

Environmentally Conscious Consumer Behaviour and Green Finance: A Bibliometric Review of Emerging Trends*

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This bibliometric review analyses 173 Scopus-indexed articles (1997 to April 2025) on environmentally conscious consumer behaviour (ECCB) and its links with green finance, using Bibliometrix and VOSviewer for performance analysis and science mapping. It distinguishes everyday consumption choices (eco-friendly goods, energy, food, mobility) from financial decisions (green deposits, loans, ESG products), positioning green finance, including central banks and the ESG strand, as the institutional supply side meeting ECCB demand. Willingness to pay, attitude-behaviour gaps and climate-finance literacy emerge as key pressure points. Output has accelerated since 2019; China leads in volume, the United Kingdom in citation impact, and Hungary ranks in the top eight. Bibliographic coupling reveals four streams: consumer decision factors, industry applications, pro-environmental technology adoption and product lifecycle. The review offers implications for financial institutions, central banks, regulators and marketers, plus a research agenda at the ECCB and green-finance interface.

Journal of Economic Literature (JEL) codes: D12, G11, M31, Q56

Keywords: environmentally conscious consumer behaviour, sustainable consumption, green finance, green financial products, bibliometric analysis, VOSviewer

1. Introduction

Environmental awareness has become a key determinant of consumer choice over the past three decades. Concerns about climate change, resource depletion and pollution have prompted households to revise consumption patterns toward more sustainable practices (Kumar – Ghodeswar 2015; Nekmahmud – Fekete-Farkas 2020). An environmentally conscious consumer is one whose purchase

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and use decisions deliberately seek to minimise environmental harm (*Amberg – Fogarassy 2019; Joshi – Rahman 2015*). These decisions are not, however, a purely psychological or marketing phenomenon. They are economic decisions taken under price signals, information frictions and budget constraints, and they have an explicitly financial counterpart: the household's choice of where and how to save, borrow and invest.

It is useful from the outset to distinguish two analytically separate layers of “green” consumer choice. The first is the layer of everyday consumption decisions (what to buy, how to use energy, what to eat, how to travel) where willingness to pay (WTP) a green premium, response to eco-labels and the well-known attitude–behaviour gap are the dominant questions (*Carrington et al. 2010; Vecchio – Annunziata 2015; White et al. 2019*). The second is the layer of household financial product choices (whether to hold green deposits, take up green mortgages, invest in ESG¹-tilted funds or participate in sustainability-linked savings schemes) where information asymmetries about underlying environmental performance, the credibility of ESG ratings and risk–return perceptions become central (*Goodell et al. 2021; Kiss et al. 2025*). Both layers are part of “environmentally conscious consumer behaviour” in the broad sense used here, but they call on different theoretical frameworks and different policy levers, and have so far been studied in largely separate literatures.

The supply side of this picture is green finance: the system of financial flows, instruments and intermediaries that channel funding toward environmentally beneficial activities. Green finance is not only a market response, it is also actively shaped by central banks and prudential authorities. *Dikau – Volz (2021)* document that more than 130 central banks now incorporate sustainability objectives in some form, with channels ranging from disclosure regimes through to climate-adjusted prudential tools. The Magyar Nemzeti Bank's Green Preferential Capital Requirement Programme (*Kim et al. 2024*), the analytical work on monetary policy and the green transition (*Kolozsi et al. 2022*) and evidence on the price-impact of green central bank communication (*Neszveda – Siket 2025*) illustrate that the supply side of household green finance is conditioned on the actions of monetary authorities to a degree that consumer-behaviour research has only recently begun to acknowledge. At the corporate–investor interface, the rapidly growing ESG literature (*Kiss et al. 2025; Mukhtar et al. 2025; Csillag et al. 2022; Kovacs et al. 2024; Mishra – Pandey 2025*) provides the rating and disclosure infrastructure that allows household green preferences to be translated into capital allocation decisions, while also generating its own equilibrium pathology, in the form of greenwashing (*Bhullar et al. 2025*).

¹ Environmental, Social and Governance

Despite a fast-growing literature, no comprehensive bibliometric assessment maps the intellectual development, publication trends and thematic structure of ECCB while connecting it to the green-finance agenda in this two-layered sense. Existing reviews tend to be topical or narrative (*Kushwah et al. 2019; Peattie 2010; White et al. 2019*) and treat consumer behaviour and green finance as adjacent but separate fields. Bibliometric methods provide a transparent, reproducible way to evaluate scientific output, intellectual influence and thematic trajectories (*Donthu et al. 2021; Zupic – Čater 2015*), and are particularly suited to ECCB because the field straddles marketing, environmental psychology, sustainability studies, behavioural economics and (as this paper foregrounds) green finance (*Kilbourne – Beckmann 1998; Papadas et al. 2017*).

Accordingly, this study addresses four research questions:

- RQ1: What are the publication patterns and trends in ECCB research from 1997 to 2025?
- RQ2: Who are the most influential authors, countries and journals?
- RQ3: What is the intellectual structure and thematic composition of the field?
- RQ4: What emerging themes (particularly those that link ECCB to green financial products, ESG and the actions of central banks) can be identified for future research?

The paper is organised as follows. *Section 2* reviews the literature on ECCB and green finance and develops a simple conceptual framework that links the two. *Section 3* details the data, search procedure and analytical techniques, including robustness checks and a clarification of journal-quality choices. *Section 4* presents the results. *Section 5* discusses theoretical and practical implications (for financial institutions, central banks, regulators and policymakers) and features a dedicated subsection on Hungarian contributions, given the readership of this journal and Hungary's prominence in the citation-impact rankings. *Section 6* concludes.

2. Literature review

2.1. Environmentally conscious consumer behaviour

ECCB refers to consumption choices and activities aimed at minimising environmental damage (*Axsen et al. 2013; Leonidou et al. 2010*). It encompasses purchasing eco-friendly products, reducing energy use, recycling, proper waste disposal and participation in conservation efforts (*Hansen – Schrader 1997; Steg – Vlek 2009*). Early scholarship in the 1990s focused on conceptualising environmentally responsible consumption (*Hansen – Schrader 1997; Kilbourne – Beckmann 1998; Shrum et al. 1995*). The 2000s shifted toward the antecedents of

green purchase decisions (knowledge, attitudes and personal values) and toward explanations of the persistent attitude–behaviour gap (*Carrington et al. 2010; Follows – Jobber 2000; Kollmuss – Agyeman 2002; Thøgersen 2006*).

Since the 2010s, the field has broadened to cultural difference, social influence on green purchase and the effectiveness of marketing strategies (*Amborg – Fogarassy 2019; Kumar – Ghodeswar 2015; Nguyen et al. 2017*). Recent strands address sustainable food, the circular economy and digital technologies for sustainable behaviour (*De-Magistris – Gracia 2016; Kirchherr et al. 2017; Nekmahmud – Fekete-Farkas 2020; Schanes et al. 2018*). The attitude–behaviour gap remains a central problem, alongside an unresolved debate about the relative merits of individual responsibility versus structural reform (*Carrington et al. 2014; Girod et al. 2014; Lorek – Spangenberg 2014; Spaargaren 2011*). From the standpoint of consumer economics, the gap is the empirical signature of an under-identified mix of information frictions, present bias, status-quo bias and limited substitutability across goods, and is therefore best read as an indicator that consumer-side measures alone cannot deliver the implied environmental gains.

