Material well-being as sustainable consumption driver: Results of European studies

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A B S T R A C T
Objective: The objective of the article is to examine the causality between material well-being indicators of all the EU-27 countries and sustainable consumption behaviour indicators of the corresponding consumers. The authors assumed that the material well-being construct is determined by net income and actual individual consumption variables. In contrast, the sustainable consumption construct captures five selected behavioural variables.
Research Design & Methods: The hypothesis was that material well-being significantly determines sustainable practices in European countries. The research model was tested by structural equation modelling (SEM) using path coefficients and developed construct predictors. Two sets of statistical data were used. The first was data on material well-being from Eurostat 2019, and the second was a public opinion poll covering the EU-27 countries as stated in the 2019 'Special Eurobarometer 501.'
Findings: Consumers in countries with lower material well-being indicators had a lower capacity for implementing consumers' sustainable practices.
Implications & Recommendations: The reported causality is essential for policy decision-makers to regulate measures more reliably according to specific countries and distribute scarce resources relevant to their sustainable consumer practices capability.
Contribution & Value Added: The article contributes to the sustainable consumption theory by developing new theoretical construction that combines the different sustainability featured variables. Introducing policy measures for sustainable consumer behaviour, which simultaneously require sacrifice, will depend on consumer income and the ability to meet the costs of environmentally friendly activities.

INTRODUCTION

Struggling for sustainability has been supported by political (*e.g.*, European Green Deal, Circular Economy Action Plan) and voluntary initiatives (*e.g.*, Fairtrade, Forest Stewardship Council) that seek to change the current ecological footprint affected by negative consequences of consumer habits, not promising long-term existence (Zysk, 2020). The European Union has several policies relevant to consumers' sustainable choices. Studies on the impacts of consumption on the environment show that environmentally friendly choices poorly saturate the market (Šajn, 2020). The European Union leadership, with its sustainability policy, regulates and creates new rules and opportunities for consumers to change their consumption patterns to be more environmentally friendly. Not all countries can achieve sustainable consumption goals equally, effectively, and quickly.

The latest survey of consumer attitudes on different aspects of sustainability in the European Union shows significant differences between the Member States. Only 12% of Hungarians and 20% of Croatians have bought products marked with an environmental label in the past six months, while 65% of Swedes have done so (EC, 2020). The lagging countries are trying to catch up with the more developed ones. The presumption is to prove that the level of material well-being of consumers is a significant enabler for achieving better effectiveness of sustainable consumption policy implementation at the national level. Policymakers allocate resources to raise the country on the ranking scale, but the material capabilities of the population limit these efforts.

Consumer purchasing power, signalled by real household expenditures, and determined by their household income per capita, limit the practice of sustainable consumption that requires more valuable resources (*e.g.*, consuming pesticide-free organic food, purchasing electric vehicles) so that consumers in less developed countries cannot afford all that is needed to effectively implement the national sustainability policy and the disparity of income distribution in the European Union (Pilelienė & Tamulienė, 2021). Research needs to include more on the impact of household income on sustainable consumption as well as the disparity of income distribution in the European Union (Duarte *et al.*, 2021). There are disparities in income and lifestyle within and among countries which is the starting point for each country in achieving its sustainability goals (Filauro & Parolin, 2018). These identified discrepancies motivated the authors of this article to examine the econometric causality between the two combined sets of data. One set of data represents material well-being, while the second set consists of indicators related to sustainable consumption. Material well-being is assumed to be one of the causes of poor performance and below-average indicators of sustainable consumption practices, mainly in CEE countries. A confirmatory factor analysis method using SPSS AMOS was used to identify causation.

The article is organised as follows: a literature review and hypothesis development will be presented in the second section. The methodology will be explained in the third chapter. Empirical findings and a discussion of the results will be discussed in the fourth section. Finally, the last part will cover policy implications, study limitations, and further research potential.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

According to the neoclassical economics paradigm, people's needs are unlimited and insatiable, and humans always choose alternatives to maximise their well-being (Guillen-Royo & Wilhite, 2015). It is a broad and complex construct, generally describing the quality-of-life satisfaction level, both from an objective perspective (measured by economic growth, for instance) and a subjective one (expressed by a self-reported feeling of happiness). Therefore, it consists of both material and non-material components. However, it must be stressed that material well-being is widely recognised as a critical determinant of overall well-being (Ferriss, 2002). For this reason, in most countries worldwide, individuals strive to increase their material well-being, closely related to their consumption level. But the more people consume, the higher their material well-being becomes, and consequently, the more products are delivered to the global market, the higher carbon footprint emission it causes (Duarte, Miranda-Buetas, & Sarasa, 2021; Šubova, 2022). That is potentially more harmful to the environment and finally presents a more significant threat of climate catastrophe for the entire civilisation. On the other hand, the higher the level of material well-being, the more other aspects of life, like clean air and a restored natural environment, become important issues for wealthy societies in the future. A key to such a future is the rejection of personal consumption beyond what is needed to fulfil a 'good life,' as stated by Kates, Parris, and Leiserowitz (2005).

