

Frugal Business Models in the Post-Covid-19 Latin American Context: An Integrative Literature Review

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Abstract: The vast majority of studies on Frugal Innovations (FIs) focus primarily on China and India, particularly in relation to consumers at the base of the pyramid (BoP). However, scholars in the field argue that Latin America presents a distinct and complex BoP, offering a culturally, socioeconomically, and geographically rich perspective for examining FI beyond the Asian context. This study aims to explore the contributions of FIs and identify existing gaps within the Latin American context, while also discussing frugal business models and the influence of the post-Covid-19 environment. To achieve this, an integrative review of the scientific literature was conducted using the SpringerLink, Scopus, and ScienceDirect databases, resulting in a portfolio of 43 selected articles. The findings were supported by data from official sources such as the Economic Commission for Latin America and the Caribbean (ECLAC) and the Red Latinoamericana de Innovación Frugal (RELIF). The analysis revealed that, although FIs contribute to sustainable development and support millions of people in vulnerable situations, the topic remains under-researched and underfunded in Latin America.

Keywords: Frugal Innovation. Latin America. Post-COVID-19.

1. INTRODUÇÃO

Frugal Innovations (FIs) are simple, robust, and affordable products developed through the creative use of limited resources to deliver value and quality to target customers, especially those at the base of the pyramid (BoP) (Agarwal et al., 2021). Often emerging in response to institutional voids and unmet social needs, FIs address gaps in resource-constrained environments. In such contexts, frugal entrepreneurs harness local knowledge, social networks, and appropriate technologies to create inclusive and sustainable solutions (Shahid et al., 2024).

Researchers argue that Frugal Innovations (FIs) hold strong potential for promoting sustainable development (SD), as they inherently incorporate economic, social, and environmental concerns. According to the Brundtland Report (1987), sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." In this sense, FIs emerge as a viable response to these needs, especially in contexts marked by scarcity and vulnerability (Hossain, 2021).

FIs often thrive in environments where "making do" with available resources becomes a creative necessity (Brem et al., 2020). Instead of offering temporary fixes, they deliver affordable and context-sensitive solutions that maintain quality while addressing structural issues faced by low-income populations. Research increasingly focuses on BoP markets, where innovation under constraint is not only possible but necessary. While the field of frugal innovation is expanding, there are still significant knowledge gaps—particularly in understanding consumer behavior, business models, and marketing strategies tailored to BoP realities (Wimschneider et al., 2020; Uttam & Rahul, 2023). For example, studies show that BoP consumers often live with limited information, experience aspirational or compensatory consumption patterns, and face systemic constraints such as poor infrastructure or financial exclusion (Uttam & Rahul, 2023).

Latin America presents a rich and underexplored context for FI research. As highlighted by Wimschneider et al. (2020), the region's diverse socio-economic and environmental

challenges, ranging from urban pollution and ecosystem degradation to socio-spatial inequality, demand locally grounded innovations. FIs designed for this setting can simultaneously address human needs and reduce environmental pressures (Leal Filho et al., 2021; Fregolente et al., 2023).

According to Levänen et al. (2022), it is important to recognize that economic growth in the Global South generates greater opportunities for consumption, but this increased demand for new goods tends to worsen global sustainability challenges. In this context, Frugal Innovation (FI) emerges as a strategic alternative for companies to reformulate their business models, address social sustainability issues, and remain financially viable at the same time. Therefore, developing business models aimed at the base of the pyramid (BoP), while aligned with sustainable development principles, is essential. These sustainable models should consider not only the economic value generated but also the social and environmental impacts created for customers and other stakeholders (Levänen et al., 2022).

This debate becomes even more relevant in light of the consequences of the COVID-19 pandemic, whose effects continue to leave deep marks on society and the global economy. Although all income levels and regions were affected, studies such as those by Topcu (2022) and Rubinstein et al. (2023) emphasize that Latin America was one of the most severely impacted regions, both in health and socioeconomic terms. The combination of strict lockdown measures, GDP losses, and rising poverty made recovery especially challenging. The pandemic exposed and deepened pre-existing inequalities: informal workers, women, and low-education populations were among the most affected, facing increased food insecurity, unemployment, and digital exclusion (Rubinstein et al., 2023; Martínez-Martínez et al., 2024). This scenario is urgent to rethink innovative strategies and business models. FI, by proposing accessible, resilient solutions adapted to scarcity contexts, represents a promising path to expand social inclusion, generate shared value, and meet the emerging demands of a post-pandemic world.

To answer the question "how can FI and its business models contribute in the post-COVID-19 Latin American context?", an integrative review of the literature and analysis of the theme were carried out in the post-pandemic context. Based on the evidence located in the scientific literature, the study aimed to understand the effects of FI in a population that historically have a complex socioeconomic context.

2. LITERATURE REVIEW

The literature review will explore topics that are relevant to support the research question and objective.

2.1 Latin America in the post-Covid-19 context: impacts on the economy and income generation

Considering the context of Latin America becomes relevant preliminary due to the aspect of spatial and cultural division, i.e., North-America and South America, since the term "Latin America" refers to two coupled ideas; On the one hand we have the territorial division between the center of the Americas and South America, and on the other, the language derived from Latin, that is, Spanish and Portuguese, which are the predominant languages (Bruit, 2000). In addition to these assumptions, Latin America has historically been marked by socio-spatial, socioeconomic and socio-environmental disparities among the countries that comprise it.

The COVID-19 pandemic intensified these preexisting vulnerabilities, creating a complex landscape for entrepreneurship in the region. As pointed out by Oliveira and Emídio (2021), Latin America faced not only public health challenges but also disruptions to urban infrastructure, economic activity, and demographic dynamics. These impacts resonate with the

broader global patterns observed by Lwesya and Mwakasangula (2023), who highlighted that the pandemic significantly affected small businesses, prompting rapid shifts toward digital innovation, resilience, and adaptive business models. However, in Latin America, these shifts occurred in environments characterized by high informality, inequality, and institutional fragility — elements that demand further attention in post-pandemic entrepreneurship research (Grassi et al., 2021; Montoya et al., 2021; Vera Espinoza et al., 2021).