2.2. Green finance, ESG and central banks

Green finance, broadly understood as financial flows that support environmental and climate-positive outcomes, is the natural complement to ECCB on the supply side of sustainable choice. Three subliterations are particularly relevant.

2.2.1. Green financial products and household choice

The retail end of green finance comprises green deposits, green loans, green mortgages, ESG mutual funds and sustainability-linked savings and credit instruments. From a household perspective, willingness to pay (WTP) for sustainable goods is itself a financial decision shaped by price salience, perceived risk and information frictions (*Moser 2015; Vecchio – Annunziata 2015*). Studies of consumers' valuation of sustainability-labelled goods, of the financing of low-carbon mobility and of green premia in retail markets connect ECCB to financial decision-making (*Daziano – Bolduc 2013; Rezvani et al. 2015*). Recent cross-country evidence from emerging markets indicates that consumers are concerned about the green transition but reluctant to pay its costs (*Guzmán – Kóczán 2025*), reproducing at the WTP level the same attitude–behaviour gap long documented in the consumer-behaviour literature. From the perspective of welfare economics this is intuitive: where private benefits from green consumption fall short of social benefits, demand-side measures alone will leave a Pigouvian wedge that requires supply-side and regulatory complements.

2.2.2. ESG: ratings, disclosure and the corporate–investor interface

ESG frameworks form the rating-and-disclosure infrastructure through which environmental performance is communicated to financial markets. Bibliometric reviews document a rapid increase in research output on ESG, with consolidation around themes of corporate performance, risk, disclosure and investor behaviour (Mukhtar *et al.* 2025; Mishra – Pandey 2025). The credit-risk dimension has become especially salient: Kiss *et al.* (2025) provide a bibliometric synthesis of how ESG factors relate to corporate credit risk and identify a research frontier in the joint pricing of ESG and default risk. Investor-side responses to ESG information are not uniform across the three pillars: Kovacs *et al.* (2024) show that during the Russia–Ukraine shock, the environmental, social and governance components of ESG carried distinct stock-price effects, suggesting that aggregate ESG scores mask information that markets in fact price separately. Media attention to environmental issues also appears to channel investor attention toward ESG-tilted strategies (Csillag *et al.* 2022). These mechanisms matter for ECCB because the same household that buys an eco-labelled good can (through pension contributions, retail mutual funds or robo-advised portfolios) also act as an ESG investor; the credibility of ESG signals on the asset side therefore conditions the household’s confidence on the goods side.

A central pathology of the ESG infrastructure is greenwashing. Bhullar *et al.* (2025) provide a bibliometric mapping of the field and identify the conditions under which firms strategically misrepresent environmental performance, eroding the informativeness of ESG signals. Greenwashing closes the loop with consumer behaviour: it is precisely when ESG ratings and product labels are systematically informative that ECCB can translate into well-priced demand for sustainability, and precisely when they are not that the attitude–behaviour gap will persist.

2.2.3. Central banks, monetary policy and the green transition

Central banks shape the supply of green finance through three channels. The first is the prudential channel: climate-related financial risk is increasingly treated as a supervised risk category, with disclosure requirements, scenario analyses and, in a small but growing set of jurisdictions, climate-adjusted capital treatment (Dikau – Volz 2021). The Magyar Nemzeti Bank’s Green Preferential Capital Requirement Programme is among the most concrete European examples and has, on the available evidence, supported the issuance of green mortgages and green corporate loans (Kim *et al.* 2024). The second is the monetary policy channel: central bank asset purchases, refinancing operations and collateral frameworks can be configured to incorporate environmental criteria. The macroeconomic and reallocation implications of doing so are explored by Kolozsi *et al.* (2022). The third is the communication channel: speeches and announcements by central banks on green topics carry measurable price effects, indicating that green communication is a policy instrument in its own right (Neszveda – Siket 2025). For consumers, these

three channels jointly determine what green financial products are offered to them, at what spread and with what regulatory backing.

2.2.4. Green attitudes, willingness to pay and the attitude–behaviour gap

Bringing these strands together, the household interface between ECCB and green finance is best summarised by the persistent gap between stated green attitudes and observed green behaviour. The gap is reproduced at every layer: in green-goods markets (Carrington *et al.* 2010, 2014), in green-product premia (Vecchio – Annunziata 2015), in WTP for the green transition (Guzmán – Kóczán 2025) and in uptake of retail ESG instruments (Goodell *et al.* 2021). Mechanism-design responses include information disclosure (eco-labels, ESG ratings, climate-related financial disclosure), nudges (default green options in pension plans), price corrections (Pigouvian taxes, green tax incentives) and regulatory backing (central bank prudential and monetary instruments).

2.3. Bibliometric reviews in the domain

Prior bibliometric work covers green supply chain management (Fahimnia *et al.* 2015), corporate social responsibility in supply chains (Feng *et al.* 2017) and broader sustainability research (Olawumi – Chan 2018; Zhu – Hua 2017). Comparable mappings exist for tourism sustainability (Niñerola *et al.* 2019), for AI and machine learning in finance (Goodell *et al.* 2021), for ESG and corporate credit risk (Kiss *et al.* 2025), for ESG more generally (Mukhtar *et al.* 2025; Mishra – Pandey 2025) and for greenwashing (Bhullar *et al.* 2025). To the best of the author’s knowledge, no prior bibliometric review jointly profiles ECCB and its connection to green finance (incorporating central bank policy and ESG infrastructure), despite the rapidly increasing relevance of this intersection for both scholars and practitioners.

2.4. A conceptual framework: Two layers, one household

For the purposes of this review the relationship between ECCB and green finance is summarised in a deliberately simple framework (Table 1). At the consumption layer, the household chooses among eco-labelled and conventional goods under WTP constraints and information frictions; the natural policy levers are eco-labels, disclosure, nudges and price corrections. At the financial layer, the same household chooses among green and conventional savings, credit and investment products under ESG-rating frictions and risk–return considerations; the natural policy levers are ESG-disclosure regimes, prudential treatment of climate risk and central bank monetary instruments. The two layers are joined by the household’s intertemporal budget constraint and by the common information infrastructure (labels, ratings, disclosures). The bibliometric mapping that follows is anchored on the consumption layer (reflecting the search design) but the discussion in Section 5 explicitly addresses both layers.

Table 1
A two-layer view of environmentally conscious consumer behaviour

Layer	Decision	Frictions	Policy levers
Consumption layer	Purchase of eco-labelled goods, energy use, mobility, food	WTP for green premium, eco-label credibility, attitude–behaviour gap	Eco-labels, disclosure, behavioural nudges, Pigouvian taxation
Financial layer	Holding of green deposits, green loans, green mortgages, ESG funds	ESG-rating noise and greenwashing, risk–return perceptions, climate-finance literacy	ESG disclosure standards, climate-related prudential rules, monetary policy green operations, central bank communication

Note: Layers are joined by the household's intertemporal budget constraint and by a common information infrastructure (eco-labels, ESG ratings, climate-related financial disclosures).