Sustainability is a normative mechanism, and according to Baumgärtner and Quaas (2010), it represents how people behave and relate to nature and how responsible they are to each other for future generations. Kates, Parris, and Leiserowitz (2005) argue that many scholars and practitioners have made massive interdisciplinary efforts and developed hundreds of indicators to measure sustainability dedicated to nature, the environment, economic development, or the human condition (Potoczak, 2021). The authors of this article listed essential factors to be sustained in the long term: reducing toxic

emissions, energy, and healthy foods. These three factors served as a guideline for selecting sustainability factors in designing the research framework.

Many articles have already contributed to developing the theory of sustainable consumption, but additional research still needs to be carried out. It is crucial to analyse the relationships between individual variables and constructs to predict which ones have the power to influence sustainability (Tam & Chan, 2018; Krepl *et al*., 2020; Makarenko *et al*., 2022). The connection between sustainability and country development has always been uneasy (O'Riordan *et al.*, 2020; Chovancová & Tej, 2020; Sulyova & Kubina, 2022). In a recent article, by using the clustering method, Ulman *et al.* (2021) show how development patterns in the European context strengthen capacities to achieve sustainable goals. The authors determine two components, human well-being and economic well-being, to test their relation to environmental well-being in EU countries. Their concept of economic well-being includes organic farming, savings, employment, and others. The result shows that the different level of well-being throughout the EU reflects sustainability as a function of environmental well-being. Most developed countries such as Austria, Belgium, and Finland significantly improved environmental well-being in 2019 – unlike in 2006 – compared to the less developed Romania, Poland, and Croatia (Androniceanu, A.-M. *et al*., 2020). Rahman & Koszewska (2020) surveyed in Poland and conclude that pro-environmental behaviour is also a concern in other aspects of consumption, such as clothing.

We used official Eurostat statistics on net income and expenditure per capita to build a material well-being construct. Following the research call of Tam and Chan (2018), this article seeks to explain how material well-being elevates the sustainable consumption construct. In earlier research (Straughan & Roberts, 1999; Pagiaslis & Krontalis, 2014; Saari *et al.*, 2021), some mechanisms have already demonstrated the impact of consumer well-being on sustainable consumption. A previous study by Magazzino and Leogrande (2021) assessed the relationship between well-being and other constructs such as education, income, and social relationships. To this end, the researchers used the social well-being index as a levelled composite measure of happiness, referring to 21 regions in Italy.

Eurobarometer is a systematic instrument of the European Commission for surveying the population of the European Union, which has been carried out since 1974 to gather views on various social, political, and economic topics and issues. It can be used as a methodologically reliable data source for scientific research purposes (Aldrin, 2011). No similar survey has been cited so many times in such scientific works as Eurobarometer, the results of which are often reported in high-ranking journals. Kaase and Saris (1997) consider Eurobarometer a means of collecting data on population attitudes that can help create certain social groups prone to political initiatives of the European Union (*e.g*., sustainable policy). Eurobarometer questionnaire is structured to process results as transnational for comparing data between countries. Google Scholar highlights the term 'Eurobarometer' in 218 peer-reviewed articles in 2021, while ScienceDirect specifies it as a keyword in 60 research articles in social sciences published in 2020.

Numerous studies have been conducted in the past on the relationship between material well-being, environmental concern, and pro-environmental behaviour, both at the societal and the individual level (Franzen, 2003; Egea & Garcia-de-Frutos, 2013; Richterová *et al.,* 2021; Ulman *et al.*, 2021). In general, it was proved that country wealth is positively related to mitigating climate change behaviour (Ortega-Egea, Garcia-de-Frutos, & Antolin-Lopez, 2014). One of the explanations for this fact comes from Inglehart's (1997) theory. According to it, post-materialist environmental concerns leading to more sustainable consumption may appear as an indirect consequence of wealth mediated by post-materialist values, like self-expression and the quality of life. Another explanation is the prosperity/affluence hypothesis, which assumes a direct relationship between material well-being and environmental concern (Franzen & Meyer, 2009, Ortega-Egea *et al.*, 2014). Dynamic analysis was also applied to examine the relationship between economic well-being and pro-environmental attitudes and behaviour. It was discovered that environmental degradation also increases at the first stage of income growth. However, after a turning point, this degradation starts to decrease with an increase in income level. This effect, known as the inverted U-shaped environmental Kuznets curve, was confirmed in some studies (Shahbaz, Lean, & Shabbir, 2012). However, other research showed that the relationship between the abovementioned variables should be described with an N-shaped curve (Özokcu & Özdemir, 2017).

Several articles pioneered the operationalisation of theoretical environmental and sustainability constructs (Buttel & Johnson, 1977; Hines, Hungerford, & Tomera, 1987). Sustainable consumption research focuses on behaviours and attitudes in which the authors mainly use structural modelling to illustrate direct and indirect relationships between environmental constructs (Fraj-Andrés & Martínez-Salinas, 2007; Saari *et al.*, 2021). Consumers who care about environmental pollution problems (*i.e.*, environmentally friendly behaviour) mainly express this by choosing organic products and undertaking recycling activities (Minton & Rose, 1997).