From this perspective, not only do cities become the scenario of transformation for an improvement of the present, but also of the future, since the dynamics promoted by Covid-19 are still a reality today that challenges the various contexts of cities (Grassi et al., 2021) and the migratory process derived from the precariousness nature of the experience within them (Vera Espinoza et al., 2021). As a result of the pandemic, these challenges have come into prominence focusing attention and rethinking around the management of cities, metrics and guidelines for the most sustainable development (that was already underway under the 2030 agenda) as well as the impacts suffered on a region's economy (Oliveira & Emídio, 2021).

It is important to emphasize that there are still very few effective studies on the economy of post-Covid-19 Latin America, since its adaptation to this step change remains ongoing in the countries of this region. However, some elements should be taken into account, such as changing the way credit access is managed, the way income between genders is divided, and the use of new technologies to improve the economic conditioning of certain Latin American countries (Kazemikhasragh & Buoni Pineda, 2022).

In the view of Bianchi (2022), Latin America is an ecosystem and, therefore, an economy that can affect several other economies, whether internal or external within a territorial and cultural division. As a result, Bianchi (2022) demonstrated through a study on Latin America that the service sector, especially in small service provider companies, did not suffer a very severe impact. Therefore, this outcome has become an object of studies favoring strategies for other types of companies to adapt to the context of the pandemic and post-pandemic situation.

However, an existing aspect that remains a prominent obstacle in the context of Latin America today is the informality in jobs. The Covid-19 pandemic further exposed this latent aspect as one that has a severe impact on people's stability (Holland & Hummel, 2022). One answer to this problem would be adequate social support that not only assists this most vulnerable group but also becomes a vector of socioeconomic transformation by distributing incomes in favor of informal and unemployed workers (Cruz-Martinez, 2022; Holland & Hummel, 2022). In the Brazilian context, Tupy (2023) argues that the pandemic aggravated the structural weaknesses of labor informality, revealing the lack of social protection mechanisms. Beyond economic exclusion, informality also represents a form of resistance and survival for millions. Therefore, inclusive policies are needed, recognizing informality as a structural expression of inequality.

In addition, it is necessary to emphasize that income generation is a powerful engine for improving the economy of countries and, for there to be better income distribution, it is necessary to resize spending, resources and revenues from taxes and the (re)prioritization of spending in areas and/or unproductive sectors towards productive ones (Cruz-Martinez, 2022). In addition to these ideas, the need to promote gender equality is added, this being a dividing point in the economic improvement of Latin American countries when promoting greater income and employability policies evenly between genders (Medina-Hernández et al., 2021). Complementing this discussion, Martínez-Martínez et al. (2024) analyzed post-Covid labor markets in nine Latin American countries and found an average increase in formalization, although persistent inequalities remain. Notably, the increase occurred within sectors, rather than across them, and women continue to face more vulnerability, especially in countries such as Peru and Ecuador, where declines in formal employment were recorded.

Another vector relevant to the socioeconomic and socio-environmental spheres is the issue of the health crisis that has plagued the world. Emphatically, Latin America has evidence of the dependent nature among exclusion/inclusion practices in the region that directly impacted effective access to social and economic rights of migrants (Vera Espinoza et al., 2021). In addition, broader policies have been revised for this new scenario arising from the Covid-19 pandemic, i.e., such as the emergency financial policies implemented by the IMF and the World Bank to help Latin American countries deal with this crisis (Bohoslavsky & Rulli, 2021). Rubinstein et al. (2023) reinforce this multidimensional impact by demonstrating how stricter policies in response to the pandemic helped reduce deaths but deepened economic losses and poverty in Latin America and the Caribbean. Informal and low-income workers were the most affected, due to their limited ability to comply with containment measures and their pre-existing vulnerabilities. The study calls for balanced and integrated policy approaches that consider structural inequalities and the trade-offs between saving lives and preserving livelihoods.

In view of all this discussion, instead of focusing only on the emergency response and management of a specific crisis, the pandemic-induced lesson of Covid-19 provide us with an opportunity to learn more about the resilience of society, cities and economic aspects of each region (Montoya et al., 2021). Thus, it is necessary to create more resilient systems that are able to respond to future pandemics or other major public health problems and, undoubtedly, the post-pandemic may be more sustainable if urban systems incorporate new instruments, new forms of adaptation and make the most of the current crisis (Montoya et al., 2021).

In this perspective, the data presented by the Economic Commission for Latin America and the Caribbean, CEPAL (in 2021 and 2022), not only corroborates the discussion presented so far, but also ratify the duty to think and promote resilience for the present and future of the Latin-American scenario. According to CEPAL, Latin America and the Caribbean in 2021 failed to reverse the adverse effects of the pandemic (CEPAL, 2021) and will slow its growth to 2.1% in 2022 in the context of important asymmetries between the developed and emerging countries (CEPAL, 2022).

Depending on the data presented by CEPAL, some notes echo that it is a duty of countries to adopt certain measures of prevention and resilience. In this perspective, the post Covid-19 recovery in Latin America requires a shared responsibility, global solidarity, urgent and immediate cooperation and structural transformations to allow deeper regional integration (Gonzalez-Perez et al., 2021). According to Gonzalez-Perez et al. (2021), the most appropriate methodological path for a new adaptation or economic restructuring of this region is through integration.

It is perhaps necessary to understand that the current scenario comes from a large-scale structural unpreparedness attributed to a deficient economic, social and environmental planning that has been difficult to cope with in the context of Latin America (Garcia et al., 2020). It is also important to emphasize that the process of economic improvement, income creation and distribution are reflections of more efficient, more egalitarian social, economic and management policies that are necessarily consistent with the demands existing in each region (Garcia et al., 2020; Kazemikhasragh & Buoni Pineda, 2022; Medina-Hernández et al., 2021).

