An Integrative Approach to Assess Subjective Well-Being. A Case Study on Romanian University Students

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Abstract: Subjective well-being (SWB) has presented long-lasting interest for researchers and the recent focus on the economic approach to SWB led to increased awareness of the topic. Despite the significant number of studies, conceptualizing and assessing SWB, along with finding predictors of SWB, need further empirical exploration. Following this rationale, using statistical and econometric methods (correlation analysis, Principal Component Analysis (PCA), Multinomial Logistic Regression (MLR)) applied on data collected via a survey on students from Bucharest University of Economic Studies (363 respondents), this study explores and provides insights that support a better understanding of defining and measuring SWB. Additionally, the study offers valuable information on the main determinants of SWB for a particular group, in this case, Romanian business students. According to findings, we argue that: (1) when assessing perception of life satisfaction and happiness, Romanian students tend to make slight distinctions between these two concepts; (2) question order effect is not significant, whereas negative sentiments (such as pessimism) impact self-assessment of happiness, but not of life satisfaction; (3) the main predictors for SWB are satisfaction with current activities, level of optimism/pessimism, health, and safety of the neighborhood. This paper proposes a new approach to modeling SWB by MLR, which features expressing the dependent variable with respect to the principal factors obtained by PCA.

Keywords: subjective well-being; happiness; life satisfaction; question order effect; health; income; Romanian students

1. Introduction

Subjective well-being (SWB) has presented long-lasting interest as an area of research in psychology [1], since many scholars associate SWB with psychological issues that consist of "happiness, life satisfaction, the presence of positive affect, and the relative absence of negative affect" [2] (p. 11). However, the persistent need to better capture the complex dynamics of current social and economic phenomena and the strive for accurate multi-and inter-disciplinary research tools has steered economists attention to SWB. Exceeding the limits of traditional economics, the economic approach to SWB emerged as a distinctive field of study which shaped consistent theories that link happiness and life satisfaction to additional drivers of SWB, such as: material well-being, health, personal and economic insecurity, social connections and relationships, personal activities, or education.

Extensive literature reviews [3–15] stress the main issues analyzed in the field of economic approach to SWB (such as the relationship between happiness and utility, the impact of income, unemployment or inflation on SWB, the institutional and cultural effects, the impact of affects on SWB, and others), the empirical results and their impact on future studies, and the development of research methods. The same body of research discloses "some contradictory evidence, concerns over the impact on the findings of potentially unobserved variables, and the lack of certainty on the direction of causality" [10] (p. 94). On the other hand, field literature showcases that determinants of SWB are analyzed in a large series of empirical studies, which focus more on the entire population and less on a specific category of individuals. Following this line of thought, our study will outline the main determinants of SWB for a particular group, in this case, young Romanian business students.

Before going into a deeper analysis of SWB research topics, it is noteworthy to observe that SWB is a rather broad concept that conveys distinct meanings. Scholars often use different terms when talking about SWB and other aspects of life related to it, thus, potentially, leading to confusion. We can shed some light into this matter using Diener's perspective, which defines SWB as "reflective cognitive evaluations, such as life satisfaction and work satisfaction, interest and engagement, and affective reactions to life events, such as joy and sadness" [16] (pp. 399–400). Going further, happiness "can mean a general positive mood, a global evaluation of life satisfaction, living a good life, or the causes that make people happy, with the interpretation depending on the context" [16] (p. 400), whereas life satisfaction "represents a report of how a respondent evaluates or appraises his or her life taken as a whole" [16] (p. 401). Life satisfaction has also been defined as "a global assessment of a person's quality of life according to his or her chosen criteria" [17] (p. 478). Summarizing Diener's view, SWB is based on perceptions, it is always subjective, it includes positive measures, and it is typically measured via a global assessment of all aspects of a person's life [4]. Nevertheless, the terms SWB, life satisfaction, and happiness are often used interchangeably without additional clarification, as "it now appears impractical to do otherwise" [5] (p. 5). Using correlation analysis, the present study challenges the assumption of interchangeability of terms and examines the extent to which Romanian business students tend to give the same meaning to happiness and life satisfaction concepts.

Conceptualizing difficulties directly impacts the important issue of SWB assessment. The need for reliable metrics of SWB is highlighted by Diener and Seligman who argue that "systematic assessment of well-being will offer policymakers a much stronger set of findings to use in making policy decisions" [18] (p. 1), and additionally by Diener and Suh, who claim that "social indicators, SWB measures, and economic indices are needed in unison to understand human quality of life" [19] (p. 213). By the same token, one must recognize that identifying the right methods to evaluate SWB is not an easy task. One of the key challenges encountered in this type of study is the difficulty of gathering consistent, objective, and reliable data via surveys [20], because SWB answers are influenced by context effects, such as the momentary mood of the subject or by the prior questions in the survey. Using a particular strategy in designing the survey, the present study collects and analyzes specific data that offer valuable insights into the impact of context effects on SWB estimation.

In this context, the study concentrates on the main topics in SWB with a special focus on the incongruous findings and questions that still need answers. Moreover, our methods analyze these contradictions and provide answers that would hopefully support a better understanding of these issues. In order to reach this aim, the study starts with some introductory statements on SWB meanings and assessments. The paper includes a literature review that emphasizes the peculiarities of estimating SWB and the main results so far of empirical analyses of SWB determinants in the case of students and young adults. In this context, the study continues to set out the main research assumptions and presents the research methods and materials, including the design of the questionnaire, sample selection, data collection, and description of main research methods. In the following section, the results of data analysis are presented with emphasis on main determinants of SWB for Romanian students. In the last section, discussions unfold on how our findings associate with the main results presented

in the literature. Additionally, the last section comments on the limitations of the study and directs further research efforts.

2. Literature Review

The topic of SWB has been mainly addressed by researchers in the field of psychology. However, in the past decades, increased attention granted to it by economists has produced a rapid growth in interest for SWB. Studies [21,22] based on bibliometric analysis point toward a surge in the number of studies starting at the turn of the millennium. These highlight that even though the economics of SWB is a relatively new research field, it has been growing exponentially since 1997 and one could count around 3000 papers and more than 90,000 citations by the end of 2016. The same studies reveal that the most popular topics that tackle SWB from an economic perspective are the relationship between income and happiness, job satisfaction and life satisfaction, the effects of economic performance and unemployment on happiness, genuine progress, sustainable development, and economic freedom. Bearing in mind that an extensive literature review would exceed the objectives of the present paper, we will focus on the topics that are consistent with the aim of this study. In this context, the following literature review first highlights the main assessment methods of SWB and the generated debates, and secondly brings to attention relevant findings on the main predictors of SWB by emphasizing empirical studies that concentrate on students and young adults.

2.1. Evaluating SWB

Well-being is a multidimensional concept that could be approached from at least three perspectives: subjective, psychological, and social. Moreover, each of these perspectives might lead to different metrics and evaluation methods. For example, from a psychological perspective, Ryff [23] (p. 1071) argues that there are six aspects that induce high levels of psychological well-being: self-acceptance ("holding a positive attitude toward oneself"), positive relations with others ("warm, trusting interpersonal relations, marked by empathy and love"), autonomy ("independence and internal regulation of behavior"), environmental mastery ("the individual's ability to choose or create an environment suitable for one's psychical conditions, sense of agency, and competence"), purpose in life ("a clear view of one's life aims and direction"), and personal growth ("the need to develop one's potential, reflecting optimal psychological functioning"). Furthermore, Keyes [24] describes the social context of well-being via five main dimensions that encompass social integration in one's community, social acceptance of other people, social contribution brought by individual to society, social actualization in terms of trust in society's potential, and social coherence perceived as significance of the social world.

However, our analysis is mainly concerned with the subjective approach of well-being (SWB) that is usually linked with happiness and life satisfaction and consists of people's evaluations of their own lives. According to Diener et al., "these evaluations include people's emotional reactions to events, their moods, and judgments they form about their life satisfaction, fulfillment, and satisfaction with domains such as marriage and work" [25] (p. 404). In the past decades, a series of instruments were designed to assess these particular aspects of SWB and a quick scan of literature provides a series of methods that are currently employed to gather data on SWB, such as single metrics on life satisfaction and happiness, the Satisfaction with Life Scale, the Comprehensive Quality of Life Scale, or the Personal Wellbeing Index.

Krueger and Schkade argue that an important series of SWB studies are based on the single metrics scale, since SWB "is most commonly measured by asking people a single question, such as, 'All things considered, how satisfied are you with your life as a whole these days?', or 'Taken all together, would you say that you are very happy, pretty happy, or not too happy?'" [26] (p. 3). Due to its simplicity, this type of metric is employed in a series of surveys that collect large data on SWB, such as the General Social Survey, the World Values Survey, or Gallup World Poll. However, despite

its straightforwardness, the major drawback of this metric is the impossibility to capture more detailed dimensions of SWB.

The Satisfaction with Life Scale (SWLS) is a five-item measure that asks respondents to rate their overall life satisfaction from their subjective outlook. The response scale ranges from 1 (strongly disagree) to 7 (strongly agree), yielding a possible total score range of 5 to 35. A score of 20 represents the neutral point on the scale, where the respondent is equally satisfied and dissatisfied. The items are: "In most ways my life is close to my ideal"; "The conditions of my life are excellent"; "I am satisfied with my life"; "So far I have gotten the important things I want in life"; and "If I could live my life over, I would change almost nothing" [26]. Using factor analysis, Pavot and Diener [27] find that SWLS provides reliable information for at least three drivers of SWB: Life satisfaction per se, Positive Affect, and Negative Affect. An argument in favor of using SWLS is provided by Eid and Diener [28] that estimated SWLS reliability for a sample of 249 students, measured three times, four weeks apart between successive measurements, and concluded that the assigned stability for life satisfaction was almost 0.90. In this context, as Larsen argues, "The Satisfaction With Life Scale emerged as a good measure of general life satisfaction" [1] (p. 1). As a result, SWLS is widely used in studies [27,29–33] to measure SWB of student samples. Furthermore, using as a starting point the SWLS, Huebner [34] developed a research instrument to measure global life satisfaction in children, the Student's Life Satisfaction Scale (SLSS).

