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Report on consumption behavior

Analysis of the impact of individuals' engagement in the reduction of primary energy consumption

Sustainable consumer behavior

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Executive summary

This policy brief summarizes three research projects examining consumer attitudes and behaviors toward sustainability.

The first project investigates how climate change concerns influence consumer practices in Europe, with a focus on Italy. A survey of over 1,000 Italians by Intesa Sanpaolo reveals that two-thirds of the interviewees engage in eco-conscious behaviors, including purchasing environmentally friendly products and adopting sustainable mobility practices. Emerging trends like Zero-Waste Living, Digital Secondhand, and Sustainable Urban Mobility highlight a shift in consumer priorities. The findings emphasize the demand for product accountability, transparency in sustainability claims, durable goods, and reduced packaging waste. Regulatory measures such as the Green Claims Directive and Right to Repair Directive align with these preferences, addressing greenwashing and fostering waste reduction.

The second project focuses on the role of individual and community engagement in reducing primary energy consumption, particularly through Renewable Energy Communities (RECs). A forthcoming survey of 15,000 Italians will examine perceptions, behaviors, and willingness to participate in RECs, addressing barriers such as limited awareness and regulatory hurdles. This study will produce a comprehensive dataset to inform strategies for increasing public engagement and supporting the energy transition. Outputs include a detailed report and contributions to the AMELIA database, providing a foundation for policies that promote energy efficiency, financial incentives, and streamlined regulations, with implications for social equity and sustainability.

The third project explores the psychological drivers and barriers to sustainable consumer behavior, emphasizing energy and food consumption. Through qualitative and quantitative methodologies, including literature reviews, focus groups, and surveys, the research identifies underexplored behaviors with high CO2 mitigation potential, such as renewable energy adoption and plant-based diets. The findings will address limitations in current sustainability policies and provide a framework for developing interventions that are both effective and publicly accepted.

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1. Presentation and description of the research activity undertaken

1.1 Report on consumption behavior

The report analyses the close link between consumer behavior and the approach to sustainability. In particular, the issue related to climate change worries Italian as well as European citizens: more than 90% of the latter consider it a serious problem at a global level (Eurobarometer). A quantitative survey by Intesa Sanpaolo on a panel of over 1,000 citizens, in fact, confirms that two out of three interviewees implement mitigating behaviors such as the purchase of environmentally friendly products, the modification of the food diet, the sharing within one's community of eco-sustainable behaviors to be implemented. The study explores areas such as End-to-End Accountability, Product Durability, and Plastic-free Packaging, as well as new paradigms such as Zero-waste Living, Digital Secondhand, Green Last Mile, and sustainable urban mobility.

1.2 Analysis of the impact of individuals' engagement in the reduction of primary energy consumption

One of the research lines active in the Spoke-6 team at the University of Padova aims to study the impact of individuals' and communities' engagement in the reduction of primary energy consumption. This policy brief outlines a forthcoming survey designed to assess individuals' perceptions, awareness, and behaviors in the field of energy consumption and sustainability, as well as the willingness to participate in Renewable Energy Communities (RECs). The survey aims to gather insights from 15000 Italian citizens regarding such themes. Specifically, the survey is composed of four main sections: 1. Profile of the interviewed person; 2. Judgments on the energy context, tools, and policies for energy efficiency and sustainability; 3. Perceptions, awareness, and

actions on energy issues, and knowledge; 4. Willingness to participate in renewable energy communities. We can anticipate that the findings will reveal critical trends and sentiments regarding renewable energy practices and collaborative energy production. The research activity is designed to be comprehensive, targeting a diverse sample of the population, including various geographies and demographics such as age, income, and educational backgrounds. This diversity will enable an extensive view of individuals' attitudes in the (sustainable) energy sector and toward RECs. As a relevant part of the activity undertaken, we have obtained quotes from multiple third-party companies that specialize in survey administration. After evaluating these options, we have established a partnership with a leading firm in this field. Moreover, the firm will be responsible for several key tasks, including organizing the kickoff meeting (online) to initiate activities, preparing the sampling plan, reviewing the questionnaire for clarity and comprehension along with sensitive topics and compliance, monitoring the implementation of the questionnaire on the CAWI/CATI platforms, supervising and monitoring the progress of the fieldwork, and producing and delivering reports and data files. The survey has also been validated by various experts, both in academia and the private sector, including consulting firms that focus on RECs.

