Support for sustainable finance and investment in Europe

Abstract

Sustainable finance and investment has become an important factor in achieving environmental sustainability. Evidence also suggests it has become more prominent in the global financial system. Although academic interest has increased in recent years, most prior studies have investigated support for sustainable finance within corporate environments. Studies examining the support of individuals or the wider public are scarce. Consequently, using a Eurobarometer survey of 27,862 Europeans across all 27 EU countries, this study explores support for sustainable finance among people in Europe. We used a nested fixed effects model – with two levels – to examine the influence of sociodemographic factors, knowledge of sustainable finance, and a country's progress towards attaining the United Nations Sustainable Development Goals (SDGs). Our results show that sociodemographic factors are the most influential predictors of support for sustainable finance. We found that age, gender and living in rural/urban areas all influenced people's support for sustainable finance. Meanwhile, the influence of sustainable finance knowledge and SDG progress were either negligible or negative.

Keywords: Sustainable finance; SDG; investment; ESG; climate; environment; EU

Introduction

The existential threat of climate change to life on Earth and business productivity has led to unprecedented multilateral collaboration between stakeholders (MacDonald et al., 2022). From global food systems to economics, industry, health, and energy, climate change poses a significant threat to life on Earth (Haines & Patz, 2004; UNEP, 2022; Wheeler & von Braun, 2013). According to (UNEP, 2022), climate change presents an immeasurable danger to all parts of the world, including highly industrialised developed societies. However, evidence has shown that small island states are disproportionately impacted. As a result, there are urgent calls from stakeholders to avert the irreparable consequences of climate change. These calls have resulted in many treaties, protocols, and targets, such as the United Nations Sustainable Development Goals (SDGs) and the Paris Agreement. These agreements, among other things, placed responsibilities on countries to keep global temperature below 2°C, beyond which scientists believe could lead to irreparable damage (IPCC, 2023). Despite the scientific evidence of impending catastrophic events, recent reports highlight that efforts to achieve climate targets and avert climate catastrophe have remained dangerously slow (IPCC, 2023; UNEP, 2022).

The scale and urgency of the climate crisis has been labelled a "super wicked problem". These are policy challenges of enormous intractability with a limited timeframe to act (Levin et al., 2012). Scholars have argued that efforts to tackle climate change successfully require an exceptional level of multi-stakeholder collaboration between the government, civil society, and the private sector (MacDonald et al., 2022) and requires massive financial resources and investments. In the private sector, finance and investment have become increasingly crucial to achieving environmental sustainability (Cunha et al., 2021; Schumacher et al., 2020).

As a result, the Paris Agreement included the role of the financial sector as an important part of the global efforts towards sustainability (UNFCC, 2016). Studies show that achieving climate change targets would require huge investments and a re-orientation of the global financial system towards the SDGs (Kulkarni et al., 2022; Kumar et al., 2022). However, there is no agreement on the precise level of investment required to transition towards an environmentally sustainable future. According to Cunha et al. (2021), about $7 trillion will be required annually for public and private investments to achieve SDGs. More practically, financial commitments required to address climate change have been estimated to range from about $2.5 trillion on the low end (OECD, 2018) to between $3.3 to 4.5 in the middle range (UNSDG, 2018) and between $5 to 7 trillion on the high end (UNDP, 2022). Nevertheless, there is a consensus that a monumental level of investment is required to avert the consequences of climate change (Kulkarni et al., 2022; Kumar et al., 2022; UNSDG, 2018).

In addition to the effects of climate change on nations and businesses, older populations have been reported as one of the most vulnerable demographics to the consequences of climate change due to their reduced adaptive capabilities (Leyva et al., 2017). According to the United Nations (2021), older people are the fastest-growing demographic in the world. However, they are more likely to concentrate on a few areas within a country, creating imbalances in how climate change impacts regions within a country. Despite the ageing populations in many developed and developing countries (Chand & Markova, 2019), older people have become one of the world's most important economic and political constituencies (Goerres, 2009). Economically, studies have shown that older people are the wealthiest demographic group and are more likely to own assets and investments (Advani et al., 2021; Gale et al., 2020). Politically, studies have revealed that older adults are more likely to vote and participate in politics (Goerres, 2007; Quintelier, 2007).

Although older people are seen as an important demographic group for reducing carbon emissions (Li et al., 2023; Wang et al., 2022), they might be less inclined to participate in climate change initiatives and activism compared to younger generations due to their reduced mobility and other personal factors (Blankenberg & Alhusen, 2019). Also, studies across the political sciences and social psychology have found that older people tend to be less progressive, more supportive of the establishment or status quo, and less willing to embrace environmentally supportive political groups such as Green parties (Geys et al., 2022; Lichtin et al., 2023; van Prooijen & Krouwel, 2020). However, it might be wrong to immediately label older people as unconcerned about the environment. Other factors, such as capabilities and socio-economic conditions, can impact older people's active participation in environmental initiatives and activism. Moreover, studies show that the concept of political socialisation, not necessarily pro-environmental attitudes, may explain the unwillingness of the older generation to change political affiliation or social beliefs, as they are less likely to be sympathetic to new political movements or doctrines (Lichtin et al., 2023). As a result, the existing body of knowledge on older people's attitudes and behaviour towards sustainable finance/investment is insufficient, indicating the need for more empirical evidence about the support of older people for sustainable finance and investment. In general,, empirical studies on individual support for sustainable finance and investment, including among both younger and older people, have remained limited to date.

Therefore, this study examines the level of support for sustainable finance and investment in the 27 countries of the European Union (EU27). The intention is to explain the level of support for sustainable finance and investment across different sociodemographic groups in Europe. Considering the mixed research findings on the participation of older people in pro-environmental initiatives and activism (Blankenberg & Alhusen, 2019), we emphasise older people, a

significantly under-researched demographic group across sustainability studies. To achieve this goal, we use people above 55 years as the overall reference for our regression analysis. As such, our paper makes several important contributions. We extend the debate on sustainable finance and investment by focussing on the attitude of the everyday individual towards sustainable finance and investment. Previous studies have been mostly dedicated to institutional or professional investors/analysts (Bassen et al., 2022; Cremasco & Boni, 2022; Eccles & Klimenko, 2019). To the best of our knowledge, this research represents the first European-wide academic study to explore the level of support for sustainable finance among individuals. Furthermore, we contribute to the existing body of knowledge by examining the influence of a country's progress towards achieving SDGs on the attitudes of its citizens towards accepting and engaging in sustainable finance and investment. In response to some research findings that individual investors are less inclined to support sustainable finance and investment than conventional ones (Gutsche & Zwergel, 2020), our research provides important evidence for policymakers, investment brokers and wealth managers on the factors influencing individual decision making/support, and the need for a more targeted approach to reach various sociodemographic groups.