Therefore, the relevance of financial education on coping with socioeconomic setbacks (Kazemikhasragh & Buoni Pineda, 2022), such as that caused by the Covid-19 pandemic, is highlighted. In addition, new business models become the driving force for the future, adapting to the new post-Covid-19 "normal", mainly to promote livelihoods, income distribution, improvement of communities and enabling cities to be resilient and sustainable spaces (Bianchi, 2022; Gonzalez-Perez et al., 2021; Suárez et al., 2021).

2.2 Frugal Innovation in Latin America in the Post-Covid-19 Context

As pointed out by Demssie et al. (2019), humanity faces several challenges, with climate change and social problems, such as poverty, being the main issues. Several scholars and international organizations such as the United Nations recognize the need to address these problems (Demssie et al., 2019). According to Antúnez-de-Mayolo (2012), the World Bank stressed the importance of making markets work for the poor and the need to prioritize those in poverty and vulnerability to contribute to this process more actively.

The World Resources Institute (WRI) conducted a study with the International Finance Corporation to better understand the size and aggregate purchasing power of the BoP. This research identified almost four billion people in the BoP throughout Africa, Asia, Eastern Europe, including Latin America and the Caribbean (Molina-Maturano et al., 2020). According to Demssie et al. (2019), the BoP context refers to socioeconomic characteristics in developing countries, such as low income, large rural populations, and limited infrastructure. Molina-Maturano et al. (2020) highlight that these groups survive on 2 to 8 US dollars per day.

Frugal Innovations (FIs) have emerged as a feasible approach to meet the needs of these vulnerable populations. Molina-Maturano et al. (2020) note that FIs are gaining attention among companies, policymakers, and researchers, especially in the health, ICT, and energy sectors, predominantly in India. Latin America and the water sector remain underexplored. According to Fregolente and Carvalho (2023), Latin American FIs are increasingly viewed as grassroots alternatives to reduce social inequalities, especially through environmentally sustainable solutions in marginalized contexts.

The Latin American context, as Castro-Arroyave and Duque-Paz (2020) explain, is marked by deep social inequalities and weak state involvement in addressing basic needs, such as food, shelter, health care, and sanitation. Mexico, despite showing leadership in social entrepreneurship and catalytic innovation, still lacks studies on FIs. This may reflect conceptual differences around the term (Molina-Maturano et al., 2020). In a documentary study on health innovation, Castro-Arroyave and Duque-Paz (2020) found that frugal health innovations were rarely mentioned, yet aligned with social innovation goals, especially regarding cost-benefit for BoP consumers.

In Brazil, FIs targeting waste pickers showed strong social impact: using recycled materials, ergonomic equipment reduced costs by 60% and increased income by 20% (Brem et al., 2020). Wimschneider et al. (2020) emphasized that cost-effectiveness and ease of use are key attributes of FIs, though low cost is not a universal requirement. In Colombia, Cuevas-Vargas and Parga-Montoya (2021) demonstrated that FIs partially mediate the relationship between ICT adoption and customer satisfaction in SMEs.

Universities also play a key role. Reina et al. (2021) and Fischer et al. (2021) stress that university-industry collaboration helps disseminate FIs by enabling knowledge exchange, marketing strategies, and production scale-up. Fischer et al. (2021), analyzing Unicamp, underscore that entrepreneurial universities drive FIs through internal capacities, innovation ecosystems, and institutional structures, though longitudinal studies are still needed.

During the Covid-19 pandemic, FIs became especially relevant. Berndt, Gomes & Borini (2024) highlight that small firms in Brazil responded creatively to institutional voids by adopting frugal digital strategies and leveraging community-based actions to survive and adapt. Shahid et al. (2024) reinforce that frugal entrepreneurship during the crisis bridged resource gaps through “constructive cobbling”, the adaptive use of local, low-cost materials to develop inclusive and sustainable solutions. These actions often arose from socially engaged entrepreneurs operating in weak institutional environments.

Moreover, Uttam and Rahul (2024) show that consumer behavior in BoP markets changed significantly during the pandemic, becoming more receptive to simple, accessible, and

culturally sensitive solutions. Their review stresses that policymakers and businesses must consider the psychological, social, and financial vulnerabilities of BoP consumers to ensure adoption of FIs and avoid deepening exclusion through inappropriate strategies.

Finally, Latin American efforts such as the Latin American Network for Frugal Innovation (RELIF) demonstrate growing institutional engagement with FIs, especially in Jesuit universities. RELIF aims to promote socio-environmental justice through interdisciplinary, scalable, and locally optimized solutions (Relif, 2022). Despite these efforts, Wimschneider et al. (2020) highlight that research on FIs in Latin America remains fragmented, with a predominance of qualitative case studies. Broader and more systematic studies are needed to fully understand the development and potential of FIs in the region.

3. METHODS

Taking into account the fundamental issue of the research and its interdisciplinary and integrative particularities, it was necessary to articulate methods that would enable the correlation of the themes, terms and objects studied. Thus, in articulating the triad that composes this research, i.e., frugal business model (object) post-Covid-19 (moment) Latin America (context), the present study was structured around an integrative literature review.

According to Souza et al. (2010), the integrative review process is considered a more comprehensive methodological approach, allowing the inclusion of experimental and non-experimental studies in order to fully understand the phenomenon being analyzed. The authors also include that the integrative review combines data from the theoretical and empirical literature and has a wide range of purposes such as: a) Definition of concepts; b) Review of theories and evidence; and c) Analysis of methodological problems of a given topic.

Thus, a survey of the scientific literature in springerlink, sciencedirect and scopus databases was carried out with the objective of analyzing what already exists in the scientific literature on FI and frugal business models in Latin America. It should be noted that the three databases are widely used in the scientific environment, including highly qualified studies in the applied social sciences. SpringerLink is known for providing researchers with access to millions of scientific documents from journals, books, series, protocols and annuals (Springer, 2022).

The Scopus database comprises peer-reviewed abstracts and citations of literature, including scientific journals, books, and conference annuals. The foundation provides a comprehensive overview of the production of world research in the areas of science, technology, medicine, social sciences and arts and humanities (Elsevier, 2020). ScienceDirect is considered one of Elsevier's most important platforms for peer-reviewed academic literature, containing a collection of more than 2,500 journals and more than 40,000 book titles (Elsevier, 2022).