3. Methodology

3.1. Bibliometric approach

Bibliometric analysis evaluates the quality, structure and impact of a research field through quantitative analysis of bibliographic data (Donthu *et al.* 2021; Singh – Bashar 2021). It complements narrative reviews by providing reproducible measures of productivity, influence and intellectual structure (Goodell *et al.* 2021; Mongeon – Paul-Hus 2016). The present study combines performance analysis (publication and citation metrics) with science mapping (co-authorship, keyword co-occurrence, bibliographic coupling and thematic mapping), following established protocols (Aria – Cuccurullo 2017; Cobo *et al.* 2011; Zupic – Čater 2015).

3.2. Database and search strategy

Scopus was selected as the single source database, in line with evidence that it provides broader coverage across disciplines than the Web of Science and stronger consistency for bibliometric work (Harzing – Alakangas 2016; Mongeon – Paul-Hus 2016). The search was executed on 4 April 2025 using the title–abstract–keyword query: (“environmentally conscious consumer” OR “green consumer behavior” OR “sustainable consumption”) AND (“purchase decision” OR “buying pattern” OR “consumer preference”). The query mirrors the wording used in comparable bibliometric studies (Fahimnia *et al.* 2015; Kumar *et al.* 2020; Olawumi – Chan 2018), and is intentionally broad on the consumer side and narrow on the choice-behaviour side to ensure that retained articles speak to actual consumer decision-making rather than to unrelated environmental or supply-chain debates.

A deliberate design choice (and a methodological caveat) is that the query does not include explicit finance-side keywords such as “green deposit”, “green loan”, “ESG fund” or “green bond”. This was for two reasons. First, the topic of this review is ECCB, and the inclusion of explicitly financial keywords would have shifted the

corpus toward the institutional and corporate-finance literatures, whose object of study is not consumer choice. Second, a complementary scoping search with finance-side keywords returned a corpus with very limited overlap with the consumer-behaviour literature, confirming that the two literatures have so far developed in parallel. Rather than force them into a single retrieval, the review treats green finance as the institutional supply side that conditions ECCB, engages with it through *Sections 2 and 5*, and flags the systematic integration of the two literatures as itself a future-research priority (*Section 5.5*).

3.3. Inclusion and exclusion criteria

Three filters were applied sequentially, each with an explicit rationale. (i) Document type was restricted to peer-reviewed journal “articles” to maintain a uniform level of scholarly review and exclude conference papers, book chapters and editorials, whose review regimes differ. (ii) Language was restricted to English to keep keyword analysis and topic modelling consistent (a known limitation, addressed in *Section 5.5*). (iii) Publication stage was restricted to “final” to exclude early-access items whose metadata may still be updated. The yield evolved from 247 records to 173 final articles, as documented in *Table 2*.

Table 2 Search procedure		
Filtering criterion	Excluded	Included
Database: Scopus		
Date of search: 4 April 2025		
Initial keyword query (title, abstract, keywords)		247
Time window: 1997 – April 2025	0	247
Document type: peer-reviewed journal articles	53	194
Language: English	5	189
Publication stage: final	16	173

3.4. Analytical tools

Two complementary tools were used. The Bibliometrix R package (*Aria – Cuccurullo 2017*) computed productivity and impact metrics (top authors, sources, countries, articles), trending-topic and thematic-map analyses. VOSviewer (*van Eck – Waltman 2010, 2014; Perianes-Rodriguez et al. 2016*) generated co-authorship, keyword co-occurrence and bibliographic coupling networks. Standard parameter choices were used: full counting for co-authorship; minimum thresholds set to ensure interpretable maps; clustering with the default modularity-based algorithm.

3.5. Robustness checks

Reproducibility was prioritised throughout. Three robustness procedures were undertaken. First, the search string was re-run with relaxed truncation and produced an overlap of more than 95 per cent with the retained corpus, confirming that the final dataset is not driven by truncation choice. Second, descriptive metrics (annual output, top-cited articles, top sources) were independently re-computed in both Bibliometrix and VOSviewer; the results converged. Third, thematic-mapping clusters were inspected at two minimum-occurrence thresholds (5 and 8 occurrences for keywords) and yielded the same four-quadrant interpretation, indicating the stability of the cluster solution. Together these checks support the credibility of the bibliometric findings while remaining within the limits inherent to single-database, English-only retrieval (discussed in *Section 5.4*).

3.6. A note on journal quality and quartile ranking

The corpus was not pre-filtered by Scimago quartile (Q1–Q4) ranking. This was deliberate, for three reasons. First, Scimago quartiles are recomputed annually, so applying a current-year filter would have mechanically mis-classified papers from the earlier part of the time window (1997–2010) for which the contemporaneous ranking is the relevant benchmark and is not in general available. Second, quartile filtering can systematically exclude impactful work published in newer outlets or in interdisciplinary journals that are slow to acquire a strong category ranking, even when the work itself is widely cited (*Donthu et al. 2021*). Third, citation impact (which is computed directly from the data) is itself a revealed measure of scholarly influence and arguably the more transparent quality indicator for bibliometric work.

That said, a quartile lens can usefully be applied *ex post* to the most productive outlets. Of the seven journals contributing four or more articles to the corpus (Sustainability (Switzerland), Journal of Cleaner Production, Foods, Sustainable Production and Consumption, Business Strategy and the Environment, Food Policy and International Journal of Consumer Studies) all are currently classified in the top quartile (Q1) of their primary Scimago subject categories at the time of writing. The high-citation portion of the corpus is therefore concentrated in well-ranked outlets, even though no quartile filter was applied at the retrieval stage. Scopus indexing itself imposes a baseline editorial and peer-review threshold (CSAB) on every journal in the corpus.

4. Results

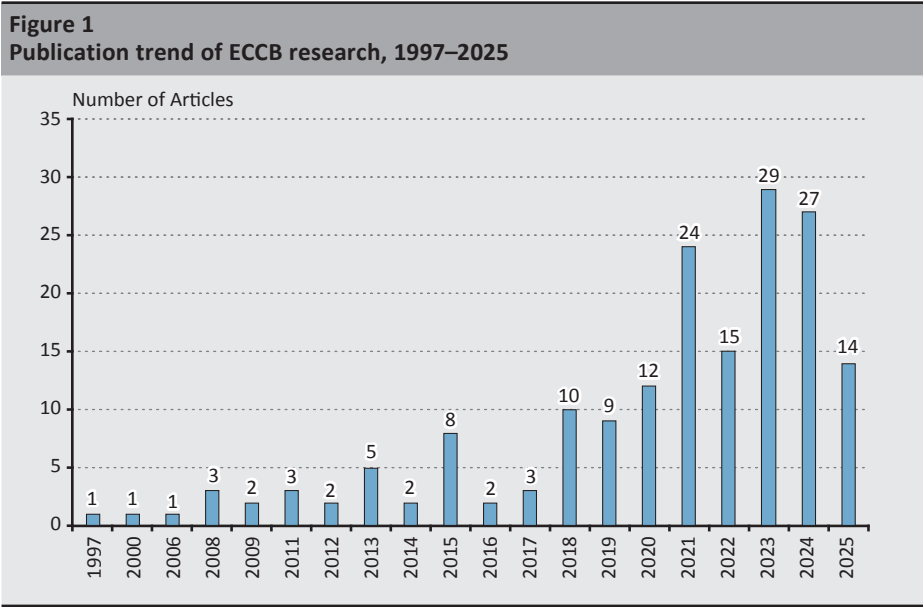
4.1. Sample characteristics

The final sample comprises 173 articles published between 1997 and April 2025 across journals in marketing, sustainability, consumer behaviour and environmental studies. The corpus supports both performance and science-mapping analyses.

