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# RELEVANT TOPICS IN THE FINANCIAL WELL-BEING LITERATURE

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Financial Well-being (FW) is defined as an individual's perception of their ability to meet current and future financial obligations and expectations. This paper aims to extract relevant topics from the existing literature on FW by applying text analysis to the documents extracted from the Scopus using the key search term "financial well-being". A topic model based on Latent Dirichlet Allocation was then applied. The content of the topics was visualized by a word cloud and labeled. A narrative approach was used to provide an interpretation for each topic. The study contributes to the literature on FW in several ways. First, the study raises awareness of the potential for text analysis to uncover previously unknown, high-quality information from large document collections within the field of FW. Second, this is the first paper to construct a topic modeling of the FW literature. Finally, the findings suggest the following main directions for future FW research: (i) extending the analysis to the countries, where FW is understudied; (ii) further analysis of the link between FW and other domains of well-being, between FW and its antecedents, between FW and 'treatments' targeted at children and young people, between FW and sustainability; and (iii) a tailored approach to analyzing the resilience of vulnerable groups.

*Keywords*: Financial well-being; textual analysis; topic modeling; word cloud analysis.

JEL Classification: D14, G53.

## 1. Introduction

Empirical literature supports the conjecture that the financial crisis started in 2008–2009 has damaged the quality of life from several points of view, including the

financial point of view and the level of overall well-being strictly related to it. Similarly, the Covid-19 pandemic has stressed the importance of financial resilience (OECD 2020). The availability of a stable income or a fixed annuity may contribute to maintaining Financial Well-being (FW, after this) in strange times. In contrast, the lack of work because of the lockdown or the effect of healthcare expenditure on monthly income may cause financial stress. Consumers must protect themselves financially from extreme exogenous events.

Furthermore, financial literacy has become an essential life skill in modern economies and an instrument to accelerate the growth of developing countries. From the point of view of policymakers, some important policy implications derive from the average level of people's financial literacy: more financially literate people than others make more effective decisions about savings, investments, retirement, debt, and risk management issues.

Consequently, FW and its nuances are of interest to several fields of public spending at the international and the country levels, from social safety nets to financial education campaigns.

The social and economic safety net aims to protect vulnerable groups and provide financial security to promote equal opportunity (World Bank 2017). Several financial education initiatives account for the developments of behavioral finance (Kempson *et al.* 2017). Indeed, the financial campaigns set out a strategy to connect financial aims with "*what to do*" in front of financial decision-making.

However, what is FW?

FW is linked to an individual's perception of meeting current and future financial obligations and expectations. "*Financial well-being describes when people feel able to meet their financial obligations, feel financially secure, and can make choices that benefit their quality of life. A financial strain occurs when people cannot pay their bills, feel stressed about money and experience negative impacts on their quality of life and health.*" (Glenn *et al.* 2021).

In 2015, the American Consumer Financial Protection Bureau (CFPB) provided the first-ever definition of FW created directly out of the voices of consumers to measure the effectiveness of financial literacy strategies (CFPB 2015). FW is defined as having financial security and financial freedom of choice in the present and the future.

Afterward, Brüggen *et al.* (2018) provide a new definition of FW based on a perceptual perspective of FW. They link it to an individual's current and anticipated desired living standard and financial freedom. The living standard is a unique combination of wealth, services, comfort, and material goods essential to living. In contrast, financial freedom is critical in assessing FW related to life decisions and economic constraints. Their proposed framework consists of interventions (i.e. antecedents), financial behaviors, consequences, and personal and contextual traits (i.e. influencing factors).

Netemeyer *et al.* (2018) measure the perceived FW: "*one's ability to manage financial resources in support of the life one wants to live now and in the near and*

*more distant future.*" They identify two constructs: the current money management stress ("*How am I doing today*") and the expected future financial security ("*How do I expect I will be doing in the future?*"). They estimate the overall well-being from everyday money management stress and expected future financial security. They note how income moderated the effect of day-to-day money management stress on overall well-being: current money management stress seriously affects well-being among low-income individuals (financially insecure).

In the face of the global economic repercussions of the COVID-19 pandemic, some papers discuss the impact of Coronavirus on FW. Barrett *et al.* (2021) highlight how resilience is associated with higher social, mental, and physical status and FW. In their review, Gonçalves *et al.* (2021) focus on the gender-related differences in individuals' FW antecedents and consequences. They use bibliometric analysis to describe the studies on women's FW. According to the ecological life-course approach, they organize the antecedents of women's FW in individual characteristics, such as the sociodemographic characteristics, their immediate surroundings, such as the care for children, and the broader environment such as the work trajectories. These antecedents may allow better targeting of financial education programs.

Recent works carefully control the state-of-the-art FW literature (e.g. Kaur *et al.* 2021, Nanda & Banerjee 2021, Singh & Malik 2022, Sorgente *et al.* 2021). For instance, Kaur *et al.* (2021) adopt a methodological approach with two tiers. On the one hand, they use bibliometric analysis to identify the characteristics of 238 papers regarding chronological publication trend, affiliation and authors statistics, and so on; on the other hand, they analyze 114 articles with content analysis to derive the constructs and variables of FW literature. Singh & Malik (2022) follow the same approach. Nanda & Banerjee (2021) use a hybrid-narrative approach with a framework for reviewing the existing literature and identifying seven research gaps. Then, they stress these gaps with a framework inspired by TCCM — Theory, Context, Characteristics, and Methodology. Sorgente *et al.* (2021) review the literature, suggesting an intensive longitudinal design. Studying FW's objective and subjective side indicates the need to collect data repeatedly and intensively. This means repeating data collection at least five times and with short intervals between the following measurements.