In addition to the selected articles, also included are the analysis of documents from the Economic Commission for Latin America and the Caribbean (ECLAC) and the Red Latinoamericana de Innovación Frugal (RELIF), in order to further understand the Latin American context regarding economic issues and research on FI. It is emphasized that the Covid-19 pandemic has left a deep mark on both in the social health and the economy meaning that this study was carried out from a post-Covid-19 perspective.

In order to carry out this research and to contemplate all aspects necessary for the discussion of the theme, 3 groups of terms were elaborated. Firstly, the analysis regarding FI, frugal business models in Latin America, the group of terms used was "*frugal innovation*" AND ("*Latin America*" OR "*Latin countries*"). To carry out the construction of the discussions that permeate the post-COVID-19 economic scenario in Latin America, the following terms "*economic impact*" AND "*Latin America*" AND "*COVID-19*" were used. Finally, to

contemplate the discussion on Frugal Innovation and COVID-19, the terms used were "*Frugal innovation*" AND *COVID-19*.

Figure 1 exemplifies the method used to search the articles in the databases.

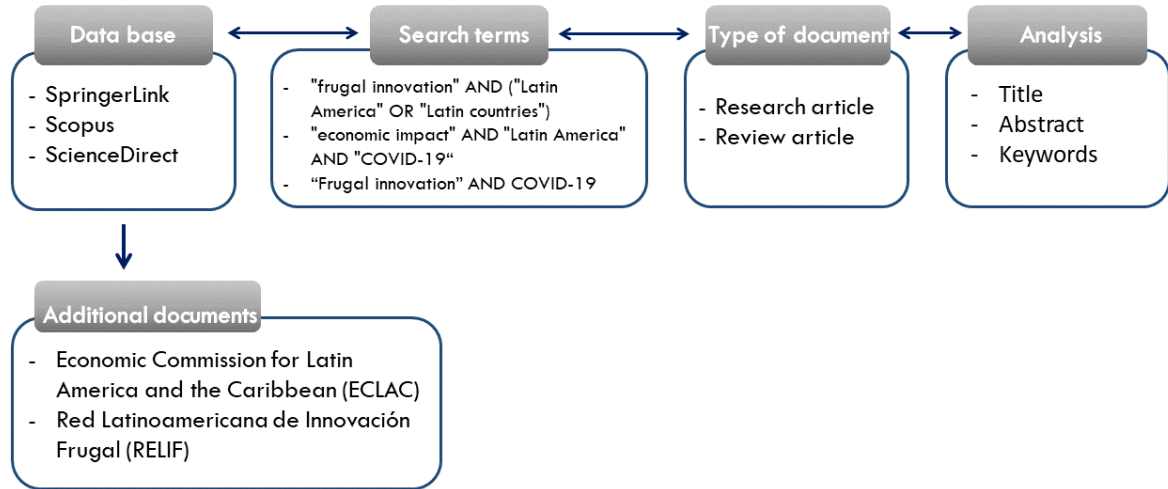


Figure 1. Method used to review the literature. Source: authors, 2025.

According to Figure 1, in addition to the databases and groups of terms, the inclusion of the time cut from 2019 to 2025 was used for the selection of articles for the composition of the portfolio. Thus, the inclusion and exclusion criteria used comprised the reading of the title, abstract and keywords and selecting only the articles that were compatible with the research theme. The complementary documents contributed to the dialogue between scientific research and government agencies.

Finally, the following topics were organized: a) "2. Literature Review", including the following topics: 2.1 Latin America in the post-Covid-19 context - impacts on the economy and income generation and 2.2 FI in the Context of Latin America; (b) "4. Discussion of the results, including here the topics 4.1 Presentation of results; 4.2 FI, frugal business models and their contributions to the post-Covid-19 scenario; and c) "4.3 Evidence and Gaps".

4. RESULTS AND DISCUSSIONS

4.1 Presentation of results

When searching the 3 groups of terms, a total of 3,213 documents were returned from the databases. With the application of the filters "document type" and "time clipping", this reduced to 1,541 articles. Table 1 shows a comparison between the results of the databases containing the application of the filters.

Table 1 - Comparison between the results of the databases containing the application of the filters.

Termos	SpringerLink	Scopus	ScienceDirect
"frugal innovation" AND ("Latin America" OR "Latin countries")	13	5	62
"economic impact" AND "Latin America" AND "COVID-19"	345	26	838

“Frugal innovation” AND COVID-19	98	23	131
Total	456	54	1.031

Source: authors, 2025.

After the analysis of titles, abstracts and keywords, 114 articles were selected for reading. By reading the articles in full, it was possible to make some analyses of the information and contents they presented. In total, 43 articles were used and of these 23 studies were directly related to Latin America in general or were related to a specific Latin American country such as Brazil, Mexico and Colombia. It should also be noted that 17 articles contributed to the writings on the item "2.1 Latin America in the post-Covid-19 context - impacts on the economy and income generation", 12 contributed to the writings on the item "2.2 Frugal innovation in the context of Latin America" and, finally, 14 articles contributed to the item 4.2.

Table 2 details the 17 articles used in item "2.1 Latin America in the post-Covid-19 context - impacts on the economy and income generation" containing information such as title, authors, year, country and research area.

Table 2 - Information of the articles that comprised item 2.1 of the analysis portfolio.