4.2. Performance analysis

4.2.1. Publication trend

The publication trend (Figure 1) shows steady growth, followed by acceleration since 2019. The earliest article in the dataset is from 1997 (Hansen – Schrader 1997), confirming that ECCB has been a sustained scholarly concern for nearly three decades. The post-2019 surge mirrors the heightened global awareness of climate risk and the growing salience of sustainable finance instruments (Prothero et al. 2011; Reisch et al. 2016).



4.2.2. Top authors and countries

Table 3 lists the ten most productive authors, ranked by total publications and, within equal publication counts, by total citations. No author contributes more than two articles to the corpus, so the ranking is driven by citation impact: Dhir A. (230 citations), Girod B. (204), Gracia A. (171) and Lim M. (114) are the most-cited contributors, followed by Coderoni S. (68) and Schoormans J. (62). Author names were disambiguated with Scopus author identifiers and a thesaurus file (Section 3.4); initial-only variants that correspond to different individuals were not merged. Two Hungarian-affiliated contributions appear among the most-cited papers of the corpus and are returned to in Section 5.4. Table 4 reports the country ranking, based on full counting of all co-author affiliations (VOSviewer; Section 3.4). The United Kingdom tops the citation ranking with 798 citations across 18 publications, ahead of Canada (627; 8), Germany (623; 21) and India (610; 14), followed by Switzerland (503; 12) and the United States (497; 17). China leads on volume

(28 publications) but ranks seventh on citations (485), a pattern observed in earlier sustainability bibliometrics (*Gaur – Kumar 2018; Zhu – Hua 2017*). Hungary ranks eighth on citation impact (434 citations from only three publications), reflecting concentrated and highly cited contributions that include *Amberg – Fogarassy (2019)* and *Nekmahmud – Fekete-Farkas (2020)*; Finland (275 citations from four publications) show the same pattern of concentrated, high-impact output.

Table 3
Top authors in ECCB research

Author	Total Citations	Total Publications
Dhir A.	230	2
Girod B.	204	2
Gracia A.	171	2
Lim M.	114	2
Coderoni S.	68	2
Schoormans J.	62	2
Guo X.	41	2
Jiang X.	41	2
Spiller A.	40	2
Jacobs K.	33	2

Note: Author's elaboration using VOSviewer.

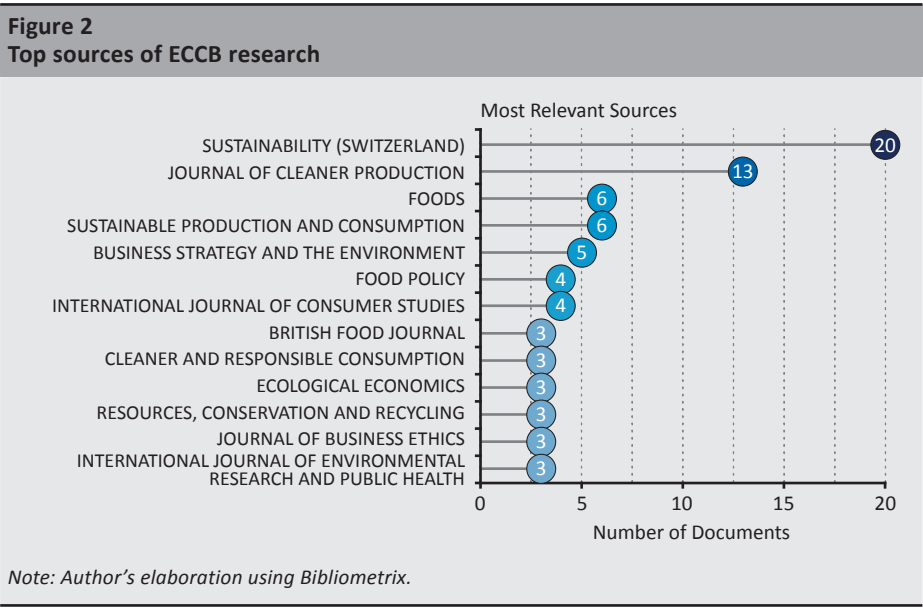
Table 4
Top countries in ECCB research

Country	Total Citations	Total Publications
United Kingdom	798	18
Canada	627	8
Germany	623	21
India	610	14
Switzerland	503	12
United States	497	17
China	485	28
Hungary	434	3
Spain	306	13
Finland	275	4

Note: Author's elaboration using VOSviewer.

4.2.3. Top sources

The distribution of publications across journals is shown in *Figure 2*. Sustainability (Switzerland) is the most productive outlet (20 publications), followed by Journal of Cleaner Production (13), Foods and Sustainable Production and Consumption (6 each), as well as Business Strategy and the Environment, Food Policy and International Journal of Consumer Studies (4 each). The mix of sustainability and food-policy outlets reflects both the multidisciplinary character of the field and the rising attention to sustainable food (*Hedin et al. 2019; Schanes et al. 2018; Olawumi – Chan 2018*). As noted in *Section 3.6*, all of these top-source journals are currently Q1-classified in their primary Scimago categories.



4.2.4. Top-cited articles

Table 5 lists the ten most-cited articles in the corpus, in descending order of total citations. The first column reports only the article title; the second column reports the citation reference in the journal's author–year style; the third column reports total citations. The ranking spans 1997–2020 and covers determinants of green purchase, industry-specific green marketing, attitude–behaviour barriers, technology adoption, willingness to pay and product-lifecycle considerations, reflecting the breadth of intellectual influences in ECCB.