The growing interest in FW has led to increased attention to systematic reviews and novel methods of literature review to provide empirical assessments of research developments in the field.

Thus, in a context where researchers are faced with an increasingly complex and voluminous task, the study proposes a semi-automated analysis of large volumes of such unstructured information on FW through the application of text mining.

Text mining is the automated or partially automated processing of text. It involves imposing structure upon text so that relevant information can be extracted from it (Delen & Crossland 2008). The text analysis was made explicit through the Latent Dirichlet Allocation (LDA) Topic Model, and a word cloud

visualization of representative words. From the study, three topics emerged: "*health*", "*literacy*", and "*research*", each described by a narrative approach.

The study contributes to the existing literature on FW in several ways. First, it raises awareness of the use of text analysis to find previously unknown but potentially high-quality information from large document collections in the FW literature. Second, to the best of the authors' knowledge, it is the first paper to construct a topic modeling of the FW literature. Finally, based on the connections that were found between the topics and the three research areas (subjective well-being (SW) research, consumer finance (CF) research, and transformative service (TS) research), a number of suggestions for further FW research are offered.

The remaining part of this paper is structured as follows: next, it shows the research strategy. Then, it presents the results and discusses the implications for further research on FW.
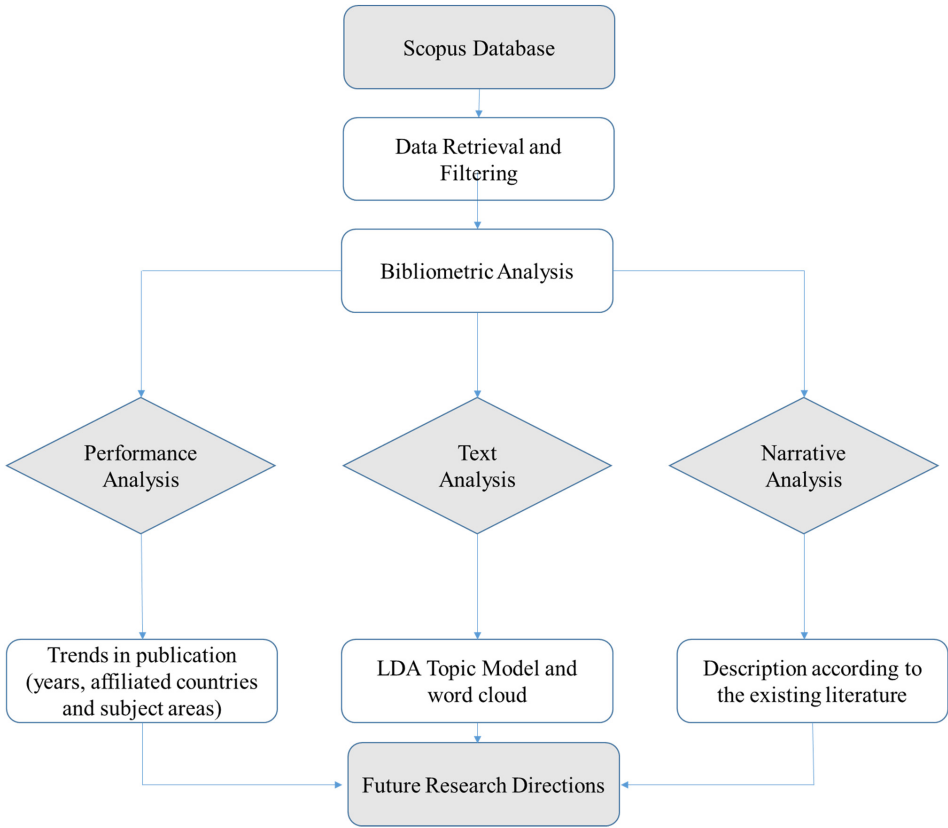
## 2. Research Strategy

To identify the main topics of FW literature, the scheme reported in Fig. 1 was followed by Singh & Malik (2022). The analysis starts by extracting papers released from 2015 onward in the Scopus database, using the key search terms "financial AND well-being". The search criteria included the article title, abstract, and keywords. The analysis started in 2015 because in that year the CFPB issued a guide in that defines what is FW. From an economic point of view, CFPB has explained how to measure FW after a call for advice addressed to consumers, practitioners, and academics (CFPB 2015). The consumer-driven FW definition developed by the CFPB is multi-faceted and not directly observable. It describes a continuum ranging from feeling severe financial stress to being highly satisfied with one's financial situation.

A bibliometric analysis consisting of a performance analysis to assess years, countries, and subject areas, a text analysis (using a topic model based on LDA and word cloud visualization) to extract pertinent topics, and a narrative analysis to describe the main findings and characteristics of the topics were applied to the 384 publications downloaded in April 2024 (Fig. 1).

### 2.1. *Text analysis*

The text analysis methods, tending to capture only the relevant information present in unstructured sources, integrate statistical methods of Data Mining and Artificial Intelligence techniques in an intrinsically interdisciplinary way. Indeed, text mining can handle semi-structured and unstructured data, while data mining needs structured data (Gupta & Lehal 2009).

The text mining process goes through several steps (i.e. document collection, document's format verification, analysis). First, the analysis stage includes the text pre-processing, which consists of data selection, data cleaning, feature extraction,

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│  Data Retrieval and │
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│ Bibliometric Analysis│
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- Performance Analysis → Trends in publication (years, affiliated countries and subject areas)
- Text Analysis → LDA Topic Model and word cloud
- Narrative Analysis → Description according to the existing literature
- → Future Research Directions

*Source*: Authors' version of Singh & Malik (2022).