Considering that attaining the SDGs requires mobilising every aspect of a society towards a sustainable future (UNEP, 2022; UNFCC, 2016), we postulate that high-performing countries, particularly within the EU, are likely to have a stronger interest in sustainable finance among their people. While some recent studies have shown the influence of sustainable finance and investment on SDG performance (Ziolo et al., 2020), studies investigating the influence of SDG performance on sustainable finance are limited. To achieve our stated research goal, we utilise a fixed effects approach with two levels to examine the influence of sociodemographic and contextual factors. Using a representative sample size of 27,862 Europeans from a Eurobarometer survey of all EU27 countries, we adapted the approaches of previous studies on the attitude of people towards sustainable practices by examining the influence of individual-level and contextual/macro-level factors (de Boer & Aiking, 2023; Long et al., 2023; Sun et al., 2019). The data used in this study is based on the flash Eurobarometer 509 with several questions on financial issues, including attitude towards sustainable finance and investing. Our literature review, hypotheses, data, methodology, results, discussion, and conclusions are presented in the following sections and sub-sections.

2. Literature review and hypotheses development

Sustainable finance and investment in Europe

Sustainable finance involves considering environmental, social and governance (ESG) factors while making investment decisions, and promoting investments in sustainable activities (European

Commission, 2023). The environmental part of ESG entails considering issues such as emissions, pollution, and sustainability factors in financial investments. The social part covers the impact of investments on society, and how finance can work to promote social responsiveness (European Commission, 2023). Finally, governance entails promoting a more inclusive and responsible corporate structure (Liang & Renneboog, 2020).

In recent decades, sustainable finance and investment, hereinafter referred to as sustainable finance, has served as an umbrella term to describe a myriad of closely associated concepts, such as impact investing (Clarkin & Cangioni, 2016; Schlütter et al., 2023), green investing (Falcone et al., 2018), climate finance (Giglio et al., 2021), socially responsible investing (Capelle-Blancard & Monjon, 2012), carbon finance (Zhou & Li, 2019), green finance (Zhang et al., 2019), and ethical investing (Sparkes, 2001). There is some controversy on the precise impacts of pursuing sustainable finance/investing and ESG for companies, particularly in the short term. While some studies have shown that sustainable finance correlates with better financial performance for companies and investors (Orlitzky et al., 2003; Russo & Fouts, 1997), others have reached an opposite conclusion (Barber et al., 2021; Zerbib, 2019). Nevertheless, scholars and policy-makers have argued that sustainable finance is necessary for the future financial condition of firms and the preservation of the natural ecosystem (Dafermos et al., 2018; European Commission, 2023; OECD, 2018; Schoenmaker & Schramade, 2018).

Support for sustainable finance has become a major policy goal in the European Union (EU), such that the European Commission (EC) launched a wave of initiatives to accelerate the adoption of sustainable finance across EU countries. This began with a public consultation in 2017, including legislation, conferences, expert sessions and an action plan to mobilise €1 trillion in sustainable investments over the next decade (European Commission, 2023). Nevertheless, the EU's interest in sustainability goes back much further with different waves of policies and treaties introduced over the last few decades. For example, the 1987 Environmental Action Programme and the Single European Act brought environmental issues into EU legislation, and the Maastricht Treaty and Environmental Action Plan of 1993 called for collective actions on sustainable development. However, the critical role of finance and investment became much more pronounced in 2011 through several policy frameworks such as the Energy Roadmap 2050 and Roadmap for moving to a competitive low-carbon economy in 2050 (Claringbould et al., 2019).

In recent years, the EU has introduced a range of interwoven/integrated policies, including the Sustainable Finance Action Plan, Green Deal Action Plan, the EU Taxonomy, and the Sustainable Finance Disclosure Regulation, among others. These policies have been enacted to improve transparency in the actions taken towards sustainable finance by financial actors, introduce a

standardisation system to classify economically sustainable activities, and provide a clear strategy towards financing a sustainable European economy for the future (Ahlström & Monciardini, 2022; Schütze & Stede, 2021; Zetzsche & Anker-Sørensen, 2022). Individual countries in the EU, such as Germany and France, have also introduced policies, legislation, and regulations to promote sustainable finance (Ahlström & Monciardini, 2022; Crifo et al., 2019; Kuhn, 2022). Although Europe is arguably the most advanced place in the world for sustainable finance, studies have criticised the EU's sustainable finance approach for not going far enough in addressing the most stringent systemic issues facing finance. These issues include the overwhelming prevailing focus on short-term profit and return maximisation, which scholars believe is at loggerheads with the long-term planning necessary for reducing socioeconomic inequalities and guaranteeing a sustainable future (Ahlström & Monciardini, 2022; Esposito et al., 2019). A typical example is when financial firms sell fossil-free investment funds while simultaneously providing commercial loans towards fracking, coal, and Arctic drilling (Urban & Wójcik, 2019).

Hypotheses development

Previous studies on sustainable finance have been mostly focused on examining the role, impact or perception of professional or institutional investors in sustainable finance (Ahlström & Monciardini, 2022; Eccles & Klimenko, 2019; Gonzalez, 2021; Urban & Wójcik, 2019). These studies have demonstrated a remarkable positive shift in the attitudes of institutional investors towards sustainable finance. Nonetheless, studies dedicated to the attitudes of everyday individuals are scarce. Institutional investors are unquestionably crucial actors for achieving success with sustainable finance. However, it is equally important to understand the opinions of individuals whose funds make up vital institutional investments, such as pension funds, particularly in democratic societies such as the EU. Therefore, this paper closes this research gap by examining the interest of individuals in sustainable finance in all EU27 countries and the factors motivating their interest. Recent longitudinal studies have shown that the pro-environment opinions of individuals can determine their commitment towards environmental issues (Bauske et al., 2022).