Similar to Satisfaction with Life Scale (SWLS), Cummins et al. [35] designed The Comprehensive Quality of Life Scale (ComQol) that highlights seven potential dimensions and domains: financial (material) wellbeing, health, productivity, intimacy, safety, community, and emotional well-being. The Comprehensive Quality of Life Scale (ComQol) proved to be a reliable metric [36] designed to assess subjective and objective QOL [37] and it was also successfully tested on college students samples [38].

Another widely used measure of life evaluation—the Personal Wellbeing Index—consists of eight questions, covering satisfaction with eight different aspects of life: standard of living, health, achievements in life, relationships, safety, community connectedness, future security, and spirituality and religion. Each of these dimensions are summed using equal weights to calculate an overall index [39].

The numerous metrics that could be employed to assess SWB and debates regarding their ability to cover relevant aspects of SWB are well-documented by Krueger and Schkade [26]. An important aspect that needs further debate is the reliability of the data provided by these scales, since all these metrics only depend on the respondent's perspective. Sometimes, people's answers are influenced by response sets and response styles, or by their mood, or any other extrinsic or emotional cause. This is an important issue that should render researchers cautious when using these measures for analysis and interpretation of results. In this context, Becker et al. [40] assert that people tend to use the rule of thumb when they are asked about their level of happiness and these answers are often prone to their current moods or thoughts. This point of view is shared by Schwarz and Strack [41] who argue that self-reports on SWB result from rapid judgments that individuals make on the spot, resulting in context effects. The authors identify question order as one of the most prominent context effects because "the content of preceding questions influences the temporary accessibility of relevant information" [41] (p. 79).

Similarly, Diener [42] emphasizes another series of methodological issues raised by self-report measures of SWB, such as the influence of denial on reported SWB, or the incomplete account of SWB due to the impossibility to capture the whole range of intensity for emotions and affects. To emphasize further the methodological difficulties raised by SWB evaluation, Kruger and Schkade point out that "researchers have documented mood changes due to such subtle events as finding a dime before filling out a questionnaire, the current weather, or question order, which, in turn, influence reported life satisfaction" [26] (p. 8).

Starting from the observation that "the Pacific Rim countries appear to have lower SWB than their material circumstances warrant, and the United States has higher SWB than is predicted based on its income per person" [43] (p. 7), Diener et al. explore whether the variations among nations in reported SWB are caused by biases related to self-report measurement methods. Their findings confirm the hypothesis that self-reported SWB could be influenced by norms and values that are different from one culture to another. This result is further supported by the Abdel-Khalek [44] study that aims to explore the connections between SWB, and religiosity in an Arabic, Muslim student sample. According to his findings, the significant and positive correlations between SWB and religiosity confirms that "religiosity may be considered as a salient component of, and a contributing factor to, QOL among this sample of Muslim college students" [44] (p. 1143).

2.2. Empirical Studies Conducted on Students and Young Adults

Balatsky and Diener [32] published one of the initial empirical studies that assessed SWB among students. The study concerns 116 Soviet students from two locations in the Soviet Union, and using traditional self-report measures, it concludes that for Soviet students, SWB is lower "compared to students in most of the 38 other countries" [32] (p. 225). Furthermore, according to the authors, "Soviet students were most satisfied with their religion, living partner, friendship, and family relations, and least satisfied with transportation, education, and finances." [3] (p. 225). Falling into almost the same time frame, even though not strictly limited to students, Hayo and Seifert [45] published a study that provides interesting findings on subjective economic well-being using survey data for a number of 11 countries in Eastern Europe (Austria, Belarus, Bulgaria, Croatia, Czech, Hungary, Poland, Romania, Slovakia, Slovenia, Ukraine) from 1991 to 1995. Using an ordered logit model, the study analyses the determinants of subjective economic well-being and finds, among others, that: (1) "a more positive assessment of current and expected future economic system is associated positively with current well-being"; (2) "higher values of the proxy for material wealth improve economic well-being"; (3) "age has a u-shaped effect, with a minimum at 37 years"; and (4) "higher-educated people are more satisfied with their economic situation" [45] (p. 21).

An empirical study on students and young adults confirms the hypothesis that "well-being depends upon congruence between personal values and the prevailing value environment" [46] (p. 177). Tackling the effect of materialistic values on well-being, Kasser and Ahuvia's study on 92 business students from Singapore finds that "students who believed that money, possession, image, and popularity are of large importance also reported lessened self-actualization, vitality, and happiness, and more anxiety, physical symptoms, and unhappiness" [47] (p. 142). Another research [48] focusing on Norwegian students concludes that income related dimensions of SWB are less important than social ties or lifelong self-development. Kong et al. [49] focus on the relationship between self-esteem, social support, and life satisfaction. They find that Chinese university students with high levels of self-esteem and social support reported higher scores in life-satisfaction than those with high self-esteem and low social support. In line with Kong et al., Cha [50] analyses SWB using PCA among 350 Korean college students in order to explore the relationship between self-esteem and life satisfaction. According to findings, "the levels of the life satisfaction and affective well-being of Korean students are very low compared to SWB of college student samples from western countries" [50] (p. 472), and self-esteem is moderately correlated with life satisfaction. Nevertheless, optimism emerged as an important predictor for SWB.

Using Personal Well-being Index and measures of satisfaction with friends and family, Baltatescu and Cummings [51] appraise the life satisfaction of 1155 Romanian high-school (age 14–19) and 851 college students (age 18–30) from a single county (Bihor). The study reveals that "respondents reported higher positive levels of subjective well-being" while "parental economic and affective support have a buffering effect against the difficulties of socioeconomic transition" [51]. Furthermore, according to their findings, "SWB is also positively correlated with socio-economic status of the young" and "satisfaction with standard of living is the highest predictor for global SWB."

Casas et al. [52] test satisfaction with school among adolescents aged 13–16 from Romania and Spain, employing a methodology that uses a 7-item version of the Personal Well-Being Index (PWI), overall life satisfaction (OLS), and a set of six items linked to satisfaction with school. The results reveal that "school satisfaction is highly related to satisfaction with teachers, but weakly related to overall life satisfaction, while satisfaction with school friends and satisfaction with classmates are highly related to overall life satisfaction, but weakly related to satisfaction with school" [52] (p. 665).

Stevens et al. assess the relationship between life aspiration and wellbeing for Romanian (N = 69) and U.S. (N = 64) undergraduate students in terms of "aspirations to psychological maladjustment and life satisfaction, and on the qualitative meaning assigned to financial success" [53] (p. 436). For an in-depth analysis, the study employed five assessment methods: (1) background questionnaire that collected data on "gender, age, ethnicity, marital status, religious affiliation, annual family income, and academic major" [53] (pp. 438–439); (2) Aspiration Index that consists of "32 statements designed to measure seven major life goals: wealth, fame, image, personal growth, relationships, community feeling, and good health" [53] (p. 439); (3) an item on the meaning of financial success that evaluates the significance of this aspect for each subject; (4) College Maladjustment Scale which measures "psychological difficulties of sufficient severity to motivate university students to seek professional assistance" [53] (p. 439); and (5) Satisfaction with Life Scale. The results indicate that Romanian students designate personal growth as the most important driver of wellbeing, while U.S. students indicate relationships as the most relevant aspiration. In both samples fame is placed last in ranking. Furthermore, U.S. students found more implications for financial success than Romanian students, while "more so than their U.S. peers, Romanian undergraduates construed financial success as a way to enjoy the pleasures of life with, perhaps, less forbearance toward moderation and self-sacrifice" [53] (p. 442). In terms of material determinants of life satisfaction, the study finds that "wealth predicted life satisfaction for Romanian students" [53] (p. 436).

Kara et al. [54] tested the relationship between three processes of identity formation (commitment, in-depth exploration, and reconsideration of commitment) and well-being for 1086 university students and working young adults in three national contexts: Italy, Poland, and Romania. According to findings, "commitment provides a sense of security and stability that enhances well-being" [54] (p. 739), while reconsideration of commitment could lead to decreased well-being and in-depth exploration is positively related to well-being. Furthermore, "findings indicated that the national context was not a significant moderator of the associations between identity processes and positive well-being" [54] (p. 740), whereas "the percentage of variance of well-being explained by identity processes was larger in the university student group (29 vs. 14%)" [54] (p. 740). The same study suggests that educational commitment in terms of a consolidated future orientation, a sense of continuity of past, present, and future, an organized set of goals to strive for, moving toward future plans, and processing experiences in ways that are self-relevant is an important predictor for SWB.

Using Satisfaction with Life Scale applied to 131 Romanian undergraduate students to examine the relationship between emotional intelligence and life satisfaction for students, Runcan and Iovu [55] find that this link is partially mediated by self-esteem and social support. A similar research study was conducted by Cazan and Nastasa to "investigate the role that burnout might play in the relationship between emotional intelligence and life satisfaction in a sample of Romanian university students" [56] (p. 1576). Their findings not only confirm the positive relationship between emotional intelligence and life satisfaction but further reveal the negative consequences of burnout on satisfaction with life. Another research conducted by Chraif and Dumitru [57] on a sample of 30 psychology undergraduates focuses on exploring potential gender differences at the level of SWB and QoL using the following variables: autonomy, control, development, relationships, meaning of life, self-acceptance, and quality of life. According to findings, regarding QoL perception, there are statistically significant differences registered by gender.

However, the literature review shows that the majority of studies conducted on students, in general, and on Romanian students, in particular, is more concerned with determining the role of

emotional effects on SWB (such as emotional intelligence, commitment, life aspirations) and less with material determinants of life satisfaction. Moreover, none of these studies focuses on business students. It is also worth mentioning that these studies typically entail complex methods of data gathering that employ more than one metric to assess SWB. In this context, one might ponder whether the complexity of scales, due to the difficulties in collecting reliable data, might alter the outcome of the study.