1.3 Sustainable consumer behavior

The contemporary environmental scenario is marked by several environmental problems, including global warming, air pollution, soil exploitation, and biodiversity loss, which pose a significant threat to the well-being of the humanity in its whole (Trudel, 2018). In particular, greenhouse gas emissions, the main component of which is carbon dioxide (CO2), are at the core of the current environmental crisis (Dritsaki and Dritsaki, 2014). The continued reliance on fossil energy, as well as unsustainable consumption patterns, have led to an exponential increase in CO2 emissions, with detrimental consequences on climate change. This alarming trend highlights the pressing urgency to adopt effective strategies to mitigate the environmental impact and promote sustainable consumption behaviors. However, the transition to a greener society presents significant challenges, especially related to the change and evolution of individuals' and communities' ingrained behaviors and established consumption patterns. This research aims to provide evidence-based behavioral insights for the development and implementation of public policies and private initiatives. The purpose will be to underline barriers to, and psychological drivers of individuals' engagement in

sustainable behavior, especially in the domains of energy consumption and food consumption.

2. Relationship with the existing literature on the topic

2.1 Report on consumption behavior

The data and commentary in this Consumer Trend Report have been developed and provided by Fondazione Links and Intesa Sanpaolo Innovation Center analysts.
It draws largely on content written by dedicated analysts who leverage previous coverage and their own expertise combined with a comprehensive desk-based and a secondary research to provide a balanced view.
The research has been provided by Intesa Sanpaolo with the title *"The impact of climate and environmental change on the behavior of Italians"* with the aim of analysing people's perceptions of the risks associated with climate change and the consequent impact on the environment and their lives. The methodology used was a quantitative survey conducted on a sample of over 1,000 individuals representative of the Italian population between 18 and 65 years old, by gender, age and geographical area (95% confidence level and margin of error ±3.07%). The survey was made through web interviews (cawi) in January 2024.
Secondary sources consulted include (but are not limited to) company websites, reports and press releases, the general and specialist press and third-party business information databases. The main data sources analyzed were: Trend Watching, Statista, Euromonitor International, Consilium (https://www.consilium.europa.eu/it/), European Commission (https://commission.europa.eu/index_en), European Parliament (https://www.europarl.europa.eu/portal/en), European Union (https://european-union.europa.eu/index_it), Eurostat.
It also includes limited publicly available data and commentary, added during the report development process, which stems directly from the companies, organisations and academic institutions that are mentioned within the text.

2.2 Analysis of the impact of individuals' engagement in the reduction of primary energy consumption

The concept of sustainability in the energy sector and RECs are increasingly gaining attention in both academic and policy circles as a crucial component of the transition to sustainable energy systems (Bauwens, 2016; Potrc et al., 2021; Geels, 2024; Di Selvestre et al., 2021 for Italy). Existing literature emphasizes the role of individuals' and community engagement in fostering energy efficiency, resilience and sustainability (Zakari et al., 2022). Studies have shown that alternative ways to energy production and RECs can empower local communities, enhance energy security, and contribute to achieving broader environmental goals by promoting renewable energy generation and consumption (Hahnel et al., 2022). Research indicates that numerous benefits can be expected such as cost savings for consumers, increased local job creation in the renewable energy sector, and reduced greenhouse gas emissions (Soeiro and Dias, 2020). Furthermore, literature highlights the social aspects of community ways to sustainable energy production as RECs, noting that participation can strengthen community bonds and promote social equity by making renewable energy accessible to underserved populations (Gjorgievski et al., 2021). However, challenges remain. For instance, research suggests that individuals' adoption of tools for the use of renewable energy is sometimes difficult or unknown and that public awareness of RECs is often limited, which can lead to misunderstandings about their structure and benefits (Piselli et al., 2022). Additionally, financial barriers and regulatory uncertainties are frequently cited as obstacles to such adoption and participation (Qadir et al., 2021). Our forthcoming survey is designed precisely to address these gaps. An alignment with existing literature is important to ensure that our findings will be relevant and valuable for ongoing discussions about renewable energy policies and community-based energy initiatives.