Sociodemographic factors have been frequently examined to explain the pro-environmental behaviour of people (Blankenberg & Alhusen, 2019); however, research findings results are mixed on the influence of socio-demographic factors (Gray et al., 2019). For instance, some studies have reported no significant differences between younger and older adults regarding environmental support (Gray et al., 2019). On the contrary, other studies (Such as: Arun et al., 2021; Blankenberg & Alhusen, 2019; Nicolau et al., 2020) have shown that age influences people's attitude towards the environment, with older people less likely to engage in environmentally friendly behaviour. While studies show older people are less likely to engage in environmentally friendly behaviour,

this may not necessarily explain their environmental attitudes and beliefs. In addition, an association between gender and environmental behaviour has been reported, with women more likely to express environmentally supportive beliefs (Arun et al., 2021; Blankenberg & Alhusen, 2019). Furthermore, previous research has shown that family composition, especially having kids or living in a larger household, negatively influences environmental attitudes (Longhi, 2015). Despite the inconsistencies in research findings, socio-demographics, such as age, gender, and family composition, remain fundamental in explaining people's environmental attitudes and behaviour (Blankenberg & Alhusen, 2019).

Similarly, research on rural-urban differences in environmentally friendly action has been largely inconsistent (Gifford & Nilsson, 2014). While some studies show that rural residents tend to be more supportive of sustainable initiatives (Berenguer et al., 2005; Huddart-Kennedy et al., 2009), other studies have reached the opposite conclusion particularly when financial commitment is involved (Ain et al., 2021; Bergmann et al., 2008; Yu, 2014). Moreover, people with higher levels of education are more pro-environment (Blankenberg & Alhusen, 2019; Sun et al., 2019), possibly due to the influence of having more knowledge/awareness of the negative consequences of business and human activities on the environment. In addition, previous studies have revealed that having prior knowledge or awareness can influence interest, support, attitude and commitment to environmental issues (Casaló et al., 2019; Molina et al., 2018).

Finally, studies have also shown that some contextual factors, such as greenhouse gas emissions, renewable energy sources, quality of public transport, and economic factors, influence pro-environment attitudes and behaviour (Iwińska et al., 2023; Pellegrini-Masini et al., 2021; Steg & Vlek, 2009). As a result of these, we hypothesise the following:

H1: Support for sustainable finance differs between younger and older individuals.

H2: The sociodemographic factors – age, gender, education, occupation, household size, and place of residence – will influence interest in sustainable finance among people in Europe. *H2(a)*: There is a significant effect of age on interest in sustainable finance and older people are less likely to support sustainable finance. *H2(b)*: Women are more likely to support sustainable finance than men. *H2(c)*: People living in rural areas and possessing lower levels of education might be less likely to support sustainable finance. *H2(d)*: Employees and self-employed people will be more interested in sustainable finance than manual workers and the unemployed. *H2(e)*: Household size influences interest in sustainable finance, and households with three or more people are less likely to show interest in sustainable finance.

H3: Knowledge of sustainable finance will positively influence interest in sustainable finance.

H4: A country's high SDG performance will positively influence interest in sustainable finance in the country and moderate the influence of knowledge.

To examine these hypotheses, we use the SDG index, a detailed composite index assessing the performance of countries towards attaining the SDG goals across a range of environmental, social, economic, and developmental factors.

3. Methodology

3.1. Data collection

The data on sustainable finance used in this research was retrieved from the flash Eurobarometer 509 survey (FL509) on retail financial services and products (European Commission, Brussels, 2023). Eurobarometer surveys are the European Commission's official surveys and comprise a representative sample of all 27 EU member states. The fieldwork for the FL509 survey used for this study was conducted between May and June 2022 and included a sample size of 27,862 people across the EU. A quota-based sampling strategy of people aged 15 and older was used, and data was collected through a web-based self-administered questionnaire. Then, the results were weighted considering population size and other sociodemographic variables. A detailed explanation of the methodology can be found in the link provided in the data availability statement. Meanwhile, data on progress towards attaining the SDGs was collected from the Sustainable Development Solutions Network (SDNS). SDNS is a leading international organisation with some affiliation to the United Nations. It releases an annual index (i.e., SDG), providing a score and ranking countries based on their SDG performance.

The SDG index is a composite index comprising many underlying data from carbon emissions to women's rights. It ranks countries for progress towards each of the 17 UN SDGs before providing an aggregate score and rank for all countries worldwide. Although this paper uses the SDG index for 2023, the underlying index data are based on 2022 data. All data were accessed and downloaded on the 20th of July 2023. The SDG index was selected because it provides the most exhaustive data on the performance of countries towards attaining the sustainable development. Instead of measuring single metrics, such as pollution or green technologies, we assessed the overall context of sustainable development within a country. We further examined the influence of single issues within SDGs to allow for a robust understanding of SDGs' performance.

Also, due to the rather complex nature of Eurobarometer data, this paper drew inspiration for data sorting and analysis from other recent studies using a similar approach (Carradore, 2022; de Boer & Aiking, 2023). Both studies examined the influence of external/contextual factors at the macro level. However, while de Boer and Aiking (2023) explored the contextual influence of national

income and gender equality on pro-environmental food practices, Carradore (2022) examined the influence of economic development, high-technology exports, and mobile phone subscriptions on the acceptance of robots in social services.