Table 5
Top-cited articles in ECCB research

Title	Authors (year)	Total Citations
Factors affecting consumers' green product purchase decisions	<i>Kumar – Ghodeswar (2015)</i>	260
Green consumer behavior in the cosmetics market	<i>Amberg – Fogarassy (2019)</i>	253
Understanding consumer resistance to the consumption of organic food. A study of ethical consumption, purchasing, and choice behaviour	<i>Kushwah et al. (2019)</i>	196
Social influence and consumer preference formation for pro-environmental technology: the case of a U.K. workplace electric-vehicle study	<i>Axsen et al. (2013)</i>	183
Why not green marketing? Determinates of consumers' intention to green purchase decision in a new developing nation	<i>Nekmahmud – Fekete-Farkas (2020)</i>	179
Incorporating pro-environmental preferences towards green automobile technologies through a Bayesian hybrid choice model	<i>Daziano – Bolduc (2013)</i>	164
Consumer understanding of product lifetimes	<i>Cox et al. (2013)</i>	153
Climate policy through changing consumption choices: options and obstacles for reducing greenhouse gas emissions	<i>Girod et al. (2014)</i>	153
Consumers' willingness-to-pay for sustainable food products: the case of organically and locally grown almonds in Spain	<i>De-Magistris – Gracia (2016)</i>	140
A modern model of consumption for a sustainable society	<i>Hansen – Schrader (1997)</i>	121

Note: Author's elaboration using VOSviewer.

4.2.5. Top keywords

Table 6 reports the twenty most frequent keywords. "Consumption behaviour" leads (47 occurrences), followed by "sustainability" (34), "sustainable development" (32) and "sustainable consumption" (31). "Decision making" (20) and "consumer behaviour" (19) signal the financial and policy dimensions of the field, while "perception", "consumer attitude" and "marketing" point to consumer-side mechanisms.

Table 6
Top keywords

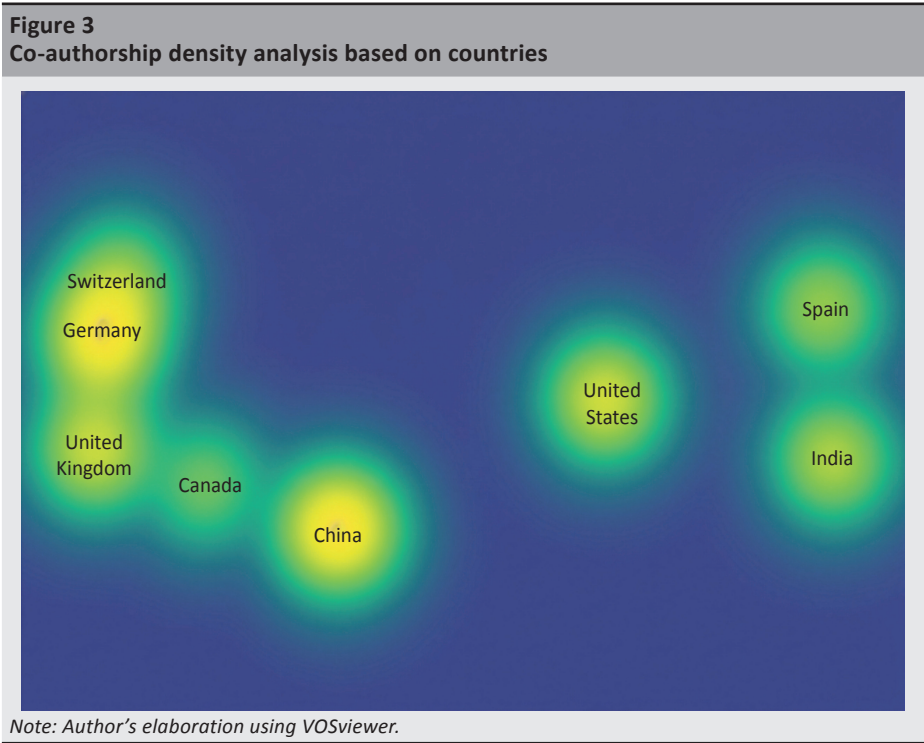
No.	Keyword	Total Occurrences	No.	Keyword	Total Occurrences
1.	consumption behavior	47	11.	purchasing	9
2.	sustainability	34	12.	marketing	9
3.	sustainable development	32	13.	willingness to pay	9
4.	sustainable consumption	31	14.	food consumption	9
5.	decision making	20	15.	consumers' preferences	9
6.	consumer behavior	19	16.	preference behavior	8
7.	sales	11	17.	climate change	8
8.	environmental impact	11	18.	consumer	7
9.	perception	11	19.	environmental economics	7
10.	consumer attitude	9	20.	environmental protection	6

Note: Author's elaboration using VOSviewer.

4.3. Science mapping

4.3.1. Co-authorship density analysis at the country level

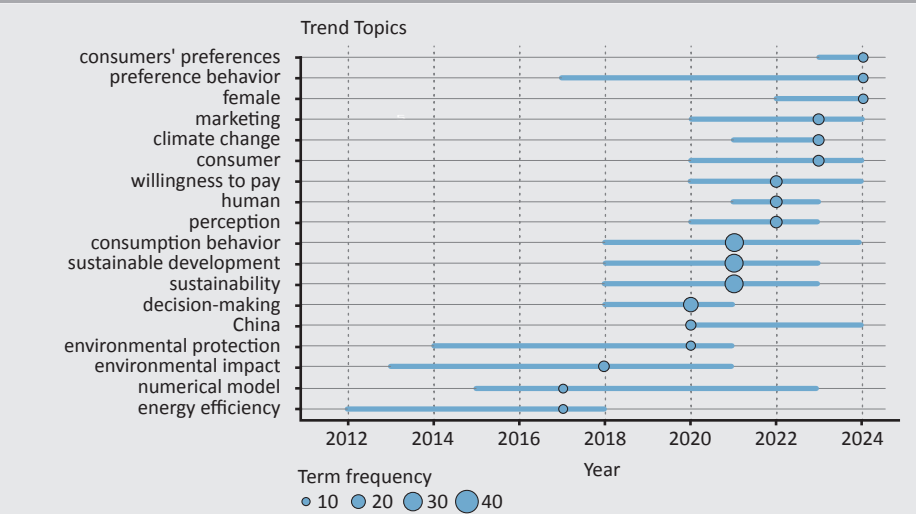
Figure 3 visualises the co-authorship density and regional publication concentration at the country level. The density map reveals four major focal areas of activity: Western Europe (represented strongly by Germany, the United Kingdom, Switzerland, and Spain), North America (the United States and Canada), and East/South Asia (China and India). The United States, China, and the UK emerge as the primary central hubs with the highest concentration of research output. The prominent visibility of China and India reflects the rising attention to ECCB in emerging economies, where rapid growth in consumption levels makes sustainability concerns particularly salient (Kumar et al. 2020; Nguyen et al. 2017). Meanwhile, coverage from Africa and South America remains thin (Ertz et al. 2016).



4.3.2. Keyword analysis: trending topics and thematic map

Figure 4 shows the temporal evolution of research themes. Recent trending topics for 2020–2024 include “consumers’ preferences”, “preference behavior”, “marketing” and “climate change”, reflecting a clear shift from the 2014–2018 emphasis on “environmental impact”, “numerical modelling” and “energy efficiency” toward consumer-side and finance-relevant questions (Dangelico – Vocalelli 2017; White et al. 2019).