2.3 Sustainable consumer behavior

In light of the remarkable impact of consumption activities on the natural environment (Stern, 2000), consumer researchers have recently intensified their effort to better understand the key determinants of environmentally-friendly consumption behaviors in order to support consumers in a transition to more sustainable lifestyles (Catlin and Wang, 2013; Chernev and Blair, 2021; Trudel, 2018; White et al., 2019) and lower-emission consumption patterns (Dritsaki and Dritsaki, 2014). However, sustainable consumption behaviors differ greatly in their potential to reduce CO2 emissions, with individuals (i.e., laypeople but also experts) often forming inaccurate perceptions of the actual environmental impact of such behaviors. For instance, while people may think that recycling consistently for a year has a clear impact, it is over 30 times less effective at reducing CO2 emissions than avoiding just one long-distance flight (Ivanova et al., 2020). A recent systematic review (Lembregts and Cadario 2024) has demonstrated that research to date has primarily focused on a narrow range of sustainable consumer behaviors (e.g., recycling) with significantly lower potential in reducing such emissions compared to other behaviors that have instead received limited research attention. According to recent empirical evidence (Ivanova et al., 2020), several underresearched behaviors with significantly higher potential in reducing CO2 emissions fall in the areas of housing (e.g., shifting to renewable electricity), transport (e.g., living car-free), and food consumption (e.g., adopting a plant-based diet).

Therefore, there is an urgent need to delve deeper into the determinants of consumers' decisions to engage in sustainable behaviors with relatively higher mitigation potential. A better understanding of the barriers to and the drivers of such behaviors could be particularly useful in designing effective policy interventions aimed at inducing consumers to adopt lower-emission behaviors.

3. Research output

3.1 Report on consumption behavior

In 2020, more than 53% of companies' green claims were unfounded (European Commission) and this fuels a consumers' need to have truthful and verifiable information. End2End Accountability therefore becomes a demand from consumers who are increasingly sensitive to transparency on the sustainability of products, production processes and the origin of raw materials. In addition, in 2023, 58% of consumers placed importance on the durability of the product they were buying and 39% considered its repairability (Deloitte). 48% of European consumers say they consider the material with which the packaging is made when purchasing (Eviosys). Sustainable packaging is seen both as a reduction in packaging material and as a replacement of non-biodegradable plastic materials with recyclable and biodegradable materials.

New paradigms such as Zero-waste Living, Green Last-Mile, Digital Second Hand, Sustainable Urban Mobility are entering common use. Zero-Waste Living – (ZWL) is a trend that calls for a lifestyle aimed at minimizing waste, maximizing the use of resources. It includes avoiding the purchase of products that generate a lot of waste, reducing purchases, reuse and recycling. This is how the "Environmentally Conscious Nonconsumers" were born: their approach to sustainability leads them to reduce consumption to the essentials. In 2023, about 25% of European consumers included the sustainability of shipping methods in their purchasing criteria (Statista). The Green Last-Mile (GLAM) identifies consumers' preference for more sustainable shipping delivery methods resulting from online purchases. Around a third of consumers in Europe are willing to pay a premium on their purchases in exchange for an environmentally friendly shipping service. Digital Second Hand (D2ndH) is establishing itself as a business model driven mainly by economic reasons for the search for greater value in the purchase, but aspects related to sustainability represent a further important driver for the spread of the phenomenon. Although to date it is not the main reason that drives the purchase of D2ndH, the issue is particularly felt by younger consumers, who assume an ethical and sustainable purchasing behavior. Such behaviors are often driven by purchasing choices and behaviors suggested by the opinion of influencers on social media, the so-called Greenfluencing. In 2024, 76% of digital content creators expressed a willingness to talk about climate issues (Unilever).

Finally, a strong change in consumer behavior is found in the new modes of travel that favor the use of shared vehicles or alternative transport to private vehicles. The younger generations are also very willing to use MaaS – Mobility as a Service solution.