3.2. Analytical approach

Our research uses a fixed effects model with two levels (Möhring, 2021). Level 1 analyses the influence of individual level or sociodemographic factors on support for sustainable finance in Europe, while level 2 examines the influence of macro/country level factors: in our case, SDG progress. While the research subjects for level 1 are the 27,862 people from the Eurobarometer survey, level 2 involves the 27 countries in the EU. A fixed effects model was selected instead of a conventional multilevel regression for several reasons. Prior studies have argued that multilevel models are not ideal for research with a small number of macro-level units (n < 30) as they might be prone to an omitted variable bias and have a low number of degrees of freedom at the macro/country level (Möhring, 2021). Also, a small sample size at the macro level unit (n < 50) can lead to biased estimates of the standard errors (Maas & Hox, 2004). As such, in cases with small sample sizes at the macro level, such as the 27 EU countries in our study, and in research with hierarchical structured data with individuals clustered/nested in countries, a fixed effects approach is a more robust alternative (Huang, 2016; McNeish & Stapleton, 2016; Möhring, 2021). This approach has been used in a wide range of social, behavioural and business research (Choi, 2018; Ritter-Hayashi et al., 2021; Terraneo, 2015), and was used in our study.

Furthermore, support for sustainable finance was taken as our dependent (or outcome) variable, while individual and contextual factors were the independent variables (or predictors).

Two main questions from the Eurobarometer survey were used to measure support for sustainable finance: (1) *If I know that a financial product is sustainable, I am more likely to invest in it*, and (2) *It is important to me that my savings and investments do not fund economic activities that have a negative impact on the planet*. These questions were assessed using a six-point scale asking respondents to rank their responses based on the following: strongly agree, rather agree, rather disagree, strongly disagree, not applicable, and don't know. Responses to 'not applicable' and 'don't know' were excluded from our data analysis. The rest of the responses were merged into total agree and total disagree, hereinafter referred to as agreed and disagreed.

Individual-level factors were assessed using sociodemographic variables and knowledge of sustainable finance. Questions on sustainable finance knowledge include: (1) *I know whether my private savings and investments are invested into sustainable economic activities,* and (2) *I receive information on the sustainability impact of financial products or services*. These allow a similar

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response and analytical method as the questions on support for sustainable finance. Sociodemographic questions include age, gender, age at the end of education, occupation or type of employment, subjective urbanisation or place of residence, and the size of households. Questions on gender included three response categories: male, female, and no answer. Response to no answer was excluded, while the analysis focused on the male and female gender. Questions on age included five main categories: 15-24 years, 25-39 years, 40-54 years, and 55+ years.

Since this research is geared towards analysing support for sustainable finance among older people, the age group 55+ was taken as the overall reference or constant (*intercept* in the regression), and our entire analytical models were built towards it. Therefore, all results are interpreted relative to the responses of people above 55. For theoretical simplicity, people within the age group 55+ are generally referred to as 'older people' in this study, while younger generations (15-24, 25-39 and 40-54) and middle-aged adults are referred to as 'younger people'.

In addition, questions on age at the end of education, hereinafter education, include the following response categories: up to 15 years, 16-19 years, 20+ years, and still studying, whereas questions on employment were grouped into four main categories: self-employed, employee, manual worker and not working. While self-employed individuals include entrepreneurs, farmers and artisans, employees include professionals and blue-collar workers. Also, questions on subjective urbanisation include responses to rural areas, small or medium-sized towns, and large towns or cities. In contrast, questions on household size included four main groups ranging from 1 person to 4+ people in a household. Additionally, the influence of SDG progress was analysed as the contextual factor of the independent variable.

The hierarchical nature of the dataset and the fixed effects model meant that the macro-level variables were estimated by examining their moderating effect through cross-level interaction. Following the approaches and recommendations of previous studies (Choi, 2018; Ritter-Hayashi et al., 2021; Terraneo, 2015), we used a model-based system for the regression analysis and the maximum likelihood method as the estimator. The *first model* is the null model, which explains the grand or pooled mean of sustainable finance across the 27 EU countries. It has no predictor variables. However, the *second model* includes all the predictor variables to measure their main effects, and the *third model* consists of the second model plus the influence of sustainable finance knowledge. In contrast, the *fourth model* includes the third model with the contextual construct for moderation. All data were exported from the EU and SDNS databases to a Microsoft Excel file for sorting/processing. After data cleaning, we used SPSS (v.28) for data analysis.

4. Results

Table 1 shows the weighted analytical characteristics for sustainable finance across all 27 EU countries. The table shows that most EU citizens support sustainable finance, with 57.23% (95% CI: 54.71-59.74) of individuals expressing support, while 17.11% (95% CI: 15.48-18.59) disagreed.

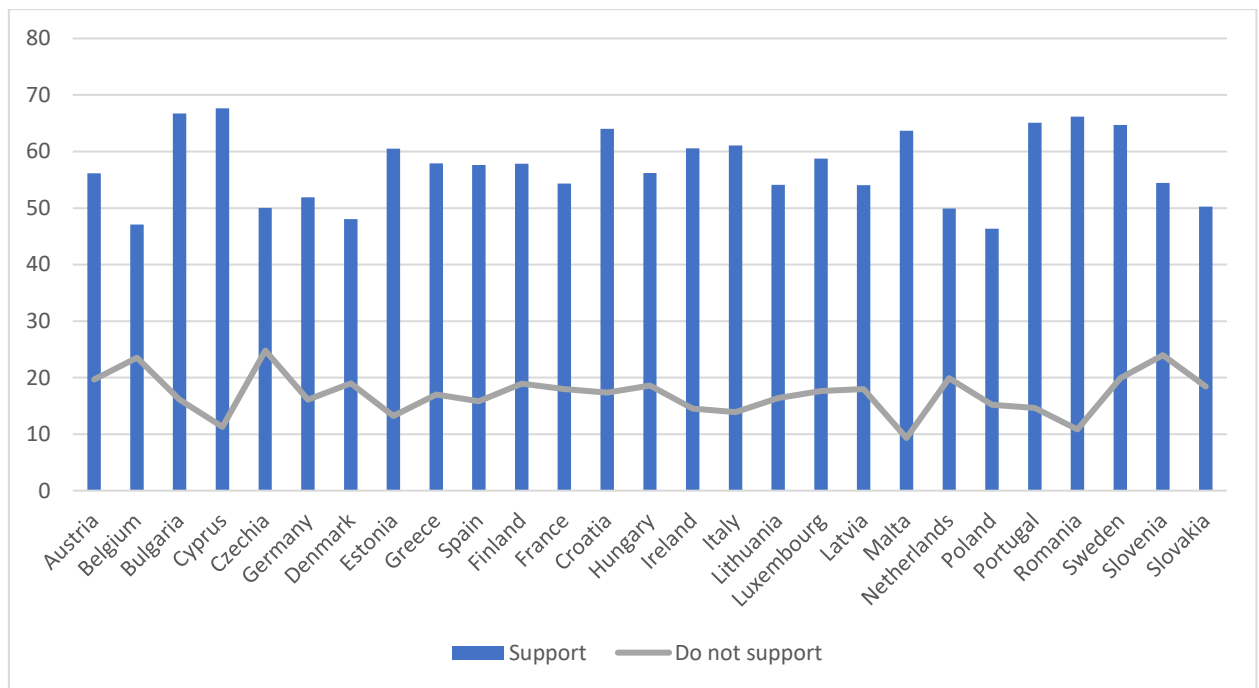**Table 1:** Weighted proportion of support for sustainable finance and investment in 27 European countries

