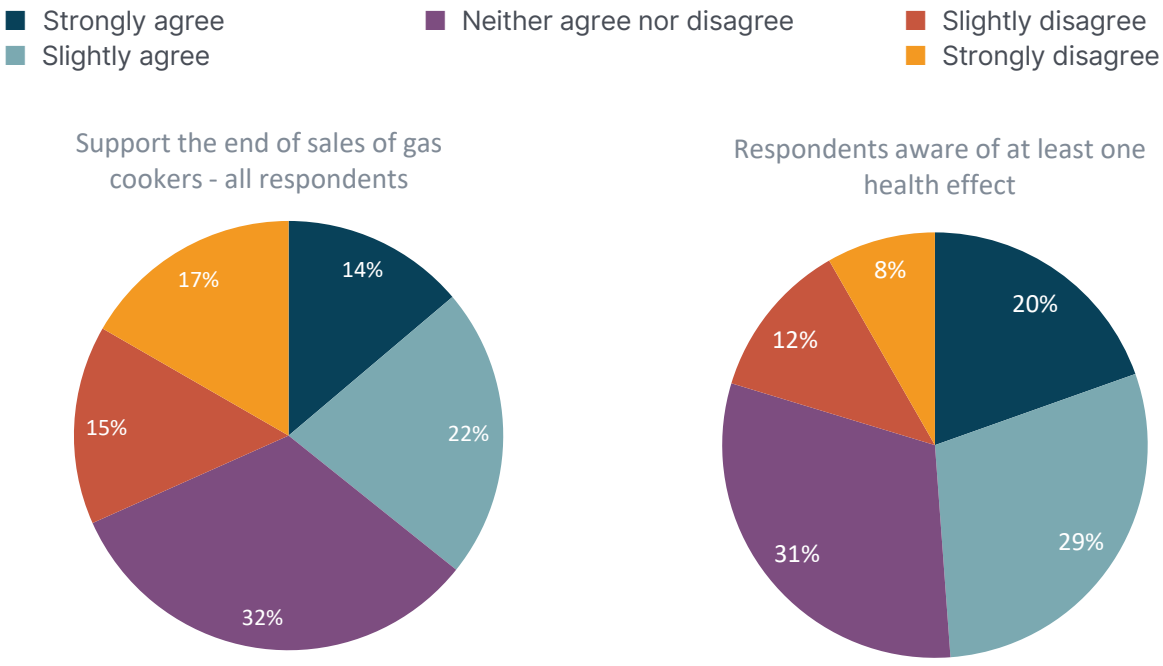
Nearly all consumers in Europe would welcome the introduction of an energy efficiency label to compare the efficiency of hobs and ovens. An A–G Energy Label can offer consumers the information they need to make informed purchasing decisions. Improved consumer awareness of energy efficiency and health-impact disparities among technologies, as seen in Section 3, would encourage the switch from gas to electric cooking.

6 Perspectives on Government Interventions to Electrify Cooking

The surveys assessed support for government initiatives aimed at promoting the adoption of electric hobs and ovens. Approximately 36% of adults surveyed in France, Romania, and Spain support government measures to end the sale of gas cookers. Roughly 32% disapprove, while the remaining respondents neither approve nor reject government intervention (Figure 10).

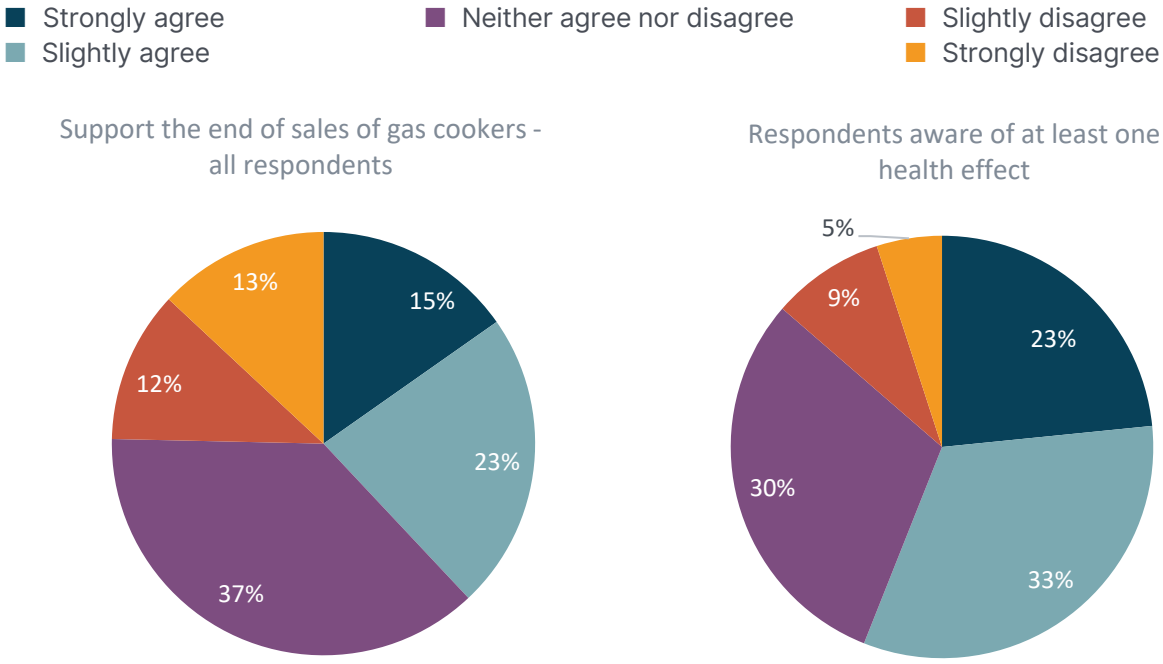
However, the support to end sales of gas cookers increased to about 50% among respondents who associate at least one health effect with gas cooking, compared to the 20% who oppose it (Figure 10). Consumers who are aware of the health impacts of cooking on gas hobs tend to be more supportive of measures to end sales of gas cookers.