Título	Autor/Ano	Países	Área da pesquisa
COVID-19 Response in Latin America	Garcia et al. (2020)	Peru, Chile, Brazil, Argentina, México, Costa Rica, Colombia and USA	Health
“The Great Equalizer”? The Long-Term Effects of the Covid-19 Pandemic on Poverty, Inequality, and the 2030 Agenda in Latin America	Oliveira and Emídio (2021)	Brazil	Economic
Pandemic impact on air pollution and mobility in a Latin American medium-size city	Grassi et al. (2021)	Argentina	Polymeric materials; Environmental Science
Conclusions: Covid-19 and Cities: Experiences from Latin American and Asian Pacific Cities	Montoya et al. (2021)	México e Chile	Architecture; Social Science
Towards a typology of social protection for migrants and refugees in Latin America during the Covid-19 pandemic	Vera Espinoza et al. (2021)	UK and Uruguay	Society; Health
Gender inequality in latin america: A multidimensional analysis based on eclac indicators	Medina-Hernández et al. (2021)	Spain and Colombia	Health; Basic Sciences
Bretton Woods’ Pandemic Policies: A Gender Equality Analysis—Perspectives from Latin America	Bohoslavsky and Rulli (2021)	Argentina	Social Science
Covid-19, sustainable development challenges of Latin America and the Caribbean, and the potential engines for an SDGs-based recovery	Gonzalez-Perez et al. (2021)	Colombia and Sweden	Management; Business
A systemic perspective for understanding digital transformation in higher education: Overview and subregional context in latin america as evidence	Suárez et al. (2021)	Spain and Chile	Business; Communication; Education
Financial inclusion and education: An empirical study of financial inclusion in the face of the pandemic emergency due to Covid-19 in Latin America and the Caribbean	Kazemikhasragh and Buoni Pineda (2022)	Italy	Management; Economy

Viewpoint: a transformative view for small service firms in the new Latin American service marketplace	Bianchi (2022)	Chile	Business
Informalities: An Index Approach to Informal Work and Its Consequences	Holland and Hummel (2022)	USA	Political Science
Universal Social Pensions Are Unaffordable ... Not! Testing the Unaffordability Hypothesis in Latin America and the Caribbean	Cruz-Martinez (2022)	Spain	Management; Economy
A scientometric analysis of entrepreneurship research in the age of COVID-19 pandemic.	Lwesya and Mwakasangula (2023).	Tanzania	Business
Resilient regions in Brazil: unfolding the effects of COVID-19 from a socioeconomic perspective	Tupy et al (2023).	Brazil	Economy, Health
Labor markets during COVID-19: gaps and challenges in Latin America.	Martínez-Martínez et al (2024)	Mexico, Ecuador	Management; Economy
Lives Versus Livelihoods: The Epidemiological, Social, And Economic Impact Of COVID-19 In Latin America And The Caribbean	Rubinstein et al (2024)	Argentina.	Economy; Health

Fonte: autores, 2025

The articles that compose Table 2 corroborated the understanding and analysis of the context of Latin American countries in the post-Covid-19 scenario in the literature review including here the use of data from the Economic Commission for Latin America and the Caribbean (ECLAC). Table 3 details the 12 articles that contributed to the writings on the item "2.2 Frugal innovation in the context of Latin America".

Table 3 - Information of the 12 articles that comprised item 2.2 of the analysis portfolio.

Título	Autor/Ano	Países	Área da pesquisa
Think outside the European box: Identifying sustainability competencies for a base of the pyramid context	Demssie et al. (2019)	Netherlands and Ethiopia	Management; Education
Documentary research on social innovation in health in Latin America	Castro-Arroyave and Duque-Paz (2020)	Colombia	Health
How to design and construct an innovative frugal product? An empirical examination of a frugal new product development process	Brem et al. (2020)	Germany, Denmark and Brazil	Business and Economy; Business; Management
Frugal innovation for the BoP in Brazil - An analysis and comparison with Asian lead markets	Wimschneider et al. (2020)	Germany and Denmark	Business; Economy
Understanding and evaluating the sustainability of frugal water innovations in México: An exploratory case study	Molina-Maturano et al. (2020)	Belgium and Germany	Economy; Management
Emergence and Scale-up of Frugal Innovations: The Relevance of University-Industry Interaction	Reina et al. (2021)	Brazil	Technological Innovation; Psychology; Regional Planning
How ICT usage affect frugal innovation in Mexican small firms. The mediating role of entrepreneurial orientation	Cuevas-Vargas and Parga-Montoya (2021)	Mexico	
Knowledge transfer for frugal innovation: where do entrepreneurial universities stand?	Fischer et al. (2021)	Brazil, Russia, Chile, UK and Spain	Applied Sciences

Exploring BoP Generations through Business Model Innovation Lens: A Review and Framing	Fregolente and Carvalho (2023)	Brazil	Business; Economy
Exploring the antecedents of frugal innovation and operational performance: the role of organizational learning capability and entrepreneurial orientation	Berndt, Gomes and Borini (2024)	Brazil	Business; Economy
Consumer behavior from the lens of Bottom of the Pyramid: literature review and future agenda.	Uttam and Rahul (2023).	India	Business; Economy
Frugal entrepreneurship: A way to seize business opportunities for low-income customers.	Shahid, Hossain, Karami, Anwar (2024).	Qatar, Pakistan, New Zealand	Business

Source: authors, 2025.

The articles that compose Table 3 corroborated the understanding and analysis of the context of Frugal Innovation in Latin America in the literature review, observing here the gaps pointed out by the researchers on the scarcity of research on the subject. Finally, Table 4 details the 14 articles that contributed to writings on the item 4.2.

Table 4 - Information of the 14 articles that comprised item 4.2 of the analysis portfolio.