Fig. 1. The research framework.

pattern matching, and converting unstructured data into a structured form (this process is often called tokenization). Successively, to retrieve helpful information, text mining techniques are used like finding word frequency, data clustering, measuring data similarity, co-occurrence analysis, topic modeling, and so on. Finally, text mining functions to visualize knowledge are applied (De Mauro 2019, Haq *et al.* 2019).

A helpful instrument to classify a considerable number of papers into documents with similar subjects is the application of the Topic Model based on LDA, where a document is assumed to draw its vocabulary from one or more topics. Topics are represented as probability distributions over the vocabulary, where differing topics give different words high probabilities (Kim & Gil 2019, Mantyla *et al.* 2018, Nguyen & Do 2018). In other words, LDA is a generative probabilistic model of a corpus. The basic idea is that documents are represented as random mixtures over latent topics, where a distribution over words characterizes each topic. All documents contain a particular set of topics, but the proportion of each topic in each document is different.

The generative process of the LDA model can be described as follows:

LDA assumes the following generative process for each document $w$ in a corpus $D$:

(1) Choose $N \sim \text{Poisson}(\xi)$.
(2) Choose $\theta \sim \text{Dir}(\alpha)$.
(3) For each of the $N$ words $w_n$:

    (a) Choose a topic $z_n \sim \text{Multinomial}(\theta)$.
    (b) Choose a word $w_n$ from $p(w_n|z_n, \beta)$, a multinomial probability conditioned on the topic $z_n$.

In this basic model, the dimensionality $k$ of the Dirichlet distribution (and thus the dimensionality of the topic variable $z$) is assumed known and fixed. Second, the word probabilities are parameterized by a $k \times V$ matrix $\beta$, where $\beta_{ij} = p(w_j = 1|z_i = 1)$, which is a fixed quantity that is to be estimated. Finally, the Poisson assumption is not critical to anything that follows and more realistic document length distributions can be used as needed. Furthermore, note that $N$ is independent of all the other data generating variables ($\theta$ and $z$). It is thus an ancillary variable.

A $k$-dimensional Dirichlet random variable $\theta$ can take values in the $(k-1)$-simplex (a $k$-vector $\theta$ lies in the $(k-1)$-simplex if $\theta_i \geq 0$, $\sum_{i=1}^{k} \theta_i = 1$), and has the following probability density on this simplex:

$$p(\theta|\alpha) = \frac{\Gamma\left(\sum_{i=1}^{k} \alpha_i\right)}{\Pi_{i=1}^{k}\Gamma(\alpha_i)} \theta_1^{\alpha_1 - 1} \ldots . \theta_k^{\alpha_{k-1}},$$

where the parameter $\alpha$ is a $k$-vector with components $\alpha_i > 0$, and where $\Gamma(x)$ is the Gamma function. The Dirichlet is a convenient distribution on the simplex — it is in the exponential family, has finite-dimensional sufficient statistics, and is conjugate to the multinomial distribution.

Given the parameters $\alpha$ and $\beta$, the joint distribution of a topic mixture $\theta$, a set of $N$ topics $z$, and a set of $N$ words $w$ is given by

$$p(\theta, z, w|\alpha, \beta) = p(\theta|\alpha \prod_{n=1}^{N} p(z_n|\theta)p(w_n|z_n, \beta),$$

where $p(z_n|\theta)$ is simply $\theta_i$ for the unique $i$ such that $z_n^i = 1$. Integrating over $\theta$ and summing over $z$, we obtain the marginal distribution of a document:

$$p(w|\alpha, \beta) = \int p(\theta|\alpha)\left(\prod_{n=1}^{N} \sum_{zn} p(z_n|\theta)p(w_n|z_n, \beta)\right)d\theta.$$

Finally, taking the product of the marginal probabilities of single documents, we obtain the probability of a corpus:

$$p(D|\alpha, \beta) = \prod_{d=1}^{M} \int p(\theta_d|\alpha)\left(\prod_{n=1}^{N_d} \sum_{z_{dn}} p(z_{dn}|\theta_d)p(w_{dn}|z_{dn}, \beta)\right)d\theta_d.$$

The parameters $\alpha$ and $\beta$ are corpus-level parameters, assumed to be sampled once in the process of generating a corpus. The variables $\theta_d$ are document-level variables, sampled once per document. Finally, the variables $z_{dn}$ and $w_{dn}$ are word-level variables and are sampled once for each word in each document.

Before topic generation, LDA requires that the input parameters such as the number of topics $k$, and hyperparameters $\alpha$ and $\beta$ be set (Blei *et al.* 2003, Wood *et al.* 2017).

A word cloud is a particular visualization of text in which the more frequently used words are effectively highlighted by occupying more prominence in the representation. Grammatical and non-frequent words are hidden so that the resultant illustration clearly shows the most frequently occurring words of importance (McNaught & Lam 2010). This technique provides an overview by distilling text down to those words that appear with the highest frequency and summarizes the contents of a document by depicting the words that appear most often in more significant, darker type within the cloud (Calle-Alonso *et al.* 2018, Cidell 2010). Indeed, word clouds have emerged as a straightforward and visually appealing visualization method for readers because they are fun ways to display text data in graphical form (Heimerl *et al.* 2014).

## 3. Results

### 3.1. *Performance analysis*

Considering the temporal distribution of the number of publications on FW, the study revealed that there has been notable growth in FW literature especially since 2019 reaching 95 articles in 2023 and 31 publications in the first months of 2024 (Fig. 2).

The subject areas in which most studies were produced are *economics, econometrics, finance* (23.7%), followed by *business, management, accounting* (20.9%), and *social sciences* (19.6%). The topic also attracted attention from areas focused on *Psychology* (13%), *Medicine* (about 7%), and *Arts and Humanities* (3.4%), see Fig. 3.