The environmental impact on consumers can be direct or indirect. Following Stern's (2000) theory of environmentalism, consumers act directly on the environment when sorting waste for recycling, consuming organic food, or using solar energy for heating, thereby significantly changing the environment. The indirect impact of consumers on changes occurs when their actions or references affect others to change their behaviour (Firlej & Stanuch, 2022). Stern (2000) concludes that personal capabilities are an essential causal variable in the implementation of sustainability policy, including knowledge (smart choice), skills (comparison), and material capacities (money) to undertake certain activities in time. Individual contribution of the household is not enough, because positive changes can arise only through aggregate efforts when many undertake the same activities. Consumers who are convinced that their environmentally friendly behaviour is valuable will be further encouraged by their efforts if they see others doing the same, if not more. Income inequality and uneven personal consumption levels among the national markets of the European Union currently exist (Eurostat, 2021; Androniceanu, 2020). This signals that consumers have different material capacities when selecting and purchasing certain more expensive products and that lower-income consumers sacrifice more when buying products with higher prices. This could be why consumers in some markets can align their income and consumption with sustainable consumption guidelines more than in other national markets. The sustainable consumption scheme should ensure national prosperity so that all the resources consumed that impoverished the natural system can be returned ecologically. The Green Deal sustainability framework was offered to the Member States to implement it equally (EC, 2019).

A hypothesis and research model were set about the relationship between the two constructs where 'sustainable consumption' is contingent on 'material well-being.' Accordingly, we hypothesized the following:

H1: Consumers' material well-being is positively related to the sustainable consumption behaviour of Europeans.

The statistical significance of correlations is often used to assess the strength of such a relationship. The two constructs framework was examined by the path diagram method. Research data included secondary Eurostat statistics and Eurobarometer survey results. According to Mueller and Hancock (2019), it is appropriate to use structural equation modelling (SEM) to analyse such conceptions, because it can explain the simultaneous causality between the latent and observed variables. The research model was structured with two constructs, as illustrated in Figure 1.
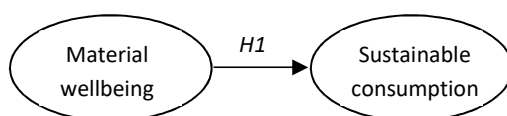


Figure 1. The research model
Source: own elaboration.

Applying the political concept of sustainability requires introducing new rules into consumer behaviour and nudging their habits around food and energy consumption and sustainable clothing while also considering sorting out waste as well. It is typical for food or electrical appliances that are top-ranked on an environmentally friendly scale (*e.g.,* organically produced milk, an 'A-class' freezer, or dryer) to have above-average prices compared to conventional products of similar functionality. To afford such more advanced products, consumers are required to set aside more disposable income.

Material Well-being Conceptualisation

The concept of material well-being may be defined as the possibility of fulfilling the current material needs of consumers by achieving the intended standard of living. It covers aspects of consumer well-being or consumer material opportunities in the marketplace. Namely, Eurostat (2021) defines 'material well-being' as an individual standard of living expressed through three indicators: income, expenditures, and material conditions (*i.e.*, place of living). There are multiple conceptualisations of material well-being (Sirgy, 2018) that mainly include the financial situation, the adequacy of personal income, satisfaction with satisfying needs, and fulfilling wishes. This assumes the level of satisfaction with the possibility of obtaining the desired goods and services, as well as the desire to own valuable assets (Aliyev, 2022). If someone asked or encouraged consumers to buy more valuable things than they could afford, it would create frustration for consumers, because it is unlikely that they would opt for the purchase. Because in these cases well-being was a subjective estimate (*e.g.*, level of satisfaction) and each person judged their well-being, subjective impressions were not taken for the research model; instead, material data was used.

The research of Bruggen *et al.* (2017) shows that financial well-being has a strong and positive correlation with overall well-being, so revenue and expenditure variables can be viewed as aggregating nationally. Promoting well-being has become a central political goal for social and public policy (Taylor, 2011). Social policy is the study of human well-being. Dean (2005) argues that the advantage of well-being as a term is that it can turn our attention to the positive aspects of social policy instead of the negative aspects of social problems. Well-being should provide answers to questions of human meaning, happiness, personal experience, social recognition, and access to material goods and resources. In this research, 'material well-being' was treated as a measurement model predicted by 'net income' and 'expenditure' variables, as illustrated in Figure 2.
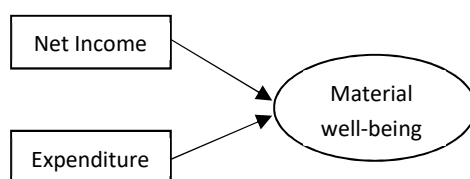
Figure 2. Empirical variables composing the 'material well-being' measurement model
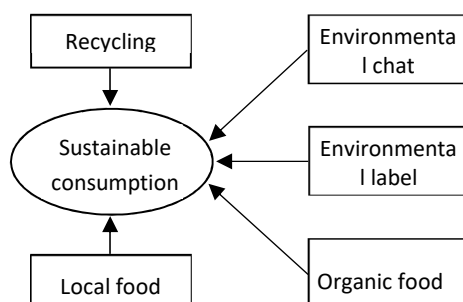Source: own elaboration.