EU Countries	Agreed weighted % (95% CI)	Disagreed Weighted % (95% CI)
Austria	56.16 (53.83-58.49)	19.69 (18.56-20.83)
Belgium	47.07 (44.14-50.00)	23.52 (22.11-24.92)
Bulgaria	66.74 (65.27-68.23)	16.09 (15.10-17.08)
Cyprus	67.62 (64.38-70.86)	11.31 (9.85-12.78)
Czechia	50.01 (47.20-52.81)	24.78 (23.18-26.38)
Germany	51.92 (48.95-54.88)	16.10 (14.99-17.21)
Denmark	48.03 (45.19-50.87)	19.00 (17.62-20.38)
Estonia	60.49 (58.31-62.67)	13.23 (11.60-14.87)
Greece	57.88 (54.40-61.36)	16.99 (15.75-18.23)
Spain	57.61 (54.56-60.65)	15.85 (14.70-17.01)
Finland	57.85 (55.56-60-12)	18.92 (17.64-20.20)
France	54.36 (51.73-56.98)	17.97 (16.78-19.17)
Croatia	64.00(62.40-65.61)	17.36 (16.28-18.44)
Hungary	56.20 (53.95-58.46)	18.62 (17.41-19.82)
Ireland	60.59 (57.57-63.63)	14.5 (13.63-15.37)
Italy	61.10 (58.45-63.74)	13.92 (12.58-15.27)
Lithuania	54.10 (50.36-57.84)	16.39 (14.91-17.87)
Luxembourg	58.78 (55.23-632.31)	17.63 (15.72-19.54)
Latvia	54.05 (51-40-56.68)	17.95 (16.14-19.77)
Malta	63.69 (61.46-65.92)	9.32 (8.41-10.22)
Netherlands	49.9 (46.79-53.01)	19.92 (18.65-21.20)
Poland	46.35 (43.63-49.06)	15.21 (13.68-16.65)
Portugal	65.08 (62.16-68.01	14.61 (13.26-15.96)
Romania	66.16 (63.67-68.65)	10.84 (9.51-12.17)
Sweden	64.68 (63.00-66.36)	19.92 (18.48-21.36)
Slovenia	54.46 (51.93-56.98)	23.97 (22.17-25.77)
Slovakia	50.27 (47.25-53.28)	18.45 (16.76-20.15)

Total	57.23 (54.71-59.74)	17.11 (15.48-18.59)

Furthermore, Table 1 reveals that Cyprus is the leading country in Europe with support for sustainable finance, with 67% (95% CI: 64.38-70.86) of its people supportive and 11.31% (9.85-12.78) against. Cyprus's strategic location and its investment industry's resilience may be contributing factors. Cyprus is followed by Bulgaria 66.74% (95% CI: 65.27-68.23), Romania 66.16% (95% CI: 63.67-68.65), Portugal 65.03% (95% CI: 62.16-68.01) and Sweden 64.68% (95% CI: 63.00-66.36). In total, most people do not support sustainable finance in about 14% of all EU27 countries, including Belgium 47.07% (95% CI: 44.14-50.00), Denmark 48.03% (95% CI: 45.19-50.87), Netherlands 49.9% (95% CI: 46.79-53.01), Poland 46.35% (95% CI: 43.63-49.06). These results are also graphically presented in Figure 1.

Figure 1: Support for sustainable finance and investment in 27 European countries

Figure 1 shows the level of support for sustainable finance and investment in all 27 member states of the EU. It shows that the proportion of people who support sustainable finance across all EU countries is significantly more than those who oppose it. Following this, we carried out a z-test to examine the differences in support for sustainable finance between older and younger people. The results show a statistically significant difference with a probability value of 0.029 ($p < 0.05$) (supplementary Table 1).

Table 2: SDG index score and rank

Country	SDG Index Score	SDG Index Rank (International)	SDG index rank (Europe)
Finland	86.8	1	1
Sweden	86.0	2	2
Denmark	85.7	3	3
Germany	83.4	4	4
Austria	82.3	5	5
France	82.0	6	6
Czechia	81.9	8	7
Poland	81.8	9	8
Estonia	81.7	10	9
Croatia	81.5	12	10
Slovenia	81.0	13	11
Latvia	80.7	14	12
Spain	80.4	16	13
Ireland	80.1	17	14
Portugal	80.0	18	15
Belgium	79.5	19	16
Netherlands	79.4	20	17
Hungary	79.4	22	18
Slovakia	79.1	23	19
Italy	78.8	24	20
Greece	78.4	28	21
Luxembourg	77.6	33	22
Romania	77.5	35	23
Lithuania	76.8	37	24
Malta	75.5	41	25
Bulgaria	74.6	44	26
Cyprus	72.5	59	27

Source: Sustainable Development Solutions Network. Note: Rank and score are for 2023 but the underlying data is from 2022. The authors ranked Europe by following the international rank but excluding non-EU27 countries.