In geographical terms, scientific production on FW is relatively concentrated, with the top ten countries accounting for around 65% of published articles (Fig. 4). In detail, most of the studies come from the U.S.A. (26.8%) and second from Malaysia (8.5%). The other countries interested in the topic are United Kingdom, Italy, and Germany for Europe, Canada, Australia, South Korea, and some BRICS countries such as India, China, Brazil.

### 3.2. *Text analysis results*

In order to execute the Topic Modeling on the abstracts of the 384 downloaded papers the software Knime was used. First, the data cleaning was performed: All tokens of length less than four characters, stop words, and punctuations were
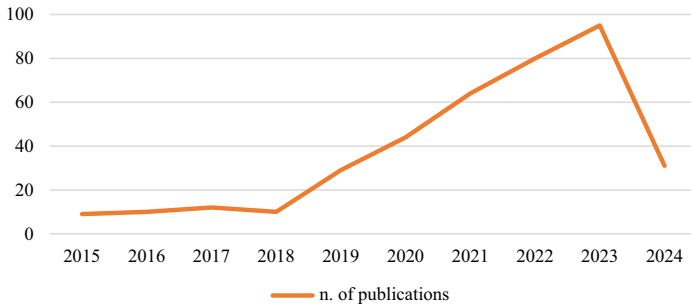
*Source*: Authors' elaboration from Scopus data.

Fig. 2. Number of FW publications from 2015 onward (absolute value).
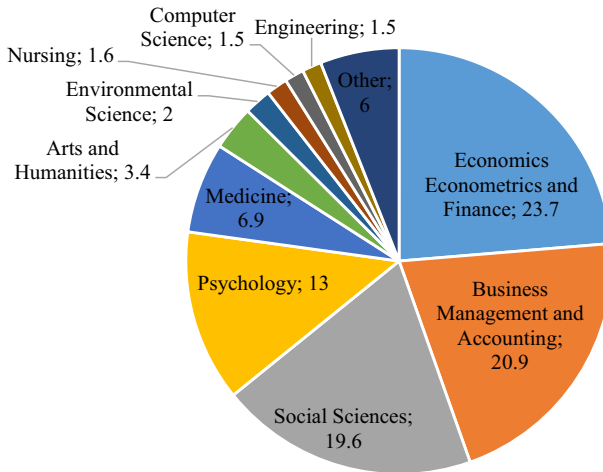


*Source*: Authors' elaboration from Scopus data.

Fig. 3. Published studies on FW by subject areas (each article can be assigned to more than one area, according to its journal classification) (% value).

removed from the corpus of documents. After, a lemmatization process was carried out. At the end of the pre-processing step, the documents are represented in the bag-of-words form, and some statistical indices are computed in order to characterize the document dataset. In detail, it consists of 28,485 tokens and 5718 types and has no hapax (absolute frequency of terms with one occurrence).

For this study, the possible range of $K$ values, $[K_{\min}, K_{\max}]$, has been set to [2,5]. Indeed, 2 is the lowest possible number of clusters to divide the corpus, and 5 has been considered an acceptable upper bound since having more clusters will make results difficult to interpret and validate. Too small $K$ values would lead LDA to be too coarse to be able to identify proper clusters, while $K$ values that are too
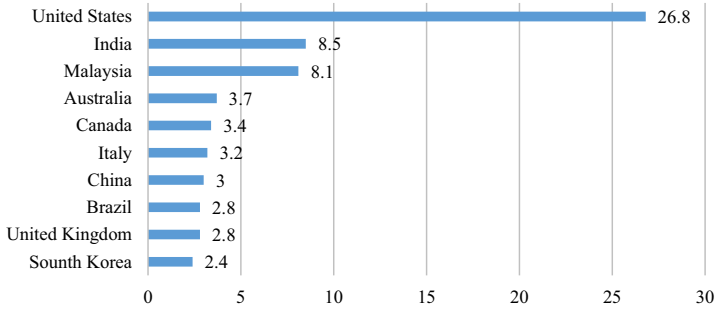
*Source*: Authors' elaboration from Scopus data.

Fig. 4. Published studies on FW by geographical area (each article can be assigned to more than one area, according to its authors affiliation).

large would lead to a very complex model, that is difficult to interpret and validate. The value set for the parameter $\alpha$ is $\alpha = 50/K$, as proposed in the literature (Saleh & El-Tazi 2017, Wood *et al.* 2017), and the value set for $\beta$ is $\beta = 0.1$, as proposed in the literature (Griffiths & Steyvers 2004). The default value of 1.000 was left for the iterations.

The quality of the resulting topic model, in terms of coherence and exclusivity, has been evaluated with the silhouette coefficient (Kaufman & Rousseeuw 1990). The silhouette scheme is a measure to assess the performance of the topic model. The silhouette value increases as two data within a topic are closer. It also becomes higher as two data within different topics are farther. Typically, a silhouette value ranges from $-1$ to 1, where a high value indicates that data are well-matched to their topic and poorly matched to neighboring topics. Generally, a silhouette value of more than 0.5 means that topic model results are validated. The results led us to lean toward a three-topic solution, although the silhouette index was higher for the two-topic solution. Even if something is lost in cohesion, the three-topic solution was preferred, considering the two-topic too synthetic (Table 1).

Furthermore, the log-likelihood was observed to evaluate the model. The figure shows that the shape stabilizes quickly after a hundred iterations (Fig. 5).

The word cloud visualization allows us to highlight the words that characterize each topic (Figs. 6–8) net of the terms "financial", "well-being", and "study" which may be deemed transversal to each topic since they are present in over 75% of the documents.