What consumers can afford depends on their net income and how much they spend. Suppose income is limited so that they have to spend less. In that case, they are unable to obtain more expensive goods and services that correspond to higher quality and more functional features (*i.e.*, an automatic change from petrol to electric cars). Hayo and Seifert (2003) confirmed individual income's positive and significant impact on personal well-being.

In statistical methodology, material well-being represents the volume of goods and services that households consume to satisfy their needs. Material well-being can also be referred to as economic welfare or economic well-being (Eurostat, 2012). It is common to take the gross domestic product (GDP) as a benchmark for national economic wealth and the GDP per capita to compare the material well-being of its residents. Although GDP is a good indicator of economic power, it is not a sufficiently precise measure of material well-being since material well-being is defined as the personal consumption of goods and services per household member – consumption that arises only to meet individual needs. To obtain as high a macroeconomic variable of material well-being per capita as possible, the most accurate statistical indicators that were related only to households were used for this study. According to Eurostat (2012), the best measure of material well-being is the actual individual consumption (AIC), which comprises expenditures on goods and services that households consume to satisfy their individual needs, including individual spending on public services.

Sustainable consumption construct

'Sustainable' means a level and pattern of consumption that meets the current needs without compromising the possibility of future generations being able to meet their needs as well (Thøgersen, 2005). The European Green Deal aims to reduce people's negative impact on nature. This is only possible if changes are encouraged in their economic and social behaviour (EC, 2019), as the negative consequences of the current behaviour towards nature rise. At the behest of the European Commission, an opinion poll was conducted throughout all Member States to collect attitudes and behavioural data of residents towards the environment and the practice of the sustainability scheme. This is where aggregated data can be obtained on how the population (consumers) views activities encouraged by the sustainability policy (*e.g.*, discussions about sustainability topics) and how much they practice it, if at all (*e.g.*, recycling, consuming local, and organic food). Each of the five selected observed variables used in the research model as predictive variables is presented in Figure 3.

Figure 3. Empirical variables composing the 'sustainable consumption' construct
Source: own elaboration.

The corresponding labels are used to characterise each of the observable variables. The following section describes all variables related to the sustainable consumption construct.

### Environmental Label and Environmental Chat

An environmental label is a pictogram to tackle customers about the effects of products before they start to consume them. Purchasing products marked with an environmental label (research variable labelled: 'environmental label') reveals consumers' preferences and lifestyles in terms of the protection of nature (*e.g.*, the ozone layer consideration), the environment (*e.g.*, biodegradability), and health (*e.g.*, less carbon dioxide inhalation), but also reveals the product's material capabilities as it signals that they are more technologically advanced and innovative. In most cases, products whose properties are to meet the new standards include innovative production activities, thereby raising costs and the retail price. Environmental labelling facilitates and accelerates purchasing decisions for consumers prone to sustainable consumption (Stern, 2000). They are keen on different products featuring different functionalities, tastes, and appearances, considering them more favourable than conventional ones. Labelling is a marketing incentive to encourage consumers to change the market in this direction. Environmentally friendly labels indicate which products' production and consumption have an estimated less harmful impact on carbon footprint, greenhouse gas generation, and climate change. The greater the political drive towards sustainable consumption, the greater the presence of relevant labels on the market. Labelling is quite simple, however, it signals one complex mechanism that is not only related to ecology but also to the health of the population (*e.g.*, nutrition, food safety) and social well-being.

The representation of environmental problems in everyday conversation reveals how much consumers are concerned about the topic, how much they care about the opinions of others, and how interested they are in promoting sustainability through their consumer habits and behaviour. Consumers can improve the practice of the overall mechanism by exchanging experiences and knowledge with each other. If consumers can participate in these activities and processes, they will also be more enthusiastic to talk about them. Discussing environmental issues with others (research variable labelled:

'environmental chat') signals the willingness and interest of consumers to engage in the process and also shows curiosity about the information in this area that other institutions or academic circles have addressed. It is difficult to assume that the goals set to face the problem of environmental pollution will be achieved if experiences, proposals, critical thinking, and knowledge are not exchanged. The proportion of consumers talking to others about this topic signals the issue's relevance, as this increases the likelihood that they will encourage others to undertake sustainable activities (*e.g.*, recycling and energy-saving actions).