3. Materials and Methods

In line with the evidence and controversies charted in the literature review, the present paper focuses on providing relevant insights into the following knowledge gaps:

(1) While single metric scales (World Values Survey, General Social Survey, or Gallup World Poll) gather data on either self-reported life satisfaction or self-reported happiness, there is an open debate on whether these two concepts can be used interchangeably;

(2) SWB scales are not entirely reliable, since people's answers are influenced by response sets and response styles; however, the extent to which question order influences SWB assessment has not been thoroughly examined;

(3) The majority of studies that assess Romanian students' SWB focus on psychological factors, while the economic approach of SWB seems to be neglected. No research thus far concerns Romanian business students, yet this category is of particular interest, since it is expected that these students would place more value on the material determinants of happiness and life satisfaction.

Following this rationale, our study aims to provide answers to the following research questions:

(1) Do specific methodological issues (confusion of terms, question order) alter the perception of SWB in the case of Romanian business students, and if so, to what extent?

(2) Which are the main predictors of SWB among Romanian business students?

The answers will: (1) shed light on some of the contradictions raised by SWB assessment, and (2) identify the main predictors of SWB for Romanian students. Looking at controversies, our research focuses on clarifying various perspectives on the interchangeability between happiness and life satisfaction. In terms of correlation analysis, the study concentrates on identifying clear determinants for students' SWB. Tracing these aims and grounding research on previous findings, the assumptions of the present study are:

Assumption 1 (A1). *There is no clear distinction between self-reported life satisfaction and self-reported happiness.*

Assumption 2 (A2). *The question order has no impact on the self-reported life satisfaction and self-reported happiness.*

Assumption 3 (A3). *Material determinants (income, commuting time, and job) are significant to SWB.*

For all intents and purposes, the first two assumptions relate to SWB assessment issues, while the last one concerns the empirical features of SWB.

Empirical data are collected via a questionnaire that was designed to fulfill the following objective: to be short, straightforward, and easy to understand, but at the same time, comprehensive enough to cover the relevant dimensions of SWB. Moreover, the questionnaire was designed in line with OECD Guidelines on Measuring SWB, which recommends three types of data to be collected: demographics, material income, quality of life, psychological measures [39]. In agreement with previous empirical studies [58–60] and the commonly used scales mentioned in the literature review [45–53], the determinants of SWB assessed via questionnaire items and the extent to which they relate to categories presented in OECD Guidelines on Measuring SWB (OECD), Satisfaction with Life Scale (SWLS), Comprehensive Quality of Life Scale (ComQol), and Personal Well-being Index (PWI) are presented in the Table 1. A rapid analysis of these items and their correspondence to the categories

displayed in traditional SWB scales described in the literature review section reveals that the selection of the 11 factors used in our study is consistent with the highlighted research goal of focusing more on the economic approach to SWB. In addition, even if primarily we pay attention to the economic view of SWB, the 11 determinants integrate most of the potential dimensions and domains featured by the traditional metrics of SWB, as displayed in literature review section. As a result, our assessment method is not only consistent with the traditional measures of SWB, but also features an integrative approach to SWB.

Table 1. Questionnaire items.

Item	Variable	Category According to OECD	Category According to SWLS	Category According to ComQol	Category According to PWI
Financial situation	Family average income	Material income	Life satisfaction per se	Financial (material) wellbeing	Standard of living
Satisfaction with current activities	Satisfaction with current activities	Psychological	Life satisfaction per se	Emotional well-being	Achievements in life
Optimism/ pessimism	Degree of optimism/ pessimism	Psychological	Positive Affect/Negative Affect	Emotional well-being	Future security
Health	Health	Quality of life	Life satisfaction per se	Health	Health
Job	Owning a job	Material income	Life satisfaction per se	Productivity	Standard of living
	Satisfaction with the job	Psychological			Achievements in life
	Seeking a job	Quality of life			Standard of living
Commuting time	Time Traffic	Quality of life	Life satisfaction per se	Productivity	Standard of living
Time spent on Internet and social	Time Internet	Quality of life	Life satisfaction per se	Community	Community connectedness
Time spent at school	Time School	Quality of life	Life satisfaction per se	Productivity	Community connectedness
Time spent on leisure activities	Time Leisure	Quality of life	Life satisfaction per se	Community	Community connectedness
Time spent with friends and family	Personal relationships	Quality of life	Life satisfaction per se	Community	Relationships
Safety felt in the neighborhood	Safety	Quality of life	Life satisfaction per se	Safety	Safety

Source: Authors' own representation.

The ordinal scale was used for all the items of the questionnaire to ensure comparability among different variables used in data analysis. The answers were kept as simple as possible and easy to understand. The resulted data are quantifiable, easy to use, and can be engaged in further empirical studies.

In addition, SWB is assessed by use of two single-metrics indicators. The first evaluates people's perception of happiness taken as a whole in almost the same way General Social Survey (GSS) and World Values Survey (WVS) operate, and it concerns the question "Taken all together, how would

you say things are these days?". While GSS uses a three degree scale and WVS a four degree scale, for a more meaningful assessment of this metric, our survey employs a five degree scale with the following choices: "Very unhappy", "Unhappy", "Not happy nor unhappy", "Happy", and "Very happy". Data collected via this item were used to populate the "Happiness" variable of our analysis. The second indicator for SWB concerns the question "Considering everything that is happening with your life nowadays, your satisfaction level is:" This indicator is a single metric for the self-perception of life satisfaction assessed on a five degree ordinal scale (from very low to very high) and gives values to the "Life satisfaction" item.

The data are collected via surveys, including business students from Bucharest University of Economic Studies. Data were collected by self-completion of paper questionnaire delivered by surveyor. The survey was conducted on a sample of 363 students from Bucharest University of Economic Studies (BUES) during November 19–30, 2018. In order to estimate the sample size for the population of students from BUSE, we applied Cochran's sample size formula (N/(1 + N*alpha^2)) for the confidence level 1 – alpha = 0.9475. In our case, the formula implies a 357 sample size for the BUSE student population (21617 students). Type A questionnaire has been answered by 121 respondents, Type B by 119, and Type C by 123, so there is a quasi-uniform distribution of questionnaire types among respondents.

To test the first research assumption "There is no clear distinction between self-reported life satisfaction and self-reported happiness", we use a Pearson correlation on data provided by the following questions:

(1) "Taken all together, how would you say things are these days?: "Very happy", "happy", "neutral", "unhappy", "very unhappy"";

(2) "Considering everything that is happening with your life nowadays, your satisfaction level is: "very low", "low", "neutral", "high", "very high".

According to empirical findings displayed in the literature review, often times, respondents tend to pay insufficient attention, giving automatic answers by repeating the same choice as the one selected for the previous question. To avoid this risk that renders data irrelevant, when designing the survey, we applied two strategies. First, while keeping the same scale, we used different answers for these two questionnaire items (happiness is reported as a feeling via the following choices: "Very happy", "happy", "neutral", "unhappy", "very unhappy", whereas life satisfaction is reported as a level: "very low", "low", "neutral", "high", "very high"). Second, the order of choices between these two questionnaire items is reversed (happiness item order of choices starts from "very happy" while for satisfaction level starts from "very low").

To examine the question order effect and to test our second research assumption ("Question order has no impact on the self-reported life satisfaction and self-reported happiness"), we designed three types of questionnaires: Type A, in which the questions concerning happiness and life satisfaction are the first items, and Type B and C, in which these two items were inserted at the end of the questionnaire. By placing first the items on happiness and life satisfaction, in Type A, we tried to avoid the influence that the rest of the questions might have had on these. Additionally, the design of the questionnaires is based on the assumption that level of income, optimism/pessimism, satisfaction with current activities, and health are the most important predictors for happiness and life satisfaction. Under this hypothesis in Type B and C questionnaires, the items concerning these predictors were placed right above the items concerning happiness and life satisfaction.

Additionally, to examine the assimilation effect defined as the context in which "subsequent responses are consistent with the information or emotions that have been made more accessible by contextual factors" [39] (p. 92), we designed a supplementary test: keeping the rest of the items unchanged and the same question order as in Type B, the item optimism in Type C questionnaire is replaced with pessimism. Simply put, in Type C questionnaire, instead of being asked about their optimism, the respondents are required to assess their level of pessimism regarding the future.

In this context, we presume that question order effect will be displayed in Type B and C questionnaires, where we expect to find stronger correlations between each predictor and happiness and life satisfaction than we might expect to find in Type A. In other words, the hypothesis on the presence of question order effect is confirmed only if we find stronger correlations in Type C and B questionnaires than in Type A.

To provide in-depth answers to our second research question ("Which are the main predictors of SWB among Romanian business students?"), we use a series of alternative research methods. First, Pearson correlation analysis is used to capture an initial instance of the relations between the items related to SWB. However, the relatively large number of items used in the present study could hinder the attempt to find the main determinants of SWB. Following this argument, our research uses Principal Component Analysis (PCA) as a suitable statistical technique for data reduction, and as a second research method. PCA mechanism is based on the transformation and representation of the complex database in a smaller space, in order to reveal the simplified, often hidden, structure existent in the original data set, as well as the relevant information contained in the database. Simply put, PCA captures the relevant information that can be extracted from the database.

Additionally, PCA method leads to graphical representations, optimal in a certain sense, which simultaneously describe the links between the variables and the similarities between the different entities under analysis. Thus, if a complex database is viewed as a set of points in a multi-dimensional space, the PCA performs a representation of the data set as a smaller image, which can be compared to a projection ("shadow") of it, viewed from the angle that provides the maximum amount of information. PCA builds new, artificial variables, as well as graphical representations that allow the visualization of the relationships between variables and the identification of a typology or group of variables.