Table 2 shows the SDG index score and rank of EU 27 countries, indicating that EU countries are the leading countries in the world in terms of progress towards achieving the SDG goals. According to our findings, Finland tops the world and Europe in SDG performance, followed by Sweden, Denmark, Germany, and Austria. Meanwhile, Cyprus shows some modest progress towards attaining the SDGs when measured internationally, it currently ranks lowest in Europe, followed by Bulgaria, Malta, and Lithuania. The results of the SDG score and index (Table 2) appear to be mixed when compared with support for sustainable finance (Table 1). For example, there are mixed findings with countries like Cyprus, Bulgaria and Romania leading the EU for sustainable finance support but ranking low for progress towards SDGs. This is similar to Denmark, which ranks low in support for sustainable finance but ranks third in the world for its

progress towards achieving the SDGs. Following the analysis of SDG performance, we proceeded with the fixed effects analysis.

Table 3: Null Model of the regression (Model 1)

	Estimates of Fixed Effects			
			95% Confidence Interval	
Parameter	Estimate	Std. Error	Lower Bound	Upper Bound
Intercept	33.691***	2.068	29.591	37.791

Table 3 shows the results of the first model, the null model, analysing sustainable finance across all EU countries in the absence of any predictor variables. The results of the null model show a statistically significant estimate of 33.691.

Table 4: Results of the fixed effects regression analysis

Parameter	Estimates of Fixed Effects								
	Model 2			Model 3			Model 4		
	Estimate	Std. Error	Sig.	Estimate	Std. Error	Sig.	Estimate	Std. Error	Sig.
Intercept	0.167385	0.245433	0.497	0.4707363	0.4174157	0.261929	-0.1920746	10.658126	0.9856793
Male	0.871213***	0.122273	0.000	0.9070262***	0.1281999	0.00000	9.0321157**	3.4965897	0.01115
Female	0.940560***	0.119060	0.000	0.9715051***	0.1235372	0.00000	8.4812026***	3.1717575	0.00866
15-24	-0.338509***	0.020608	0.000	-0.3396381***	0.0205703	0.00000	-2.0679639***	0.4427053	0.00001
25-39	-0.641331***	0.028805	0.000	-0.6430545***	0.0287622	0.00000	-2.3775809***	0.5779263	0.00008
40-54	-0.618288***	0.027635	0.000	-0.6177748***	0.0275386	0.00000	-2.1412217***	0.7110538	0.00324
Up to 15 years	0.016619	0.009545	0.085	0.0186047	0.0097638	0.0593784	-0.8124543***	0.3055483	0.0091362
16-19 years	0.037863	0.032936	0.253	0.0354209	0.0329269	0.2844397	-2.8669031***	0.6741619	0.00000
20+ years	0.064762	0.045309	0.156	0.0645507	0.0451423	0.1556208	-5.6969206***	1.1648352	0.00000
Still studying	-0.012186	0.018147	0.503	-0.0120146	0.0180809	0.5077935	-0.8142945	0.4627531	0.0815579
Self-employed	0.052559**	0.020909	0.013	0.0496527**	0.0210825	0.0203201	1.1377451	0.5829054	0.0535585
Employed	0.078635	0.064593	0.226	0.0758524	0.0644282	0.2416576	1.2376815	1.6774593	0.4623282
Manual worker	0.016474	0.009493	0.086	0.0157245	0.0094944	0.1005871	-0.117118	0.2695837	0.6648575
Not working	0.039072	0.065551	0.552	0.0318308	0.0658058	0.6295723	-1.3140515	1.9581697	0.5048555
Rural area	0.0746638**	0.034190	0.031	0.0677494	0.0349255	0.0550089	0.2349208	0.9296276	0.8009998
Small/medium-sized town	0.110804**	0.054696	0.045	0.0925423	0.0581747	0.1145856	-0.676564	1.5549093	0.6643522
Large town/city	0.167448***	0.044455	0.000	0.1506881***	0.0480727	0.0022166	1.0085491	1.393755	0.4708845
1 household size	0.045368	0.031130	0.148	0.0467856	0.0310553	0.1348516	-0.8422348	1.0361264	0.4180861

2 household size	0.106055	0.055571	0.059	0.102759	0.0554874	0.0667669	-0.2935892	1.7182357	0.8646492
3 household size	-0.012055	0.027479	0.662	-0.0155618	0.0276548	0.5747945	0.7577687	0.618872	0.2234788
4+ household size	-0.006895	0.020224	0.734	-0.0067454	0.0201495	0.7384504	-0.5422346	0.5019835	0.2828631
Knowledge				-0.0126614	0.0141199	0.3718703	-0.467644	0.3910154	0.2349498
SDG							0.0006221	0.1364296	0.9963768
Knowledge * SDG							0.0057539	0.0049341	0.2468126

Note: $P<0.01$*** <0.05**

Table 4 presents the results of the fixed effects regression analysis on support for sustainable finance among individuals in the EU, demonstrating the influence of sociodemographic factors, knowledge of sustainable finance, and SDG goals. The results indicate a significant influence of most socio-demographic factors. Significance level and/or estimate in Table 4 are used to interpret the regression results. The results show that gender was statistically significant, and women were more likely to express an interest or support for sustainable finance than men. This was consistent across all the models (models 2, 3 and 4) and supports our hypothesis. Furthermore, we also found strong support for the influence of age. Compared to other age groups, our results show a negative relationship for people aged 55+. This demonstrates that younger adults, or people between the age groups 15-24 years, 25-39 years, and 40-54 years, are more supportive of sustainable finance than older people. Also, we found positive support for the influence of education. Our analysis revealed that people who have completed their education are more likely to support sustainable finance than those still studying.

In addition, our results provide only partial support for our hypothesis that the type of occupation people worked could predict their support for sustainable finance. As hypothesised, we found that urbanites, or people living in large cities, were much more likely to show a positive interest in sustainable finance than those living in rural areas and small towns. Household size was also a good predictor of sustainable finance support, although it was not statistically significant. While a household size of three or more people negatively influenced support for sustainable finance, a household of one or two people had a positive influence. Contrary to our expectations, knowledge of sustainable finance has no positive influence on its support. Finally, we found a statistically insignificant positive effect of SDG performance on support for sustainable finance. Our regression results are also presented in Figure 2.