Recycling Waste

Recycling is part of the European Union's circular economy policy (EC, 2019). Examining whether consumers separate most of the waste for recycling (research variable labelled: 'recycling') reveals the share of consumers undertaking activities driven directly by the sustainable consumption goals in the national market. The European sustainability policy includes recycling the following items: electronic devices, batteries, vehicles, packaging, article, plastics, textiles, water, construction structures, and food waste. However, a recent European Commission survey (EC, 2020) shows that less developed countries lag in circular economy policy implementation (Figure 4).
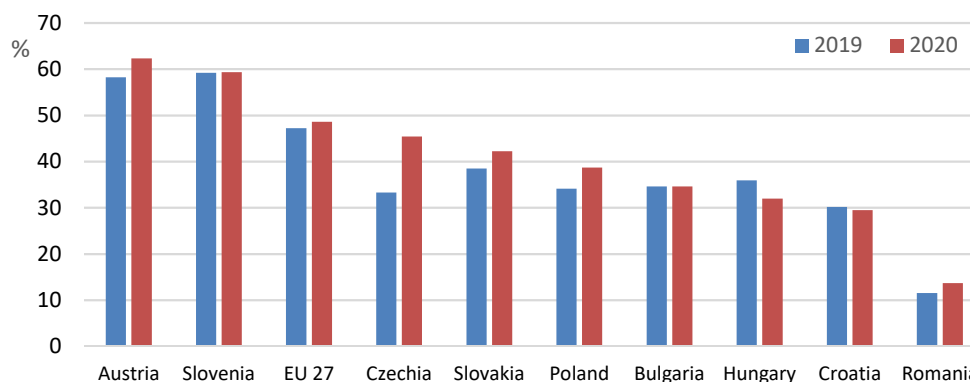
Figure 4. The recycling rate of municipal waste
Source: Eurostat Browser, Tables on EU policy, online data code: CEI_WM011.

Although all consumers have the discretion to decide how to behave and what lifestyle they will lead, their behaviour is expected to respond and contribute to the prevention of resource scarcity and environmental degradation (Thøgersen, 2005). Introducing recycling standards and other initiatives can support changes in consumer behaviour.

Organic Food and Local Food

Sustainable consumption is part of the farm-to-fork (F2F) strategy that needs to contribute to the realisation of a circular society and economy. The European Green Deal aims to change how food is consumed (EC, 2019) and includes a sustainable products policy to support the circular design. The practice of organic food consumption (research variable labelled: 'organic food') promotes sustainable consumption of food, as well as the consumption of food products of local origin with low environmental impact. Recent research (Vandevijvere & Anderle, 2019) reveals how healthier organic food products raise the value of the retail assortment offered by increasing the price so that more organic food products are available in countries with higher incomes. Furthermore, they believe that the impact of higher organic food quality on the price increase mainly creates a negative effect on reshaping consumer habits to a circular economy.

Food produced in the local climate tastes better and fresher than food treated to preserve freshness since it is transported from remote locations (Simonetti, 2012). The nutritional properties of organic food are also better (*i.e.*, biodiverse food's antioxidant content is higher than conventional food's). The habit of consuming local food and drink has fewer negative impacts on gas emissions in general. The share of consumers who have bought local food products (research variable labelled: 'lo-

cal food') agrees that these products are more suitable for their health, more controlled, and thus superior to food produced in other countries, which imposes proneness to a circular economy. Consumers are more confident in local food than global distribution flows (EC, 2020).

RESEARCH METHODOLOGY

As the first part of the desk research, we analysed data sourced from the Eurostat tables covering material living conditions and standards in 2019 throughout the EU-27 Member States without exception. There are several topics that the Organisation for Economic Co-operation and Development (OECD; 2020) considers essential in assessing the well-being concept in terms of material living conditions (*e.g.*, housing, income, jobs) and quality of life (*e.g.*, community, education, environment, governance, health, life satisfaction, safety, and work-life balance). The OECD uses the statistical indicator Net adjusted disposable income as a part of the Better Life Index methodology intended to measure well-being. This index serves to help determine the living conditions and quality of life of the residents. This way, they can get more information when it comes to better engaging in tailoring the social policy that shapes their daily lives (OECD, 2020).

Disposable household net income per capita includes income from economic activity (*i.e.*, wages and salaries), property income, social benefits, and transfers and has several variants. One of the variants is the median equalised disposable net income per inhabitant which represents the population's median amount of money available per capita for spending on goods and/or services. It is a material measure of the national living standard (Eurostat, 2012).

Table 1. Statistics on material living conditions and standards (2019, in PPS)

Member State (EU-27)	Net income[1]	Expenditure[2]
Belgium	22.100	23.600
Bulgaria	8.371	12.100
Czechia	14.035	17.600
Denmark	22.371	23.800
Germany	22.693	25.200
Estonia	14.240	15.500
Ireland	19.775	19.600
Greece	9.765	15.900
Spain	16.171	18.700
France	20.471	22.500
Croatia	10.734	13.700
Italy	17.099	20.600
Cyprus	18.590	19.800
Latvia	11.031	14.600
Lithuania	11.509	19.000
Luxembourg	28.943	30.800
Hungary	9.360	13.800
Malta	18.588	17.700
The Netherlands	21.968	23.800
Austria	23.687	24.300
Poland	12.335	16.400
Portugal	11.602	17.700
Romania	7.338	16.100
Slovenia	16.633	17.000
Slovakia	10.503	14.200
Finland	20.362	23.000
Sweden	20.413	22.400

[1] Median equalised disposable net income per inhabitant. Eurostat online data code *ILC_DI03*
[2] Actual individual consumption (AIC), real expenditure per capita. Eurostat online data code *PRC_PPP_IND*
Source: Eurostat Data Explorer.