### 3.3. *Narrative description of topic 0: Health*

The center of the group is "health". To evaluate this topic, the words associated with objective dimensions of FW have been separated from those related to subjective dimensions of FW, as previous literature used this criterion in reviewing existing studies (Brüggen *et al.* 2018). Some words, such as "health", "life", "social",

Table 1. Silhouette index value.

| Number of topics | Silhouette index |
|---|---|
| $k = 2$ | 0.798 |
| $k = 3$ | 0.703 |
| $k = 4$ | 0.639 |
| $k = 5$ | 0.634 |



Fig. 5. Log-likelihood of LDA model.



Fig. 6. Topic 0 word cloud.



Fig. 7. Topic 1 word cloud.

Fig. 8. Topic 2 word cloud.

"psychological", or "satisfaction", are related to a subjective dimension of FW, whereas "result" or "effect" is related to objective dimensions. Besides, words such as "household", "parent", "caregiver", "student", or "child" can be associated with a group of people who, from the FW's point of view, are characterized by a specific need. For example, the literature monitors the FW status of the carer as they provide essential support to the patient, mainly if the carer is a family component, e.g. Linden *et al.* (2023). On the other hand, words such as "pandemic", "stress", or "anxiety" seem to be associated with a state of lower FW. For example, the Covid-19 pandemic reduced income: it conditioned the daily management of money, expectations of financial security, and the level of FW, e.g. see Panarello & Tassinari (2024) for the UK.

The whole word cloud suggests us that the group seems to be an expression of the SW research, i.e. Kahneman *et al.* (1999) and van Praag *et al.* (2003). This literature stream has studied other domains of well-being, such as physical health, job satisfaction, and relationships. However, it has only recently recognized the subjective dimension of the financial aspect of life. Netemeyer *et al.* (2018) show that perceived FW contributes to the explanation of overall well-being.

The words of this topic were used to describe the relationship between all domains of well-being, including FW as in Netemeyer *et al.* (2018) (Fig. 9).

About current money management stress, the keyword is "stress", while for expected future financial security it is "resilience". For the dimension of job satisfaction, there is "satisfaction". For the critical dimension represented by the relationship with the other person, there is "relationship". There are many words that can be traced back to health status, such as "health", "life", "anxiety", and so on.

Using the framework of SW literature, it is possible to identify several areas that need to be deepened.

(1) **The evidence on the impact of the other domains of well-being on FW and vice versa is still scarce.** How does an illness impact the current and future level of FW? Public schemes and some insurance policies may sustain the level of FW and alleviate the effects on physical status, but the evidence is still scarce.

(2) Some **antecedents of current money management stress**, such as impulsive/compulsive spending, excessive credit card debt or over-borrowing, **need to**
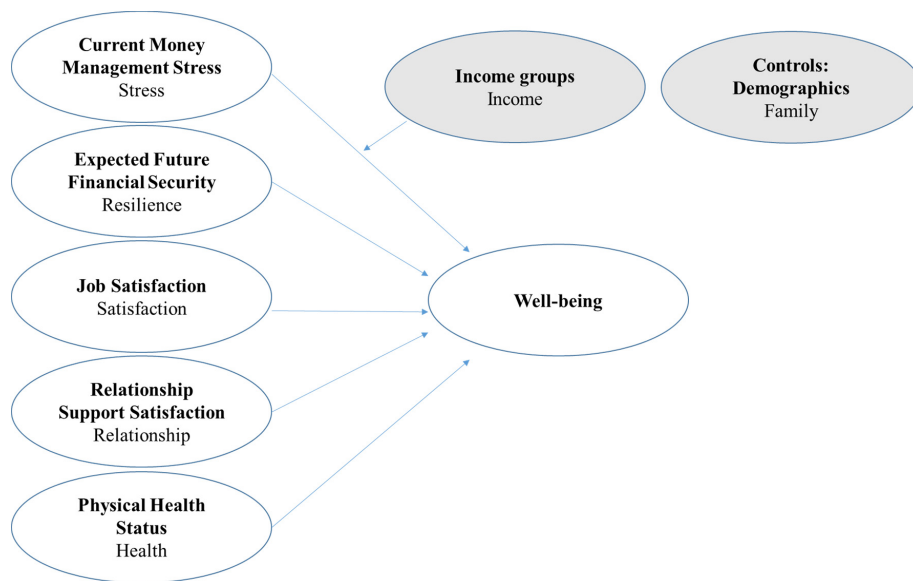
*Source*: Authors' elaboration on Netemeyer *et al.* (2018, p. 79).
*Note*: The current money management stress and the expected future financial security are the two dimensions of perceived FW (Netemeyer *et al.* 2018).

Fig. 9. Health topic according to SW approach.

**be explored in depth**, as they may significantly affect FW. More specifically, Western countries (e.g. the USA) and some BRICS are characterized by over-borrowing by people with lower incomes, which may threaten FW (see Ponchio *et al.* 2019, for Brazil). Therefore, monitoring these phenomena and their impact on FW is necessary (Tahir *et al.* 2021).

(3) The **impact of exogenous criseson FW should be deepened**. The COVID-19 pandemic has conditioned FW in terms of the sudden loss of income and the simultaneous need for health services, causing stress in money management and threatening future financial security.

(4) The **role of the actors** that can influence the overall well-being and FW of these actors **needs to be deepened**. For example, carers (family or non-family) can influence the FW of the family and the FW of the carer can be affected by his/her work.