Figure 2: Graphical presentation of fixed effects estimate in regression result
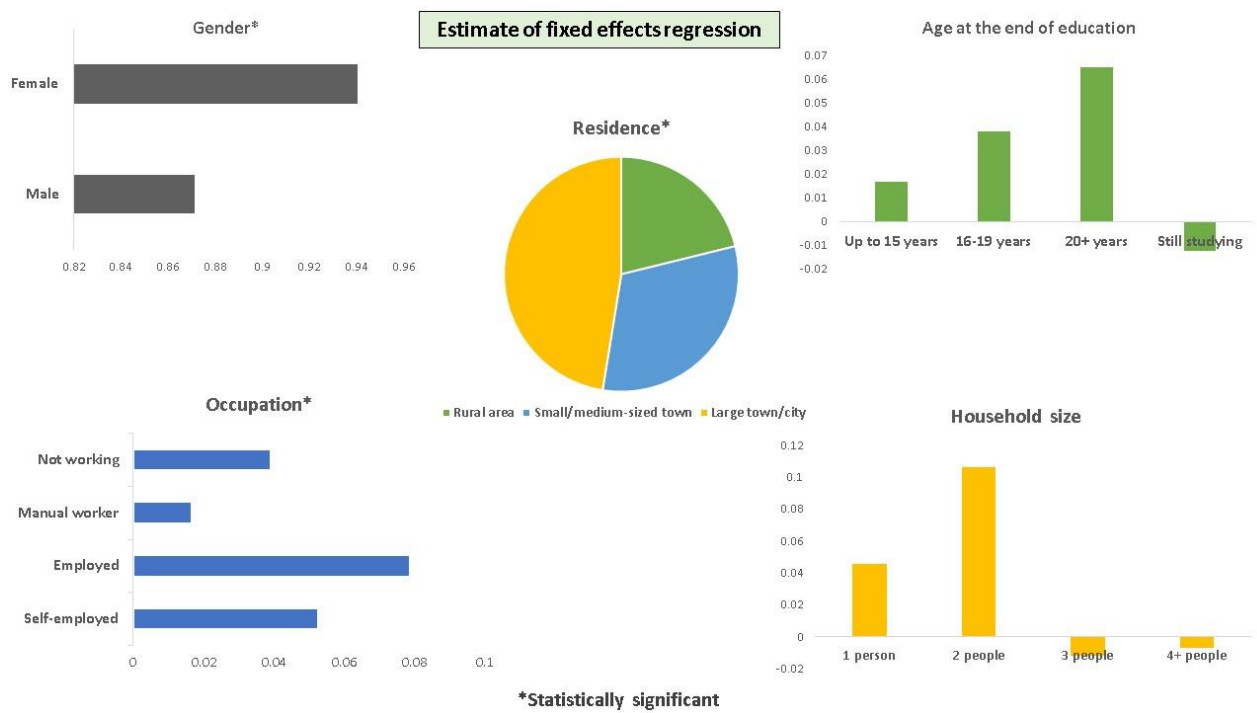
Note: Results represent a depiction of model 2 in the fixed effects regression

The results of model 2 in the fixed effects regression are shown in Figure 2. Model 2 assesses the influence of sociodemographic factors on support for sustainable finance and Figure 2 depicts five of these sociodemographic factors. The figure shows that women are more supportive of sociodemographic factors, and employed people are the most supportive occupation. Also, people who stopped their formal education after twenty years are the most supportive educational level, and people living in households with two people are the most supportive household size.

To further test the robustness of SDG progress, we performed further analysis to confirm whether there were differences in the influence of individual SDG goals on positive support for sustainable finance. Our result is included as a supplementary table and shows that the influence of the individual goals were not statistically significant. However, we found that some climate-related goals, such as affordable and clean energy (SDG 7) and responsible consumption and production (SDG 12), had a weak positive influence on support for sustainable finance, but other social, economic, and environmental goals had a weak negative influence.

Table 5 summarises the results of our hypotheses. The results reveal that sociodemographic factors are the strongest predictors of support for sustainable finance among people in Europe. While the results supported the influence of most sociodemographic factors, knowledge and SDG progress had a negligible influence.

Table 5: Hypotheses summary

Hypothesis	Relationship	Remark
H1	Support for sustainable finance differs between younger and older individuals.	Supported
H2	Sociodemographic factors will influence interest in sustainable finance.	Supported
H2(a)	Older people are less likely to support sustainable finance	Supported
H2(b)	Women are more likely to support sustainable finance than men.	Supported
H2(c)	People living in rural areas and possessing lower levels of education are less likely to support sustainable finance.	Supported
H2(d)	Employees and self-employed people are more likely to express an interest in sustainable finance than manual workers and the unemployed.	Partially supported*
H2(e)	Having a large household size may reduce interest in sustainable finance.	Supported
H3	Having knowledge of sustainable finance will positively influence interest in sustainable finance.	Not supported
H4	A country's high SDG performance will positively influence interest in sustainable finance and moderate the influence of knowledge.	Not supported

Note: *In our confirmatory factor analysis (supplementary table 2) the hypothesis was supported for manual workers but not supported for the unemployed.

5. Discussion

Studies examining support for sustainable finance and investment have risen in recent years (Cunha et al., 2021; Schumacher et al., 2020). However, research on non-professional investors, particularly older adults, has so far been meagre. First, contrary to our hypothesis, we found that countries leading the world in progress towards achieving the UN SDGs are not more likely to support sustainable finance. In many cases, the opposite is true, particularly for countries like Cyprus, Bulgaria and Romania. We found that people in countries that rank at the bottom of SDG progress might show a stronger pro-environment motivation, in our case, sustainable finance, than in countries where climate progress has already been achieved. Our findings imply that among the high-income countries of the EU, people in countries lagging behind their climate obligations might be more supportive of stronger pro-environmental action than those in countries who already perceive themselves as leaders on climate action. Some recent studies have reported a similar trend, whereby young people in a highly developed country like Germany, which ranks fourth in the world for progress towards achieving the SDGs (Table 2), express less environmental concern than young people in a country like Ecuador (Dornhoff et al., 2019).