Título	Autor/Ano	Países	Área da pesquisa
Constraint-Based Thinking: A Structured Approach for Developing Frugal Innovations	Agarwal et al. (2021)	Germany and Denmark	Business; Economy
Mapping sustainability initiatives in higher education institutions in Latin America	Filho et al. (2021)	UK, Brazil, Guatemala, Portugal, Colombia and México	Environmental Science; Production Engineering; Civil and Environmental Science; Business
Frugal innovation and sustainable business models	Hossain (2021)	Qatar	Business
Frugal Entrepreneurship: Profiting With Inclusive Growth	Hossain, M., & Sarkar, S. (2021)	Qatar	Business
Breaking the chain: Governmental frugal innovation in Kerala to combat the Covid-19 pandemic	Sarkar (2021)	Portugal and USA	Management
Pandemics and marketing: insights, impacts, and research opportunities	Das et al. (2021).	India and USA	Management; Business
Managing resource-constrained innovation in emerging markets: Perspectives from a business model	Sharmelly and Ray (2021)	USA and Australia	Management
Frugal innovation in the midst of societal and operational pressures	Levänen et al. (2022)	Finland, Qatar and Netherlands	Sustainability Science; Business; Economy; Management
Sustainability meets agile: Using Scrum to develop frugal innovations	Endres et al. (2022)	Germany	Management
Doing more with less - How frugal innovations can contribute to improving healthcare systems	Sarkar and Mateus (2022a)	Portugal	Management; Science and Technology
Value creation using minimal resources – A meta-synthesis of frugal innovation	Sarkar and Mateus (2022b)	Portugal	Management; Science and Technology; Economy; Business
Frugal innovations: A multidisciplinary review & agenda for future research	Dabić et al. (2022)	Croatia, Slovenia,	Economy; Business

Key capabilities for frugal innovation in developed economies: insights into the current transition towards sustainability	López-Sánchez and Vijande (2022)	Portugal, UK and USA Spain	Economy; Business Sciences
Universities and social innovation for global sustainable development as seen from the south.	Arocena, R., & Sutz, J. (2021)	Uruguay	Innovation; Economy

Source: authors, 2025

The articles that compose Table 4 corroborated the understanding and analysis of the context FI, frugal business models and how these can contribute to the post-Covid-19 scenario, including here the use of data from Red Latinoamerica de Innovación Frugal (RELIF). When analyzing the collaboration of Latin American countries in this research, 28 collaborations were counted which were in partnership between Latin American countries or European and North American countries. In relation to the countries that participated in the most studies, Brazil stands out with six collaborations followed by Colombia and Chile with five and Mexico with four. Regarding the area of the authors' research, management and economics were the predominant areas. Regarding the partnerships with other countries that are not part of the context of Latin America, Germany, Denmark and Spain stood out with a greater number of collaborations.

When using the VOSviewer software (software for the construction and visualization of bibliometric networks), the co-occurrence of words that were repeated among the analyzed articles was examined. Thus, the terms were recognized in two groups: 1) Analysis of the terms with the articles on FI, business models, Latin America and Covid-19; and 2) Analysis of the terms with the articles on economic impact in Latin America and Covid-19. The first group is represented visually in Figure 2.

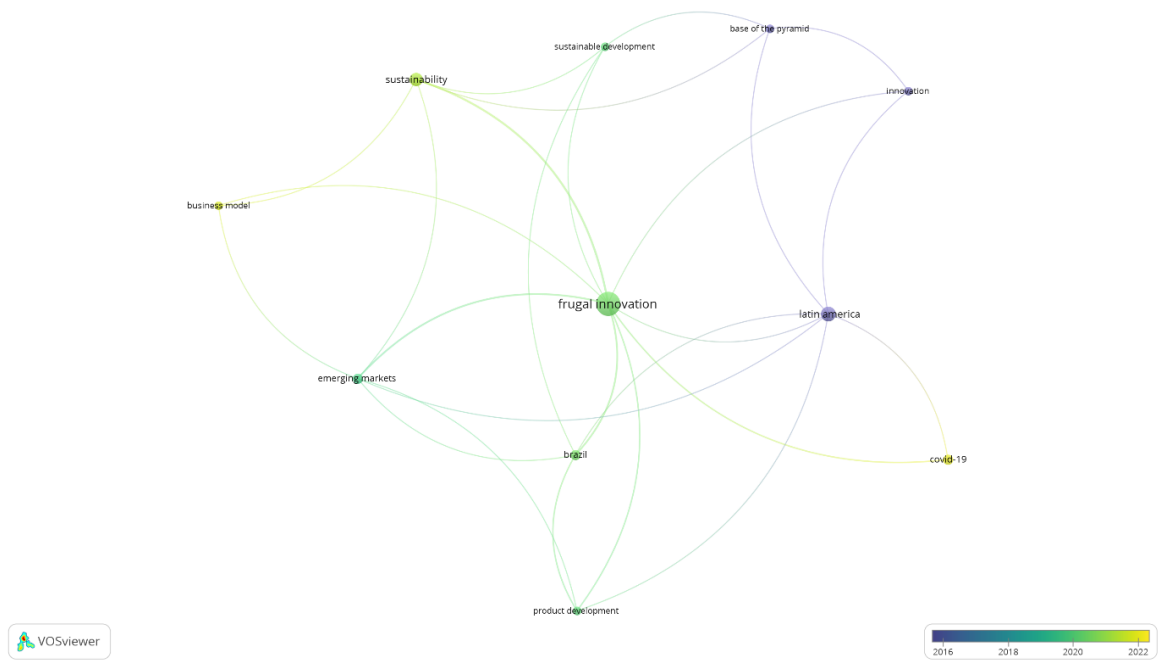


Figure 2. Analysis of the first group of terms: FI, business models, Latin America and COVID-19. Source: authors, 2025

In the first group, it is possible to observe that the most evident cluster of discussion was about FI, comparing the central axis of discussion of the present study. Then, its connectivity

with the terms "Latin America" is observed, being the second largest cluster that, later, links with the subjects "emerging markets", "sustainability", "business models" and "Covid-19". It should be noted that, even with work from countries such as Mexico and Colombia, Brazil has the highest number of co-occurrences. Finally, it is also observed that the FI theme appears with a greater number of publications referring to Latin America and Covid-19, from 2020. With regard to Group 2, Figure 3 shows the relationship of co-occurrence between the terms.