### 3.4. *Narrative description of topic 1: Literacy*

The center of the group related to topic 1 is occupied by "literacy" and "behavior". Following the existing reviews on FW, which emphasizes first objective and then subjective components of FW, also in this group, words that can be considered objective, such as "literacy" or "knowledge" have been separated from words that

can be considered subjective, such as "behavior" or "stress". The presence of some types of individuals from the perspective of FW is also evident in this group. For example, there are "employee", "household", "individual", "student", "malaysia", "consumer", and "teacher". Malaysia is an interesting country to study from the point of view of FW as economic empowerment through the financial behavior of the young people is a strategy of the Malaysian government (Sabri *et al.* 2017).

Following the previous discussion, the words in this group seem to refer to the CF literature, i.e. Xiao *et al.* (2022), Fan & Henager (2021), Lee *et al.* (2020), and Sarofim *et al.* (2020). More specifically, there are some words that are considered *antecedents* of FW in the CF literature, such as "literacy", "knowledge", "attitude", "education", or "influence". While "behavior" and "self-efficacy" can be considered as *efforts* made by individuals or a specific type of individuals, such as a student or a consumer, to achieve some *consequences*, which can be the level of "stress" or of "satisfaction", focusing on subjective FW, or "income" or "inclusion", focusing instead on objective outcomes of financial decision-making processes. See, for example, Choi *et al.* (2020).

To deepen this evidence, the framework of Heckman & Mosso (2014) was used as in Xiao *et al.* (2022) to identify the role of FW in the CF literature.

Heckman and Mosso study the economics of human development and social mobility and highlight the strategic importance of mentoring, parenting, and attachment in shaping skills at all stages of childhood. At this aim, they identify the skills-efforts-performance paradigm. In our context, skills can be the *antecedents* of FW, efforts can be the *capability of* a consumer, and *performance* can be the consequences of the behavior, such as the FW.

The words characterizing the *Literacy* topic were used to describe the link skills-efforts-performance paradigm in the FW perspective (Fig. 10).

To identify words that refer to the background of an individual, we have "attitude", "purpose", "employee", and "consumer", or "family" or a reference to country or status ("individual" or "household"). The intervention area consists of a set of opportunities provided by family or public policy to increase economic well-being; these opportunities are critical to the outcome level, as early life conditions and credit constraints may influence the outcome directly or indirectly (through financial capability). From this point of view, there are keywords such as "education" and "teacher" that seem to refer to this area of the model (Xiao & O'Neill 2018).

In the middle is the individual's effort to achieve overall well-being: internal conditions (financial knowledge) and external conditions (financial opportunities) can promote successful financial behavior. From this point of view, there are keywords such as "literacy", "behavior", and "self-efficacy". As outcomes, "subjective" (as the subjective dimension of well-being), "satisfaction", "stress", and "income" can be considered (Xiao & O'Neill 2016). As shown by Prawitz *et al.* (2006), FW can be thought of as a state of being that varies from being satisfied to being stressed (D'Agostino *et al.* 2021).
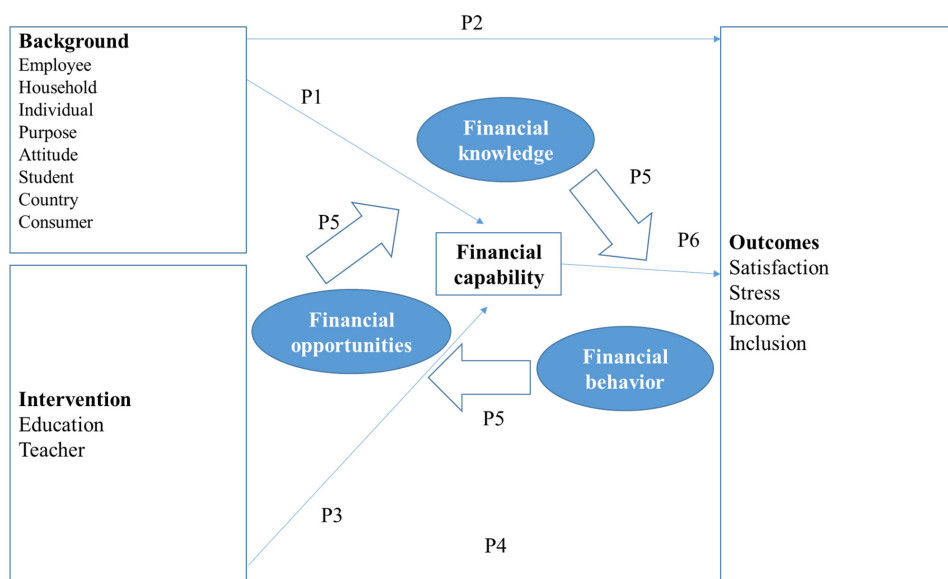
*Source*: Authors' elaboration on Xiao *et al.* (2022, p. 1694).

*Notes*: Each line in the figure identifies a proposition of the framework suggested by Xiao *et al.* (2022). The propositions are the following: P1 = there are background differences in financial capability; P2 = there are background differences in consumer well-being; P3 = interventions contribute to financial capability; P4 = interventions contribute to consumer well-being; P5 = financial capability factors correlate each other; P6 = financial capability factors contribute to consumer well-being.

Fig. 10. *Literacy* topic according to the CF research.

This framework allows us to identify a set of FW research gaps from the point of view of CF literature:

(1) **The weight of family influence in achieving the FW and overall well-being is critical**. When is the best time to start using "package"? How can children be involved in the day-to-day management of money? And how can children be involved in the most important decisions (house, university, pension fund, insurance)? The evidence is scarce.