3.2 Analysis of the impact of individuals' engagement in the reduction of primary energy consumption

We can anticipate that the research outputs will provide critical insights into individuals' attitudes and perceptions toward renewable energy and community perceptions of RECs. Upon completion of the survey, we expect to generate a detailed report that synthesizes the findings and highlights key themes. This report will present quantitative and qualitative data on perceptions and behaviors of individuals in the (sustainable) energy sector and on public awareness of RECs, willingness to participate, and perceived barriers to engagement. In addition to the final report, we plan to develop presentations that effectively communicate the results to various stakeholders. These outputs will be designed to facilitate discussions around the implications of the findings and will aim to inform strategies for enhancing community engagement in renewable energy initiatives. Moreover, we will develop an interpretative model of the Italian population's propensity to adopt sustainable practices in support of the energy transition, with applications in the specific case of RECs. Certainly, the main expected output is the population of the AMELIA database with data and indicators regarding energy sustainability themes for individuals and RECs. We also foresee the potential for interim outputs, such as preliminary findings shared with other components of the GRINS project. By establishing such a robust framework for data collection and analysis, we aim to ensure that the research outputs will be both comprehensive and actionable, providing a strong foundation for future policies and community initiatives related to renewable energy. The survey includes a quantitative investigation involving a robust sample of 15000 households across the national territory. The proposed sample will be non-probabilistic and stratified according to relevant sociodemographic variables, including household composition, geographical area, and size of the municipality. These stratification variables will be cross-tabulated, allowing for a more nuanced analysis of the data, specifically household composition and municipality size

cross-referenced by geographical area. In terms of data collection, the firm will ensure a mixed-methods approach, integrating online interviews (CAWI) and telephone interviews (CATI) to enhance the representativeness of the reference population of Italian individuals and their specificities.

3.3 Sustainable consumer behavior

The research project will employ a comprehensive and rigorous methodology that includes the analysis of barriers and drivers able to guide behavioral change towards actions with a reduced impact on CO2 emissions. To this end, the research at the University of Salento will adopt a qualitative and quantitative approach. Firstly, the research team has started a literature review on individual sustainable behaviors in order to identify a set of environmentally-friendly behaviors with a relevant potential in terms of CO2 emission mitigation, but that has remained underexplored in the literature. As mentioned above, recent empirical evidence (Ivanova et al., 2020; Lembregts and Cadario, 2024) indicates that some of these behaviors fall in the areas of households' energy usage, transport, and food consumption. Then, the team will focus on psychological barriers that may deter consumers from engaging in such behaviors and the main drivers of such behaviors. This review stage will provide the team with the comprehension of the state-of-the-art in the contemporary academic literature on sustainable consumption and will support the team in developing a conceptual model to be tested in following stages of the research.

Operationally, the research team will conduct a qualitative pilot study, through focus groups or in-depth interviews (Arsel, 2017; Hartman, 2004; Kallio et al., 2016), to explore the potential validity of prior evidence regarding behaviors, barriers, and drivers. Therefore, in accordance with scientifically recognized standards and practices (DeVellis and Thorpe, 2021; Slattery et al., 2011), the research team will conduct extensive surveys to empirically validate the proposed conceptual model. The combination of qualitative and quantitative approaches will ensure adequate rigor of the empirical evidence provided. This, combined with a robust theoretical framework, will provide scientific solidity to the entire proposed study.

4. Policy implications

4.1 Report on consumption behavior

Consumers' demand for greater transparency and clarity on production processes, on the recycling and reuse of products and on their reusability implies a series of policies by regulators that can meet these requests and the increasingly frequent phenomenon of greenwashing. The Green Claims Directive proposed by the European Commission and under discussion in the European Parliament goes precisely in this direction and aims to establish criteria so that information on the sustainability of companies is reliable and verifiable. This directive is in addition to the adoption from 2025 of the Corporate Sustainability Reporting Directive (CSRD), which requires large companies operating within the European Union to also report on additional indirect emissions generated by a company's value chain.

Starting in 2026, the Digital Product Passport – DPP will be introduced in Europe on a wide range of products, from clothing to electronics, from furniture to building materials. Accessible via QR Code, it will allow consumers to know information about products regarding durability, reusability, upgradability, repairability, carbon and environmental footprint, and the amount of recycled materials. On the supply side, there are growing incentives and regulatory pressures aimed at marketing products with greater durability and repairability. Of particular relevance is eco-design, i.e. the design of products so that they are durable, reusable and upgradeable. Just in April 2024, the European Parliament approved the European Right to Repair directive, which lays the foundations for reducing waste and increasing the life of products. The European Union is also moving on packaging: the new packaging regulation was approved in April 2024 by the European Parliament for the reduction of packaging, the ban on single-use packaging and incentives for reuse and recycling. As soon as it is finally approved by the European Council, it will also provide for packaging reduction targets to be implemented by 2030, 2035 and 2040.