While GDP is mainly an indicator of the level of economic activity, 'actual individual consumption is an alternative indicator better adapted to describe the material welfare of households (Eurostat, 2012). Therefore, another aggregated statistical variable listed in Table 1 is the expenditure per capita expressed in PPS virtual currency. Eurostat statistics show that the average real expenditure per capita related to EU-28 was 21 800 PPS in 2019. Over the past several years, since 2012, it has raised steadily on average at the rate of 2.5%. Looking back to 2017, quite a similar trend is characterised by net income per capita. Both variables show a steady upward line; therefore, no indications of data disturbances prior to and in 2019.

Table 2. Individual action in favour of sustainable consumption

Member State (EU-27)	Recycling[1] [%]	Environment chat[2] [%]	Environmental label[3] [%]	Organic food[4] [%]	Local food[5] [%]
Belgium	70	33	18	23	41
Bulgaria	23	22	10	10	45
Czechia	69	18	20	10	34
Denmark	78	60	51	29	44
Germany	61	45	28	24	55
Estonia	59	29	19	15	53
Ireland	61	25	20	17	43
Greece	65	26	14	12	37
Spain	75	28	12	13	36
France	76	36	27	28	52
Croatia	56	23	20	10	36
Italy	60	20	13	9	31
Cyprus	68	31	20	26	52
Latvia	49	26	20	14	60
Lithuania	76	23	20	13	44
Luxembourg	76	43	32	26	53
Hungary	53	22	12	9	29
Malta	75	24	17	8	49
The Netherlands	84	61	31	38	35
Austria	46	35	32	26	56
Poland	56	19	18	9	20
Portugal	77	20	10	11	26
Romania	26	18	13	10	28
Slovenia	82	31	22	20	48
Slovakia	70	31	17	15	43
Finland	80	29	35	29	54
Sweden	88	65	65	39	68

Note: [1] Answer to the question: Have you separated most of your waste for recycling in the past six months? [2] Answer to the question: Have you spoken to others about environmental issues in the past six months? [3] Answer to the question: Have you bought products marked with an environmental label in the past six months? [4] Answer to the question: Have you changed your diet to more sustainable food in the past six months? [5] Answer to the question: Have you changed the proneness of your diet to locally produced food in the past six months?
Source: European Commission (2020, p. 57), 'Special Eurobarometer 501' survey conducted in December 2019.

As the source of the second dataset, a public opinion poll conducted in 2019 and published in the Special Eurobarometer 501: 'Attitudes of European Citizens towards the Environment' (N=27 498) was used. The dataset refers to a collection of data on the behaviour of respondents (consumers) inherent to the concept of sustainability and includes purchasing decisions, shopping, consuming, and post-consuming activities. We collected behavioural data on the practice of the following actions in the past six months: sustainably produced food becoming more prevalent in the diet; separation of most waste intended for recycling; choosing products marked with environmentally friendly labels; including locally produced food in the diet, and finally, talking to others about envi-

ronmental issues. The indices in Table 2 are the percentages of the respondents who revealed in their responses whether they practice the abovementioned activities. For example, in Croatia, 23 per cent of the nation discusses environmental issues with others.

Descriptive statistics are summarised in Table 3. Variables such as 'recycling,' 'environmental chat,' and 'environmental label' were highly skewed (< -1 or 1<). 'Recycling' was negatively skewed, indicating that the mass of the distribution was concentrated above the mean value. 'Local food' skewness indicated nearly perfect symmetry (≈0). Looking at the kurtosis function, only the 'environmental label' was significantly far from three, indicating a high portion of very low and very high values.

Table 3. Descriptive statistics of dataset variables (N=27)

Variable	Mean	S.D.	Skewness	Kurtosis
Net_Income	16 321	5 645.1	0.202	-0.831
Expenditure	19 237	4 413.5	0.578	0.130
Recycling	65	15.9	-1.150	1.341
Environment_Chat	31	13.1	1.491	1.548
Environment_Label	23	12.4	1.982	4.658
Organic_Food	18	9.2	0.793	-0.401
Local_Food	43	11.5	-0.046	-0.436

Source: own study.

The correlation analysis in Table 4 reveals significant correlations in most variables examined.

Table 4. Correlation matrix (Pearson)

Variable	Net _Income	Expenditure	Recycling	Environment _Chat	Environment _Label	Organic _Food	Local _Food
Net_Income	1.00	–	–	–	–	–	–
Expenditure	0.93**	1.00	–	–	–	–	–
Recycling	0.51**	0.48*	1.00	–	–	–	–
Environment_Chat	0.65**	0.63**	0.50**	1.00	–	–	–
Environment_Label	0.60**	0.59**	0.47*	0.85**	1.00	–	–
Organic_Food	0.74**	0.73**	0.52**	0.89**	0.82**	1.00	–
Local_Food	0.49**	0.37	0.22	0.50**	0.59**	0.58**	1.00

Note: ** Significant in α level of 0.01. * Significant in α level of 0.05
Source: own study.