(2) **The role of the school and the mentors in shaping child skills is fundamental**. Only some school programs include financial education (OECD 2023). From this perspective, the role of teachers in promoting financial literacy is crucial. According to Amagir *et al.* (2018), a promising method to teach financial literacy to children and adolescents in primary and secondary schools is "experiential learning" (e.g. having control of your finances): students must experience the impact of their decisions by actively participating in the learning process (not new skills, but knowing how to apply their skills). In contrast, in higher education, teachers should focus on specific "life events" of students, such as the choice of a particular specialization.

(3) **Treatments**, i.e. teaching methods, **must be tailored to group characteristics from a FW perspective**. As we have an emerging autonomous child in learning and responding to the actions of parents, mentors and teachers, it is necessary to consider this characteristic when choosing the teaching methods for financial literacy.

### 3.5. *Narrative description topic 2: Research*

The center of the group related to topic 2 is "research". As before, objective words, such as "research" were distinguished from subjective ones, such as "social" or "personal" as some reviews on FW, i.e. Brüggen *et al.* (2018) or Kaur *et al.* (2021), identify this approach in the classification of the existing definitions and measures of FW.

Some groups of consumers can be identified, such as "consumer", "customer", and "adult". According to the literature, these groups are characterized by a level of FW that differs from the other groups. They are classified as *vulnerable* or *disadvantaged* groups from the point of view of FW, e.g. Anderson *et al.* (2013).

As for the other groups of words, we observe keywords that seem exogenous to the topic at first sight but, on a more in-depth look, are the key to interpreting this group. More specifically, we refer specifically to "behavior", "capability", "service", and "experience". These keywords and the others in the group refer to the TS research (Anderson *et al.* 2013). This strand of literature was born from service research, a field of marketing devoted to the study of the sector of services, and transformative consumer research, a field of consumer literature that adopts a transformative approach. As such, we adopt the framework of Anderson *et al.* (2013), applying it to the group related to the second topic in the context of financial services.

This framework consists of *Service entities*, i.e. sector, organization, offering, process, and last but not least, the employees that participate in the co-creation of a lot of services, such as the financial services, and *Consumer entities*, at the individual level and the collective level. Service entities and consumer entities interact in a macroenvironment and generate *Well-being outcomes*, such as outcomes that are traditional as satisfaction and loyalty, or novel, such as access, literacy, decreasing disparity, health, happiness, and FW (Fig. 11).

Among *Service entities* as a sector, there is "money". As an organization, there is "bank". As an offering, there is "service". As a process, there is "information", and for employee roles, there is "transparency".

Among *Consumer entities*, there are "costumer" and "adult". Each consumer entity has been characterized by a level of FW that is different from the mean. The interactions between service entities and consumer entities are the outcomes that are "behavior" and "capability". The adoption of this framework allows us to recognize the following research areas and gaps in FW literature:

(1) **The nature of the relationship between financial institutions and consumers is experimental.** This relationship is inherently experimental, even
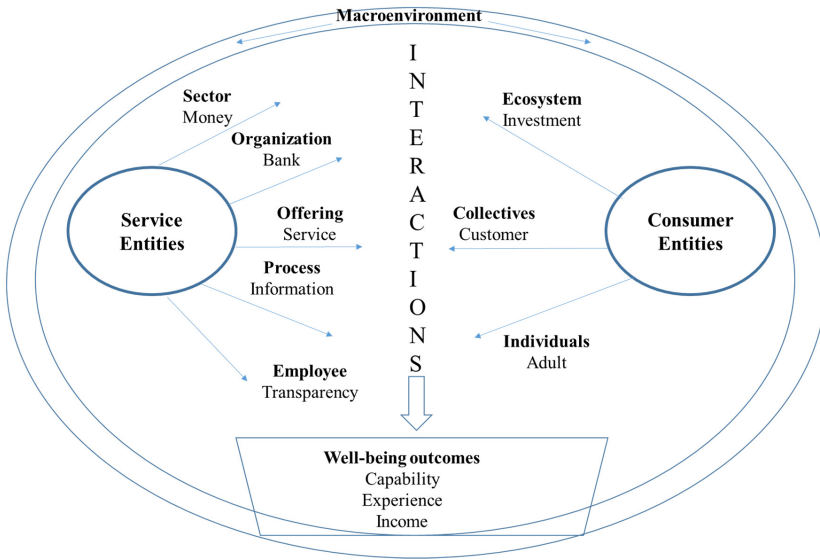
*Source*: Authors' elaboration on Anderson *et al.* (2013, p. 1204).

Fig. 11. Research topic according to the TS research.

when it involves adopting artificial intelligence. The consumer contributes to the co-creation of the financial service. The staff of financial institutions or the mix of tools used by financial institutions can contribute to increasing financial literacy and, thus, FW. The evidence on the impact of mixed instruments and the role of co-creation on FW is still scarce (one exception is the study of Bayuk & Altobello 2019).

(2) **The consumer is at a disadvantage (the consumers' potential vulnerability)**. Consumers are systemically disadvantaged concerning the institution that provides the financial service (Baker *et al.* 2005), especially if it is a mortgage or a sophisticated financial product, such as an insurance policy or a sustainable mutual fund; as such, it is possible to identify a set of the at-risk population, especially students, for which the FW could be lower than the mean of the other groups. Therefore, financial education campaigns for these groups need to be targeted according to their level of vulnerability. One possible avenue for consideration is the integration of financial literacy objectives into the existing curriculum or enhancing existing programs where necessary. This could be achieved through the implementation of innovative teaching methods, such as business games or podcasts, among others.

(3) **The financial institutions are providers of financial services that can be considered essential**, i.e. current accounts. Financial institutions may harm consumers when they are unbanked. Today, the unbanked's lack of access to the financial system can be bypassed with the use of smartphones and financial

applications. The availability of applications aimed at monitoring day-to-day money management could potentially increase the level of FW, taking into account the relationship with the expected future financial security (Netemeyer *et al.* 2018).