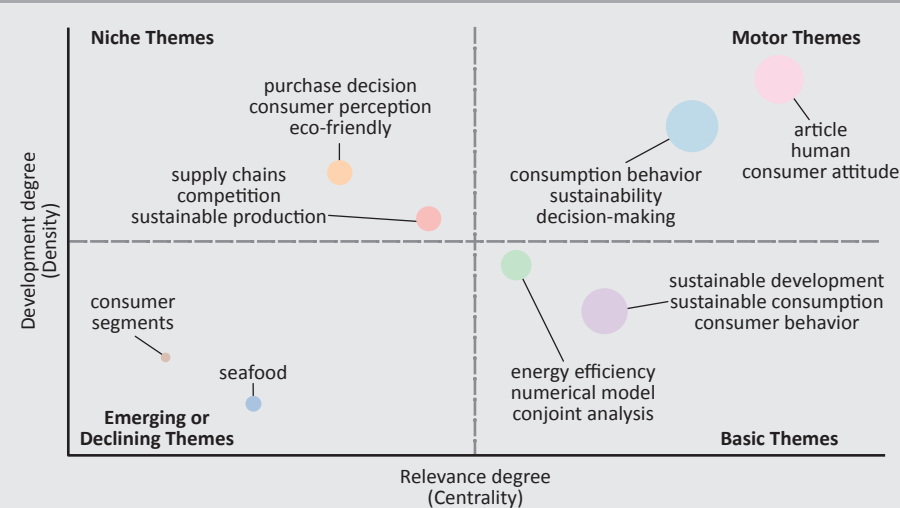
Figure 4
Trending topics based on keywords



Note: Author's elaboration using Bibliometrix. Automated database indexing tags (e.g., 'article', 'human', 'female') were retained in the software-generated visual mapping for raw data transparency.

Figure 5 maps themes into four quadrants by centrality and density (Cobo et al. 2011; Hanaa – Abdul 2023).

Figure 5
Thematic map



Note: Author's elaboration using Bibliometrix. Automated database indexing tags (e.g., 'article', 'human') were retained in the software-generated visual mapping for raw data transparency.

Motor themes (upper right): Two well-developed clusters dominate. The first centres on the consumer and human dimension, highlighted by “consumer attitude” (9) alongside related background indexing terms. The second cluster is anchored by “consumption behavior” (47, the highest count on the entire map), connecting consumption with “sustainability” (34) and “decision-making” (20).

Basic themes (lower right): “Sustainable development” (32) and “sustainable consumption” (31) are central, but theoretically less consolidated. “Consumer behavior” (19) sits here rather than among motor themes, suggesting that general consumer-behaviour theory has not yet been fully integrated with sustainability frameworks. Moreover, methodological terms such as “energy efficiency”, “numerical model”, “conjoint analysis” are also incorporated.

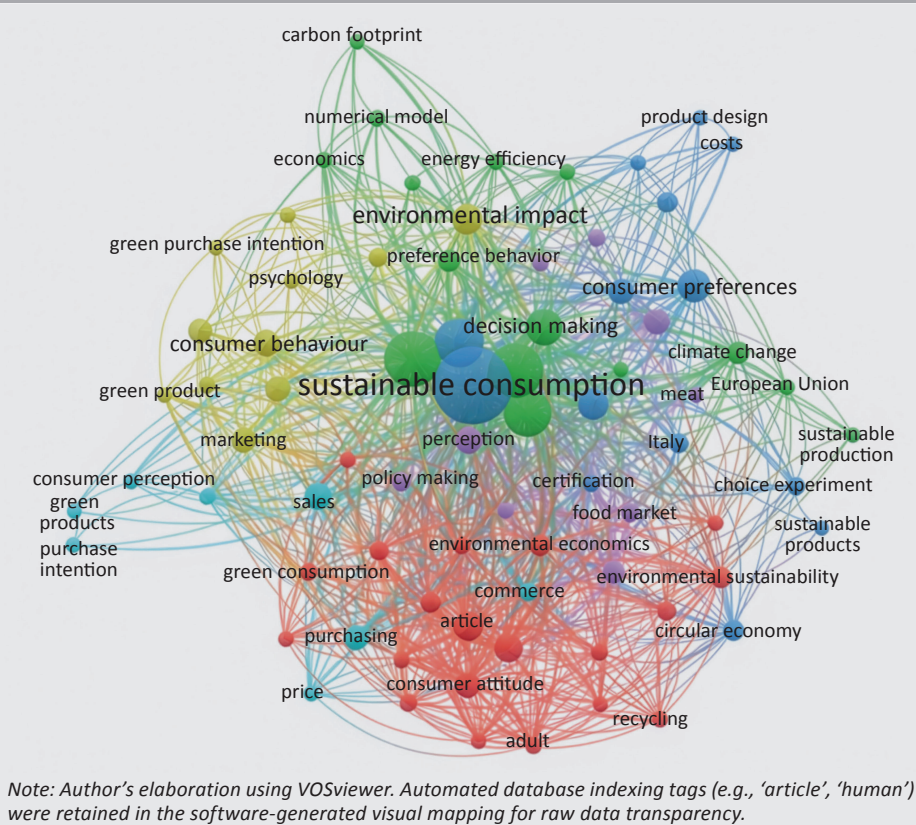
Niche themes (upper left): Two specialised clusters appear. One concerns consumer perception of eco-friendly products (“purchase decision”, “consumer perception”, “eco-friendly”). The other concerns supply chain dynamics (“supply chains”, “competition”, “sustainable production”). These streams are conceptually mature within their domains, but remain peripheral to the core (Joshi – Rahman 2015; Maniatis 2016).

Emerging or declining themes (lower left): Terms such as “seafood” and “consumer segments”, are either in early development or fading. Their direction will need further monitoring (Kumar et al. 2020; Olawumi – Chan 2018).

4.3.3. Co-occurrence analysis

Figure 6 visualises the keyword co-occurrence network. “Sustainable consumption” sits at the centre, with strong links to “decision-making”, “consumers’ preferences”, “environmental impact” and “preferential behavior”. Four colour-coded clusters emerge: a green cluster on environmental impacts, carbon footprint and energy efficiency (Girod et al. 2014; Lorek – Spangenberg 2014); a blue cluster on consumer preferences, decision-making and climate change (Carrington et al. 2014; White et al. 2019); a red cluster on attitudes, purchasing and marketing (Dangelico – Vocalelli 2017; Kumar – Ghodeswar 2015); and a yellow cluster on green purchase intention, psychology and consumer behaviour (Brough et al. 2016; Joshi – Rahman 2015).