For empirical analysis, structural modelling was selected as a multiple regression analysis. It is used to test a hypothesis when there is prior knowledge of the potential relationships between variables. In structural modelling, confirmatory factor analysis (CFA) is appropriate, because it can answer the question: are the correlations between aggregated latent variables consistent with the research model? The CFA evaluates hypothetical structures of latent structures to understand better their relationship with each other (Bandalos & Finney, 2019). The task in the empirical analysis is to determine the relationship between two latent variables, 'material well-being' and 'sustainable consumption.'

Confirmatory analysis, unlike exploratory, tests latent processes in a predetermined theoretical structure, where variables are targeted and carefully selected, as is the case in this study. Observable variables predict latent variables, and then the relationship between latent variables is essential. The application of SEM can show multiple regression of all observables and latent variables. Path analysis includes predictive coefficients highlighted above the arrows that are estimated standardised regression weights. The arrow connecting latent variables shows how much one latent measure over a set of relationships between variables predicts another, and above the arrow connecting observable and latent variables shows how much the observable affects the latent. Principal component analysis with the usual Varimax orthogonal rotation was used for the empirical summary of the data set. The statistical method was performed in SPSS analysis of moment structures (AMOS) graphics.

According to Mueller and Hancock (2019), a good model is determined by using the following absolute and relative good fit indices and considering specific recommended cut-off values: goodness of fit index (GFI) > 0.85; standard fit index (NFI) > 0.80; comparative fit index (CFI) > 0.90; root mean square error of approximation (RMSEA) < 0.08; incremental fit index (IFI) > 0.90. The SEM enables researchers to carry out a simultaneous analysis of explanatory relations among multiple interrelated variables, either latent or observed variables (Mueller & Hancock, 2019). The research data included even observable variables, split into two datasets (Table 1 and Table 2), with effects directed towards two latent constructs. The first latent variable in the research model labelled 'material well-being' was invoked to explain the observed covariation in variables labelled 'net income' and 'expenditure.' In contrast, the second latent variable labelled 'sustainable consumption' captured five individual actions in favour of sustainable consumption, all addressing the maximum likelihood type of estimation.

RESULTS AND DISCUSSION

Internal consistency of the research model reveals a good model fit, because at least four indices must be within the acceptable range (Cheung & Rensvold, 2002). The target values of variance extracted were above 0.50 except for 'recycling' and 'local food' (CFI=0.998, NFI=0.931, GFI=0.899, IFI=0.998; RMSEA=0.029). Therefore, the constructs were considered valid.
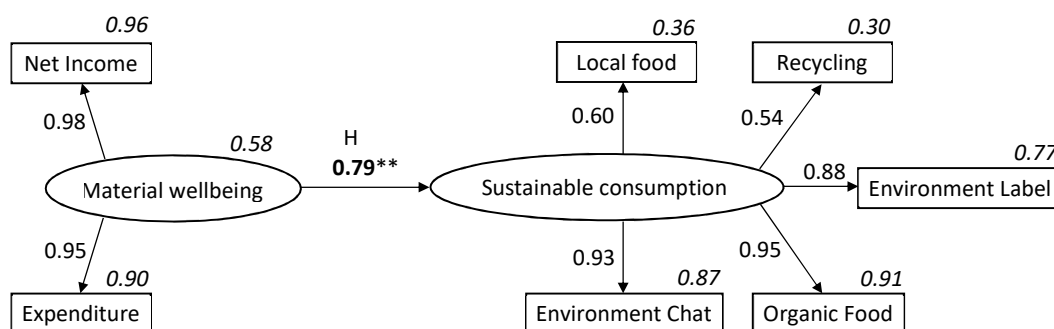

Figure 5. The research model with path coefficients and construct predictors
Source: own elaboration.

The result of the modelling illustrates the path diagram in Figure 5. Both observed variables, namely 'net income' (ß=0.98***) and 'expenditure' (ß=0.95***) significantly predicted the 'material well-being' construct. On the other side of the model, the prediction of 'local Food' was substantial (ß=0.60) but not significant (p>0.01). Other variables were treated as statistically significant predictors: 'recycling' was the lowest predictor (ß=0.54**) while the 'environmental chat' (ß=0.93***), 'organic food' (ß=0.95***), and 'environmental label' (ß=0.88**) explained the 'sustainable consumption' construction very well. The path diagram clearly shows a strong influence of the observed variables on the prediction of both constructs in the model. Income and expenditure predicted the 'material well-being' construct and significantly affected the 'sustainable consumption' (ß=0.79**) construct. Table 5 shows that most path coefficients in the structural model were statistically significant (p<0.01). This evidence supports the research hypothesis.

Empirical research provided evidence that the material status of consumers in the Member States substantially affects the promotion and effectiveness of sustainable consumption practices in the national markets. These results can also help implement sustainable consumption policies in lagging countries, because they could reveal the main reason for their low positioning on the ranking scale. Many studies try to find the variables that control and align consumer behaviour and motivation with sustainable consumption policies (Cichocka *et al.,* 2020). Those variables that consumers can afford (*e.g.*, local food, environmentally friendly household appliances) and those public services that allow them to do so (*e.g.*, institutional support for recycling) can most strongly trigger behavioural change. At the same time, those that require other resources remain in the background.