Since correlation analysis and PCA are used as alternative statistical methods to assess the main determinants of SWB, we further suggest a comparative analysis using Multinomial Logistic Regression (MLR). The main objective of this analysis is to examine whether PCA is a reliable method to be used for SWB studies. Following this approach, the study designs four econometric models in which Happiness/Life satisfaction are, in turn, dependent variables, and determinants and factors derived from PCA are, in turn, explanatory variables.

4. Research Results

The collected data show that 14.04% of the total number of respondents declare themselves "Very happy", while most of them (56.19%) declare themselves "Happy". Overall, the majority of respondents (70.23%) declare themselves to be happy rather than neutral or unhappy. In terms of life satisfaction, 11.6% of the total respondents report a high level of satisfaction and 32.9% of them report quite a high level of satisfaction. Accordingly, 44.5% of the respondents seem to display high or quite high levels of life satisfaction, rather than neutral or low levels.

4.1. The Relationship between Perceptions of Happiness and Life Satisfaction

Our first assumption focuses on whether there is a clear distinction between self-reported life satisfaction and self-reported happiness. This assumption is related to the SWB assessment issue and the answer to it is salient for further designs of studies on SWB. Testing this assumption becomes even more interesting, since both WVS and GSS, which are paramount to providing data for empirical research on SWB, exclusively use "happiness" as a valid measure of SWB. To confirm this assumption, we applied a linear correlation test on data series collected via survey. The results of the linear correlation test are displayed in the table below (Table 2).

As shown in the Table 2, the correlation matrix reveals a relatively strong positive correlation between Happiness and Life satisfaction (0.706), which is also statistically significant (*p*-value is less than 0.0001). This result could lead to the conclusion that respondents tend to evaluate happiness and life satisfaction more or less in the same way. This conclusion confirms our assumption that life satisfaction and happiness are fairly equivalent concepts, at least in terms of perception and

self-assessment. A detailed discussion on how our results relate to the evidence found by previous SWB research and the limits of this inference is included in the next section.

Table 2. Pearson correlation between happiness and life satisfaction.

Variables	Happiness	Life Satisf.
Happiness	1	0.706
Life satisf.	0.706	1

Source: Authors' own calculations.

4.2. The Impact of Questions Order on Reported SWB

The second assumption equally deals with measuring SWB issues and concerns the extent to which specific contexts impact the results of surveys that attempt to assess SWB. In the present study, the analysis centers on whether the specific context created by question order has a significant impact on self-reported life satisfaction and self-reported happiness. To test question order effect, according to the methodology specified in the previous section, we designed and circulated three types of questionnaires; we use the same questions but reversed the order, or we made some minor adjustments to questions and choices. Type A questionnaire first places the items on Happiness and Life satisfaction, while Type B keeps the same items, while Happiness and Life satisfaction is placed at the end. Type C questionnaire keeps the same item order as Type B, whereas the item on optimism is replaced with pessimism.

To test the impact of questions order on reported SWB, we computed the correlation matrix for each type of questionnaire, as displayed in the table below (Table 3).

Table 3. Pearson correlation matrix for each type of questionnaire.

Type A						
	Life Satisfaction	Happiness	Income	Optimism	Satisfaction with Activities	Health
Life satisfaction	1.000	0.610	0.232	0.541	0.430	0.343
Happiness	0.610	1.000	0.118	0.419	0.403	0.340
Income	0.232	0.118	1.000	0.332	0.183	0.131
Optimism	0.541	0.419	0.332	1.000	0.359	0.373
Satisfaction with activities	0.430	0.403	0.183	0.359	1.000	0.221
Health	0.343	0.340	0.131	0.373	0.221	1.000
Type B						
	Life Satisfaction	Happiness	Income	Optimism	Satisfaction with Activities	Health
Life satisfaction	1.000	0.681	0.052	0.279	0.220	0.196
Happiness	0.681	1.000	0.025	0.208	0.256	0.387
Income	0.052	0.025	1.000	0.055	0.005	−0.066
Optimism	0.279	0.208	0.055	1.000	0.309	−0.077
Satisfaction with activities	0.220	0.256	0.005	0.309	1.000	0.140
Health	0.196	0.387	-0.066	-0.077	0.140	1.000
Type C						
	Life Satisfaction	Happiness	Income	Pessimism	Satisfaction with Activities	Health
Life satisfaction	1.000	0.785	−0.024	0.412	0.389	0.206
Happiness	0.785	1.000	−0.082	0.475	0.302	0.184
Income	−0.024	−0.082	1.000	−0.139	−0.079	−0.091
Pessimism	0.412	0.475	−0.139	1.000	0.178	0.130
Satisfaction with activities	0.389	0.302	−0.079	0.178	1.000	−0.102
Health	0.206	0.184	−0.091	0.130	−0.102	1.000

Source: Authors' own calculations.

The correlation matrix for each questionnaire, presented in Table 3, reveals a striking result. It is more than evident that correlations Income/Life satisfaction, Optimism/Life satisfaction, Satisfaction with activities/Life satisfaction, and Health/Life satisfaction are stronger in Type A questionnaire

than in Type B or C. The same outcome is equally valid for Income/Happiness, Optimism/Happiness, Satisfaction with activities/Happiness, and Health/Happiness. Consequently, this result seems to be inconsistent with our assumption on question ordering effect. Nevertheless, before strongly rejecting this hypothesis, there is another result that requires attention—the correlation between happiness and pessimism (0.475) in Type C questionnaire is slightly stronger than the one revealed in Type A (0.419) and much stronger than in Type B (0.208). However, the correlation between optimism and life satisfaction (0.571) in Type A questionnaire is stronger than the correlation between pessimism and life satisfaction (0.412). Consequently, these findings lead to the claim that pessimism has a stronger effect on happiness than optimism, whereas pessimism has less influence on life satisfaction than optimism. Connecting these results, we can conclude that, in the case of Romanian business students, the question order does not have a significant effect on the answers, with the exception of negative sentiments (such as pessimism), which impact the self-assessment of happiness, but not the self-assessment of life-satisfaction. More comments on this outcome are included in the Discussions section.

4.3. The Determinants of SWB

The final research assumption is related to the identification of the main predictors for SBW and it is tested by use of statistical and econometric methods applied to data summarized in Table 4. As shown in this table, there are 13 variables that were taken into consideration when identifying the determinants of SWB.

Table 4. Summary statistics of SWB determinants.

Variable	Obs	Min	Max	Mean	Std. Dev
Happiness	363	1.000	5.000	3.662	0.881
Life satisfaction	363	1.000	5.000	3.373	0.950
Health	363	1.000	5.000	4.161	0.766
Satisfaction with activities	363	1.000	5.000	3.785	0.760
Optimism/Pessimism	363	1.000	5.000	3.696	1.009
Income	363	1.000	7.000	3.507	2.017
Safety	363	1.000	5.000	4.147	0.746
Time Traffic	363	1.000	5.000	3.787	0.819
Time Leisure	363	1.000	4.000	2.291	0.931
Time School	363	1.000	4.000	2.653	0.586
Time Internet	363	1.000	4.000	3.050	0.921
Personal Relationships	363	1.000	4.000	2.347	0.999
Job	363	1.000	5.000	2.969	1.143

Source: Authors' own calculations.

Before going further, a methodological note is required. The "Job" variable is the result of merging data from items "Job existence", "Satisfaction with job", and "Job seek", following this rule: Job existence is a binomial variable with 0 and 1 values, Job satisfaction is a multinomial ordinal variable with values on a scale from 1 to 5, whereas "Job seek" is also a multinomial ordinal variable, but on an inversed scale from 5 to 1. If "Job existence" is 1, then "Job" takes "Job satisfaction" value, and if it is 0, then "Job" takes "Job seek" value. In other words, following this rule, a respondent that has a job and is very satisfied with their job is similar to a student that does not have a job, nor do they want one.

To capture a first instance of the relationships between the items related to SWB, we computed the correlation matrix for the whole set of data, which is displayed in the table below (Table 5). For space saving, the following abbreviations are used in Table 5: Happ for Happiness; Life satisf for Life Satisfaction; Satisf w. activ for Satisfaction with current activities; Opt./Ps. For Optimism/Pessimism; Incm for Income; Sfty for Safety; Time intrnt for Time spent on internet and Personal Relation for Personal Relationships.

Table 5. Correlation matrix (Pearson (n)).

	Happ	Life. Satisf	Hlth.	Satisf w.activ	Opt.	Incm	Sfty	Time Traffic	Time Leisure	Time School	Time Intrnt	Personal Relation	Job
Happ.	1	0.706	0.421	0.351	0.379	0.027	0.168	−0.003	0.048	0.056	0.023	0.037	0.176
Life satisf	0.706	1	0.356	0.381	0.412	0.101	0.153	−0.017	0.040	0.050	0.050	0.085	0.196
Hlth.	0.421	0.356	1	0.192	0.212	0.075	0.248	0.028	0.080	−0.024	−0.011	0.078	0.185
Satisf w.activ	0.351	0.381	0.192	1	0.286	0.042	0.231	−0.020	0.076	−0.038	−0.076	0.148	0.049
Opt./Ps.	0.379	0.412	0.212	0.286	1	0.107	0.098	−0.067	0.056	−0.071	−0.067	0.092	0.081
Income	0.027	0.101	0.075	0.042	0.107	1	0.102	0.040	0.215	−0.097	0.079	0.071	0.062
Safety	0.168	0.153	0.248	0.231	0.098	0.102	1	0.057	0.050	−0.028	−0.035	−0.045	0.092
Time Traffic	−0.003	−0.017	0.028	−0.020	−0.067	0.040	0.057	1	0.034	0.031	0.087	0.085	0.015
Time Leisure	0.048	0.040	0.080	0.076	0.056	0.215	0.050	0.034	1	−0.106	0.226	0.319	−0.089
Time School	0.056	0.050	−0.024	−0.038	−0.071	−0.097	−0.028	0.031	−0.106	1	0.026	0.011	−0.099
Time Internet	0.023	0.050	−0.011	−0.076	-0.067	0.079	−0.035	0.087	0.226	0.026	1	0.180	0.003
Prsonal Relation	0.037	0.085	0.078	0.148	0.092	0.071	−0.045	0.085	0.319	0.011	0.180	1	-0.004
Job	0.176	0.196	0.185	0.049	0.081	0.062	0.092	0.015	−0.089	−0.099	0.003	−0.004	1

Source: Authors' own calculations.