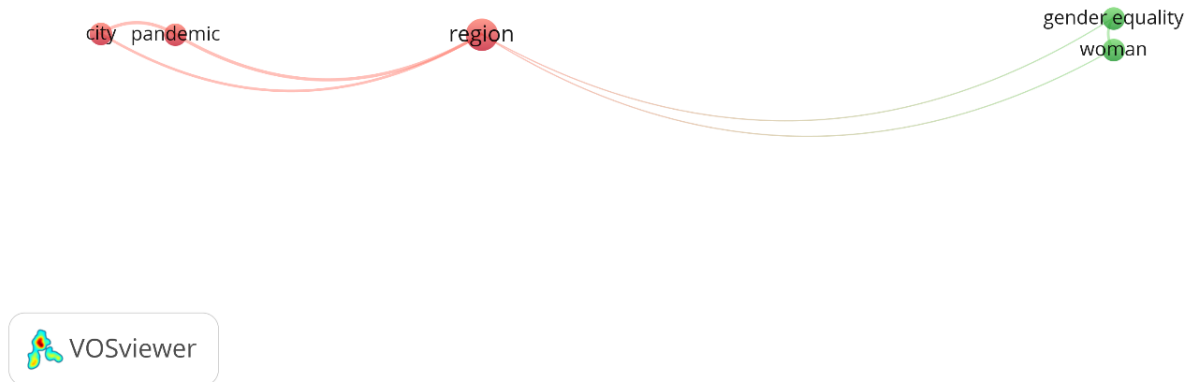


Figure 3. Analysis of the second group of terms: economic impact in Latin America and COVID-19. Source: authors, 2025.

According to Figure 3, it is possible to observe the dynamics of words that occur most frequently among the selected articles from the metadata entered in the VOSviewer Software. Thus, it was verified that the five most found terms, "city", "pandemic", "region", "gender equality", and "woman" are potent vectors in discussions involving the economic moment experienced by Latin American countries in the context of the pandemic.

4.2 Discussion of results

According to Hossain (2021), FI has emerged as a new way to serve low-income consumers in developing countries and mentions that sustainable business models are an emerging topic in business discourse. Consequently, FI can be considered an effective way to serve low-income customers in a more sustainable way.

In relation to the Covid-19 pandemic and FI, Levänen et al. (2022) raised some observations from their research noting with importance that FIs generally aim to solve problems that other companies ignore. Emerging threats such as the Covid-19 pandemic highlight the importance of seeking sustainability with frugal characteristics. Thus, entrepreneurs need a capacity to create a market and an understanding about business development. In practice, it is believed that new products or services help solve long-term problems such as poverty and inequality as well as countering the effects of emerging threats such as the Covid-19 pandemic or other disasters.

For Endres et al. (2022), the Covid-19 pandemic has strongly impacted societies and economies around the world, causing several consequences: blockades, strict measures of social distancing, closure of social and entertainment establishments, quarantines, government interventions, among others. In this way, the pandemic has become an economic threat to many unprepared companies. Thus, the authors note that, according to the correlation between economic recession and disputed innovation in the existing literature, FI seems to be a highly relevant concept of innovation in the current pandemic and for the development of new products, ventures and learning.

In the research conducted by Sarkar (2021) on government FI in Kerala to combat the Covid-19 pandemic, some relevant factors were identified. First, the study revealed that it was

possible to combat Covid-19 in a frugal way, as well as the importance of the role of governance introduced in the context of FI, because governments in partnership with knowledge intermediaries and startups can provide effective solutions. It should also be noted that the results pointed to the importance of the role of information technologies in FI.

In another study conducted by Sarkar and Mateus (2022), when referring to the health area, they showed that the development of FIs proved to be an important contributor in coping with the Covid-19 pandemic and that, consequently, stimulated the interest of academics and professionals. Through their research, it was noted that a health crisis such as the pandemic was an almost automatic motivator to get involved and deepen more the knowledge and use of FIs. Through the context experienced by the Covid-19 pandemic, it was possible to have the opportunity to observe and seek health solutions with a new vision and understand that doing "more with less" may be the answer we seek to solve some of the problems of inefficiencies and accessibility (Sarkar & Mateus, 2022b).

According to Dabić et al. (2022), frugal innovation has captivated the attention of countless people for its ability to reduce complexity and production costs, along with its relevance in addressing major challenges such as global warming, poverty, healthcare and the Covid-19 pandemic. For Das et al. (2021) it is possible to highlight three main reasons that generate greater frugality during the pandemics: i) The economic contraction; (ii) financial scarcity due to adverse effects on employment; and c) The associated uncertainty and the perception of loss of control leading to risk aversion. According to the researchers, frugal customers, being aware of both value and price, tend to buy and consume less.

Sharmelly and Ray (2021) through their research on resource-constrained innovation management in emerging markets, noted that studies on FIs are no longer confined to meeting only the needs of economies in developing and emerging countries, but also meet the needs of the developed markets too. In particular, this issue was verified in the context of the Covid-19 pandemic, due to economic losses worldwide. It has been identified that with this global crisis, frugal products and services will become increasingly useful to economically advanced nations when post-pandemic financial constraints are high and customers around the world will increasingly want to spend less (Sharmelly & Ray, 2021).

According to López-Sánchez e Vijande (2022) FI has become a reference solution for resource-scarcity environments, including the context of the Covid-19 pandemic that has strengthened this situation. The authors also comment that researchers in the area of FI highlight four characteristics of low-cost markets: i) Accessibility: because it is a low-income population, people have little chance of saving money for large investments; (ii) availability: FI may require distribution channels to experience substantial modifications, such as a distribution system enabling them to buy frequently and with low volume; iii) Acceptability: comes from innovative thinking and a deep understanding of the local needs of low-income consumers; and iv) Awareness: lack of information in the lives of low-income consumers can be considered a major challenge (López-Sánchez & Santos-Vijande, 2022).

Arocena and Sutz (2021) conducted research on the contribution of universities to studies on social innovation for global sustainable development, specifically to the global South. In addition to noting the importance of the dialogue between university-society, these authors comment that if inclusive innovation is not frugal, it will not support Sustainable Development and, in the longer or the long term, it will not be inclusive either. Therefore, if FI is not inclusive, it will not support Human Development.

Thus, it is concluded that there is a need to expand research on frugal business models when considering developing countries, including those of Latin America, as well as the transforming role of the university and its research for sustainable, economic and social development. Figure 4 summarizes the list of findings on FI, frugal business models, Covid-19 pandemic in the context of Latin America.