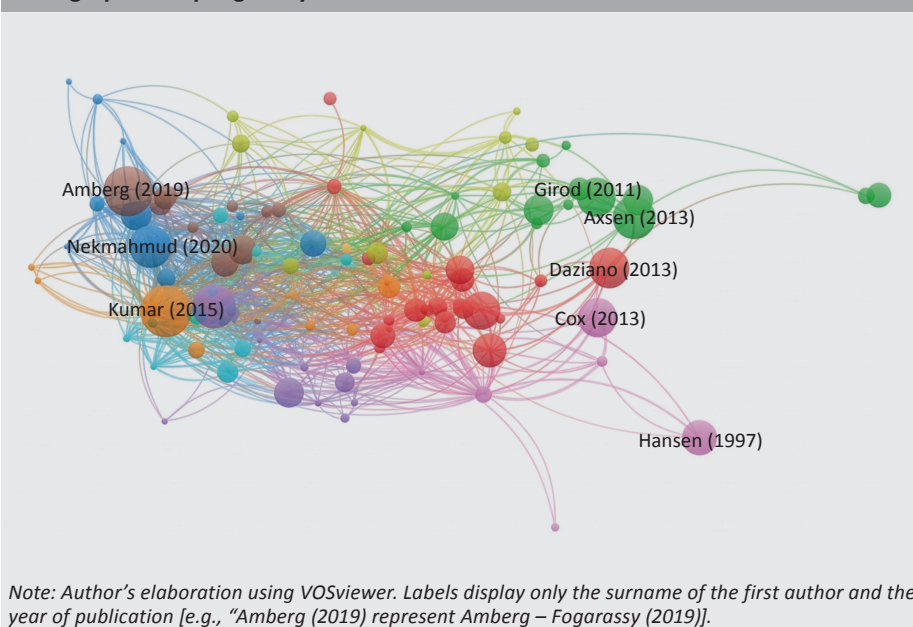
Figure 6
Co-occurrence analysis of keywords



4.3.4. Bibliographic coupling

Figure 7 shows author-level bibliographic coupling, identifying authors who share intellectual foundations (van Eck – Waltman 2014; Zupic – Čater 2015). Five clusters emerge: green consumer behaviour in specific markets (Amberg – Fogarassy 2019; Nekmahmud – Fekete-Farkas 2020); determinants of sustainable product choice (Kumar – Ghodeswar 2015); pro-environmental technology adoption (Axsen et al. 2013; Daziano – Bolduc 2013); product lifecycle and climate implications (Cox et al. 2013; Girod et al. 2014); and foundational sustainable-consumption models (Hansen – Schrader 1997). Interpreted thematically, the five clusters consolidate into four research streams: (i) consumer decision factors; (ii) industry-specific applications; (iii) technology adoption; and (iv) product lifecycle considerations.

Figure 7
Bibliographic coupling analysis



5. Discussion and implications

5.1. Discussion

The results show a field that has matured substantially since 2019, with output predominantly from advanced and selected emerging economies on a citation basis (India, Germany, Canada and Hungary stand out), while China leads on volume. Sustainability-focused journals dominate the publication landscape, alongside outlets in food policy and consumer studies. Four research streams structure the field: consumer decision factors, industry-specific applications of green marketing, pro-environmental technology adoption and product lifecycle considerations. Recent trending topics, including “willingness to pay”, “climate change” and gender-specific consumption, signal a closer engagement with finance- and policy-relevant questions and align with the rise of green financial products in retail markets (Goodell *et al.* 2021; Vecchio – Annunziata 2015).

Read against the two-layer framework of Section 2.4, the bibliometric picture is unambiguous: the consumption layer is well populated and intellectually mature, while the financial layer is engaged predominantly through the WTP keyword

and through scattered references to green premia. The institutional supply side of green finance (green deposits, green loans, ESG-rated savings vehicles, central bank prudential and monetary instruments) is materially under-represented in the ECCB corpus, despite being the principal route by which household preferences for sustainability are translated into capital flows. This under-representation is itself substantive research finding and motivates the agenda set out in *Section 5.5*.

5.2. Theoretical implications

Four theoretical implications follow.

First, this is to the author's knowledge the first bibliometric synthesis to position ECCB explicitly alongside green finance and to make the institutional supply side (including central banks and ESG infrastructure) analytically visible to consumer-behaviour researchers. The synthesis provides scholars with a structured map for situating new work and clarifies that "green consumer behaviour" is in fact a composite object that spans two layers of choice (*Table 1*).

Second, the four-stream taxonomy supports clearer integration across disciplines that have so far developed in parallel: marketing, environmental psychology, behavioural economics, sustainable finance and the economics of regulation (*Chabowski et al. 2011; Stern 2000; Wilson – Dowlatabadi 2007*). The attitude-behaviour gap, the central anomaly in the consumption-layer literature, can be read in welfare-economic terms as the empirical signature of a Pigouvian wedge between private and social marginal benefits of green consumption. The implication is that consumer-side interventions (information, nudges, marketing) can shift demand but cannot, on their own, close the wedge; supply-side and regulatory complements (green financial products, ESG disclosure, central bank prudential rules) are required.

Third, by integrating the ESG and credit-risk literatures (*Kiss et al. 2025; Kovacs et al. 2024; Mukhtar et al. 2025; Mishra – Pandey 2025*), the review reframes ESG ratings as the central piece of information infrastructure that connects ECCB to capital markets. ESG ratings perform a signalling role analogous to eco-labels on the goods side: where they are informative they price greenness, and where they are subject to greenwashing (*Bhullar et al. 2025*) they fail to price it and reproduce the consumption-side attitude-behaviour gap on the financial side. This places greenwashing at the heart of any theoretical account of ECCB at the financial layer.

Fourth, the inclusion of the central banking literature (*Dikau – Volz 2021; Kim et al. 2024; Kolozsi et al. 2022; Neszveda – Siket 2025*) opens a genuinely macroeconomic frontier for ECCB research. Consumer behaviour is conventionally modelled with the regulatory and monetary environment held constant; recent evidence that central bank communication and prudential design move the price and supply of

green financial products implies that this assumption is increasingly costly. Models that endogenise the policy environment, and empirical strategies that exploit policy variation as a source of identification, are a natural direction for theory-building.

5.3. Practical implications

The practical implications cut across four addressees.

For commercial financial institutions. The prominence of WTP, perception and attitude–behaviour gaps in the corpus translates directly into product-design guidance. (i) Pricing of green deposits and green mortgages should reflect the empirical regularity that consumers express strong green preferences, but are reluctant to pay large premia (*Guzmán – Kóczán 2025*); credible non-price differentiation (transparent use-of-proceeds reporting, third-party verification) is likely to outperform large interest-rate spreads. (ii) Retail ESG products benefit from clear, comparable ESG labelling at the fund level; the evidence on differential pillar effects (*Kovacs et al. 2024*) suggests that headline aggregate scores understate the information that engaged investors actually use. (iii) Climate-finance literacy interventions (embedded in onboarding, statements and digital channels) directly target the information frictions that the attitude–behaviour gap identifies.

For central banks and prudential authorities. The strand of work on monetary policy and the green transition (*Kolozsi et al. 2022*), preferential capital treatment of green exposures (*Kim et al. 2024*), green central bank communication (*Neszveda – Siket 2025*) and the international stocktake of central bank mandates (*Dikau – Volz 2021*) jointly imply that the supply of household green finance is materially shaped by policy. Three concrete levers stand out: (i) climate-related capital and disclosure rules that lower the cost of green retail credit; (ii) collateral and refinancing operations that incorporate environmental criteria, subject to the calibration challenges discussed in *Kolozsi et al. (2022)*; and (iii) communication strategies that signal commitment without overpromising: because green speeches measurably move prices (*Neszveda – Siket 2025*), credibility is itself a policy asset.