The correlation matrix, displayed in Table 5, reveals a strong positive correlation between Happiness and Life satisfaction (0.706) and a moderate positive correlation between Happiness and Health (0.421), Happiness and Optimism/Pessimism (0.379), Happiness and Satisfaction activities (0.351), Life satisfaction and Health (0.356), Life satisfaction and Satisfaction activities (0.381), Life satisfaction and Optimism/Pessimism (0.412), and, respectively, between Health and Optimism/Pessimism (0.212) and Health and Safety (0.248). Also, small positive correlations are revealed between Satisfaction activities and Optimism/Pessimism (0.286), Satisfaction with activities and Safety (0.231), Time leisure and Personal relation (0.319), Income and Time leisure (0.215), and, respectively, between Time leisure and Time internet (0.226).

For reasons associated with a clear understanding of this topic, not restricted to a mere statistical viewpoint, it becomes evident that the relatively large number of items could hinder the attempt to find the main determinants of SWB. Following this argument, the research uses Principal Component Analysis (PCA) as a suitable statistical technique for data reduction. The data set can be represented as a numerical entity table, which displays the values of a number of p characteristics (in our case p = 11 considered indicators, highlighted in Table 5, measured on n entities (represented by N = 363 students)).

Via PCA, the set of data is reduced to a more compact form, which allows one to highlight some fundamental structures of the input data. The results of Kaiser–Meyer–Olkin (KMO) test, which provides information on the adequacy of the sample, are displayed in Table 6. As shown, the computed result is 0.705, which is above the minimum recommended value (0.5). The first two items are the dependent variables, while the rest are the explanatory variables.

Table 6. Kaiser-Meyer-Olkin measure of sampling adequacy.

Happiness	0.701
Life satisfaction	0.707
Health	0.813
Satisfaction with activities	0.792
Optimism/Pessimism	0.842
Income	0.607
Safety	0.685
Time Traffic	0.548
Time Leisure	0.566
Time School	0.455
Time Internet	0.571
Personal Relationships	0.562
Job	0.698
Kaiser-Meyer-Olkin	0.705

Source: Authors' own calculations.

Several relevant factors—denoted by F1–F11—are revealed when applying PCA method. Their corresponding eigenvalues, variability, and cumulated variability are displayed in Table 7.

Table 7. Eigenvalues, variability, and cumulated variability corresponding to the principal factors.

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
Eigenvalue	1.863	1.517	1.113	1.097	0.964	0.899	0.851	0.756	0.745	0.615	0.579
Variability (%)	16.932	13.793	10.117	9.975	8.766	8.176	7.738	6.875	6.775	5.594	5.260
Cumulative %	16.932	30.725	40.842	50.817	59.583	67.758	75.496	82.371	89.146	94.740	100.000

Source: Authors' own calculations.

In order to confirm the eigenvalues greater than one, a parallel analysis has been conducted. The results obtained are displayed in Figure 1. The adjusted eigenvalues that will be retained are indicated by those located above the blue line of the simulated eigenvalues. Therefore, the parallel analysis confirms that only the first two eigenvalues have been retained.
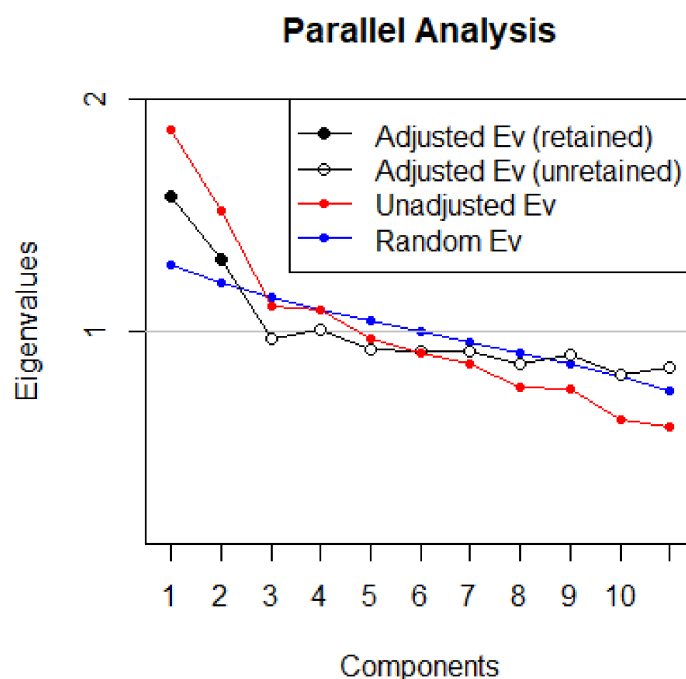

Figure 1. The result of the parallel analysis performed in order to confirm the eigenvalues greater than one. Source: Authors' own calculation and representation.

According to the results presented in Table 8, the factor F1 is strongly positive correlated with Health, Satisfaction with current activities, and Optimism/Pessimism. We could call this factor *Positive view of life*. F2 is strongly positive correlated with Time leisure, Time internet, and Personal relationships. We could call this factor *Social relationships*. F3 is strongly positive correlated with Time Traffic. F4 is strongly positive correlated with Time School. F5 is moderately positive correlated with Job.

Table 9 displays the values of the contributions of the variables to principal factors obtained by PCA. The results obtained enable to express each factor F_j as linear combination of the variables considered, as follows:

$$Fj = \sum_{i=1}^{n} \alpha_i v_i, j = \overline{1, m}$$

where m denotes the number of principal factors, n stands for the number of variables considered, and for every $i = \overline{1, n}$, the symbol α_i the coefficient of the variable v_i in the linear combination which express the factor $Fj, j = \overline{1, m}$.

Table 8. Correlations between variables and factors.

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
Health	0.574	−0.265	0.195	0.187	0.150	−0.190	−0.131	−0.481	0.358	0.299	−0.041
Satisf. with activities	0.574	−0.264	−0.346	0.226	−0.053	0.194	−0.075	0.337	−0.273	0.402	0.184
Optimism	0.537	−0.273	−0.363	−0.057	0.155	0.051	0.369	0.213	0.423	−0.338	−0.010
Income	0.409	0.215	0.206	−0.385	−0.374	−0.266	0.552	−0.005	−0.162	0.192	−0.130
Safety	0.468	−0.312	0.277	0.215	−0.464	−0.165	−0.355	0.129	−0.140	−0.342	−0.197
Time Traffic	0.083	0.236	0.539	0.408	−0.161	0.599	0.251	0.034	0.152	−0.007	0.090
Time Leisure	0.460	0.601	−0.140	−0.133	−0.152	−0.052	−0.176	−0.221	−0.024	−0.203	0.492
Time School	−0.221	0.035	−0.090	0.741	0.036	−0.476	0.342	−0.039	−0.137	−0.079	0.148
Time Internet	0.130	0.618	0.232	0.068	0.221	−0.309	−0.210	0.503	0.277	0.135	−0.077
Personal Relationships	0.418	0.521	−0.241	0.198	0.328	0.194	0.008	−0.198	−0.299	−0.102	−0.414
Job	0.264	−0.296	0.523	−0.190	0.594	−0.059	0.076	0.069	−0.331	−0.141	0.193

Source: Authors' own calculations.

Table 9. Contributions of the variables to principal factors obtained by PCA.

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
Health	17.705	4.627	3.427	3.189	2.327	4.009	2.014	30.643	17.221	14.548	0.289
Satisf. with activities	17.690	4.602	10.774	4.658	0.287	4.193	0.665	15.018	10.000	26.262	5.851
Optimism	15.471	4.914	11.839	0.301	2.496	0.288	16.036	6.023	24.023	18.592	0.017
Income	8.987	3.047	3.798	13.542	14.507	7.879	35.804	0.004	3.530	5.962	2.940
Safety	11.765	6.413	6.886	4.222	22.329	3.037	14.809	2.188	2.612	19.050	6.689
Time Traffic	0.372	3.672	26.114	15.165	2.692	39.891	7.406	0.154	3.116	0.009	1.407
Time Leisure	11.350	23.833	1.754	1.604	2.409	0.306	3.654	6.458	0.076	6.679	41.878
Time School	2.622	0.083	0.724	50.056	0.137	25.160	13.720	0.197	2.502	1.005	3.795
Time Internet	0.904	25.152	4.855	0.416	5.088	10.645	5.202	33.496	10.259	2.945	1.038
Personal Relationships	9.402	17.888	5.221	3.560	11.176	4.205	0.007	5.185	11.996	1.704	29.656
Job	3.733	5.767	24.607	3.288	36.552	0.387	0.683	0.634	14.666	3.244	6.439

Source: Authors' own calculations.

As a result, for the first two factors we obtain the following representation formulas:

$$F1 = 0.17705v_1 + 0.1769v_2 + 0.15471v_3 + 0.08987v_4 + 0.11765v_5 + 0.00372v_6 + 0.1135v_7$$
$$+0.026227v_8 + 0.00904v_9 + 0.09402v_{10} + 0.03733v_{11};$$

$$F2 = 0.04627v_1 + 0.04602v_2 + 0.04914v_3 + 0.03074v_4 + 0.06413v_5 + 0.03672v_6 + 0.23833v_7$$
$$+0.00083v_8 + 0.25152v_9 + 0.17888v_{10} + 0.05767v_{11}$$

Considering only the first two principal factors obtained, F1 (Positive view of life) and F2 (Social relationship), which taken together explain 30.73% from the total variation, and by making combinations between positive and negative values of factors F1 and F2, the data set can be divided into four clusters as shown in Figure 2. We can easily notice that observations are approximately uniformly divided between these clusters. This result shows that students with poor performance on Positive view of life and Social relationships are almost equal in number with those that tend to display a more Positive view of life and are more involved in Social relationships.