Table 5. Regression weights for each path

Variables observed ← Construct			Standardised – coefficients (β)	P-value[1]
H	Material wellbeing ←	Sustainable consumption	0.79	0.006
	Net Income ←	Material wellbeing	0.98	***
	Expenditure ←	Material wellbeing	0.95	***
	Environment Chat ←	Sustainable consumption	0.93	***
	Recycling ←	Sustainable consumption	0.54	0.002
	Environment Label ←	Sustainable consumption	0.88	0.002
	Local Food ←	Sustainable consumption	0.60	0.015
	Organic Food ←	Sustainable consumption	0.95	***

Note: [1] *** Significant in α level of 0.001
Source: own study.

The results contribute to a more detailed view that the more affluent European countries can bear the burden of sustainability more easily than weaker ones. This is in line with the results of Ulman, Mihai, and Cautisanu (2021), who did a split between CEE countries around the same issue on three different levels of development. Despite using a different combination of basic components to determine economic development patterns, they indicate significant differences in environmental dimensions regarding stages of development. According to Sirgy (2018), the higher the requirements of regulation and the fewer material capabilities of citizens, the more significant the gap between aspirations and material achievement, as well as the non-cooperation among consumers and regulators.

According to the regression coefficients β in Table 5, it can be concluded that for EU consumers, variables that do not require additional material exposure (*e.g.*, speaking about environmental issues, purchasing local food) show a significant and very high degree of prediction of sustainable consumption construction. The other two variables are materially more demanding for consumers (*e.g.*, buying appliances with an environmental label, purchasing organic food) and targeting policies.

CONCLUSIONS

Less developed countries may consider the introduction of sustainable consumption practices as a threat to their development. In contrast, richer countries see the development efforts of weaker countries as a precondition for destroying natural resources (Kates, Parris, & Leiserowitz, 2005). Looking at consumer policy through several aspects (Sirgy, 2018), such as consuming organically produced food, recycling waste, or using environmentally friendly appliances in households, it is noticeable that the material capabilities of consumers have a different degree of impact on each of these spheres.

New regulations and the investment of additional resources in the different ways of promoting sustainable consumption can likely lead to incremental improvement. However, the results reveal that reaching the average in the effectiveness of enforcement is reliably conditioned by an increase in consumer living standards. To prove this relationship, a sophisticated method of structural modelling of the relationship between the observed and unobservable variables was used, which showed that fulfilling this prerequisite in practice is statistically significant. Although Thøgersen (2005) argues that consumers do not manifest the expected proneness to sustainable consumption even in countries with high living standards, those countries are ranked much higher on the performance scale. Moreover, it cannot be generally concluded that sustainability positively affects living standards.

The findings of this research contribute to the sustainable consumption theory by developing new theoretical construction that combines the different sustainability featured variables as a response to the analysis of Tam and Chan (2018). The results show that lower disposable income and household consumption significantly impact the population's ability to practice sustainable consumption. Introducing policy measures for sustainable consumer behaviour, which simultaneously requires greater sacrifice, will depend on consumer income and the ability to meet the costs of environmentally friendly activities.

Policy Implications

Policymakers can take advantage of administrative measures that would stimulate targeted consumer behaviour, achieve sustainability targets, and improve the country's position relative to the average rank. One of the targeted stimulation measures that would positively impact the amount of disposable income, household costs, and consumer purchasing power is to reduce the retail tax rate on food produced by organic production schemes or on energy-efficient appliances. The results reveal that it is not only the material condition that triggers the changes. More practical, frequent, and timely information provided to the public about the harmful consequences (*e.g.*, thematic discussions about environmental problems) of ongoing environmental disruptions and climate change would have the most potent effect on positive changes towards sustainable behaviour. Any measure affecting the increase in disposable income and/or the reduction of household costs would have a reliable and significant impact on the effectiveness of the implementation of a sustainable consumer consumption policy at the national level. Likewise, Kovač, and Vandenberghe (2020) believe that in less developed countries, sustainability policy is excessively regulated. Efficiency and wealth maximisation should be the regulator's mainstream principles in designing the legal framework that will lead to the effective implementation of the sustainability concept.

Limitations and Further Research

This research has limitations that may encourage future research. There are many options for combining variables and formatting constructs. The main limitation is that the material dimension of well-being has been taken as a critical construct only, which according to Buttel and Johnson (1977) also has a social dimension since various subjective aspects of consumer satisfaction with their treatment on the market can be tested. Other factors may also represent the sustainable consumption practice that this article has not examined, which can motivate further research.

Another limitation of the study is that the sustainable consumption construct was based on selected behavioural aspects, which means that many other manifestations of sustainable consumption were missing, for example, meat consumption or the reduction of air travel. For instance, it was found that meat consumption is very high in some wealthy countries, like the USA (Ritchie & Roser, 2017). These two types of behaviour may be perceived as good evidence of high material status, so consumers' willingness to avoid these types of pro-environmental behaviour could depend not only on material well-being but also on product attachment and/or the symbolic meaning of a product, for example.

Further research could examine the causality of other economic or social indicators to different kinds of sustainable consumption behaviour, *i.e.*, electric car purchases, proneness to slow fashion clothes, or energy-efficient appliances.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.