Furthermore, our results demonstrate that sociodemographic factors can accurately explain people's support for sustainable finance in Europe. There has been much debate in contemporary literature on the factors that truly influence climate-supportive behaviour. Prior studies have highlighted the role of political affiliation as being progressive or left-leaning, particularly in the United States, as more predictive of pro-environment support than sociodemographic factors (Davidovic et al., 2020; Shwom et al., 2015). Although a myriad of factors influences attitudes towards climate change (Drews & van den Bergh, 2016), we argue that future research should consider sociodemographic factors for a holistic understanding of sustainable finance. Among the sociodemographic factors, we found that young people are more supportive of sustainable finance than older individuals. This finding contradicts some previous studies (Dietz et al., 2007), but bolsters the growing consensus that older people might be less supportive of climate-related actions than young people (Arun et al., 2021; Blankenberg & Alhusen, 2019; Nicolau et al., 2020).

While, there is inconsistency in previous research on the influence of gender in supporting climate-friendly initiatives (Arun et al., 2021; Vicente-Molina et al., 2018), our study shows that women are more likely to support sustainable finance. This finding supports previous studies on the role of gender in sustainable finance and investment among institutional investors. For instance, studies on corporate performance have shown that having more women in corporate positions of power, such as on corporate boards or as directors, significantly increases the sustainability investments and performance of the companies (Amin et al., 2023; Bosone et al., 2022; Shakil et al., 2022). Additionally, our results on the influence of sustainable finance knowledge shows that the proliferation of sustainability and climate change information may limit the influence of additional awareness or understanding of issues like sustainable finance. This is consistent with several previous studies showing that the effect of knowledge on environmentally friendly behaviour is nuanced at best, and influenced by many factors (Bartiaux, 2008; Paço & Lavrador, 2017; Pothitou et al., 2016).

Finally, two of the most significant sociodemographic factors are household size and subjective urbanisation or place of residence. The influence of household size implies that people with larger household sizes likely face other vital challenges such as time and income constraints, and managing other people's needs, all of which makes them less likely to rank sustainable finance, or indeed other environmentally friendly behaviour, at the top of their priorities (Blankenberg & Alhusen, 2019; Longhi, 2015). Also, the results showing that rural residents are less supportive of sustainable finance appear to suggest that while rural residents express strong nature and pro-environmental beliefs (Huddart-Kennedy et al., 2009), they might not be willing to make financial commitments towards it (Ain et al., 2021; Bergmann et al., 2008; Rotaris & Danielis, 2019). This

may be due to the lower levels of income in rural areas (Bernard, 2019) and aligns with research revealing that environmentalists tend to have middle to higher income levels (Gifford & Nilsson, 2014).

Practical and policy implications

The results of this paper reveal the presence of an age divide in support for sustainable finance and investment between older and younger generations. It also shows that much more work must be done to carry older people along. Moreover, older people are unequal participants in crucial avenues for building consensus on climate-friendly activities like the Internet. Therefore, policymakers can consider building support on the issue through social activities and community groups. This should also be considered for breaching the rural-urban divide in support of sustainable finance. In addition, although this paper found a negative relationship between having knowledge/information and support for sustainable finance, future policies can be geared towards highlighting the benefits of sustainable finance by putting more emphasis on casting it as a pull policy rather than a push one. Review studies show that people generally prefer pull measures over push ones (Drews & van den Bergh, 2016). In addition, since studies show that sustainable finance can improve financial performance (Friede et al., 2015), highlighting this fact can be a way to drive up support among sociodemographic groups who might otherwise be divided on the policy.

6. Conclusions, limitations, and future research directions

In this study, we analyse support for sustainable finance and investment among people in all 27 countries of the EU. Detailed limitations to the data collection – and the efforts taken to overcome it – can be found in the Eurobarometer link in our data availability statement. This study uses older people, or people above 55, as a reference for all categories and found that older adults support sustainable finance less than younger individuals, and sociodemographic factors significantly influence people's level of support. Our results show that gender, level of education, place of residence, size of household and type of occupation all influence support for sustainable finance to varying degrees. In addition, we also examine the influence of sustainable finance knowledge and progress towards SDG goals on support for sustainable finance. Our results show that knowledge had a negative relationship with sustainable finance, while the influence of SDG was insignificant. In fact, for a few countries, SDG progress had an opposite relationship with support for sustainable finance. We conclude by providing both the theoretical and practical implications of this result.

Our result is limited by several factors. First, our research considers older people as the reference category across all parameters. This decision was made due to the paucity of studies on this

demographic group across the sustainability research stream. Therefore, our findings should be interpreted relative to older people. Nevertheless, since studies on support for sustainable finance for the broader public have remained limited, future studies can consider a more extensive comparative study on the influence of sociodemographic factors, knowledge and SDG across all age groups. Furthermore, this paper was exclusive to high-income EU countries, and little is known about the attitude of older people in developing countries – who are at the forefront of climate change – to sustainable finance. Also, while questionnaire surveys – and subsequent quantitative analysis – are perhaps the most convenient way to gather opinions on pro-environment behaviour within a large sample size, there appears to be an overwhelming focus on this methodological approach, making it challenging to capture the considerable subtleties that influence social behaviour. We therefore recommend that future studies consider qualitative approaches such as in-depth interviews to provide more depth and context. This can provide a richer understanding of crucial factors such as the differences in the level of support for sustainable finance between rural and urban residents, men and women, and the size of households.

In addition, our finding that progress towards meeting the SDGs did not influence attitudes towards sustainable finance, particularly in high performing countries, deserves further exploration. Recently, a growing number of polls and reports have begun to highlight the existence of a climate related fatigue among leading EU countries (Grillo, 2023). Aggressive bans and prohibitions have led to some high-profile pushbacks and a feeling among people in some parts of Europe that they are being asked to sacrifice too much. So far, there have been limited academic studies on this issue and on the efforts needed to overcome the challenge. Consequently, future studies can consider this line of research, and also whether a climate-related fatigue influences support for sustainable finance and investment in countries leading the world towards attaining the SDGs.

Data access

The data used in this study is open access and can be freely accessed via the following link: https://data.europa.eu/data/datasets/s2666_fl509_eng?locale=en

SDG data is provided by the SDSN and is also open access. It can be accessed through the following link: https://dashboards.sdgindex.org/static/downloads/files/SDR2023-data.xlsx

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