4.2 Analysis of the impact of individuals' engagement in the reduction of primary energy consumption

The anticipated findings from the survey will have significant implications for policymakers and stakeholders involved in the (renewable) energy sector and in promoting RECs. By understanding public perceptions and expectations regarding such initiatives, policymakers can develop targeted strategies to increase awareness and engagement about energy from renewable sources and community ways to reach it. Given that many community members may currently have limited knowledge of RECs and sustainability in the energy sector in general, initiatives aimed at educating the public about their benefits and operational frameworks will be essential. This could involve workshops, informational campaigns, and collaboration with local organizations to disseminate knowledge effectively. Moreover, addressing perceived barriers, such as financial uncertainties and bureaucratic challenges, will be crucial for bringing people and places closer to the concepts of sustainable energy and participation in RECs. Policymakers may need to consider implementing financial incentives, such as subsidies or tax breaks for individuals (eventually businesses) that invest in renewable energy initiatives. Simplifying the regulatory processes associated with the access to renewable energy and joining or forming RECs could also be another relevant component of such initiatives. By fostering collaboration among local governments, businesses, and citizens, policymakers can create a supportive environment for renewable energy and REC initiatives to flourish. This collaboration will be essential for building trust and ensuring that community members feel empowered to participate actively in the energy transition. Ultimately, the implications of this research extend beyond the immediate context of the energy sector and Renewable Energy Communities; they contribute to broader discussions about sustainability and social equity. By aligning local energy initiatives with the values and needs of the community, policymakers can enhance the resilience of local energy systems and contribute to a more sustainable future.

4.3 Sustainable consumer behavior

Climate change resulting from the accumulation of greenhouse gases in the atmosphere significantly contributes to global warming, with negative repercussions on biodiversity, ecosystems, and human life. In this context, behavioral change is crucial in the fight against climate change. Although sustainable technologies and mitigation policies may play a significant role, the effectiveness of these actions is limited if no changes in individual and collective behavior occur. Thus, it is essential to develop strategies that may significantly influence consumer's shift toward more sustainable consumption patterns.

Over the past decades, numerous governments and international organizations have implemented a wide variety of policies to promote sustainable behaviors and reduce CO2 emissions. These policies range from carbon taxes and emission trading systems to subsidies with renewable energy, energy efficiency regulations, and bans on highly polluting materials. Despite some successes, a series of factors keep limiting the effectiveness of the policies. One of the main factors undermining the success of institutional actions is the lack of public acceptance and adherence, as well as a sort of "cap" anxiety that consumers feel when they do not possess the literacy on sustainable consumption (Lembregts and Cadario, 2024). Policies that demand substantial changes in consumer behavior are still viewed as punitive, thus encountering resistance among individuals. Furthermore, existing regulations often overlook the complexity and interdependence of human behavior. For instance, initiatives designed to reduce energy consumption in an area may lead to compensatory effects in another, such as increased car use after regular recycling. This phenomenon is known in literature as licensing effect (White et al., 2019) and can invalidate the benefits of environmental policies. Moreover, many contemporary policies concentrate on technological interventions or economic incentives, again overlooking the potential of behavioral change.

In response to this, the research project undertaken seeks to empirically investigate the psychological factors that drive behavioral change. Through an empirical analysis of barriers and psychological drivers that influence the adoption of sustainable behaviors, specifically in the areas of energy and food consumption, the research work aims to offer relevant insights that can inform the design and development of policies that might be more publicly accepted and more effective.

From an academic perspective, this research work aims to advance the current understanding of sustainable consumption. By integrating different disciplinary and methodological approaches, the study will analyze barriers and drivers influencing sustainable behaviors in energy use and food consumption, with the objective of mitigating CO2 emissions. In terms of social impact, the empirical evidence offered by this project will be used to formulate scientifically based guidelines aimed at promoting behavioral change towards actions with a reduced impact on CO2 emissions. These guidelines will thus inform policy choices by public bodies and marketing strategies by private companies interested in promoting less impacting behaviors, both entities on various levels (local, national, and supranational).

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