In order to identify specific typologies based on the analyzed indicators, an Agglomerative Hierarchical Clustering algorithm (AHC) has been used. Hierarchical classification is a method of analyzing large-scale databases that builds on a hierarchy of clusters. Hierarchical classification strategies are based either on Agglomerative hierarchical clustering, or on division of the original database, considered as a single entity, in several classes, based on similarity (divisive hierarchical clustering). Clusters are built on the criteria of similarity between entities. Different distance or metric type functions are used to evaluate the degree of similarity. The application of the AHC method to the database allows one to highlight specific typologies within the data set on similarity criteria, as well as

to group the set of indicators in four relatively homogeneous clusters, graphically represented in the dendrogram displayed in Figure 3 and detailed in Table 10. Further comments on these results are included the Discussions section.
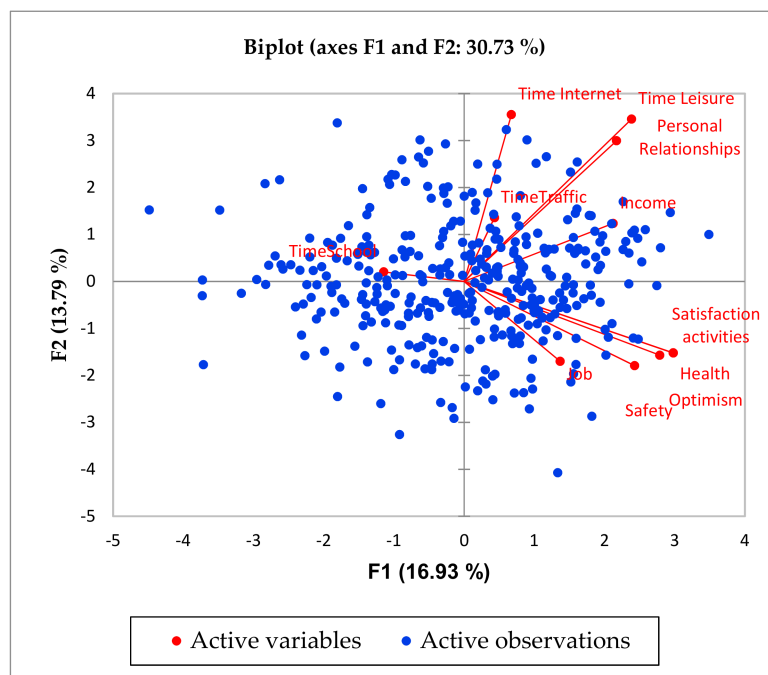

Figure 2. The four clusters corresponding to various combinations of positive and negative values of F1 and F2. Source: Authors' own calculation and representation.
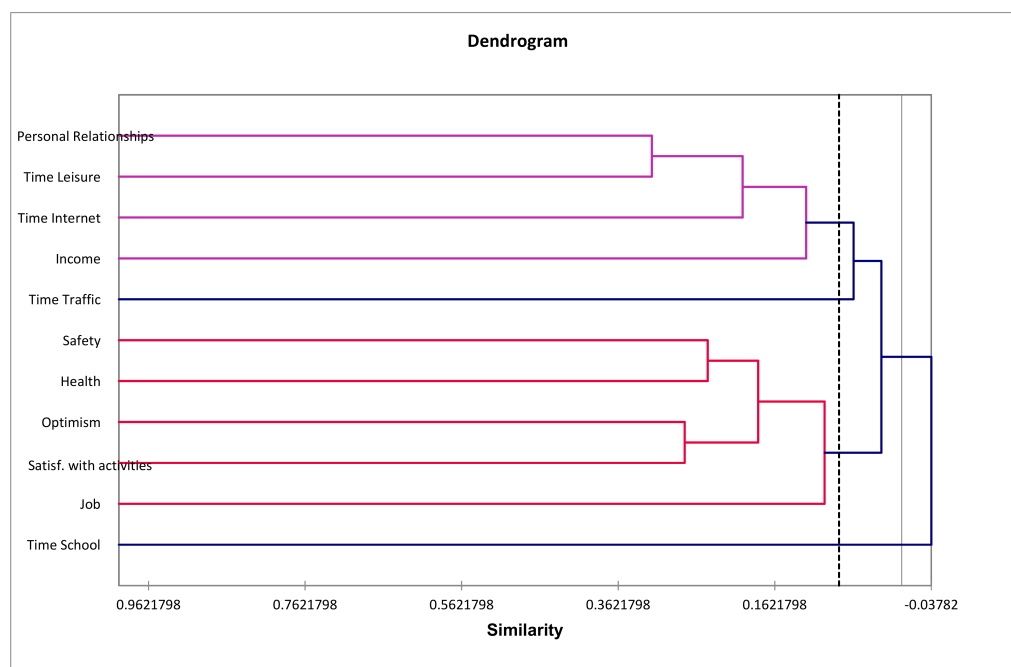

Figure 3. The dendrogram corresponding to four classes obtained by agglomerative hierarchical clustering. Source: Authors' own calculation and representation.

For additional insights, our study focuses on developing an econometric model that could make future predictions on happiness and life satisfaction based on the determinants of SWB. As correlation analysis and PCA were previously used to assess the main determinants of SWB, we further suggest

a comparative approach using Multinomial Logistic Regression. Following this approach, the study designs four econometric models in which Happiness/Life satisfaction are, in turn, dependent variables, and determinants and factors are, in turn, explanatory variables.

Table 10. The indicators belonging to each cluster.

Observation	Class
Health	1
Satisf. with activities	1
Optimism	1
Income	2
Safety	1
Time Traffic	3
Time Leisure	2
Time School	4
Time Internet	2
Personal Relationships	2
Job	1

Source: Authors' own calculations.

Scenario 1—The variables predict Happiness

In the first case, a Multinomial Logistic Regression has been conducted in order to model and further predict the effect of the 11 variables considered (health, satisfaction with activities, income, safety, time traffic, time leisure, time school, time internet, personal relationships, and job) on the Happiness response variable. The goal and utility of applying this model consists in modeling and predicting Happiness depending on the known values of the 11 variables as determinants of Happiness. Parameters are obtained for each variable and for each category of the response variable. We denote by 1, 2, 3, 4, and 5 as the values of the Happiness response variable, corresponding, respectively, to the choices "Very unhappy", "Unhappy", "Not happy nor unhappy", "Happy", and "Very happy". Table 11 displays the model parameters corresponding to the value 5 ("Very happy") of Happiness response variable and it brings information regarding the effect of the 11 variables on the "Very happy" status of the response variable. Parameter interpretation provides the following model equation:

$$\text{Log}\left(\frac{P(\text{Response variable}=5)}{P(\text{Response variable}=1)}\right) = -21.193 + 3.018v_1 + 2.104v_2 + 1.084v_3 + 0.006v_4$$
$$-0.603v_5 - 0.949v_6 + 1.141v_7 + 0.780v_8 + 0.881v_9 - 1.602v_{10} + 0.371v_{11}$$

Table 11. Model parameters for "Very happy" status (Variable Happiness).

Source	Value	Standard Error	Wald Chi-Square	Pr > Chi^2	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ratio Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	−21.193	3.545	35.740	<0.0001	−28.141	−14.245			
Health	3.018	0.429	49.478	<0.0001	2.177	3.859	20.444	8.818	47.396
Satisfaction activities	2.104	0.411	26.217	<0.0001	1.299	2.909	8.199	3.664	18.345
Optimism	1.084	0.245	19.569	<0.0001	0.604	1.564	2.955	1.829	4.777
Income	0.006	0.146	0.002	0.965	−0.280	0.293	1.006	0.756	1.341
Safety	−0.603	0.432	1.948	0.163	−1.449	0.244	0.547	0.235	1.276
TimeTraffic	−0.949	0.409	5.376	0.020	−1.751	−0.147	0.387	0.174	0.863
TimeLeisure	1.141	0.369	9.573	0.002	0.418	1.864	3.131	1.519	6.451
TimeSchool	0.780	0.505	2.389	0.122	−0.209	1.769	2.182	0.811	5.867
TimeInternet	0.881	0.315	7.832	0.005	0.264	1.498	2.413	1.302	4.473
Personal Relationships	−1.602	0.338	22.405	<0.0001	−2.265	−0.939	0.202	0.104	0.391
Job	0.371	0.238	2.425	0.119	−0.096	0.838	1.449	0.909	2.311

Source: Authors' own calculations.

As the probability of the Chi-square test is lower than 0.0001, we can conclude that significant information is brought by the variables. Odds ratios corresponding to 0.95 probability level are also provided for a better interpretation of the results.

Table 12 displays the values of several indicators regarding the model goodness of fit, while Table 13 displays the classification performance of the algorithm.

Table 12. Goodness of fit statistics (Variable Happiness).

Statistic	Independent	Full
Observations	363	363
Sum of weights	363.558	363.558
Degrees of freedom	362	315
-2Log(Likelihood)	1516.759	814.258
R^2(Cox and Snell)	0.000	0.856
R^2(Nagelkerke)	0.000	0.869
Akaike Information Criterion	1524.759	910.258
Schwarz Bayesian Criterion	1540.336	1097.190
Iterations	0	18

Source: Authors' own calculations.

Table 13. Classification table for the training sample for the dependent variable Happiness, with respect to the 11 variables considered.

From\To	1	2	3	4	5	Total	% Correct
1	0	5	3	0	1	9	0.00%
2	0	14	3	4	0	21	66.67%
3	0	27	52	18	10	107	48.60%
4	0	23	43	38	70	174	21.84%
5	0	3	4	11	34	52	65.38%
Total	0	72	105	71	115	363	40.50%

Source: Authors' own calculations.