Figure 10. Support for the end of sales of gas cookers in France, Romania, and Spain, depending on awareness of health effects



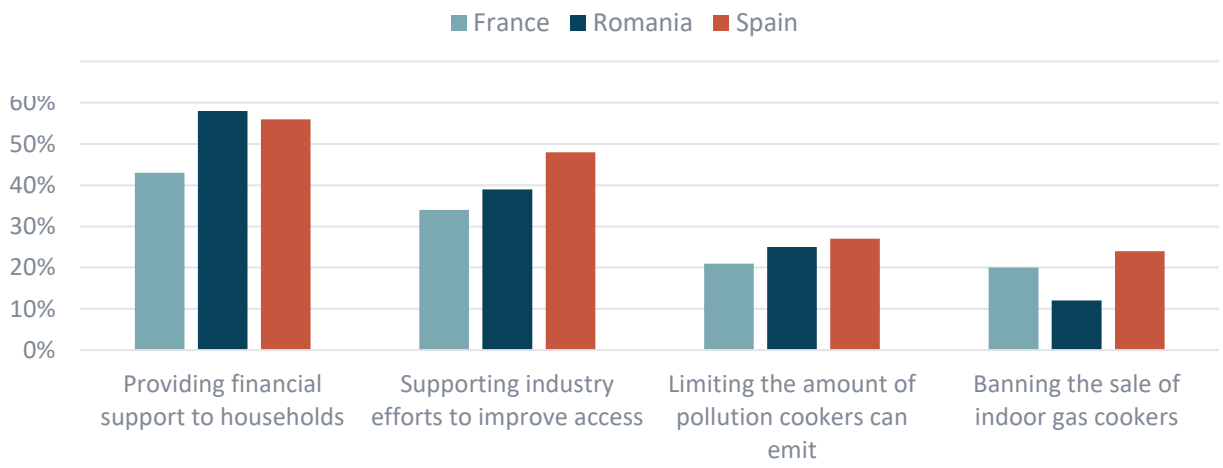
In the UK (Figure 11), 38% of respondents were supportive of measures to end the sale of gas cooking appliances, compared to 25% who did not support such measures. However, if consumers were aware of at least one health effect of gas cooking, they were more supportive of measures to end sales of gas cookers (56%, compared to 14% respondents who remained opposed).

Figure 11. Support for the end of sales of gas cookers in the UK, depending on awareness of health effects



In all four countries, 77–88% of respondents view government intervention as an effective means to facilitate the transition to electric cooking (Figure 12). Government initiatives that would enable the switch include providing financial support to households; supporting industries that improve the availability and accessibility of electric cooking technologies; establishing pollution emission limits for cookers; and prohibiting the sale of indoor gas cookers. Options not shown in these figures include alternative schemes proposed by respondents and no government intervention.

Figure 12. Government schemes that would enable the transition to electric cooking



TAKEAWAY

Consumers are generally supportive of financial incentives to accelerate the transition to electric cooking. Respondents also express support for setting pollution limits on cooking appliances and even prohibiting the sale of indoor gas cookers. Support for these measures increases when consumers associate health risks with gas cooking, emphasising the need for a clear and informative A–G Energy Label. It is important to note that the surveys did not explore government interventions aimed at making electricity and gas prices more competitive.

7 Survey Limitations

The conducted surveys were limited in scope and scale. Information from other European markets with substantial rates of households cooking with gas, such as Italy (68.7%), the Netherlands (64.5%), and Slovakia (68.5%), would capture the full spectrum of cooking practices and preferences across Europe. Collecting insights from countries with higher electric cooking trends would provide valuable data on what motivates individuals to transition away from gas cooking. Questions on cooking practices and the specific types of cuisine prepared by respondents were not included in the surveys. Diving into culinary traditions and the cultural context of cooking could reveal new insights on the challenges and opportunities to electrify cooking.

The surveys were designed to capture a representative sample of adults in each country, which limited the depth of analysis on the unique challenges faced by specific demographic segments when transitioning to electric cooking. Including specialised or demographically targeted respondent groups could yield useful insights for EU, national, and local governments, as well as other stakeholders. The surveys explored a limited range of solutions to accelerate the transition to electric cooking, with no data gathered on consumers' interest in government interventions to reduce electricity costs. The surveys did not examine the interest in options such as coupling solar panels with induction hob installations to offset electricity demand.

Conclusion

Despite the well-documented risks of pollutant emissions from gas appliances, survey respondents are generally unaware that gas appliances can impact their health. However, many would be inclined to replace their gas cookers if they were aware of the health risks. Many respondents also harbour misconceptions that gas cooking appliances are easier to use and faster in heating, despite electric hobs being the quickest, most efficient, and most precise alternative.

Consumers support the concept of an A–G Energy Label for both gas and electric cooking appliances. The energy label can empower consumers with efficiency and emissions information they need to make informed purchasing decisions and increase the uptake of electric hobs and ovens. Certain demographic groups are more at risk. Lower-income, older, and ethnic minority households tend to cook with gas more often than their higher-income counterparts. This represents an equity issue that could be mitigated by providing financial incentives to upgrade gas cooking appliances to cleaner, healthier, and safer electric models. Additional measures to reduce electricity costs are essential, making electric cooking a financially sustainable choice for households in the long term.

Conducting further research into consumer perspectives can provide deeper insights into the necessary strategies to accelerate the transition from gas to electric cooking.

Endnotes

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