For ESG and disclosure regulators. Standardised, comparable ESG disclosures, with explicit anti-greenwashing safeguards (*Bhullar et al. 2025*), are a precondition for retail ESG markets to function as the institutional translator of household green preferences into capital allocation. Disclosures need to be granular enough to expose the pillar-level differentials documented in the empirical literature (*Kovacs et al. 2024; Csillag et al. 2022*).

For policymakers and marketers. For marketers and product designers, the prominence of attitude–behaviour and WTP literatures provides actionable insight into pricing, value communication and segmentation (*Dangelico – Vocalelli 2017; Kumar – Ghodeswar 2015; Testa et al. 2020*). For policymakers, the visible regional variation in research production, and the parallel evidence on regional differences in

the WTP–attitude wedge (Guzmán – Kóczán 2025), underline the need for culturally-adapted policy levers and support a dual emphasis on individual-level behaviour change and structural reform (Geels *et al.* 2015; Lorek – Spangenberg 2014; Spaargaren 2011). The most cost-effective policy mixes are likely to combine eco-labelling and ESG disclosure at the information layer, targeted price corrections at the consumption layer and prudential plus monetary instruments at the supply layer.

5.4. Hungarian contributions

Hungary's rank-8 position on citation impact (Table 4) is driven by a small number of highly cited consumer-behaviour articles, of which two are particularly visible in the corpus. Amberg – Fogarassy (2019) examine green consumer behaviour in the cosmetics market and rank second among the most-cited articles of the corpus (Table 5); Nekmahmud – Fekete-Farkas (2020) study determinants of green purchase intention in an emerging-market setting and rank fifth. These contributions sit in the consumer-decision-factors and industry-specific applications streams of the bibliographic coupling map (Figure 7).

Hungarian scholarship is also visible (and arguably more concentrated) at the green finance end of the literature engaged in Section 2.2. Work on the Magyar Nemzeti Bank's Green Preferential Capital Requirement Programme (Kim *et al.* 2024), on monetary policy and the green transition (Kolozsi *et al.* 2022), on ESG and corporate credit risk (Kiss *et al.* 2025), on media attention and ESG investing (Csillag *et al.* 2022), on the differential pricing of ESG pillars (Kovacs *et al.* 2024) and on the price impact of green central bank communication (Neszveda – Siket 2025) jointly document a Hungarian research strand at the supply side of green finance that complements the consumer-side contributions in the bibliometric corpus. Taken together, the two strands position Hungarian scholarship at both layers of the framework set out in Section 2.4 and make Hungary a natural setting for the kind of integrated ECCB–green-finance research that this review identifies as a priority.

5.5. Limitations and future research directions

Four limitations should be acknowledged. (i) Reliance on a single database (Scopus); future work could triangulate with Web of Science and Google Scholar (Harzing – Alakangas 2016; Mongeon – Paul-Hus 2016). (ii) English-only retrieval may exclude relevant non-English work; multilingual bibliometric reviews would broaden coverage. (iii) The search strategy is anchored on the consumer side, by design (Section 3.2); systematic integration with the green-finance corpus is itself a future-research priority. (iv) Bibliometric methods measure impact and structure rather than methodological quality of individual studies (Prothero *et al.* 2011; Zupic – Čater 2015); complementary systematic and meta-analytic reviews remain valuable.

Future research could pursue the following priorities, ordered in line with the two-layer framework.

At the consumption layer. (a) Cross-cultural comparisons of ECCB across emerging and advanced economies (*Ertz et al. 2016; Nguyen et al. 2017; Thøgersen 2010*); (b) climate-change framing effects on consumer choice (*Girod et al. 2014; van der Linden et al. 2015; Weber – Stern 2011*); (c) digital and AI-enabled tools for sustainable consumption (*Bui et al. 2014; Hanaa – Abdul 2023*); (d) psychological-distance perspectives on sustainable choice (*Spence et al. 2012; Trope – Liberman 2010*).

At the financial layer. (e) Household uptake of green deposits, green mortgages and ESG-tilted retail investment products, with explicit measurement of WTP for the financial-layer green premium (*Guzmán – Kóczán 2025; Vecchio – Annunziata 2015*); (f) the price- and quantity-impact of ESG ratings on retail demand, including the pillar-level differentials in *Kovacs et al. (2024)*; (g) greenwashing detection and its effect on retail trust in green financial products (*Bhullar et al. 2025*).

At the supply and policy layer. (h) Identification of the consumer-side effects of central bank green operations, prudential rules and communication (*Dikau – Volz 2021; Kim et al. 2024; Kolozsi et al. 2022; Neszveda – Siket 2025*); (i) systems-level approaches integrating individual, social, market and regulatory dynamics (*Geels et al. 2015; Spaargaren 2011*); (j) integrated bibliometric and systematic reviews that explicitly bridge the consumer-behaviour and green-finance corpora.

6. Conclusion

This study mapped 173 Scopus-indexed articles on environmentally conscious consumer behaviour published between 1997 and April 2025 and for the first time situated the field in a bibliometric review, alongside the institutional supply side of green finance. The two are conventionally studied in separate literatures; the present review treats them as two layers of one household decision problem and shows that the consumption layer is well populated, while the financial layer is engaged only obliquely. Three substantive findings follow. First, the field has accelerated since 2019 and is concentrated in a small set of high-impact countries, with Hungary in eighth place on citation impact and visible contributions at both the consumption and the green-finance ends of the literature. Second, four research streams structure the corpus (consumer decision factors, industry-specific applications, pro-environmental technology adoption and product lifecycle) and the trending-topic analysis points to a clear shift toward WTP, climate change and gender-specific consumption. Third, the analytical bridges most urgently required are at the information layer (ESG ratings, eco-labels, climate-related financial disclosure) and at the policy layer (central bank prudential and monetary instruments), where supply-side conditions on consumer choice are most concentrated.

For practice, the implications are concrete. Commercial financial institutions can compete on credible non-price differentiation in green retail products rather than on premia that consumers stated-preference research consistently shows they are reluctant to pay; central banks and prudential authorities can shape the supply and pricing of green retail credit through climate-adjusted capital treatment, green refinancing operations and credible communication; and ESG regulators can underwrite the entire architecture by enforcing standardised, granular and greenwashing-resistant disclosure. For scholarship, the most productive next step is to break out of the consumer-behaviour silo and run the joint analysis explicitly, a step the conceptual framework of *Section 2.4* and the future-research agenda of *Section 5.5* are intended to support.

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Competing interests

The author has no competing interests to declare that are relevant to the content of this article.

Author contributions

The sole author was responsible for all aspects of this manuscript. The author has read and agreed to the published version of the manuscript.

Data Availability

The data used in this study were obtained from Scopus. Restrictions apply to the availability of these data, which were used under license for the current study.

Ethical Approval

Not applicable. This study did not involve human participants or sensitive personal data requiring institutional ethical approval.

Use of AI Tools

The author did not use any generative AI tools in the creation of this manuscript.

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