(4) **The sustainability of relationship between financial institutions and consumers needs to be analyzed.** Adopting a sustainability approach inspired by the UN SDGs, the current co-creation of a financial service should not reduce the quality of the future co-creation by considering the level of FW. As Riitsalu *et al.* (2023) show, FW is strictly related to age. Thus, sustainability and FW issues have similar intertemporal implications.

### 3.6. *Evidence from all topics*

The evidence on *health, literacy, research* topics allows us to contribute to the debate on FW, starting from the suggestions of the three fields of study that have been identified:

(1) The literature on SW (an area of positive psychology). Since Kahneman, psychology has long analyzed the role of behavior in a non-rational context, recognizing first the subjective dimension of well-being and then the financial dimension of well-being. SW research suggests taking into account the other domains of well-being, work, social life, etc. From this perspective, all sudden and exogenous events have to be studied.

(2) The CF literature (an area of consumer research). CF has been devoted to the study of financial capability, e.g. Xiao *et al.* (2022). In this context, FW is an outcome of financial capability at the same level of financial satisfaction or financial stress. CF research suggests the use of some "treatments" to improve the level of FW, taking into account the role of family, school, and the intertemporal nature of FW.

(3) TS research (an area under marketing). TS research broadens the focus of marketing studies by considering a eudaimonic and a hedonic perspective (Anderson *et al.* 2013). According to the hedonic perspective, FW can become a new lever in the marketing mix (Brüggen *et al.* 2018). TS research suggests taking into account the role of the client who contributes to the creation of the financial service and the disadvantaged position in relation to the financial institution. From this perspective, some potential clients are vulnerable or unbanked. TS research highlights the role of sustainability in the relationship between the financial institution and the customer.

Additionally, each of the three fields of research pays attention to some defined vulnerable groups of individuals from the point of view of FW. At-risk populations are as follows: working adults (Yang *et al.* 2021); retirees (Lim & Lee 2021); low-income community-dwelling older adults (Foong *et al.* 2021); poor coffee growers (Garbinsky *et al.* 2021); sportswomen (Mogaji *et al.* 2021); college students

(Norvilitis *et al.* 2021); individuals with lower incomes (Newmeyer *et al.* 2021); emerging adults (Burcher *et al.* 2021, Iannello *et al.* 2021); people that have fallen prey to fraud (Brenner *et al.* 2020); and Indians (Chavali *et al.* 2021).

## 4. Conclusions

Financial well-being is a topic that is widely discussed by academics, practitioners, and policymakers from different perspectives. In academia, the growing interest in research on FW is leading to increasing attention to the use of systematic reviews and new methods of literature review to provide empirical assessments of research developments in this area.

This paper aims to extract relevant topics from the literature on FW by accessing the extensive number of publications on the subject available online.

The analysis confirms the growing interest in FW but also reveals a strong geographical concentration of scientific production on the topic, with the United States of America dominating the research space over the period analyzed, pointing to knowledge gaps in some countries. Instead, there is a greater diversification in the subject areas of publications, reflecting the interdisciplinary nature of research on FW.

The text analysis indicates that the existing FW literature can be classified into three main topics: health, literacy, and research. Following the narrative approach, these topics can be traced back to three areas of literature: SW research, CF research, and TS research. Future research on FW may utilize the connections between extracted topics and these three areas of research.

More specifically, SW research suggests considering the other domains of well-being, such as work and social life, when studying FW. From this perspective, all sudden and exogenous events have to be studied as they impact FW. CF research suggests the use of some treatments to improve the skills and then the level of FW. These treatments must consider the role of family and school, the intertemporal nature of FW, and the consumer's involvement. TS research suggests taking into account the role of the client, who contributes to the creation of the financial service, and his/her disadvantaged position in relation to the financial institution. Moreover, TS research highlights the role of sustainability in the relationship between the financial institution and the client. Finally, each of the three areas of research pays attention to some defined vulnerable groups of individuals from an FW perspective.

The obtained results may be useful also for financial institutions and policymakers.

Financial institutions select a mix of financial services to meet their business objectives, without taking into account the FW of an individual who is simultaneously a patient for SW research, a consumer for CF research and a customer for TS research. However, the economic landscape has profoundly changed under the pressure of FinTech companies (FSB 2019, KPMG 2019). FinTech companies often use information technologies to improve the customer experience. If the purchase of

financial services becomes a journey with the assistance of information technology, it is possible to think about adding FW insights. It seems a positive-sum game as the buying of a financial service provides new value both for the patient/consumer/customer (a measurement of the level of FW and a tip to increase financial resilience) and for the financial intermediary (the sale of the financial service and a desirable increase in customer's loyalty).

For policymakers who wish to enhance the financial capabilities of their citizens, for instance, to enable them to make appropriate financial decisions in the context of financial goals or financial difficulties, it is essential to tailor financial education programs to the specific characteristics of the target group, for example, students rather than retirees.

In summary, the findings suggest three main directions for future FW research: (i) an analysis of countries that are currently less studied from an FW perspective to increase sensitivity to this fundamental aspect of life; (ii) further analysis of the link between FW and other domains of well-being, between FW and its antecedents, between FW and treatments targeted at children and young people, between FW and sustainability; (iii) a tailored approach to analyzing the resilience of vulnerable groups, as the users of a financial service participate in the creation of the service itself, i.e. co-create it. In this context, the financial institution/fintech company can contribute to the sustainability of the relationship and to achieving higher levels of FW.

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