Scenario 2—The factors predict Happiness

Also, a Multinomial Logistic Regression has been conducted in order to model and further predict the effect of the 11 factors obtained by PCA on the Happiness response variable. Parameters are obtained for each factor and for each category of the response variable. Table 14 displays the model parameters corresponding to the value 5 ("Very happy") of Happiness response variable and it brings information regarding the effect of the 11 factors on the "Very happy" status of the response variable. Parameters interpretation provides the following model equation:

$$\text{Log}\left(\frac{\text{P(Response variable=5)}}{\text{P(Response variable=1)}}\right) = -18.71 + 11.576F_1 - 10.409F_2 - 6.257F_3 + 0.39F_4$$
$$-3.033F_5 + 2.76F_6 - 1.296F_7 + 5.311F_8 + 6.006F_9$$

We can conclude that significant information is brought by the variables corresponding to the probability of the Chi-square test lower than 0.0001. Odds ratios corresponding to 0.95 probability level are also provided for a better interpretation of the results.

Table 15 displays the values of several indicators regarding the model goodness of fit. The values of R^2 and Akaike Information Criterion statistics show a better performance of the MLR model depending on the factors obtained by PCA.

Table 14. Model parameters for "Very happy" status with respect to the 11 factors obtained by PCA (Variable Happiness).

Source	Value	Standard Error	Wald Chi-Square	Pr > Chi²	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ratio Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	−18.710	4.501	17.280	<0.0001	−27.531	−9.888			
F1	11.576	2.200	27.697	<0.0001	7.265	15.887	106,473.816	1428.873	7,933,994.651
F2	−10.409	1.843	31.899	<0.0001	−14.021	−6.797	0.000	000	0.001
F3	−6.257	3.566	3.079	0.079	−13.245	0.732	0.002	0.000	2.079
F4	0.390	1.909	0.042	0.838	−3.352	4.133	1.478	0.035	62.359
F5	−3.033	1.662	3.329	0.068	−6.291	0.225	0.048	0.002	1.252
F6	2.760	3.366	0.672	0.412	−3.838	9.358	15.797	0.022	11,587.407
F7	−1.296	1.226	1.117	0.291	−3.699	1.107	0.274	0.025	3.026
F8	5.311	1.745	9.261	0.002	1.891	8.732	202.635	6.623	6199.694
F9	6.006	2.711	4.908	0.027	0.693	11.319	405.757	1.999	82,366.709
F10	0.000	0.000							
F11	0.000	0.000							

Source: Authors' own calculations.

Table 15. Goodness of fit statistics (Variable Happiness).

Statistic	Independent	Full
Observations	363	363
Sum of weights	363.558	363.558
Degrees of freedom	362	327
−2Log(Likelihood)	1415.983	321.243
R^2(Cox and Snell)	0.000	0.951
R^2(Nagelkerke)	0.000	0.971
Akaike Information Criterion	1423.983	393.243
Schwarz Bayesian Criterion	1439.561	533.442
Iterations	0	14

Source: Authors' own calculations.

The classification performance of the algorithm is displayed in Table 16.

Table 16. Classification table for the dependent variable Happiness, with respect to the 11 factors obtained by PCA.

From\To	1	2	3	4	5	Total	% Correct
1	0	6	1	2	0	9	0.00%
2	0	17	4	0	0	21	80.95%
3	0	22	57	27	1	107	53.27%
4	0	15	42	71	46	174	40.80%
5	0	0	1	10	41	52	78.85%
Total	0	60	105	110	88	363	50.77%

Source: Authors' own calculations.

Scenario 3—The variables predict Life satisfaction

In the third case, a Multinomial Logistic Regression has been conducted in order to model and further predict the effect of the 11 variables considered on the Satisfaction response variable. The goal and utility of applying this model consists of modeling and predicting Satisfaction depending on the known values of the 11 variables as determinants of Satisfaction. Parameters are obtained for each variable and for each category of the response variable. We denote by 1, 2, 3, 4, and 5 as the values of the Satisfaction response variable, corresponding, respectively, to the choices "Very low", "Low", "Neutral", "High", and "Very high". Table 17 displays the model parameters corresponding to the value 5 ("Very high") of Satisfaction response variable and it brings information regarding the effect of

the 11 variables on the "Very high" status of the response variable. Parameter interpretation provides the following model equation:

$$\text{Log}\left(\frac{\text{P(Response variable} = 5)}{\text{P(Response variable} = 1)}\right) = -16.867 + 1.658v_1 + 1.279v_2 + 1.411v_3 - 0.04v_4$$

Table 17. Model parameters for "Very high" status with respect to the 11 variables (Variable Life Satisfaction).

Source	Value	Standard Error	Wald Chi-Square	Pr > Chi^2	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ratio Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	−16.867	2.039	68.459	<0.0001	−20.862	−12.871			
Health	1.658	0.280	35.159	<0.0001	1.110	2.206	5.248	3.034	9.078
Satisfaction activities	1.279	0.300	18.217	<0.0001	0.691	1.866	3.591	1.997	6.460
Optimism	1.411	0.246	32.931	<0.0001	0.929	1.892	4.098	2.532	6.635
Income	−0.040	0.099	0.165	0.684	−0.235	0.154	0.960	0.790	1.167
Safety	0.000	0.000							
TimeTraffic	0.000	0.000							
TimeLeisure	0.000	0.000							
TimeSchool	0.000	0.000							
TimeInternet	0.000	0.000							
Personal Relationships	0.000	0.000							
Job	0.000	0.000							

Source: Authors' own calculations.

We can conclude that significant information is brought by the variables corresponding to the probability of the Chi-square test lower than 0.0001. Odds ratios corresponding to 0.95 probability level are also provided for a better interpretation of the results.

Table 18 displays the values of several indicators regarding the model goodness of fit.

Table 18. Goodness of fit statistics (Variable Satisfaction).

Statistic	Independent	Full
Observations	363	363
Sum of weights	363.000	363.000
Degrees of freedom	362	343
−2Log(Likelihood)	1415.983	960.425
R^2(Cox and Snell)	0.000	0.715
R^2(Nagelkerke)	0.000	0.730
Akaike Information Criterion	1423.983	1000.425
Schwarz Bayesian Criterion	1439.561	1078.313
Iterations	0	22

Source: Authors' own calculations.

Table 19 displays the classification performance of the algorithm.

Scenario 4—The factors predict Life satisfaction

In the fourth case, a Multinomial Logistic Regression has been conducted in order to model and further predict the effect of the 11 factors obtained by PCA on the Satisfaction response variable. Table 20 displays the model parameters corresponding to the value 5 ("Very high") of Satisfaction response variable and it brings information regarding the effect of the 11 variables on the "Very high" status of the response variable. Parameter interpretation provides the following model equation:

$$\text{Log}\left(\frac{\text{P(Response variable}=5)}{\text{P(Response variable}=1)}\right) = -106.138 + 22.664F_1 - 40.739F_2 - 14.726F_3 + 3.54F_4$$
$$+8.137F_5 + 0.736F_6 - 8.833F_7 + 59.222F_8$$

Table 19. Classification table for the training sample for the dependent variable Life satisfaction, with respect to the 11 variables considered.

From\To	1	2	3	4	5	Total	% Correct
1	0	6	3	1	1	11	0.00%
2	0	31	7	5	3	46	67.39%
3	0	51	36	33	25	145	24.83%
4	0	18	20	18	63	119	15.13%
5	0	3	2	10	27	42	64.29%
Total	0	109	68	67	119	363	34.33%

Source: Authors' own calculations.

Table 20. Model parameters for "Very high" status with respect to the 11 factors obtained by PCA (Variable Satisfaction).

Source	Value	Standard error	Wald Chi-Square	Pr > Chi^2	Wald Lower Bound (95%)	Wald Upper Bound (95%)	Odds Ratio	Odds Ratio Lower Bound (95%)	Odds Ratio Upper Bound (95%)
Intercept	−106.138	12.428	72.939	<0.0001	−130.496	−81.780	−106.138	12.428	72.939
F1	26.664	4.679	32.481	<0.0001	17.494	35.834	26.664	4.679	32.481
F2	−40.739	4.750	73.568	<0.0001	−50.048	−31.430	−40.739	4.750	73.568
F3	−14.726	4.407	11.163	0.001	−23.364	−6.087	−14.726	4.407	11.163
F4	3.540	2.759	1.646	0.199	−1.868	8.948	3.540	2.759	1.646
F5	8.137	2.990	7.408	0.006	2.278	13.997	8.137	2.990	7.408
F6	0.736	4.366	0.028	0.866	−7.821	9.293	0.736	4.366	0.028
F7	−8.833	2.722	10.535	0.001	−14.167	−3.499	−8.833	2.722	10.535
F8	59.222	5.955	98.910	<0.0001	47.551	70.893	59.222	5.955	98.910
F9	0.000	0.000					0.000	0.000	
F10	0.000	0.000					0.000	0.000	
F11	0.000	0.000					0.000	0.000	

Source: Authors' own calculations.

We can conclude that significant information is brought by the variables corresponding to the probability of the Chi-square test lower than 0.0001.

Table 21 displays the values of several indicators regarding the model goodness of fit. The values of R^2 and AIC statistics show a better performance of the MLR model depending on the factors obtained by PCA.

Table 21. Goodness of fit statistics (Variable Life Satisfaction).

Statistic	Independent	Full
Observations	363	363
Sum of weights	363.558	363.558
Degrees of freedom	362	323
−2Log(Likelihood)	1516.759	687.043
R^2(Cox and Snell)	0.000	0.898
R^2(Nagelkerke)	0.000	0.912
Akaike Information Criterion	1524.759	767.043
Schwarz Bayesian Criterion	1540.336	922.819
Iterations	0	18

Source: Authors' own calculations.

The classification performance of the algorithm is displayed in Table 22.