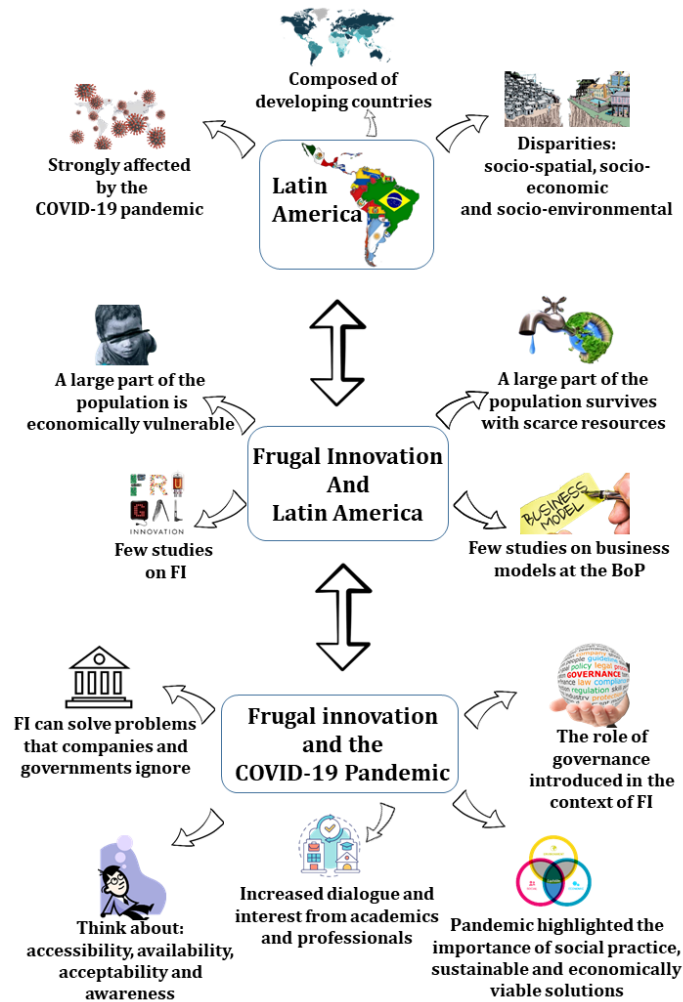


Figure 4. Synthesis of findings on Frugal Innovation, frugal business models, Covid-19 pandemic in the context of Latin America. Source: authors, 2025.

From Figure 4, it is possible to observe the long journey that still needs to be made in academic research and the involvement of companies, government and society as a whole in the Latin American context. Research on FI is still considered recent in the scientific literature, although they have been part of the social and survival context of many people for thousands of years. However, it is extremely important to note that FIs, as a means to achieve sustainable development and the effective creation of business models, are not exclusive for developing countries, but also applicable for developed countries as well.

4.3 Evidence and Gaps

The research presented in this article brings important contributions to theory and practice of FI. In view of the 43 direct articles and 11 supportive documents identified and examined, it was evident that the theme of FI has not yet achieved a stage of maturity that offers a specific model for business. Essentially, the work demonstrates the relevance that this integrative survey has with the themes inherent to FI, especially by the context addressed in Latin America (underdeveloped).

This view is further supported by researcher Ebolor et al. (2022) who note that research on FI is still in embryonic stage with several research gaps. Further to this, Wimschneider et al. (2020) pointed out that research on FI (including here its branches as business models,

contribution to sustainable development, among others), in both theory and practice, is concentrated on Asia, mainly China and India.

Latin America provides a culturally, socioeconomically and geographically interesting perspective by examining the dimensions of FI and studying it is a point of great relevance (Wimschneider et al., 2020). Fischer et al. (2021) also mentioned their limitations, pointing out that the analysis of strategic management practices for IF requires an evolutionary perspective. Therefore, it was observed that studies that explicitly consider FI in the Latin American context are scarce, both regarding theoretical and practical issues. Thus, the research presented here suggests empirical and non-empirical research studies, qualitative, quantitative and mixed studies, among other approaches that prioritize studies on FI and the potential of frugal business models for the sustainable development of the Latin American region are important areas for future research.

5. FINAL CONSIDERATIONS

When analyzing the 43 research articles, it was observed that there is a scarcity of studies on FI and Latin America. It should be noted that some specific studies from Latin American countries such as Brazil, Mexico and Colombia have been found, but this is not enough to understand the entire context of the population at the BoP and the FIs in Latin America.

Latin America presents diverse social, environmental and economic contexts, with numerous historical problems and latent challenges, which have been accentuated with the Covid-19 pandemic to become a current challenge that overtakes other aspects of the historical challenges in this region. Thus, FIs can be a solution for coping with various difficulties of the population at the BoP. However, the participation of the governments, corporations and universities need to be rethought to become more than just an academic act-in-mind in this context of the problem.

Regardless of the global locality, FIs are a relatively recent discussion in the scientific literature and are a focus of study to be further explored. Opinions differ on FIs where some scholars see them as palliative solutions to very profound problems that should be solved in other ways. For other researchers, FIs contribute to emerging needs and even to sustainable development, thus suggesting that innovations are not only for emerging and developing countries, but a new way of thinking, producing and doing things in developed countries too.

Consequently, some research has already shown that rethinking business models through FI can be a path that contributes significantly to sustainable development. After all, products and services within the context of FI are a way of valuing the creative use of resources available in a region, produces affordable solutions and can contribute to the income of the local population. In this sense, FI collaborates with social and economic development as well as mitigating the negative environmental impacts.

The present study highlights the need for advancing research on FIs both in the Latin American context and in other locations globally. It should be emphasized that each region has its cultural, historical, geographical and economic particularities and that they must be respected and explored in order to contribute to the development of the population and also the thinking about the pillars of sustainability. Finally, it should be observed that the context of the Covid-19 pandemic has affected and still affects numerous regions around the world to greater and lesser degrees.

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