In all four scenarios, the values of R^2 and AIC statistics show a better performance of the MLR model depending on the factors obtained by PCA. This hypothesis is also supported by the classification performance tables that demonstrate that factors obtained by PCA are better predictors for happiness and life satisfaction.

Finally, examining these four scenarios, the following conclusions could be drawn: (1) Multinomial Logistic Regression is a suitable method to predict happiness and life satisfaction; (2) the factors

provided by PCA are better predictors for life satisfaction and happiness than the variables, per se, as both econometric models that use factors show a better performance; (3) the best performance is achieved for Multinomial Logistic Regression that models the dependence relationship between life satisfaction and factors derived from PCA.

Table 22. Classification table for the dependent variable Life satisfaction, with respect to the 11 factors obtained by PCA.

From\To	1	2	3	4	5	Total	% Correct
1	0	11	0	0	0	11	0.00%
2	0	43	3	0	0	46	93.48%
3	0	11	121	13	0	145	83.45%
4	0	1	14	90	14	119	75.63%
5	0	0	0	6	36	42	85.71%
Total	0	66	138	109	50	363	67.65%

Source: Authors' own calculations.

5. Discussions

The research assumption on the relationship between self-assessment of happiness and life satisfaction relies on previous studies [12,61,62] that point out three types of SWB definitions: (1) evaluative well-being (or life satisfaction); (2) hedonic well-being (feelings of happiness, sadness, etc.); and (3) eudemonic well-being (sense of purpose and meaning in life). These studies are convergent with additional taxonomies [4] that divide definitions of well-being and happiness in three categories: (1) normative definitions that stress the idea of well-being as a desirable rather than a subjective state; (2) well-being as life satisfaction or a subjective state displayed by the individual via personal evaluation of own relevant standards; (3) well-being as a pleasant emotional state. Following the same line of thought, Kahneman and Deaton make a distinction between emotional well-being, which "refers to the emotional quality of an individual's everyday experience", and life evaluation, which "refers to the thoughts that people have about their life when they think about it" [63] (p. 16489).

Nonetheless, one who is not very familiar with these taxonomies and distinctions could easily get confused. In this context, methodologically, the need to test the assumption of similarity between self-reported happiness and life satisfaction emerges from Strack et al.'s hypothesis; according to this hypothesis, asking questions about two closely related constructs might cause distortions in the data [64]. Their study investigates the correlations between evaluative life satisfaction and happiness questions administered in two different contexts: (1) two separate and apparently distinct surveys, and (2) simultaneously in the same survey with an introductory comment that reads, "Now, we have two questions about your life". The correlation between the measures plunged significantly from the first to the second context. The plausible explanation is that respondents in the second context were more likely to provide different answers to the two questions because they assumed that two apparently alike questions placed in the same questionnaire should need different replies, since asking the same question twice would be redundant.

To test the correlation between happiness and life satisfaction in the case of Romanian business students, our research basically replicates the second context of Strack et al., but featuring a significant distinction: the respondents were not made aware via any additional comment that there are two separate questions about their assessment of SWB. In this specific context, the study reaches the conclusion that when they assess their perception of life satisfaction and happiness, respondents tend to make little distinction between these two concepts. This result is consistent with Di Tella et al.'s study [65], which using data from EuroBarometer Survey Series and General Social Survey and more than 250 thousand observations across 12 European countries, argues that there is a strong correlation between answers on happiness and life satisfaction and that these two concepts can be used in a convergent manner.

Our findings confirm the assumption that unless they are specifically made aware of the potential semantic differences, respondents tend to give the same meaning to happiness and life satisfaction. From a practical standpoint, in the empirical assessment of SWB, this result might lead to the use of only one of these two concepts. Moreover, the result supports the assumption that data gathered via happiness questions are comparable to data provided by life satisfaction questions, and vice versa. This perspective seems to be shared by a significant number of researchers who steered their studies toward using only one of these concepts for the sake of simplicity, and in order to avoid methodological misperceptions. In addition, this point of view is consistent with OECD guidelines—"If evaluative subjective well-being is measured by single-item scales, using only one of these measures should reduce redundancy and any potential for respondent confusion or fatigue. This means that a choice must be made between, for example, a life satisfaction question and an overall happiness question, rather than including them all in one survey" [39] (p. 100). On the other hand, relying on the convenient interchangeability hypothesis could alter the complex meaning of the SWB concept. At this point, researchers might be facing some sort of compromise: choose both concepts (life satisfaction and happiness) and accept possible confusions, or sacrifice the complex meaning for a quantifiable version of the concept. Nonetheless, the embedded lesson is that providing extensive explanation on the meaning and making respondents aware of the distinctions between these two concepts might be a suitable strategy to avoid this conundrum. To conclude, although it might seem too extensive or superfluous, this discussion is vital for a clear understanding of how potential confusion of concepts might impact data that assesses SWB using single metrics items (such as the EuroBarometer Survey Series, the General Social Survey, the World Values Survey, or Gallup World Poll).

The second tested assumption relates to the following issue: "a key concern often raised in the literature is that preceding questions may affect how respondents interpret the meaning of an item or the type of information that is temporarily accessible to respondents when constructing their answers—effects often collectively referred to as priming" [39] (p. 91). This effect is rooted in the theory claiming that individuals, when asked to take part in a survey, often tend to provide answers that are the result of instant, rapid judgments based on their current state of mind and spirit. As a result, their answers are often influenced by the context in which they fill in the questionnaire [40]. This context can influence SWB reports, and in certain circumstances, these effects can be important [39].

In our study, the question order effect was investigated via an experiment that created three different contexts: (1) SWB questions were placed first in the survey; (2) SWB questions were placed at the end of the survey, right after the question that assessed the optimistic take on the future; and (3) SWB questions were placed at the end of the survey, right after the question that assessed the pessimistic take on the future. Using Pearson correlation analysis, the present study finds evidence which leads to the claim that question order effect is not significant, at least in the case of Romanian business students. This result contradicts previous empirical evidence, according to which question order tends to have a significant impact on answers [41] and respondents' answers to SWB questions are sensitive to adjacent questions in a survey [64,66]. However, we find a stronger correlation between pessimism and negative evaluation of SWB than between optimism and positive evaluation of SWB. This result suggests, in this case, the presence of an assimilation effect. This result is also consistent with the behavioral theory postulation that negative feelings have a more profound impression on our emotional state than positive sentiments [67–70]. Even though our findings do not seem to provide evidence in favor of question order effect, the confirmation of assimilation effect suggests that questions on self-reported SWB should not be placed adjacently to those that assess psychological drivers of SWB.

Studying the drivers of SWB via Pearson correlation analysis, our research finds that health, optimistic, or pessimistic perspectives on the future and satisfaction with current activities have the most significant impact on self-reported happiness, whereas income does not seem to have significant influence. Moreover, the results are consistent with other studies [48,71] that emphasize the non-material determinants of SWB and contradict studies [72,73] where income or having a job are highly influential on self-assessed happiness. By finding a strong correlation between health

and SWB, our study relates to Malkoç's research on undergraduate students [58], which reveals that psychological health was positively correlated with SWB, whereas physical health did not predict SWB.

In terms of the relationship between income and SWB, the results are consistent with Diener and Biswas-Diener [9], who claim that there are small correlations between income and SWB among people living in the same country. In the particular case of students, our findings do not confirm Stevens et al.'s research, which asserts that "wealth predicted life satisfaction for Romanian students" [53] (p. 436). However, they seem to be in line with Hayo and Seifert's results, according to which "a more positive assessment of current and expected future economic system is associated positively with current well-being" [45] (p.21). The analysis of main determinants of life-satisfaction provides similar results. These findings are interesting not only because they reject the assumption that income is the main predictor for SWB of Romanian business students, but also reveal that Romanian business students have a significant level of awareness of the activities they are currently involved in and they are also very thoughtful about their future.

This primary analysis is extended by use of Principal Components Analysis, which reveals how each determinant could be aggregated in complex factors that explain the variations of SWB. This approach is consistent with the idea of designing a composite index to assess SWB [18,60,61,74–76], and moreover, allows the combination of the determinants in representative clusters. According to the present research, the 11 analyzed items could be combined in 4 homogenous clusters. The first cluster includes Health, Satisfaction with current activities, Optimistic/pessimistic perspective on the future, and Safety of the neighborhood; the second cluster comprises Income, Time spent on leisure activities, internet, and with friends; the third includes time spent in traffic; the last cluster includes only time spent at school. These results highlight that the main determinants of SWB, according to our analysis, are grouped in the same cluster.

At last, the study on main determinants of SWB is completed with a Multinomial Logistic Regression that provides valuable information on forecasting happiness and life satisfaction. Examining four possible scenarios, the results show that the best chances to predict SWB are by using a Multinomial Logistic Regression, in which life satisfaction is the dependent variable that assesses SWB and the factors previously identified by PCA are the predictors of SWB. These findings provide promising input for future studies focused on SWB prediction.

To sum up, research led to the following results: (1) Romanian business students tend to make a slight distinction between perceptions of life satisfaction and happiness and tend to evaluate them in a similar manner; (2) in terms of context effects that could alter the objectivity of data collected via survey, we found that question order effect is not significant, whereas negative emotional states (such as pessimism) impact self-assessment of happiness; (3) using alternative statistic and econometric methods that could be replicated in future research, the study identifies satisfaction with current activities, level of optimism/pessimism, health and safety of the neighborhood as main predictors for SWB in the particular case of Romanian business students.

Moreover, from a methodological perspective, this paper proposes a new approach to modeling SWB by MLR, which involves expressing the dependent variable with respect to the principal factors obtained by PCA. However, this study presents limitations and supplementary research is needed for such a multifaceted topic. Even though the sample is large enough to provide a comprehensive view, the structure of the sample, which is restricted to students from BUES, remains a chief limitation of the present survey. Nonetheless, the study offers a methodological framework for further research that is expected to be conducted in order to provide a more statistically accurate outlook on assessing SWB in the case of, but not limited to, Romanian students and young adults.

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